The Corporate Governance Endgame – An Economic Analysis of Minority Squeeze-out Regulation in Germany

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Abstract

This paper examines minority squeeze-outs and their regulation in Germany, a country where majority shareholders have extensively used this tool since its introduction in 2002. Using unique data on court rulings and compensations, we analyze a sample of 324 squeeze-outs of publicly listed companies from 2002 to 2011. Large firms with foreign large shareholders are the most likely to be delisted. Positive stock price performance increases the likelihood of a squeeze-out, but operating performance has the opposite effect. Stock prices react positively to squeeze-out announcements, in particular when the squeeze-out does not follow a previous takeover offer. Nearly all squeeze-outs are legally challenged by minority shareholders, either with an action of avoidance or with an appraisal procedure (or both). We find that additional cash compensation is larger in appraisal procedures, but actions of avoidance are completed in less time and offer higher annualized returns. Overall, our evidence suggests that challenging the cash compensation offered in a squeeze-out delivers high returns for minority investors, net of opportunity costs.

\textit{JEL classification:} G14, G34, G38, K22

\textit{Keywords:} Corporate Governance, Investor protection, Event studies, Squeeze-outs, Germany.

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Abstract

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1. Introduction

According to Shleifer and Vishny (1997) corporate governance “*deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment*”. Following this definition, squeeze-outs are *corporate governance endgames*: If minority shareholders do not get an appropriate return on their investment when being forced out of the company, they will never have a second chance to get a return again unless the legal system provides them with procedures to contest the squeeze-out offer. Using an unique hand-collected data set for German squeeze-outs, we analyze the economic rationale and the determinants of a squeeze-out offer. Squeeze-out offers also allow us to examine whether and how often minority investors use the legal procedures designed to protect them to eventually challenge the controlling shareholder’s offer, and if the proposed remedies actually work.

To facilitate delistings of publicly listed companies, particularly after acquisitions, national legislations in Europe give controlling shareholders who acquired a large fraction of the equity capital the right to acquire the remaining outstanding shares.¹ As the European Commission states “*the aim of the squeeze out rule is to force minorities out of the company liberating the bidder from costs and risks which the continued existence of minorities could trigger*”.² The squeeze-out rule lowers the cost of completing an acquisition, thus making takeovers more attractive. While a squeeze-out rule minimizes the risks that a few small shareholders unwilling to accept the initial offer may block an efficient takeover, it also gives

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¹ At the time of the “Report on the implementation of the Directive on Takeover Bids” prepared by the European Commission (EC) in February 2007, all EU countries had a so-called *squeeze-out* rule already in place or they were introducing it in their legislations. Many countries introduced squeeze-out rules to implement the Directive on Takeover Bids (Directive 2004/25/EC of the European Parliament and of the Council of 21 April 2004 on takeover bids).

rise to a situation where the majority shareholder can take unfair advantage of minority shareholders (Thomson and Thomas, 2004). In fact, once the bidder has obtained control of the target company, it can offer a very low price to buy out the remaining shareholders, who are powerless to stop the transaction.\(^3\) As argued by Maug (2006), there is a trade-off between fairness—the rights of minority shareholders to a fair distribution of the takeover gains—and efficiency of the takeover process—that is the maximization of firm value. To protect minority shareholders, the German legal system mostly relies on two different procedures: the appraisal procedure (*Spruchstellenverfahren* in German), which is a request to verify the fairness of the cash compensation offered; and the action of avoidance (*Anfechtungsklage*). Differently from the action of avoidance, the appraisal procedure is only aimed at challenging the compensation offered to minority shareholders and does not block the delisting of the target company.

German majority shareholders have made an extensive use of squeeze-out offers since the introduction in 2002 of the new squeeze-out rule. In fact, 106 delistings following a squeeze-out took place in Germany only in 2002, and an additional 52 in 2003, suggesting that the new rule was certainly welcome by controlling shareholders in order to delist their companies from the Stock Exchange. Thanks to a unique hand-collected dataset provided by the German *Schutzgemeinschaft der Kapitalanleger* (“SdK – the independent association of shareholders and investors”), we are able to create a sample of 324 squeeze-outs of publicly listed companies from 2002 to 2011 to carry out the first detailed analysis of the squeeze-out procedure. As of October 2011, 252 squeeze outs have been challenged in courts by actions of avoidance (25), appraisal procedures (128), or both (99). At the time of the squeeze-out offer,

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\(^3\) Trading liquidity issues worsen this situation: the lack of liquidity may prevent minority shareholders from selling their shares in the open market at a fair price.
controlling shareholders owned on average 97.14% of the company’s equity capital, well above the threshold required to force a squeeze-out. A significant amount of money is at stake in these transactions: the Euro value of the minority ownership stakes at the squeeze-out announcement is about €7.7 billion, with a few deals where the value of the minority stake is in excess of €500 million.

We start our analysis examining the determinants of the squeeze-out decision. We find that large firms controlled by large shareholders are the most likely to be delisted. We also note that a positive stock price performance increases the likelihood of a squeeze-out, but operating performance has the opposite effect. German owners are more reluctant than foreigners to use the squeeze-out procedure. The squeeze-out announcement is generally well received by investors: stock prices of target firms in squeeze-out offers increase by about 10% in the five-day interval [-2, +2] around the announcement of the squeeze-out proposal, similar to what found by Daske (2010). The four-week bid premium is around 9%, and this magnitude is comparable to the few previous studies on squeeze-outs in other countries (Bates and Lemmon, 2006 for the US; Atanasov et al., 2010, for Bulgaria).4

For the subsample of challenged squeeze-out offers, we find that the initial cash compensation is on average increased by 35.04% when the challenge is completed. Courts usually award a larger compensation in appraisal procedures (48.26%) than in actions of avoidance (13.54%). However, these numbers fail to take into account the length of the procedures, which is remarkably different. The appraisal procedure is on average longer than the action of avoidance (9 months vs. 43 months). When we account for the length of the two procedures, which is remarkably different. The appraisal procedure is on average longer than the action of avoidance (9 months vs. 43 months). When we account for the length of the two

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4Atanasov et al. (2010) is the only other large-scale empirical study on European squeeze-outs, but the focus of their analysis on tunneling in Bulgarian privatized firms is completely different from ours.
procedures, we find the action of avoidance is the procedure that generates the largest total annualized returns (33.21% vs. 16.63% for appraisal procedures). While appraisal procedures reward the plaintiffs with larger changes in compensation, they take an extremely long time to be settled. On the other hand, actions of avoidance take just a few months to achieve the outcome. This advantage in terms of annualized returns of the actions of avoidance is confirmed also when we consider the that challenging the original cash compensation with an action of avoidance implies that minority investors do not immediately receive the cash compensation. Overall, our evidence suggests that challenging the cash compensation offers very high returns, even when we consider opportunity costs. The magnitude and economic significance of the annualized returns certainly explains why the majority of squeeze-outs are contested. To put it another way, minority investors are always better off challenging the cash compensation.

We also study the importance of the identity of the controlling shareholders that initiate squeeze-outs. As argued in the literature (Demsetz and Lehn, 1985, Holderness and Sheehan, 1988; Cronqvist and Fahlenbrach, 2009), controlling shareholders have different incentives depending on their types, which can translate into differences in their behavior: an owner-manager of a family firm trying to buy out minority investors in a listed subsidiary may be more willing than a professional manager that runs a widely held company to make a large initial offer to avoid dealing with minority shareholders. We find evidence consistent with this hypothesis in our univariate analysis, which shows that minority shareholders are better off
when the firm’s ultimate owner is a family and when the owner is German.\textsuperscript{5} However, these findings are not confirmed in multivariate tests.

Our paper contributes to the growing literature on M&A litigation, which has previously focused exclusively on the US (Jarrell, 1985; Thomson and Thomas, 2004; Armour and Skeel, 2007; Subramanian, 2007; Coates, 2009; Armour, Black and Cheffins, 2007; and Krishnan et al., 2012). In particular, our paper adds to the literature performing the first in-depth analysis of the current squeeze-out procedures in a large EU country - Germany. Using a brand-new hand-collected database of squeeze-outs with unique and non-public data, we offer new insights on this procedure taking into account the minority investors’ point of view and firms’ strategies. An ancillary, but no less significant, result of our study concerns the identity of the firm’s ultimate owner, which turns out less important than in previous studies (Cronqvist and Fahlenbrach, 2009). Finally, our paper also adds to the literature that studies specific legal rules at country level (for example, Atanasov et al., 2010; Carvalhal-da-Silva and Subramanyam, 2007).

The rest of the paper proceeds as follows. Section 2 reviews the institutional background, describing the introduction of the squeeze-out rule in Germany and the procedures that minority investors can use to protect their interests. Section 3 presents the sample, and the data sources used in the analysis. Section 4 studies the determinants of the squeeze-out decision. Section 5 summarizes the results of the empirical analysis of the squeeze

\textsuperscript{5} An explanation that partially explains the difference in abnormal returns around the acquisition announcements between German and non-German ultimate owners is that many squeeze-outs where the owner is a non-German (company or individual) follow a takeover. After a takeover, stock prices have already incorporated part of the reaction before the squeeze-out announcement.
out announcements and premia, and provides interpretation of these findings. Section 6 investigates whether litigation pays off, and Section 7 concludes.

2. Institutional Background

2.1 Introduction of the squeeze-out rule

Before the introduction of the squeeze-out rule in 2002, the exclusion of minority shareholders in Germany was difficult and could be carried out only with considerable additional efforts. Some squeeze-out-like forms of exclusion are anchored into German law, and are still valid, but have lost their importance in practice. In addition to these exclusion procedures, according to Vetter (2002), majority shareholders made repeated attempts to make the participation of minority shareholders so unattractive that they would voluntarily decide to sell their shares to the majority shareholder.

As of 1 January 2002, in Germany, a major shareholder who owns at least 95% of the capital of a company, can request the exclusion of the other shareholders of the Company in exchange for the payment of a reasonable cash compensation through a Squeeze-out according to §§ 327 of the German Stock Corporation Law (Aktiengesetz, or AktG).

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6 These exclusion procedures are: Inclusion of a corporation; merger of a subsidiary; transfer liquidation; request for delisting or change of legal form. Both the request for delisting and the request for change of legal form require the submission of a tender offer to the outstanding shareholders because the shares lose their listing. However differently from a squeeze-out offer, a forcible exclusion of minority shareholders in these two variants is not possible. See Vetter (2002) for a description of the exclusion procedures.

