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ABSTRACT

Equity Block Transfers in Transition Economies: Evidence from Poland*

This Paper investigates valuation effects of share block transfers and employs agency theory to explain the determinants of block premia. A sample of transactions from Poland is used to measure benefits and costs of ownership concentration. Block premia are found to be substantially lower than in well-developed markets, in spite of the insufficient minority shareholders' protection in transitional economies. Shareholders' opportunities to extract private benefits of control turn out to depend not only on the size of equity stake, but also on the relative power of other block holders. The expropriation threat appears to be most severe in the companies where the free float constitutes a substantial fraction of the shares outstanding. Moreover, the analysis reveals that liquidity costs considerably influence the level of block premia in Poland. Finally, the results document a positive role of the state as an institutional investor in listed companies.

JEL Classification: G30, G32 and G34
Keywords: agency problems, block trades, corporate governance and ownership structure

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1 Introduction

The presence of agency conflicts between shareholders and managers who control corporate resources in modern companies has led to the emergence of governance mechanisms assuring that financiers' funds are not expropriated or wasted on unattractive projects (Shleifer and Vishny, 1997). In a vast majority of European countries, ownership concentration is one of the most important internal mechanisms of corporate governance (Becht and Röell, 1999). Minority shareholders' protection in these countries is weaker than in Anglo-Saxon ones (La Porta et al., 1998), and therefore, only large blocks, carrying significant control power, provide appropriate guarantees for investors.

This paper uses the agency perspective to explain both costs and benefits of ownership concentration. Large block holdings help to curb the agency problem between shareholders who finance companies and managers who control corporate resources on a day-to-day basis (Admati et al., 1994; Maug, 1998; Kahn and Winton, 1994). Yet, observed delegation of monitoring to large shareholders might be a source of other types of agency problems emerging among various stakeholders of a firm (Burkart et al., 2000). As neither the costs, nor the benefits of ownership concentration are directly observable, I make indirect inferences about agency problems of ownership concentration by analysing block transactions. In particular, I examine the announcement effects of block deals and the determinants of block premia (as suggested by Banerjee et al., 1997 and Bethel et al., 1998).

There exists vast empirical literature analysing block holdings and block transactions within the agency framework[1]. However, the focus has been mainly on developed economies, in which minority investor are relatively well-protected. This paper is one of the first in-depth studies of block transfers in an emerging market[2]. I analyse a sample of block transactions from Poland for the following reasons. First, analysing data from a young market enables me to spot certain phenomena that are specific to corporate governance in emerging markets, such as insufficient protection of minority shareholders' rights, lack of minority shareholders' expertise, liquidity considerations, and a special role of State Treasury. Second, a large number of block deals and little 'legacy' ownership structures in Polish companies make them a particularly interesting object of analysis. Last but not least, employing a so far unexploited data set allows to avoid data-snooping bias.

Although the governance standards in transitional economies are inferior to those in well-developed markets, block premia in Poland appear remarkably low. One of the plausible reasons are the liquidity costs that influence considerably the level of block premia. Shareholders' opportunities to extract private benefits of control are found to depend not only on the size of their equity stake, but also on the relative power of other block holders. The expropriation threat appears to be most severe in the companies where the free float constitutes a substantial fraction of the shares outstanding. In such firms even a small equity block may provide the investors with effective control. Then they can extract most of private benefits of control and bear only minor part of associated costs. A side result of the analysis is that privatisations are perceived by the market less favourably than other block transfers.

The remainder of the paper is organised as follows. Section 2 discusses the role of ownership concentration from the agency theory perspective and surveys of the related empirical literature.

[1] Recent contributions include Holderness and Sheehan (1988), Barclay and Holderness (1989, 1991, 1992), Zingales (1994, 1995), Sudarsanam (1996), Keim and Madhavan (1996), Banerjee et al. (1997), Bethel et al. (1998). Their findings are summarised in the next section.

[2] Atanasov (2000) investigates block transfers and private benefits of control in Bulgarian companies, but his sample is restricted to privatisation deals only.

Section 3 develops and motivates research hypotheses concerning valuation effects of block deals and determinants of block premia. In the subsequent part, the methodology is laid out. Section 5 provides details on data collection procedure and description of variables. Section 6 outlines the results concerning valuation effects of block deals, while the next part summarises the findings concerning determinants of block premia. The last section concludes.

2 Prior research

2.1 Theoretical background

The presence of a large shareholder procures benefits, but comes at a cost. Shleifer and Vishny (1986) and Kyle and Vila (1991) suggest that the presence of a block holder in a company's ownership structure makes value-increasing takeovers possible, and thus helps to overcome Grossman and Hart's (1980) paradox. Moreover, Admati et al. (1994), Maug (1998), Kahn and Winton (1998) show that in the presence of block holders, costly monitoring takes place despite free-riding behaviour of dispersed shareholders. However, numerous authors point out that costs of concentrated ownership might be substantial. First, large shareholder control results in reduced risk sharing (Demsetz and Lehn, 1985; Admati et al., 1994). Second, equity concentration reduces market liquidity (Coffee, 1991; Bolton and Thadden, 1998)[3]. Third, monitoring by an investor holding an equity stake can lead to excessive risk taking in managerial decisions, especially in highly leveraged companies (Jensen and Meckling, 1976; Coffee, 1991). Fourth, Burkart et al. (1997) and Pagano and Röell (1998) point out that even when tight control by shareholders is ex post efficient, ex ante it constitutes an expropriation threat[4] that reduces managerial incentives to exert effort and undertake value maximising strategies (the so-called 'over-monitoring' effect).

Grossman and Hart (1988) stress that a significant stake in a company brings about benefits of control, which can be divided into two classes - private and security benefits. The latter group includes benefits of ownership concentration that are shared and enjoyed by all shareholders (e.g. positive effects of monitoring). Control rights can also provide (large) investors with private benefits of control, when these investors have access to private information, are able to freeze-out minority shareholders at a price below the value of their shares, and - in extreme cases - can divert resources from security holders to entities controlled by a block holder (Zwiebel, 1995; Pagano and Röell, 1998; Johnson et al., 2000). Although private benefits of control do not necessarily lead to firm value destruction, in many cases they may result in inefficiencies. Thus, although block holdings are meant to be a mechanism that mitigates agency costs resulting from excessive managerial discretion, these block holdings can be a source of another type of agency costs. A large investor may attempt to expropriate small shareholders' rights. Moreover, according to Zwiebel (1995), private benefits of control can be extracted even if a company has multiple large shareholders. He claims that these benefits are divisible, and parties can enjoy them accordingly to their strategic importance measured by Shapley values[5]. Above some threshold a large block will not be challenged for control. This

[3] Coffee (1991) argues that only an illiquid market makes institutional investors intervene rather than sell their stakes. Bolton and Thadden (1998) illustrate that the costs of having a large shareholder may outweigh the benefits, even if the control by block holders always has positive externality on other shareholders.

[4] If shareholders' monitoring is intense, manager's chances of extracting private benefits are low, which decreases his effort incentives.

[5] Zwiebel's (1995) model implies also that large investors 'create their own space', which means that the presence of

encourages extraction of private benefits of control at the expense of dispersed small shareholders and therefore can induce agency problems between various groups of shareholders.

Similarly, Bebchuk (1994) concludes that lack of free-rider and pressure-to-tender problems on the sellers' side does not imply that there are no efficiency problems with sale-of-control transactions. To the contrary, efficiency problems do arise because such transactions may well have externality effects on minority shareholders. As a result of such externalities, inefficient transfers of control may occur[6], and efficient transfers of control may be frustrated. In a similar vein, Burkart et al. (2000) compare various methods of transferring corporate control, concluding that an increase of the block size effectuated via a block transaction, rather than by a tender offer, may signal an inefficient transfer of control. In contrast, tender offer translates into higher firm value. The reason is that transferring control through a block trade preserves the low concentration of the ownership and corresponding high extraction of private benefits. Low ownership concentration is not beneficial because even a shareholder holding a relatively small block can inefficiently extract significant private benefits of control (cf. Bennedsen and Wolfenzon, 2000).