7 See Vetter (2002), Gehling et al. (2007), commentaries of the German Stock Corporation Law (Grunewald 2004), and the Umwandlungsgesetz (Kallmeyer 2001).

8 Since the squeeze-out rule is part of the Stock Corporation Act (AktG) and not of the Takeover Act, squeeze-out offers do not have to follow previous public takeover offers like in other European countries. Since 2006, a new procedure that applies solely after takeover has also been introduced (übernahmerechtlicher Squeeze-out).
The amount of the cash compensation offered is set by the majority shareholder. This offer is usually based on a valuation report commissioned by an accounting firm on behalf of the main shareholder. The latter is required to justify the appropriateness of the cash compensation offered in a written report to the general meeting (GM). The offer of cash compensation also has to be approved by an independent auditor, who shall be selected and appointed by a competent court. However, it is customary that the auditor will be appointed based on a proposal by the main shareholder and that the preparation and audit of the valuation report will be conducted in parallel. Legal actions brought up by minority shareholders against such practice regularly failed before the German courts.9

The general meeting decides by a simple majority vote cast on the transfer of shares formerly held by minority shareholders. As the main shareholder has the majority of votes at the GM and as the squeeze-out is carried out at his request, the adoption of the decision is in fact already a certainty in advance. The management board of the squeezed-out company has to notify the transfer decision through registration in the Commercial Register. According to § 327e para 3 AktG through registration of the transfer resolution all the shares of minority shareholders are legally transferred to the controlling shareholder. Issued share certificates—up to their delivery—securitize only the entitlement to the cash compensation.

Any minority shareholder affected by the squeeze-out may (i) request nullification or (ii) annulment of the transfer decision of the general meeting through an action of avoidance (Anfechtungsklage); and (iii) can check the appropriateness of the amount of cash compensation offered in court under a so-called judicial appraisal procedure.

(Spruchstellenverfahren). A nullification is justified only if there have been serious errors made in the decision process, the action for an annulment has to be directed against other legal faults during the transfer resolution.

If a sole shareholder requests in time an action of avoidance, the registration of the transfer resolution in the commercial register is delayed considerably. As a consequence, registration is only possible when the action is finally dismissed, or withdrawn from the minority shareholder, or termination of proceedings was made possible by a court. To overcome the registry ban, the ARUG law, enacted in 2009, provides for an expedited approval process.\textsuperscript{10}

The 	extit{appraisal procedure} to review the adequacy of the cash compensation can be used only after the end of the squeeze-out proceedings and thus have no suspensive effect. The appraisal procedure is therefore a kind of 	extit{post-deal-completion litigation}, i.e., litigation filed 	extit{after} the offer outcome (Krishnan et al., 2012). The amount of the cash payment in accordance with § 327b, para 1 AktG, must take into account the situation of the company at the time of the GM decision. The appraisal procedure went through several legislative changes after the introduction of the squeeze out in 2002. The most important change was the Appraisal Procedure Law (SpruchG), enacted on 1\textsuperscript{st} September 2003, which was aimed at promoting a higher efficiency of the procedure.\textsuperscript{11} With this new law, the legislator also pursued the goal of reducing appraisal procedures by enabling improved processes. A key change was to introduce a duty to give reasons to challenge the compensation. Previously it was possible that a minority shareholder could initiate an appraisal procedure by just claiming a too low compensation. The

\textsuperscript{10} The ARUG law introduced the Freigabeverfahren, the expedit approval process, according to § 246a AktG.

\textsuperscript{11} Before September 1, 2003, the rules concerning the appraisal procedure were dispersed in several acts.
law also introduced a joint representative for minority shareholders who have not applied themselves to the initiation of the appraisal procedure.

Following the transfer resolution, the shares have no more upside price potential. According to § 327b, para 2 AktG, from the registration date of the share transfer resolution in the commercial register on, minority shareholders are only entitled to an interest payment. Until September 2009, this interest payment was 2% above the base interest rate according to § 247 of the Civil Code. Since September 2009, the interest payment has been increased to 5% above the base interest rate, as a response to critiques from minorities.\(^\text{12}\)

Minority shareholders receive the cash compensation immediately after the registration in the commercial register if there is no challenge. The cash compensation is also received immediately after the registration in case of an appraisal procedure. In this case, minority shareholders will eventually receive the additional cash compensation plus the interests on the additional cash compensation after the appraisal procedure is settled. The action of avoidance does not allow the registration in the commercial register, thus, shareholders do not receive the cash compensation immediately after the squeeze-out. They have to wait until the end of the action of avoidance. After the ruling on the action of avoidance, minority shareholders also receive the change in the cash compensation, if awarded by the judge, and the interests on this additional cash compensation.

### 2.2 Practice of annulment and legal challenge

According to Gehling et al. (2007), who performed a study for the German Share Institute DAI, the rate of challenged squeeze-out transactions has steadily increased from 20% in 2002 to 96% in 2006. Thus, an unchallenged registration of the transfer resolution in the commercial register is rather the exception than the rule. Gehling et al. (2007) investigate the termination of proceedings for annulment and appeal procedures for all transactions announced until November 2005, the year of the enactment of the UMAG law. They show that more than 80% of procedures were settled. Similarly to the evidence documented by Krishnan et al. (2012) for US squeeze-outs, in almost all cases, the settlement has been achieved by increasing the cash compensation. In these procedures were, on average, 15 plaintiffs involved, during an average procedure time of about 9 months.

Another survey conducted by the DAI shows that, on average, 5.8 claims were brought up in court against the GM resolution. At the same time, 4.5 third parties who were involved in several legal challenges against squeeze-out companies are co-participating on the side in each court challenge (so-called “Nebenintervention”). By order of 18 June 2007 (Decision II ZB 23/06) the Federal Court has established a separate cost risk for a “Nebenintervention” in nullity and appeal procedures.

2.3 Comparative Discussion of Squeeze-out Regulations in Germany and the US

For the forced exclusion of minority shareholders by the majority shareholder in the United States, stock corporation laws offer a variety of procedures; dissolution, sale of assets, reverse

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13 The UMAG (the corporate integrity and modernization of the right of avoidance) law has introduced a rule that is the German equivalent of the business judgment rule applied in the US. It has also introduced a derivative action in the common law sense, allowing shareholder lawsuits against board members.
stock split, and merger are available. In the United States, a *long-form cash-out merger* or a tender offer followed by a *short-form merger* are the predominant freeze-out transactions.\(^{14}\)

In a *long-form merger*, the merger has to be negotiated by the board of directors and adopted by the Board of Directors of both companies (*plan of merger*). Subsequently, the shareholders of both companies have to approve the plan of merger. Depending on the state, a simple majority (e.g., Delaware, California) or a qualified 2/3-majority (New York) is required. For the *short-form merger*, due to the concentration of share ownership, an agreement of the two shareholders meetings is not required. This simplified version is possible if the acquiring company already holds an ownership of 90%. As Subramanian (2007) points out, two-thirds of freeze-outs in the United States between June 2001 and April 2005 were executed through a long-form statutory merger. Due to differences in bargaining power, Subramanian (2007) finds strong empirical evidence that controlling shareholders pay more in statutory merger freeze-outs than in tender offer followed by a short-form merger. Thompson and Thomas (2004) find that the most common acquisition litigation cases involve claims that a controlling shareholder violated its fiduciary duties to minority shareholders (about 31% of the acquisition complaints in their sample) when they initiated a merger or other fundamental corporate change, such as a tender offer or various two-step transitions. In these cases, Thompson and Thomas (2004) report that allegations are that a majority shareholder holding more than 50% of the company’s voting rights is using majority power to cash out the minority at an unfair price, or through unfair dealings.

\(^{14}\) For further information see Weiss (2003).
A merger alone would not lead to the exclusion of minority shareholders. The key step is to adjust the conditions of the merger so that the minority shareholders will not receive shares in the newly merged company. The payment of cash compensation (cash-out merger) has therefore become the main instrument of exclusion of minority shareholders.

Weiss (2003) contends that under European laws cash-out mergers are usually not allowed. Although mergers can be used to force a going private, under German law minority shareholders receive shares of the remaining entity. German company law in connection with mergers constitutes two possible interventions in the rights of shareholders as owners. While the Eingliederung (inclusion) into another company implies the loss of shareholder status in the included stock corporation, it regularly leads to ownership of shares in the including entity. In a Verschmelzung (fusion) the minority shareholders of the acquired firm receive shareholder status in the merged entity. In both cases, a business valuation appraisal procedure for both the integrated target as well as for the acquiring company has to be performed.

According to Ventoruzzo (2010), the principal way of European firms to go private is a mandatory or voluntary tender offer on all the outstanding shares based on the Article 15 of the EU Takeover Directive. In implementing the Takeover Directive, the national jurisdictions had some choices; for example, the right of the blockholder to buy out minorities can be conditioned upon acquiring at least a stake of 90% or 95% in the capital of the target ("single threshold" option) or to 90% of the voting capital and 90% of the shares comprised in the offer ("majority of the minority" option).

In sum, the squeeze-out procedure in the EU countries can be interpreted as a special cash-out procedure under very restrictive conditions related to ownership concentration. After
receiving that stake, the squeeze-out procedure can start after a formal decision of the general meeting of all the shareholders.

3. Sample and Data

After the introduction of the squeeze-out rule in 2002, several delistings following a squeeze-out took place in Germany. We obtain the lists of firms that underwent a squeeze-out procedure from the Schutzgemeinschaft der Kapitalanleger E.V. (henceforth SdK), the German Association for the Protection of Investors. Starting from these annual lists, we create a complete sample of squeeze-outs of publicly listed companies from 2002 to 2011. The annual lists report the cash compensation offered in the squeeze-out (or squeeze-out offer price) and the date of the general meeting in which the squeeze-out has to be voted upon. Our final sample comprises 324 squeeze-outs.

We also obtain unique information about appraisal procedures and actions of avoidance from SdK, which provides reliable data on squeeze out litigation in Germany. The information we obtain from SdK concerns rulings and the additional cash compensation, if any, awarded by the courts to minority investors. These data refer to legal cases concerning squeeze-outs where SdK was participating as a plaintiff and terminated before October 2011. The data provided by SdK allow us to avoid the problem observed by Coates (2009), who questions the completeness of Thomson Financial’s SDC M&A database when it comes to information on M&A litigation.