2.2 Empirical evidence on valuation effects of block trades

Earlier studies find block transfers to be accompanied by positive abnormal performance, and thus, on average, value creating (Holderness and Sheehan, 1988; Sudarsanam, 1996). This effect is documented to be present regardless of the price paid in the transaction (Barclay and Holderness, 1989). The threat of consuming corporate wealth is argued to be absent, since in most companies with a majority shareholder his stake exceeds 50%-threshold substantially (Holderness and Sheehan, 1988). Moreover, it is claimed that changes in control improve corporate governance, increase management turnover and intensity of reorganisation activities, rather than bring about additional agency problems (Barclay and Holderness, 1991). Therefore, block transactions in which the purchaser gains control receive a much more favourable market reaction than those where this is not the case. *Ceteris paribus*, the market appraisal of block transfers is more favourable for deals involving simultaneous tender offer (Holderness and Sheehan, 1988) and for firms that experienced a full acquisition in a post-trade period (Barclay and Holderness, 1992). However, Sudarsanam (1996) documents that benefits of ownership concentration outweigh costs, even when no subsequent takeover occurs. In line with implications of the Choudhry and Jegadeesh (1994) model, abnormal returns around block deal announcements increase with the size of the toehold accumulated by a purchaser due to the transaction.

More recent studies weaken these unconditionally positive conjectures concerning large shareholders. Banerjee et al. (1997) find no abnormal performance that would accompany block deals in France. However, they argue that the buyer's identity matters for the valuation effect of the block transfer. Their conclusion is that block transfers can create value (and thus yield the ownership concentration advantageous) only in some circumstances, depending on the identity of the acquirers. They

a large block in a firm deters other large blocks from being formed in the same firm. Moreover, a variety of possible ownership structures appear in the equilibrium (a kind of clientele effect). As a result, three different types of firms can emerge - firms with one very large shareholder and no smaller block holders, firms with one large shareholder and many smaller block holders, and firms having numerous small block holders but no dominant shareholder.

[6] Such inefficient transfers of control occur when the buyer acquires control to extract private benefits of control rather than to monitor and/or improve company's performance. It might happen that the value of the company after such a deal is lowered but the acquirer is compensated with excessive private benefits of control for the loss on the value of his shares.

claim that block acquisitions by holding companies may even destroy company value. Bethel et al. (1998) show that in the US the purchase of a block by either financial or strategic investor cause no significant market reaction, while acquisitions of blocks by activist shareholders are accompanied by significant positive abnormal performance. Such shareholders usually acquire stakes in poorly performing companies (compare also Nesbitt, 1994), and subsequently pursue restructuring measures leading to considerable improvement of targets' performance.

Keim and Madhavan (1996) find that in the US market reaction to upstairs large-block transactions significantly depends on whether the deal is buyer- or seller-initiated. In the first case, abnormal performance around the announcement date is usually positive, while in the latter - always negative. Additionally, the temporary price impact of the block transaction (i.e. cumulative abnormal return over one-month period after the deal) is absent for buyer-initiated transactions. The temporary impact of seller-initiated transactions is significantly negative and its magnitude is a concave and increasing function of the deal size.

2.3 Private benefits of control and determinants of block premia - empirical evidence

The empirical literature provides support for the existence of private benefits of control, which are found to increase with the size of the stake held by a given block holder (Barclay and Holderness, 1989, 1992; Zingales, 1994, 1995; Nicodano and Sembenelli, 1999). They depend on ownership structure and vary significantly among countries, possibly due to the differing corporate governance regimes[7]. Moreover, control rents are affected by firm-specific characteristics, such as company size, leverage, risk, prior performance, and particular characteristics of voting rights.

Various studies differ with respect to the methodology employed to estimate private benefits of control. Barclay and Holderness (1989, 1992) argue that private benefits of control are reflected in the block premium calculated relative to the post-transaction price. Nicodano and Sembenelli (1999) argue that this methodology is inappropriate, since it neglects ownership structure characteristics in the analysis of control rents. Instead, following Zwiebel's (1995) suggestion, they posit that the fraction of control rights being transferred in a block trade should be measured by changes in strategic importance of shareholders (proxied by changes of Shapley values). Yet another approach is proposed by Zingales (1994, 1995), who analyses samples of companies with dual-class stocks. Price comparisons of shares carrying different control rights allows then to make inferences about the value of private benefits of control.

3 Research hypotheses

3.1 Valuation hypotheses

Positive abnormal stock performance around block deal announcement might be motivated by two plausible scenarios. Investors can expect that a block deal is a prelude to an attempted takeover as the acquirer builds a toehold (Shleifer and Vishny, 1986). Alternatively, positive abnormal performance

[7] Estimates of private benfits of control range from about 4% of the value of the company's equity in the US (Barclay and Holderness, 1989; Zingales, 1995) to approximately 27-29% in Italy (Zingales, 1994; Nicodano and Sembenelli, 1999).

upon the announcement of block transaction might be due to expected improvement in corporate governance (e.g. due to increased intensity of monitoring)[8]. In both cases the positive effect of change in control should be more pronounced in companies characterised by poor performance (either stock market, or operating performance) in the period preceding the transaction.

Hypothesis 1 (Restructuring) *The stock price reaction to a block transaction is positive. The increase of prices is greater in companies performing poorly in the period preceding the trade.*

Building up a block by repurchasing shares from other large shareholders rather than via tender offer may indicate that the goal of the acquirer is to extract private benefits at the expense of small investors (Burkart et al., 2000). Excessive ownership concentration may also lead to the over-monitoring problem (see above). Zwiebel (1995) claims that block holders create a space for themselves. Moreover, in some circumstances their 'control monopoly' is not challenged (Holderness and Sheehan, 1988). When ownership of shares not held by block holders is very widely dispersed (as it often is the case in Poland), even a relatively small block may give full control gains due to large absenteeism and potential information disadvantage characterising small shareholders (Crama et al., 1999). The market is unlikely to prevent the block holder from extracting excessive private benefits of control (while competition among large shareholders could serve this purpose).

Hypothesis 2 (Expropriation) *The market reaction to the announcement of an ownership concentrating deal is negatively related to the size of the free float. This effect is stronger in companies where the acquirer control power cannot be challenged by other block holders.*

Barclay and Holderness (1989) claim that block trade can be the signal concerning the prospects of the firm. Under the assumption that block holders have access to superior information, the market infers that transactions in which seller is ready to liquidate the position at discount (relative to the market price) signal bad prospects for the company. In contrast, transactions concluded at premium convey good news and trigger positive market reactions.

Hypothesis 3 (Superior Information) *Transactions concluded at a premium are followed by a positive abnormal stock performance, while those at a discount are followed by a negative one.*

3.2 Determinants of block premia

In the spirit of Grossman and Hart (1988), Bebchuk (1994), and Zwiebel (1995), the price paid for the significant fraction of voting rights may reflect the possibility of extracting private benefits of control by the transaction parties.

Hypothesis 4 (Existence of Private Benefits of Control) *Acquiring large a fraction of control rights requires a premium above the post-trade market price.*

The value of the control rights may exceed the post-trade market price if the potential extraction of private benefits of control is high. Moreover, the block trade premium may understate the true value of the private benefits because the owner of the equity block incurs the following two costs: *(i)* holding

[8] That argument follows the logic of Admati et al. (1994), Maug (1998), and Kahn and Winton (1998).

a large block of shares limits the possibilities of risk sharing attainable by portfolio diversification (Admati et al., 1994); *(ii)* transferring a large block of shares might require bearing some liquidity costs.