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15 SdK is an independent association of shareholders and investors founded in 1959, whose aim is the protection of minority shareholders as well as the promotion and further development of equity culture and investor protection. 
16 Coates (2009) relies on Thomson Financial’s SDC M&A database and, because of that, he cautions that his results should be treated carefully.
Table 1 presents a breakdown of squeeze-outs by year of the general meeting, with the number of appraisal procedures and actions of avoidance initiated in that year.

Table 1 shows that several large shareholders took advantage of the new regulation as soon as it was introduced in the German legislation. In fact, while a few firms even with a 99% shareholders remain listed,\textsuperscript{17} 106 firms were delisted following a squeeze-out in 2002, the first year this rule was available, and 52 followed in 2003. The introduction of the squeeze-out rule greatly simplified the procedure to take a listed company private in Germany (Vetter, 2002). The number of squeeze-outs stabilized around 24-26 in the period 2004 to 2007, and dropped to an average of 17 during the period 2008 to 2011, probably because of the financial crisis.

Panel A documents that the percentage of shares held by the owner is on average well above 95% (97.14%), but in the last sample years this percentage is lower (around 96% in 2010-11) than in the first years after the introduction of the rule. This trend is consistent with the view that initially squeeze-outs were used by long-time shareholders who own all but a few shares in the firms to finally delist their companies from the stock market.\textsuperscript{18} Similarly to the evidence provided in Gehling et al. (2007), the number of squeeze-outs challenged by minority shareholders is almost equal to the number of squeeze-outs after 2004, and even in 2002 and 2003, the percentage of squeeze-outs challenged is remarkably high. The high number of litigations we find in German squeeze-outs is also consistent with Thomson and Thomas (2004)

\textsuperscript{17} A well-known case of a company that has not been squeezed out is Audi AG, the German carmaker. Even if Volkswagen AG has owned more than 99% of the shares of since 1966 (99.55% in 2012), Audi AG is still publicly listed.

\textsuperscript{18} In fact, in a few cases, the controlling shareholder launched the squeeze-out holding more than 99.9% of the shares.
and Krishnan et al. (2012), who document more litigation in controlling shareholders’ squeeze-outs than in regular M&A transactions in the US.\footnote{\textit{It is to note that Thomson and Thomas (2004) and Krishnan et al. (2012), in line with the US literature, define a controlling squeeze out as an offer where a bidder had a toehold of 50\% or more in the target firm before the announcement date.}}

Minority shareholders are very unlikely to have their request blocked (1 case) or even to have an unsuccessful outcome for their challenge (32 cases), where an unsuccessful challenge is defined as a challenge that do not result in a higher settlement price. Krishnan et al. (2012) also find that, in the US, the lawsuit settlement rate as well as the proportion of settled lawsuits with cash settlements are higher for lawsuits challenging squeeze-outs compared to other types of M&A offers, due to the more plaintiff-friendly legal regime that applies in controlling shareholder squeeze-out situations. Panel A also documents that sometimes these challenges take a long time to be settled, as the high number of ongoing procedures even for years 2002 and 2003 show. Finally, the challenges with unknown outcome are relatively few, attesting the quality and comprehensiveness of our data.

Panel B of Table 1 highlights a trend concerning the choice between the actions minority investors can take to protect themselves. Initially, minority investors preferred to challenge the compensation offered using appraisal procedures, but starting from 2005, they also started to use the more formal action of avoidance. This is not surprising in light of the new law of 2003, which introduced the duty to provide valid reasons to initiate an appraisal procedure. Overall, we have 227 appraisal procedures initiated in the period examined and 124 actions of
avoidance. We also find, in the last column of Panel B, that quite often both procedures are used by the shareholders—either at the same time or one after another.\textsuperscript{20}

Table 2 presents some additional descriptive statistics about our sample. Panel A shows that the amount of money at stake is not trivial at all. The average market capitalization of the target firms one week before the squeeze-out announcement is €1.29 billion (median 250 million). On aggregate, the equity stakes held by minority investors, and thus to be squeezed out, are worth more than €7.7 billion at the stock market price seven days before the announcement. We can interpret this value also as a lower bound for the cost of the squeeze-out. In fact, it is very unlikely that controlling shareholders will offer a cash compensation below the current market price. The average minority investors’ stake is worth about €35 million and the median value is €4.4 million. The sample includes very large squeeze-outs like Dresdner Bank (controlling shareholder: Allianz), Hoechst (Sanofi-Aventis), Schering (Bayer), and Bayerische Hypo-und Vereinsbank (UniCredito Italiano), where the minority investors’ stake was worth well in excess of 500 million Euros. For cases terminated before October 2011, Panel B of Table 2 confirms that the length of the procedures is quite different: appraisal procedures last much longer than actions of avoidance (on average, 43 months versus 8.6 months; medians: 33.5 months vs. 6 months).

[Please insert Table 2 about here]

In addition to the data provided by SdK, we collect information about the firm’s ownership structure before the squeeze-out. We use Hoppenstedt Aktienführer annual CD-ROMs from 2002 to 2010 to identify the controlling shareholder in each firm. In particular, we

\textsuperscript{20} When AA and AP are not launched at the same time, the appraisal procedure follows the action of avoidance.
verify the nationality (German vs. foreigner) and the type (family vs. non-family) of the ultimate owner. We also obtain from either Hoppenstedt Aktienführer or internet searches on the BaFin\textsuperscript{21} website (www.bafin.de) the percentage of shares held by the controlling shareholder at the time the squeeze-out was announced. By law, this percentage must be over 95% of the equity capital of the firm. We rely on Thomson One Banker’s M&A Database and internet searches to distinguish between squeeze-outs that followed takeovers and those that did not. We consider a squeeze-out induced by a takeover if it takes place less than three years after the initial takeover offer.\textsuperscript{22} We use Thomson One Banker’s M&A Database, Lexis-Nexis, and internet searches to retrieve the exact date on which the squeeze-out is announced. Stock prices and financial data are retrieved from Thomson Datastream and Worldscope databases.

As expected, in Panel C of Table 2 we find that families control several listed companies in Germany. We find that a family is the ultimate owner in 101 cases (32%) out of the 318 firms we were able to determine the ultimate owner financial institutions are the ultimate owner in 94 observations (30%), while widely-held firms, foundations, cooperatives, or employees, were the ultimate owners in the remaining 123 observations. We group these types of ultimate owners under the label “others” in the analysis.

More than half of the squeeze-outs are carried out by firms ultimately owned by foreigners (53%), while German ultimate owners account for about 47% of the observations.

\textsuperscript{21} BaFIN (Bundesanstalt für Finanzdienstleistungsaufsicht) is the German equivalent of the U.S. Securities & Exchange Commission.

\textsuperscript{22} Even if the squeeze-out procedure introduced in the Takeover Act in 2006 gives the bidder three months to request the squeeze-out after it exceeds the 95% threshold, we do not stop at the three-month deadline because 1) the more general squeeze-out procedure of the Stock Corporation Act does not have a time limit; 2) it is often reasonable to assume that the bidder will attempt to delist the target firm even if its ownership does not exceed 95% after the initial offer; and 3) sometimes bureaucratic and legal obstacles may delay the implementation of the full takeover for long periods.
This phenomenon is partially due to acquisitions by US and UK private equity groups, but it certainly signals that, at least in Germany, foreign ultimate owners prefer to delist the company rather than dealing with minority investors outside their home countries.

Finally, a control change transaction took place three years before the squeeze-out announcement only in 39% of the observations in our sample. This implies that, rather being the last step of an M&A transaction, as presumed by Maug (2006) and the European directive on takeovers, squeeze-outs are often the product of a change in the controlling owner’s strategy, which takes the decision to delist the company and force the minorities out. Non-German controlling shareholders are responsible for 85 of the 123 squeeze-outs following a takeover, confirming the fact that foreign acquirers are more likely than Germans to take advantage of the new squeeze-out rule. This result can also lead to conjecture that the squeeze-out regulation made Germany more attractive to foreign bidders.

4. Which firms are being squeezed-out?

We start our empirical analysis with the examination of the characteristics that make a firm a suitable candidate for a squeeze-out offer during the period 2002-2011. To this end, we collect data for the universe of all the German companies listed on Worldscope and whose ownership data are available from Hoppenstedt (2,076 firms).

To perform the analysis, we use a hazard rate model to study the determinants of a squeeze-out offer. Hazard rate models are common in studies that examine the probability of being taken over (Holmen and Nivorozhkin, 2007; Caprio et al., 2011) or the probability of

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23 For example, the acquisition of Celanese AG by Blackstone in December 2003.
becoming widely held (Helwege et al., 2007). The hazard function estimates show how the explanatory variables impact the probability of a squeeze-out event in a sample year, conditional on the firm not having already been squeezed-out in the previous year. As in Helwege et al. (2007), we use the Cox proportional hazard model, a semi-parametric approach that estimates the covariates that shift a baseline hazard function up or down.

The explanatory variables used in the models, all lagged with respect to the squeeze-out offer, are the following: Tobin’s Q; size; cash reserves; ROA; leverage; the stock price performance in the calendar year; the growth rate of the firm’s assets; the voting rights of the largest and second largest shareholders; dummies for family control, financial institution control; and a German dummy. We also include industry fixed effects in all the regressions.

Following Bates et al. (2006), we run several regressions with samples with different restrictions on the voting rights of the largest shareholder: 1) no restriction, i.e. the full sample; 2) the largest shareholder owns more than 25% of the voting rights; 3) the largest shareholder owns more than 50% of the voting rights; 4) the largest shareholder owns more than 75% of the voting rights; 5) the largest shareholder owns more than 90% of the voting rights; and, finally, 6) the largest shareholder owns more than 95% of the voting rights. Our choices are similar to the block sizes identified by Jenkinson and Ljungvist (2001), which are associated with different rights of minorities and the powers of the largest shareholder. A block of 25% or more gives veto powers on corporate charter amendments, supervisory board changes, and profit-transfer and control agreements. In the absence of other large shareholders, a 25% stake can provide substantial influence. A block of 50% or more gives management control of the company, but

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25 This survival analysis approach takes into account the sequential nature of the data and is able to handle censoring and to incorporate time-varying covariates.
the existence of a blocking minority with more than 25% of the votes may limit its discretion. A block of 75% (super-majority) or more gives the controlling party complete discretion in the supervisory board elections, profit-transfer and control agreements. A block of 90% or more severely restricts the residual rights of minority shareholders. Finally, 95% is the threshold that, once exceeded, allows the controlling shareholder to squeeze out minority investors.