Moreover, premia calculated relative to the pre-transaction price reflect both shared benefits of control (e.g. expected improvement introduced by a block holder) and private benefits of control (Barclay and Holderness, 1992). After the announcement, the market accounts for the possible value creation due to changes in ownership structure. Therefore the difference between the post-trade share price and the price paid in the block deal is more informative about private benefits of control (Barclay and Holderness, 1989). The intuition that the possibilities to extract benefits of control should be positively related to the block size (precisely, to the voting power it carries) held by an investor is commonly accepted in the literature (e.g. Barclay and Holderness, 1989, 1991; Zingales, 1994, 1995; Nicodano and Sembenelli, 1999). Opinions diverge, however, on the exact functional form of the stipulated relationship. Zwiebel (1995) argues that private benefits of control are divisible and that their allocation depends on ownership structure[9]. A block entitling to 20% of votes in a company with widely dispersed ownership is very likely to award its holder with effective control over the company (Crama et al., 1999). A block of the same size in a company with a majority shareholder usually does not give its holder significant influence on firm's activities unless supermajority requirements are imposed. Therefore it is the relative rather than the absolute power of a given investor, which determines his ability to enjoy private benefits of control (Crespi-Cladera and Renneboog, 2000). This implies that premia paid in block transactions should depend not only on the size of the block, but also on the initial and post-trade ownership structure characteristics. By this I mean not only the features of parties involved, but also those of all the investors who can be pivotal in a 'voting game' (Crama et al., 1999).

Hypothesis 5 (Relative Power) *The premium an investor is ready to pay/accept for the block is positively related to the change in strategic importance and in relative power of a given block holder.*

A significant block of shares entitles its owner to exercise control rights. However, a substantial size of the block can bring about liquidity costs for its holder. If the market is not deep enough (in the sense of Kyle, 1985), it might be difficult for a block holder to liquidate his position. In order to dispose of the shares he can try two alternative mechanisms. He can break up the block and sell the shares subsequently on the market, or alternatively, sell the whole block to another investor. The disadvantage of the first solution is that the sale of significant fraction of shares in a short period may cause the stock price to drop dramatically. This decrease is larger if the block constitutes a significant fraction of outstanding equity and the market for a given stock is not very liquid. Usually this adverse effect is so strong that blocks are not being broken up and traded away like that. The sale of the whole block to another potential block holder can also be costly due to the presence of liquidity costs in the block market[10].

[9] More specifically, it depends on the allocation of voting rights among various shareholders. This distinction is crucial for the companies with dual class stocks (carrying different voting rights).

[10] There exist two different markets for the same shares: block market and open market. This clientele effect follows the spirit of Zwiebel's (1995) paper postulating 'own spaces' for block holders and small investors. Prices on both markets are related, but some factors might stronger influence the valuation of the stock on one of that markets (e.g. depth of the block market should have larger impact on block premia than on the price movements on the open market). Similar way of reasoning is offered by Keim and Madhavan (1996), who argue that upstairs market transactions have less liquidity effects on the downstairs market than transactions carried out directly on the downstairs market.

Hypothesis 6 (Liquidity Costs) *Block transfers are subject to liquidity costs, which increase with the size of the deal.*

4 Methodology

Since the publication of Manne's (1965) paper, corporate control is widely recognised in financial literature as a major corporate asset. Therefore, it is evident that significant changes in ownership structure, and thus in control, constitute a major corporate event (Barclay and Holderness, 1989; Burkart et al., 2000). If semi-strong market efficiency is imposed (compare, e.g. Fama, 1976; Malkiel, 1992), the impact of such an event should immediately be reflected in an appropriate stock price movement[11]. The analysis of block transactions and their perception enables me also to assess the importance of private benefits of control and draw indirect inferences about agency costs emerging from the interaction of shareholders. Thus, in testing for research hypotheses developed in Section 3, event study methodology is applied, which is common for empirical studies in the field (see, e.g. Barclay and Holderness, 1989, 1991; Keim and Madhavan, 1996; Banerjee et al., 1997).

Day 0 signifies the trading day following the block transaction, because all the block trades analysed occurred and were announced after the closing of downstairs market[12]. The estimation period is defined to consist of 100 trading days and end one month before the event, i.e. the window [-121, -22] is used. Such a procedure seems to be appropriate in the analysis of a young market characterised by highly volatile betas. It assures that estimates for the parameters of a benchmark model are not influenced by the event itself (Banerjee et al., 1997). Therefore, it should render reliable and relevant parameter estimates without imposing too rigid data availability requirements (which could result in a survivorship bias).