Table 3 presents the estimates of a hazard rate model for the event of being squeezed-out over the full sample period 2002-2011.\(^2^6\) As expected, we find that the voting rights held by the largest shareholders positively affect the likelihood to receive a squeeze out, even when we restrict the sample to firms with shareholders owning more than 25% (Column II); 50% (Column III); and 75% (Column IV). However, in Column V (stakes larger than 90%); the coefficient for the voting rights of the largest shareholders takes a negative sign. This surprising result may be due to the fact that some German largest shareholders have owned very large stakes, often above 99% of the firm’s equity, for a while and they do not want to embark in a costly squeeze-out. The coefficient for the second largest blockholder is positive and significant in Columns I to III, but not when the largest shareholder owns more than 75% of the shares. This positive effect is consistent with the view that it is easier to negotiate the squeeze-out offer with a large blockholder than with dispersed investors. It is also consistent with the view that controlling

\(^{26}\) In an unreported analysis we run the same regressions but limited to the sample period 2002-2004, i.e. the period in which the majority of the squeeze outs took place. Results are remarkably similar to those presented in Table 3, suggesting that squeeze outs in the period immediately after the introduction of the rule and those in later periods share the same drivers. However, among the very few differences, ROA is no longer significant, and the coefficient of the second largest shareholder is also no longer significant.
shareholders are more likely to delist their companies when there is another large shareholder. In fact, this large shareholder may have enough incentives to monitor the controlling shareholder. While family control result in a higher propensity to squeeze-out the remaining shareholders only when we restrict the sample to observations where the controlling shareholders owns more than 90% of the votes (Column V), financial institutions tend to force minorities out of the company they control more frequently than other large shareholders, once they gain majority control (Columns III to V). The nationality of the controlling shareholder plays an important role. In fact, German ultimate owners are less prone to squeeze-out other shareholders, a result that is in line with the evidence of previous sections and the fact that the majority of squeeze outs in Germany concern firms whose ultimate parent is a foreigner. German controlling shareholders are more willing than foreigners to accept the costs of keeping the company listed and dealing with a few minority shareholders.

Size is positively associated with the likelihood of a squeeze out, with the only exception of the regressions with the sample restricted to the firms where the largest shareholder already had more than 95%. This finding is, at first, counterintuitive because it means that the largest companies are more likely to be delisted. However, these companies are also the firms with a more fragmented ownership structure, which implies that the controlling shareholder has to deal with a multitude of small investors. To avoid the risks associated with keeping a company with several investors listed on the stock exchange, the controlling shareholder may opt for the squeeze out. The coefficients for ROA and leverage are negative and significant. Firms with better stock price performance are more likely to be squeezed out. This finding, which implies that controlling shareholders are squeezing out the small investors at a high price, can be
partially explained with the stock purchases made by the same controlling shareholder in order to acquire control of the company or the threshold that allows the squeeze out.

Overall, this analysis allows us to identify some of the characteristics that increase the probability of a squeeze-out. Large firms controlled by foreign large shareholders, with reasonable debt levels, bad operating performance, but positive stock price performance are the most likely to be squeezed out.

5. Market Reaction around the Squeeze-out Announcement

5.1 Event study

The second step of our empirical analysis is to examine the market reaction around the squeeze-out announcement. Results of the standard event study analysis for the full sample are presented in Panel A of Table 4. We observe a significant increase in the stock price of the firms undergoing a squeeze-out. Over the five-day event window around the announcement, i.e. [-2, +2], the abnormal return using the standard market model is a positive 9.45%, indicating that the squeeze-out announcement is perceived as good news by the market. This positive reaction is similar to the one observed by Daske (2010), who finds abnormal returns in the range between 8.5% to 9.8% in the event window [-1, +1]. The abnormal returns we find are higher than the 7.7% documented by Croci and Petmezas (2010) for German increase-in-

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27 Since in the sample there are firms with multiple securities, the so-called dual-class-share (DCS) companies, we include only the main securities of DCS firms with stock prices available on Datastream in the event study analysis. Nothing changes if we include all the securities affected by the squeeze-out with stock prices available on Datastream in the analysis.

28 The limited number of shares that can trade freely of course may affect the result. To take into account the lack of liquidity that affects the securities involved in squeeze-outs bids, we also use the Dimson (1979) model with three lags and one lead to compute abnormal returns. Results are remarkably similar to those of the standard market model (for example 9.61% in the event window [-2, +2]. These unreported tables are available from the authors.
ownership acquisitions, i.e. acquisitions made by controlling shareholders to increase their stakes in a company.\textsuperscript{29} This comparison suggests that target firm’s CAR does not decrease monotonically with the controlling shareholder’s toehold.

The squeeze-out announcement is not anticipated by the market: abnormal returns in the period leading to the announcement, the event window [-30, -3], are negligible in magnitude and statistically not significant. When we expand the event window to the interval [-30, +30], we find that almost the entire market reaction is concentrated in the days immediately before and after the announcement.

[Please insert Table 4 about here]

Panel B of Table 4 shows the average abnormal returns computed with the standard market model according to the type of ultimate owner. As shown in the table, abnormal returns are higher when the ultimate owner is a family, especially over the long event window [-30, +30]. Panel C shows that minority shareholders gain more when the ultimate owner is German (on average 12.94% vs. 7.68%). However, only the median test is statistically significant over the event window [-30, +30]. As we discussed previously, many squeeze-outs initiated by non-German controlling shareholders follow takeover offers that took place in the previous three years. So, the stock price could react less because it has already incorporated the expectation of a squeeze-out. This conjecture is supported by the results in Panel D, showing that abnormal returns are significantly smaller when the squeeze-out takes place within 3 years of a takeover offer.

\textsuperscript{29} In Croci and Petmezas (2010), by sample construction, the stake of the controlling shareholder is always below 90%. So there is no overlap between the two samples.
In Table 5 we document the average premium offered by controlling shareholders to buy out minority investors. We compute the squeeze-out offer premium as the difference between the offer price and the stock market price scaled by the stock market price. We measure the premium four weeks, one week before the squeeze-out announcement, and at the time of the general meeting (GM) where the squeeze-out has to be voted upon. While four-weeks and one-week premia mirror abnormal returns as expected, the premium measured at the stock price value of the GM day is negative and statistically different from zero. This negative premium indicates that the stock market price incorporates the expectation of a higher final settlement price.

[Please insert Table 5 about here]

5.2 Multivariate evidence

Abnormal returns around acquisition announcements are known to be affected by several factors. To account for these factors, we present the estimation of multivariate regression models in Table 6. The dependent variables in the regressions are: the CARs in the event windows [-2, +2] and [-30, +30], the 4-week premium, the premium over the GM stock price, and the additional cash compensation awarded to minority investors (settlement premium) after a legal procedure, both relative to the stock price four weeks before the squeeze out announcement and the GM stock price. As explanatory variables we include the following variables: a dummy for firms whose ultimate owner is German (German); dummies for the type of ultimate owner (Family and Financial Institution); a dummy if a control change transaction took place in the three years preceding the squeeze-out (Takeover); the log of the market
capitalization of the firm (Size); and the fraction of equity owned by minority investors (Minority Shareholders). In Columns V to VIII, we add additional firm characteristics like Tobin’s Q, leverage, ROA, growth rate of assets, and cash reserves. Q-ratio is defined as the market value of equity plus total assets minus the book value of equity scaled by total assets. Leverage is defined as the ratio between the firm’s total debt and total assets. ROA, a measure of the firm’s operating performance, is EBITDA over total assets. Growth rate of assets is the annual growth rate of total assets. Finally, Cash reserves is cash and cash equivalents over total assets. Variables are winsorized at 2.5% and 97.5% to minimize the impact of outliers, measured at the end of the year before the squeeze-out.

Size is negatively related to CARs, a result that signal that abnormal returns decrease with the cost of the acquisition. A takeover in the three years preceding the squeeze-out offer impacts negatively on the abnormal returns at announcement, confirming the univariate evidence. When we control for firm characteristics, CARs are also negatively related to the value of the minority investors’ stake, consistent with the view that the cost of the squeeze-out affects returns. No variable is significant in the regression for the four-week premium. The premium offered relative to the stock price at the GM date is positively associated to the size and the percentage of equity held by minority shareholders, suggesting that the investors consider more likely an increase in the cash compensation of large firms and firms with more minority investors.

6. Cash Compensation after Litigation
6.1 Does litigation pay off?

In Section 5, we analyze the market reaction at the time of the squeeze-out announcement. However, as discussed previously, the initial cash compensation is often challenged through an appraisal procedure, an action of avoidance, or both. To determine how much minority shareholders, actually, receive for tendering their shares, in Table 7, we compute the final settlement premia. Final settlement premia are computed as the difference between the maximum between the final settlement price and the squeeze-out offer price and the firm’s stock price, scaled by the latter. The stock price is measured at three different dates: Four weeks before the announcement; one week before the announcement, and at the GM date.

The mean final settlement four-week premium for the full sample is 19.91%, which is significantly higher than the average premium of 8.85%, suggesting that challenges are indeed beneficial to minority shareholders. Compared to Table 5, Table 7 clearly shows that the challenges increase the settlement price, determining a gain for the minority shareholders. A similar increase is found by Krishnan et al. (2012), who show that in controlling shareholder squeeze-outs offers litigation increases the takeover premium from 34.80% to 46.83%. Table 6 also presents evidence for subsamples based on the type of ultimate owner (family, financial institution, others); nationality of the ultimate owner; and, finally, a control change transaction having taken place in the three years preceding the squeeze-out. The differences between these subsamples are not statistically significant.

[Please insert Table 7 about here]

To further investigate the profitability of these challenges, in Table 8, we compute the additional cash compensation that the courts award to minority shareholders when they
contest the initial cash compensation. We compute the additional cash compensation as the ratio between the increase in cash compensation awarded by the court, excluding legal interests, and the initial squeeze-out offer. The average additional cash compensation is about 35% of the original offer, certainly not a negligible amount. However, there exist differences between the procedures: The amount awarded to compensate minority investors is larger when claimants choose an appraisal procedure (48.26%) than when they try to have the squeeze-out avoided completely (13.54%), and the difference is statistically significant.

When we decompose the full sample on the basis of the type of the ultimate owner, we find a similar situation: courts award higher compensations to minority investors in appraisal procedures. We do not find evidence of differences in additional compensations between types of ultimate owners. Judges asked to rule on actions of avoidance do not favor the defendant if the ultimate owner is German. Additional cash compensations in appraisal procedures are larger when the squeeze out does not follow a takeover, but the difference is not statistically significant.

In Panel B of Table 8 we break down additional compensation by year of the general meeting. The change in cash compensation shows a decreasing trend throughout the sample period. In fact, litigation generates much higher returns in the years immediately after the introduction of the rule (2002-2004) than in later years. However, this decreasing trend is also due the changing nature of litigation. In fact, while in early years minority shareholders opted for the appraisal procedure, later they made a larger use of the action of avoidance, which delivers lower returns but is faster. Concerning the appraisal procedure, in an unreported

30 The difference in mean between the increase of appraisal procedure and action of avoidance is not statistically significant in the case of family firms.
analysis we find that returns for appraisal procedures started in the period before 1 Sept. 2003, when a new law that improved the appraisal procedure efficiency was enacted, are significantly higher than those for later appraisal procedures (with respect to the initial offer: 42.28% vs. 32.78%; with respect to the last offer: 42.13% vs. 21.38%). This suggests that the new law, together with an improved understanding of squeeze-out rules, induced controlling shareholders to increase their initial offers.\textsuperscript{31}

[Please insert Table 8 about here]

The previous results, however, do not take into account the fact that while appraisal procedures generate higher returns, they also last significantly longer than actions of avoidance. To address this problem, In Table 8, we compute the \textit{total annual returns} that minority shareholders obtain when they initiate a legal procedure to contest the cash compensation offered by the controlling shareholder, including the interest payment on additional cash compensation that the courts award to them. To do that, we annualize the return of \textit{investing} the cash payment in challenging the initial offer. We add the base interest rate plus 2\% (5\% since September 2009) to the annualized return to obtain the \textit{Total Annualized Return}.\textsuperscript{32} This is our measure of the total (percentage) gain obtained by minority investors if they decide to contest the initial payment offered by the controlling shareholder.

Table 9 shows (in the first three columns) the total returns for all challenged squeeze-outs, for appraisal procedures, and the actions of avoidance. Challenging a squeeze-out generates a highly significant annual return of about 19.20\%, with relatively little variation

\textsuperscript{31} Indeed, the four-week and the one-week premia increased after 1 Sept. 2003 from 16.1\% to 23.6\% and from 16.4\% to 19.7\%, respectively.

\textsuperscript{32} We obtain the time series of base interest rates from the website: http://basiszinssatz.de. We then use the base interest rate at the end of the month in which the GM votes on the squeeze-out offer
among the subsamples presented in Table 9 (identity of the ultimate owner; nationality; takeovers). Differently from Table 8, in Table 9, the action of avoidance is the procedure that generates the largest returns (33.21% vs. 16.63% for appraisal procedures). While appraisal procedures reward the plaintiffs with larger changes in compensation, they can take a long time to be settled. On the other hand, actions of avoidances take just a few months to achieve the desired outcome.

[Please insert Table 9 about here]

We further investigate if these additional compensations are worth waiting for considering the time value of money. In fact, challenging the original cash compensation with an action of avoidance means that bidders delay the payment and minority investors do not receive any cash today. This implies that minority investors bear the opportunity cost of delaying the reception of the cash compensation payment.\footnote{An appraisal procedure does not generate this opportunity cost because once the squeeze out is registered in the commercial register, minority shareholders immediately receive the cash compensation.} The law partially mitigates this cost awarding annual interests on the change in cash compensation offered. As proxy for the opportunity cost of capital, we employ the (zero-coupon bond) spot interest rate for German Federal listed securities with a residual maturity of 5 years\footnote{Results do not change if we use the 1, 3, or 10-year interest rate.} at the end of the month in which the GM approves the squeeze-out offer, as the most suitable measure of the opportunity cost of capital.\footnote{The spot interest is calculated using the Svensson method. The time series data of interest rates on Federal listed securities are obtain from the German Bundesbank and are available at: http://www.bundesbank.de/statistik/statistik_zeitreihen.php?lang=de&open=zinsen&func=row&tr=WZ9826} We choose the yield on a government bond because challenging the cash compensation is a low-risk investment for the minority investor. In fact, courts can reject the request of increasing the compensation (it happens a few times), but they never revise
downward the original offer.\textsuperscript{36} We subtract this cost from the total annualized returns to obtain the \textit{Net Annualized Returns}. In column IV of Table 9, we find that this opportunity cost of capital has little impact on the annualized returns. In fact, net of opportunity costs, minority investors earn an annualized return of 29.88\%, on average.

Overall, the table shows that challenging cash compensation offered by bidders offers very high returns, even when we consider opportunity costs. The magnitude and economic significance of the annualized returns certainly explains why the majority of squeeze-outs are contested. Thus, we can state that, once having received the squeeze out offer, minority investors are always better off challenging the cash compensation.

Finally, we run a multivariate regression to analyze the relationship between litigation and the final settlement premium in Table 10. We find, as expected, a positive effect for the action of avoidance and the appraisal procedure (AA and AP). Krishnan et al. (2012) also find a positive effect of litigation on takeover premium in their US sample, leading them to conclude that M&A litigation generates a net benefit for target shareholders. Concerning the additional compensation awarded by the courts (the final settlement premium), we do not find a negative relationship between the cost of the squeeze-out, i.e. the value of the stake owned by minority owners, and the increase in compensation.

[Please insert Table 10 about here]

Overall, the analyses show that the current legal regime gives plenty of incentives to minority investors to challenge the cash compensation. These results explain the high number

\textsuperscript{36} Of course, in theory, the controlling shareholder could go bankrupt but this is an extremely unlikely and rare event.
of challenges we show in Table 1 and the findings of Gehling et al. (2007), where 96% of squeeze-outs are challenged. However, the analysis presented here has a serious limitation: in the real world, there are both lawyers and, in case of actions of avoidance, courts to be paid.\(^{37}\)

While we do not have any estimate for attorney fees in Germany, Krishnan et al. (2012) report a median estimate of $142,500 (mean $717,000) for attorney fees awarded in settled cases in M&A litigation in the US. Even if German and US litigation systems are very different, these fees can provide a reasonable upper bound to estimate the cost incurred by the plaintiffs if we assume that German fees are lower (or at least not higher) than US ones. From Table 2 we know that the median value of the pre squeeze-out offer Euro value of the minority stake before the announcement is a bit less than €4.5m, these fees would account for about 2%-3% of the pre-squeeze out equity value. Even considering these costs, the estimates in Tables 8 and 9 are large enough to justify challenging the cash compensation.

6.2 Determinants of Litigation Strategy

Since squeeze-outs in Germany are systematically challenged by minority shareholders, as anecdotal evidence (Gehling et al., 2007) and our own evidence document, the analysis of the determinants of litigation in German squeeze outs is rather redundant. However, from Panel C of Table 1, we know that there exist three different main strategies to challenge a squeeze-out offer: action of avoidance; appraisal procedure; and both action of avoidance and appraisal procedure. In this section, we examine the determinants of the litigation strategy. To

\(^{37}\) The appraisal procedure is costless for what concerns court costs.
study the determinants of these choices, we estimate a multinomial logit model.\textsuperscript{38} The odds ratios for the variables included in the regressions are reported in Table 11.\textsuperscript{39} We find that, after the inclusion of firm characteristics, being of German nationality increases the likelihood of an appraisal procedure. Family control negatively affects the initiation of an appraisal procedure, but not of an action of avoidance. A larger stake held by minority investors increases the probability of an action of avoidance. Size positively affects the initiation of an appraisal procedure alone and together with an action of avoidance when we do not include firm characteristics. Takeovers in the previous three years do not affect the likelihood to start of procedure. Finally among the firm characteristics, a good operating performance (ROA) has a positive effect on appraisal procedure and again on the use of both appraisal procedure and action of avoidance. Another measure of performance, the Q ratio, increases the probability of an action of avoidance. Finally, a higher growth rate of assets decreases the probability that shareholders will recur to an appraisal procedure.

[Please insert Table 11 about here]

7. Conclusion

Since its introduction on January 1, 2002, majority shareholders made extensive use of the squeeze-out rule in Germany. In fact, more than 100 firms were delisted following a squeeze-out offer in 2002 alone, and 324 in the ten year after the introduction (2002-2011). The squeeze-out rule finally allowed majority shareholder to delist companies in which they had

\textsuperscript{38} In the multinomial model, the base outcome is accepting the cash offer without any challenge.

\textsuperscript{39} We decide to report odds ratio and not coefficients because odds ratio are easier to interpret: an odds ratio above (below) one indicates that the variable increases (decreases) the probability of a given outcome with respect to the base outcome (no challenge in our case). For example an odds ratio of 1.05 (0.95) indicates that the variable increases (decreases) the probability of that outcome by 5%.
held more than 95% (or even 99%) of the company’s equity for a long time, but given previous regulation, they were not able to force out minority shareholders. To protect minority shareholders, the German legal system mostly relies on two procedures: the appraisal procedure, which is a request to verify the fairness of the cash compensation offered; and the action of avoidance.

Using unique hand-collected data provided by SdK, we carry out a detailed analysis of the German squeeze-out offers from the announcement to the final outcome, examining also the determinants of the decision to squeeze out minority investors. We document an increase in the stock price of the firms undergoing a squeeze-out of 9.45% in the event window [-2, +2], suggesting that the squeeze-out announcement is perceived as good news. Abnormal returns are higher around the squeeze-out announcement when the ultimate owner is a family; the majority shareholder is German; and the squeeze-out is not preceded by a takeover offer.

We find significant differences between appraisal procedures and actions of avoidance in terms of the economic benefits enjoyed by minority shareholders. The amount awarded to minority investors is larger in appraisal procedures (an increase of more than 48% with respect to the initial cash compensation offered) than in actions of avoidance (13.5%). However, while the settlement procedure as such is costless (except for lawyer fees), the downside is that investors have to wait a relatively long time to obtain the compensation when they file for an appraisal procedure.

We also extend our analysis to examine the determinants of the squeeze-out decision. We find that large firms controlled by a large shareholders are the most likely to be delisted. We also note that a positive stock price performance increases the likelihood of a squeeze-out,
but operating performance has the opposite effect. German owners are more reluctant than foreigners to use the squeeze-out procedure.

To sum up, we perform the first economic analysis of the current squeeze-out procedures in Germany. Using a brand-new hand-collected database of squeeze-outs and relying on unique and often non-public data, we offer new insights on this procedure taking into account both the minority investors’ point of view and firms’ strategies.
References


Gilson, R. J. (1986). The Law and Finance of Corporate Acquisition, Mineola, N.Y. (Foundation Press).


Table 1 – Squeeze-outs by Year
Panel A reports, by year of the General Meeting in which the squeeze-out was approved, the number of squeeze-outs that took place in Germany from 2002 to Oct. 2011; the percentage of firm’s equity owned by the largest shareholder at the time of the squeeze-out; the number of squeeze-outs whose cash compensation was challenged; the percentage of squeeze outs that were challenged; the number of squeeze-outs where the challenge was unsuccessful; the number of blocked squeeze-outs; the number of squeeze outs with procedure still pending (ongoing) at the end of October 2011; and the number of squeeze-outs with unknown outcome. Panel B shows the number of challenges, the ongoing procedure, the unsuccessful challenges, and the procedures with unknown outcome for Appraisal Procedures (AP) and Actions of Avoidance (AA). Panel B also presents the strategies followed by minority investors to challenge the initial cash compensation: only Appraisal Procedures; only action of avoidance; Action of avoidance and appraisal procedure. Data are from SdK.

Panel A: General Descriptive Statistics by year of GM

<table>
<thead>
<tr>
<th>Year</th>
<th># Squeeze-outs</th>
<th>% Owned before SO</th>
<th># of SO</th>
<th>% of SO Challenged</th>
<th>Unsuccessful Challenges</th>
<th>Blocked SO</th>
<th>Ongoing Procedure</th>
<th>Unknown Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>106</td>
<td>97.64%</td>
<td>72</td>
<td>67.92%</td>
<td>5</td>
<td>0</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>2003</td>
<td>52</td>
<td>97.77%</td>
<td>42</td>
<td>80.77%</td>
<td>6</td>
<td>1</td>
<td>22</td>
<td>2</td>
</tr>
<tr>
<td>2004</td>
<td>27</td>
<td>97.19%</td>
<td>26</td>
<td>96.30%</td>
<td>1</td>
<td>0</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>2005</td>
<td>25</td>
<td>97.04%</td>
<td>24</td>
<td>96.00%</td>
<td>4</td>
<td>0</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>2006</td>
<td>24</td>
<td>96.97%</td>
<td>23</td>
<td>95.83%</td>
<td>4</td>
<td>0</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>2007</td>
<td>22</td>
<td>96.74%</td>
<td>18</td>
<td>81.82%</td>
<td>3</td>
<td>0</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>2008</td>
<td>15</td>
<td>95.93%</td>
<td>15</td>
<td>100.00%</td>
<td>2</td>
<td>0</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>2009</td>
<td>19</td>
<td>96.68%</td>
<td>16</td>
<td>84.21%</td>
<td>6</td>
<td>0</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>2010</td>
<td>17</td>
<td>96.05%</td>
<td>12</td>
<td>70.59%</td>
<td>1</td>
<td>0</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>2011</td>
<td>17</td>
<td>96.07%</td>
<td>4</td>
<td>23.53%</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>324</td>
<td>97.14%</td>
<td>252</td>
<td>77.78%</td>
<td>32</td>
<td>1</td>
<td>133</td>
<td>17</td>
</tr>
</tbody>
</table>
## Panel B: Appraisal Procedure & Action of Avoidance

<table>
<thead>
<tr>
<th>Year HV</th>
<th># SO</th>
<th>Ongoing</th>
<th>Unsuccessful</th>
<th>Unknown Outcome</th>
<th># SO</th>
<th>Ongoing</th>
<th>Unsuccessful</th>
<th>Unknown Outcome</th>
<th>Only AA</th>
<th>Only AP</th>
<th>AA and AP</th>
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<td>6</td>
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<td>0</td>
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<td>0</td>
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<tr>
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<td>118</td>
<td>13</td>
<td>17</td>
<td>124</td>
<td>47</td>
<td>17</td>
<td>1</td>
<td>25</td>
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<td>99</td>
</tr>
</tbody>
</table>

38
Table 2 – Descriptive Statistics

The table reports descriptive statistics about the sample of 324 squeeze-outs that took place in Germany from 2002 to 2011. Panel A reports the market capitalization, and the value of the minority investors’ stake at announcement. We value the market capitalization and minority investors’ stakes 4 weeks and one week before the squeeze-out announcement; and on the day of the GM. Panel B reports information on the length of concluded actions of avoidance and appraisal procedures in months. We measure the length in two ways: 1) from the beginning to the end of the procedure (AA and AP); 2) from the day of the GM to the end of the procedure (AA GM and AP GM). GM Final indicates the time between the General meeting and the final settlement price. Panel C reports the number and percentage of firms by the type of ultimate owner (family, financial institution, other). Other is a residual category which includes widely-held firms, foundations, employees, cooperatives, etc. The panel also reports the number of firms and percentage of firms whose ultimate owner is German and the number and percentage of firms whose squeeze-out took place within 3 years of a takeover offer.

<table>
<thead>
<tr>
<th>Panel A: Stakes at Announcement</th>
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<tbody>
<tr>
<td>Market capitalization</td>
</tr>
<tr>
<td>4-week</td>
</tr>
<tr>
<td>1-week</td>
</tr>
<tr>
<td>GM</td>
</tr>
<tr>
<td>Euro value of the minority stake at announcement (ml)</td>
</tr>
<tr>
<td>4-week</td>
</tr>
<tr>
<td>1-week</td>
</tr>
<tr>
<td>GM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel B: Length of the Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Median</td>
</tr>
<tr>
<td>No. Obs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel C: Ownership Information</th>
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</thead>
<tbody>
<tr>
<td>#</td>
</tr>
<tr>
<td>Family</td>
</tr>
<tr>
<td>Financial</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Ultimate Owner is German</td>
</tr>
<tr>
<td>Squeeze-outs after Takeover</td>
</tr>
</tbody>
</table>
Table 3 – Probability to be squeezed out

The table presents the estimates of a hazard rate model for the event of being squeeze-out over the full sample period 2002-2011. The explanatory variables used in the models, all lagged with respect to the squeeze-out offer, are the following: Tobin’s Q; size; cash reserves; ROA; leverage; the stock price performance in the calendar year; the growth rate of the firm’s assets; the voting rights of the largest and second largest shareholders; dummies for family control, financial institution control, and being German. We run several regressions with samples with different restrictions on the voting rights of the largest shareholder: Column 1) no restriction, i.e. the full sample; Column 2) the largest shareholders owns more than 25% of the voting rights; Column 3) the largest shareholders owns more than 50% of the voting rights; Column 4) the largest shareholders owns more than 75% of the voting rights; Column 5) the largest shareholders owns more than 90% of the voting rights; and, finally, Column 6) the largest shareholders owns more than 95% of the voting rights. We also include industry fixed effects in all the regressions. The symbols ***, **, * denote statistical significance at the 1, 5, and 10 levels, respectively.

<table>
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<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
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<td>Tobin’s Q</td>
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<td>0.0007</td>
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<td>Log (Size)</td>
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<td>0.2137***</td>
<td>0.2100***</td>
<td>0.1718**</td>
<td>0.1547**</td>
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<td>[0.0454]</td>
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<td>[0.0770]</td>
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<td>Cash Reserves</td>
<td>-0.6237</td>
<td>-0.4651</td>
<td>-0.4704</td>
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<td>-2.0364**</td>
<td>-3.5618*</td>
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<td>[0.6739]</td>
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<td>Leverage</td>
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<td>-1.5842***</td>
<td>-1.7154***</td>
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<td>-1.1933*</td>
<td>-1.2438</td>
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<tr>
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<td>Stock Performance</td>
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<td>0.2801***</td>
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<td>-0.0509</td>
<td>-0.0027</td>
<td>0.0036</td>
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<td>2.2034**</td>
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<td>2.2399</td>
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<td>0.2721</td>
<td>0.4997**</td>
<td>0.2494</td>
<td>0.6700**</td>
<td>0.7770**</td>
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<td>German</td>
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<td>Pseudo R-squared</td>
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<td>0.1245</td>
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<td>3023</td>
<td>1370</td>
<td>594</td>
<td>390</td>
</tr>
</tbody>
</table>

40
Table 4 – Abnormal Returns around Squeeze-out Announcements by subsample

The table reports the abnormal returns around the announcement of a squeeze-out for several event windows. Panel A reports the abnormal returns computed using the standard market model and abnormal returns computed using the Dimson (1979) model with 3 lags and 1 lead for the full sample of squeezed-out firms. In Panel B, C, and D, abnormal returns are computed using the standard market model. Panel B reports abnormal returns by the type of ultimate owner at the time the squeeze-out is announced (family, financial institution, others). Other is a residual category which includes widely-held firms, foundations, employees, cooperatives, etc. Panel C reports abnormal returns by the nationality of the ultimate owner. Finally, Panel D reports abnormal returns for squeeze-outs took place less than 3 years after a takeover offer and squeeze-outs that did not follow any control change transaction. We include in the event study only the main security of the firms involved in the squeeze-outs. The symbols ***, **, * denote statistical significance at the 1, 5, and 10 levels, respectively. The symbols a, b, c denote statistical significance at the 1, 5, and 10 levels, respectively, between Family and Financial Institution, and the symbols x, y, z denote statistical significance at the 1, 5, and 10 levels, respectively, between Family and Other subsamples respectively.

<table>
<thead>
<tr>
<th>Panel A: Full Sample</th>
<th>Market Model</th>
<th>Dimson (1979) Model</th>
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<tr>
<td>[-30, +30]</td>
<td>Mean</td>
<td>10.19%***</td>
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<tr>
<td></td>
<td>Median</td>
<td>5.49%***</td>
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<tr>
<td>[-30, -3]</td>
<td>Mean</td>
<td>0.91%</td>
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<td>Median</td>
<td>-0.42%</td>
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<tr>
<td>[-2, 2]</td>
<td>Mean</td>
<td>9.45%***</td>
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<td></td>
<td>Median</td>
<td>3.64%***</td>
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<table>
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<th>Panel B: Announcement Returns by UO</th>
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<td>Other</td>
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<tr>
<td>Median</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td># Obs</td>
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</table>

<table>
<thead>
<tr>
<th>Panel C: German vs. Non-German</th>
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</thead>
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<td>Mean</td>
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<tr>
<td>Median</td>
</tr>
<tr>
<td></td>
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<tr>
<td># Obs</td>
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<table>
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<tr>
<th>Panel D: Announcement Returns by Control Change Transaction</th>
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<tbody>
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<td>Median</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td># Obs</td>
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</tbody>
</table>
Table 5 – Squeeze-out Premia

The table reports the squeeze-out premia. Squeeze-out premia are computed as the difference between the squeeze-out offer price and firm’s stock price and scaled by the firm’s stock price. We measure the squeeze-out premia at different dates: 4 weeks before the announcement; 1 week before the announcement, and at the AGM date. We include in the event study all securities involved in the squeeze-outs. We report premia for the full sample, subsamples based on the type of ultimate owner at the time the squeeze-out is announced (family, financial institution, others); subsamples based on the nationality of the ultimate owner; and, finally, subsamples based on whether a control change transaction took place in the 3 years preceding the squeeze-out. The number of observations is reported in parentheses. The symbols ***, **, * denote statistical significance at the 1, 5, and 10 levels, respectively.

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<th>4-week</th>
<th>1-week</th>
<th>GM</th>
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</thead>
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<td>Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Sample</td>
<td>8.85%**</td>
<td>6.97%***</td>
<td>-6.38%**</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.35%</td>
<td>-0.53%</td>
</tr>
<tr>
<td></td>
<td>Minimum</td>
<td>-64.69%</td>
<td>-64.69%</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>344.48%</td>
<td>354.57%</td>
</tr>
<tr>
<td>Type UO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>8.57%**</td>
<td>6.11%</td>
<td>-12.74%***</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.33%</td>
<td>0.00%</td>
</tr>
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<td></td>
<td>Minimum</td>
<td>-64.69%</td>
<td>-64.69%</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>200.14%</td>
<td>182.13%</td>
</tr>
<tr>
<td>Financial</td>
<td>7.98%*</td>
<td>4.97%</td>
<td>-6.43%*</td>
</tr>
<tr>
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<td>Median</td>
<td>0.54%</td>
<td>-1.04%</td>
</tr>
<tr>
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<td>Minimum</td>
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<td>-55.41%</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>227.54%</td>
<td>227.54%</td>
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<tr>
<td>Other</td>
<td>9.81%**</td>
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<tr>
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<td>Median</td>
<td>-0.18%</td>
<td>-0.16%</td>
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<td>Minimum</td>
<td>-42.29%</td>
<td>-42.33%</td>
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<td>344.48%</td>
<td>354.57%</td>
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<td>German UO</td>
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<td>354.57%</td>
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<tr>
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<td>6.47%**</td>
<td>-6.55%**</td>
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<td>-64.69%</td>
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### Table 6 – Multivariate Analysis of Announcements Returns and Premia

The table reports the estimates of multivariate OLS regression models where the dependent variables are the cumulative abnormal returns in the event windows [-2, +2] and [-30, +30], the 4-week and the GM premium. The independent variables are: a dummy for firms whose ultimate owner is German (German UO); dummies for the type of ultimate owner (family and financial institution); a dummy for a control change transaction took place in the 3 years preceding the squeeze-out (Takeover); the log of market value of the company 4-week before the SO announcement (Size); the percentage of the firm’s equity owned by minority investors (minority shareholders); dummies for AA and AP; the firm’s Q-ratio defined as the ratio between the market value of equity plus total assets minus the book value of equity and total assets; the operating performance (ROA), which is EBITDA over Total Assets; the growth rate of total assets; and the firm’s cash reserves, which is cash and cash equivalents over total assets. Size, Q-ratio, leverage, ROA, the growth rate of assets, and cash reserves are winsorized at 2.5 and 97.5. All regressions include time fixed-effects for the year of the General meeting. Robust standard errors are in parentheses. The symbols ***, **, * denote statistical significance at the 1, 5, and 10 levels, respectively.

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<td>Takeover</td>
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<td>0.0079</td>
<td>-0.1174*</td>
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**Table 7 – Final Settlement Premia**

The table reports the final settlement premia. Final settlement premia are computed as the difference between the maximum between the squeeze-out offer price and the final settlement price and firm’s stock price and scaled by the firm’s stock price. We measure the final settlement premia at different dates: 4 weeks before the announcement; 1 week before the announcement, and at the GM date. We include in the event study all securities involved in the squeeze-outs. We reports premia for the full sample, subsamples based on the type of ultimate owner at the time the squeeze-out is announced (family, financial institution, others); subsamples based on by the nationality of the ultimate owner; and, finally, subsamples based on whether a control change transaction took place in the 3 years preceding the squeeze-out. The number of observations is reported in parentheses. The symbols ***, **, * denote statistical significance at the 1, 5, and 10 levels, respectively. The symbols a, b, c denote statistical significance at the 1, 5, and 10 levels, respectively, for the tests of differences in means and equality of medians between Family and Financial; German vs. no-German; and Takeover vs. no-Takeover. The symbols (x, y, z) denote statistical significance at the 1, 5, and 10 levels, respectively, for the tests of differences in means and equality of medians between Family and Other (Financial and Other).

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<td>-64.69%</td>
<td>-96.57%</td>
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<tr>
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<td>425.49%</td>
<td>514.20%</td>
</tr>
<tr>
<td></td>
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<td>235</td>
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<td></td>
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<td>90</td>
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<td></td>
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</table>
The table reports in Panel A the additional cash compensation awarded to minority shareholders after a legal procedure aimed at contesting the cash compensation offered (Appraisal Procedures and Actions of Avoidance) was initiated. Additional cash compensations (in percentage) are computed as the ratio between the additional cash compensation awarded and the squeeze-out offer price for columns All, AP Cash Comp, and AA. The additional cash compensation is computed as the ratio of the additional cash compensation and the last offered price, which in some cases is the AA settlement price. We include in the event study all securities involved in the squeeze-outs. We reports additional cash compensation for the full sample, subsamples based on the type of ultimate owner at the time the squeeze-out is announced (family, financial institution, others); subsamples based on the type of ultimate owner at the time the squeeze-out is announced; and finally, subsamples based on whether a control change transaction took place in the 3 years preceding the squeeze-out. Panel B shows the change in the cash compensation over time. The symbols ***, **, * denote statistical significance at the 1, 5, and 10 levels, respectively. The symbols a, b, c denote statistical significance at the 1, 5, and 10 levels, respectively, for the tests of differences in means and equality of medians between Takeover vs. no-Takeover (other tests between subsamples are not significant). The symbols x, y, z denote statistical significance at the 1, 5, and 10 levels, respectively, for the tests of differences in means between AP Cash Comp and AA; and between AP last offer and AA.

### Panel A: Full Samples and Subsamples

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<th>AA</th>
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<tr>
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<td>46.94%***^y</td>
<td>14.37%***</td>
</tr>
<tr>
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<td>25.26%***</td>
<td>19.38%***</td>
<td>5.74%***</td>
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<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Maximum</td>
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<td>564.96%</td>
<td>564.96%</td>
<td>84.09%</td>
</tr>
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<td>11.08%***</td>
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<td>6.17%***</td>
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<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
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<td>725.81%</td>
<td>725.81%</td>
<td>55.39%</td>
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<td></td>
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<td>15.05%***</td>
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<tr>
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<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Maximum</td>
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<td>564.96%</td>
<td>564.96%</td>
<td>84.09%</td>
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</tr>
<tr>
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<td>25.18%***^x^y</td>
<td>19.15%***^y^z</td>
<td>12.89%***</td>
</tr>
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<td>15.52%***</td>
<td>7.15%***</td>
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<td>0.00%</td>
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<tr>
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<td>104.55%</td>
<td>57.66%</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>55.74%***^y</td>
<td>14.64%***</td>
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<td>25.47%***^y</td>
<td>20.29%***^z</td>
<td>8.73%***</td>
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<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Maximum</td>
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<td>725.81%</td>
<td>725.81%</td>
<td>49.06%</td>
</tr>
</tbody>
</table>

Table 8 – Additional Cash Compensation

The table reports in Panel A the additional cash compensation awarded to minority shareholders after a legal procedure aimed at contesting the cash compensation offered (Appraisal Procedures and Actions of Avoidance) was initiated. Additional cash compensations (in percentage) are computed as the ratio between the additional cash compensation awarded and the squeeze-out offer price for columns All, AP Cash Comp, and AA. The additional cash compensation is computed as the ratio of the additional cash compensation and the last offered price, which in some cases is the AA settlement price. We include in the event study all securities involved in the squeeze-outs. We reports additional cash compensation for the full sample, subsamples based on the type of ultimate owner at the time the squeeze-out is announced (family, financial institution, others); subsamples based on the type of ultimate owner at the time the squeeze-out is announced; and finally, subsamples based on whether a control change transaction took place in the 3 years preceding the squeeze-out. Panel B shows the change in the cash compensation over time. The symbols ***, **, * denote statistical significance at the 1, 5, and 10 levels, respectively. The symbols a, b, c denote statistical significance at the 1, 5, and 10 levels, respectively, for the tests of differences in means and equality of medians between Takeover vs. no-Takeover (other tests between subsamples are not significant). The symbols x, y, z denote statistical significance at the 1, 5, and 10 levels, respectively, for the tests of differences in means between AP Cash Comp and AA; and between AP last offer and AA.
### Panel B: Change in Cash Compensation by year

<table>
<thead>
<tr>
<th>Year</th>
<th>All</th>
<th>AP Cash Comp.</th>
<th>AP last offer</th>
<th>AA</th>
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<td></td>
<td>Mean</td>
<td>60.82%</td>
<td>61.88%</td>
<td>61.69%</td>
</tr>
<tr>
<td>2002</td>
<td>Median</td>
<td>20.29%</td>
<td>22.41%</td>
<td>22.41%</td>
</tr>
<tr>
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<td># Obs.</td>
<td>45</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>2003</td>
<td>Mean</td>
<td>29.59%</td>
<td>35.05%</td>
<td>33.62%</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>16.15%</td>
<td>25.47%</td>
<td>15.79%</td>
</tr>
<tr>
<td></td>
<td># Obs.</td>
<td>23</td>
<td>17</td>
<td>17</td>
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<tr>
<td>2004</td>
<td>Mean</td>
<td>45.43%</td>
<td>66.73%</td>
<td>52.16%</td>
</tr>
<tr>
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<td>Median</td>
<td>28.15%</td>
<td>38.24%</td>
<td>22.99%</td>
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<tr>
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<td># Obs.</td>
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<td>9</td>
<td>9</td>
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<tr>
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<td>Mean</td>
<td>20.05%</td>
<td>28.35%</td>
<td>12.75%</td>
</tr>
<tr>
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<td>Median</td>
<td>18.87%</td>
<td>27.22%</td>
<td>9.10%</td>
</tr>
<tr>
<td></td>
<td># Obs.</td>
<td>21</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>2006</td>
<td>Mean</td>
<td>16.56%</td>
<td>26.55%</td>
<td>14.35%</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>7.72%</td>
<td>11.85%</td>
<td>11.85%</td>
</tr>
<tr>
<td></td>
<td># Obs.</td>
<td>21</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2007</td>
<td>Mean</td>
<td>15.12%</td>
<td>28.83%</td>
<td>28.83%</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>9.51%</td>
<td>28.83%</td>
<td>28.83%</td>
</tr>
<tr>
<td></td>
<td># Obs.</td>
<td>7</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2008</td>
<td>Mean</td>
<td>10.98%</td>
<td>14.47%</td>
<td>6.91%</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>8.70%</td>
<td>14.47%</td>
<td>6.91%</td>
</tr>
<tr>
<td></td>
<td># Obs.</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2009</td>
<td>Mean</td>
<td>2.61%</td>
<td>9.13%</td>
<td>9.13%</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0.00%</td>
<td>9.13%</td>
<td>9.13%</td>
</tr>
<tr>
<td></td>
<td># Obs.</td>
<td>7</td>
<td>2</td>
<td>2</td>
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<tr>
<td>2010</td>
<td>Mean</td>
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<td>Median</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td># Obs.</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 9 – Total & Net Annual Returns

The table reports the results of a cost & benefit analysis. We report net annual returns for the full sample, subsamples based on the type of ultimate owner at the time the squeeze-out is announced (family, financial institution, others); subsamples based on the nationality of the ultimate owner; and, finally, subsamples based on whether a control change transaction took place in the 3 years preceding the squeeze-out. We annualize the return of the additional cash compensation (assuming the reinvestment of the initial cash compensation) and add to this annualized return the Basiszinssatz (plus 2) to determine the Total annual return. The Basiszinssatz is the interest rate at the end of the month of the general meeting (data from the Bundesbank). The symbols ***, **, * denote statistical significance at the 1, 5, and 10 levels, respectively, for the tests of differences in means and equality of medians between Family and Financial; German vs. no-German; and Takeover vs. no-Takeover. The symbols d, e, f (x, y, z) denote statistical significance at the 1, 5, and 10 levels, respectively, for the tests of differences in means and equality of medians between Family and Other (Financial and Other).

<table>
<thead>
<tr>
<th>Type UO</th>
<th>Family</th>
<th>Financial</th>
<th>Other</th>
<th>German</th>
<th>No</th>
<th>Takeover</th>
<th>NO</th>
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</thead>
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<tr>
<td>Mean</td>
<td>19.20%***</td>
<td>22.86%***</td>
<td>15.88%***</td>
<td>17.79%***</td>
<td>20.28%***</td>
<td>18.57%***</td>
<td>16.63%***</td>
</tr>
<tr>
<td>Median</td>
<td>11.31%***</td>
<td>10.99%***</td>
<td>11.92%***</td>
<td>13.78%***</td>
<td>11.74%***</td>
<td>10.37%***</td>
<td>10.89%***</td>
</tr>
<tr>
<td>Minimum</td>
<td>3.17%</td>
<td>3.17%</td>
<td>3.17%</td>
<td>3.17%</td>
<td>3.17%</td>
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<tr>
<td>Maximum</td>
<td>151.71%</td>
<td>151.71%</td>
<td>129.37%</td>
<td>129.37%</td>
<td>129.37%</td>
<td>151.71%</td>
<td>151.71%</td>
</tr>
<tr>
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<td>71</td>
<td>30</td>
<td>30</td>
<td>36</td>
<td>45</td>
<td>45</td>
</tr>
</tbody>
</table>

| Mean    | 21.46%*** | 22.03%*** | 13.92%*** | 20.90%*** | 14.26%*** | 14.26%*** | 20.89%*** |
| Median  | 13.92%*** | 11.32%*** | 9.89%***  | 10.92%*** | 9.89%***  | 9.89%***  | 10.03%*** |
| Minimum | 3.17%     | 3.95%     | 3.95%     | 3.13%     | 3.13%     | 3.13%     | 3.13%     |
| Maximum | 151.71%   | 151.71%   | 151.71%   | 151.71%   | 151.71%   | 151.71%   | 151.71%   |
| # Obs.  | 33       | 24        | 17       | 25       | 25       | 25       | 25       |

| Mean    | 15.88%*** | 15.79%*** | 10.96%*** | 12.84%*** | 15.57%*** | 126.58%* | 15.57%*** |
| Median  | 11.01%*** | 10.93%*** | 10.93%*** | 12.51%*** | 12.51%*** | 126.58%* | 12.51%*** |
| Minimum | 3.17%     | 3.17%     | 3.17%     | 3.17%     | 3.17%     | 3.17%     | 3.17%     |
| Maximum | 96.30%    | 76.93%    | 76.93%    | 427.84%   | 427.84%   | 427.84%   | 427.84%   |
| # Obs.  | 57       | 38        | 41       | 57       | 58       | 58       | 58       |

| Mean    | 20.28%*** | 17.79%*** | 10.96%*** | 15.57%*** | 28.38%*** | 15.57%*** | 28.38%*** |
| Median  | 11.74%*** | 10.96%*** | 10.96%*** | 15.57%*** | 15.57%*** | 15.57%*** | 15.57%*** |
| Minimum | 3.17%     | 3.17%     | 3.17%     | 3.17%     | 3.17%     | 3.17%     | 3.17%     |
| Maximum | 129.37%   | 76.93%    | 76.93%    | 214.73%   | 214.73%   | 214.73%   | 214.73%   |
| # Obs.  | 75       | 39        | 39       | 45       | 45       | 45       | 45       |

| Mean    | 18.57%*** | 18.57%*** | 10.03%*** | 14.83%*** | 21.55%*** | 18.78%*** | 14.83%*** |
| Median  | 10.03%*** | 10.03%*** | 9.29%***  | 12.68%*** | 9.33%***  | 18.78%*** | 12.68%*** |
| Minimum | 3.17%     | 3.17%     | 3.17%     | 3.17%     | 3.17%     | 3.17%     | 3.17%     |
| Maximum | 129.37%   | 129.37%   | 76.93%    | 129.37%   | 129.37%   | 76.93%    | 129.37%   |
| # Obs.  | 50       | 23        | 23       | 36       | 36       | 36       | 36       |

| Mean    | 19.46%*** | 19.46%*** | 11.74%*** | 19.46%*** | 39.46%*** | 11.74%*** | 39.46%*** |
| Median  | 11.74%*** | 11.74%*** | 11.03%*** | 19.75%*** | 16.33%*** | 11.03%*** | 16.33%*** |
| Minimum | 3.37%     | 3.37%     | 3.37%     | 3.13%     | 3.13%     | 3.37%     | 3.13%     |
| Maximum | 151.71%   | 151.71%   | 151.71%   | 427.84%   | 425.28%   | 151.71%   | 425.28%   |
| # Obs.  | 81       | 57        | 57       | 34       | 34       | 34       | 34       |
Table 10 – Multivariate Analysis of Final Settlement Premia

The table reports the estimates of multivariate OLS regression models where the dependent variables are 4-week and GM final settlement premium. The independent variables are: a dummy for firms whose ultimate owner is German (German UO); dummies for the type of ultimate owner (family and financial institution); a dummy for a control change transaction took place in the 3 years preceding the squeeze-out (Takeover); the log of market value of the company 4-week before the SO announcement (Size); the percentage of the firm’s equity owned by minority investors (minority shareholders); dummies for AA and AP; the firm’s Q-ratio defined as the ratio between the market value of equity plus total assets minus the book value of equity and total assets; the firm’s leverage defined as total debt over total assets; the operating performance (ROA), which is EBITDA over Total Assets; the growth rate of total assets; and the firm’s cash reserves, which is cash and cash equivalents over total assets. Size, Q-ratio, leverage, ROA, the growth rate of assets, and cash reserves are winsorized at 2.5 and 97.5. All regressions include time fixed-effects for the year of the General meeting. Robust standard errors are in parentheses. The symbols ***, **, * denote statistical significance at the 1, 5, and 10 levels, respectively.

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<td>[0.0229]</td>
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</tr>
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<tr>
<td>Observations</td>
<td>219</td>
<td>216</td>
<td>154</td>
<td>151</td>
</tr>
</tbody>
</table>
The table reports the estimates of the odds ratio of multivariate of multinomial logit models where the dependent variable is the type of challenge used by minority investors to contest the original cash compensation. The type of challenge can be: 1) no challenge; 2) AA; 3) AP; 4) AA and AP. No challenge is used as the base outcome. The independent variables are: a dummy for firms whose ultimate owner is German (German UO); dummies for the type of ultimate owner (family and financial institution); a dummy for a control change transaction took place in the 3 years preceding the squeeze-out (Takeover); the log of market value of the company 4-week before the SO announcement (Size); the percentage of the firm’s equity owned by minority investors (minority shareholders); dummies for AA and AP; the firm’s Q-ratio defined as the ratio between the market value of equity plus total assets minus the book value of equity and total assets; the firm’s leverage defined as total debt over total assets; the operating performance (ROA), which is EBITDA over Total Assets; the growth rate of total assets; and the firm’s cash reserves, which is cash and cash equivalents over total assets. Size, Q-ratio, leverage, ROA, the growth rate of assets, and cash reserves are winsorized at 2.5 and 97.5. All regressions include time fixed-effects for the year of the General meeting. Robust standard errors are in parentheses. The constant is included in all models, but its odds ratio not reported. The symbols ***, **, * denote statistical significance at the 1, 5, and 10 levels, respectively.

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AA</td>
<td>I</td>
</tr>
<tr>
<td>German</td>
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Pseudo $R^2$ 0.0558 0.1193
No. Obs. 219 154