In order to analyse the announcement effect, I assume the event window to be the interval [0, 1] instead of analysing just abnormal performance on day 0[13]. Such an approach allows to control for possible slow reaction of the market, e.g. due to thin trading (MacKinlay, 1997). Following Barclay and Holderness (1989), I test additionally for longer-run impact of the event on stock price performance, using returns over the period of approximately two months after the event, i.e. the interval [0, 39]. The returns are calculated in logarithmic terms, and so conform better than simple ones to the assumptions of the standard statistical techniques (Kramer, 1999).

In the event studies, the market model is employed as a benchmark expected return (Strong, 1992)[14]. The parameters of the model are estimated with Ordinary Least Squares for the observations from the estimation period, with the returns on WIG[15] taken as a proxy for market returns. Abnormal

[11] I assume that the news about block deals is publicly available information. The plausibility of this assumption might be questioned in the markets characterised by relatively lenient disclosure requirements.

[12] This is a rule in Poland. It aims to protect less informed traders from being taken advantage of. Thus, the market can fully reflect the information about a block transfer on day 0, as only then is it publicly available. In most cases, day 0 is a press day simultaneously (i.e. the day on which the information about the deal is made public and commented upon in the newspapers). Even if it is not the case, it can be safely assumed that on that date investors can easily acquire this information from sources other than the newspapers examined (e.g. Reuters, the stock exchange or brokerage houses financial services, etc.).

[13] I carried out sensitivity checks for this approach. The conclusions turn out to be robust, irrespectively of the exact definition of event window.

[14] Brown and Warner (1980, 1985), in their simulation studies, document that such benchmark performs better than alternative specifications (like mean-adjusted or market-adjusted returns).

[15] WIG is a value-weighted index of the Warsaw Stock Exchange. It is the broadest of the Polish stock indices (it includes all the companies listed on the primary market), which is a desirable feature in analysing a sample of companies,

return on security i on day t is then defined as the prediction error from the market model. Cumulative abnormal returns over the interval $[\tau_1, \tau_2]$ are defined as the appropriate sums of abnormal returns, while average abnormal return on day t and cumulative average abnormal return over the period $[\tau_1, \tau_2]$ are computed as cross-sectional arithmetic means of the relevant ARs and CARs[16]. The basic procedure employed for testing significance of CARs is a t-test (compare, e.g. Banerjee et al., 1997). In the following analyses, I use sign test and Wilcoxon signed rank test as well as t-test in order to assure the robustness of the conclusions[17]. All hypotheses concerning significance of abnormal returns (and thus all the tests) are formulated as one-tailed ones. Thus, all the quoted significance levels should be interpreted accordingly[18].

The abnormal returns as well as the block premia are further explained within the usual cross-sectional regression framework. All the models are estimated with the use of Ordinary Least Squares. Following MacKinlay (1997), I control for possible heteroskedasticity of an unknown form and employ heteroskedasticity consistent estimator of covariance matrix, as described in White (1980).

In all the regressions I control for potential collinearity. The procedure employed involves the analysis of Variance Inflation Ratios (VIFs hereafter, Neter et al., 1996). A model is abandoned due to the collinearity problem if tolerance level of at least one VIF is lower than 10% (which means that the corresponding variable is most likely to cause collinearity of the matrix of model explanatory variables). All the models reported are free of collinearity problems.

5 Data

5.1 Data collection

In order to obtain a sample of block trades in Polish listed companies, the archives of *Parkiet* and *Gazeta Wyborcza* were carefully examined[19]. These are the most important newspapers providing information on stock market in Poland. In Poland, not all block transactions (even those involving parties that control more than 5% of votes) have to be publicly disclosed[20] and therefore it is not possible to obtain the equivalent of the American SEC 13d filing. Thus, I use press data about block trading.

The sample period includes 44 months - from July 1996 till February 2000. Data for the first half of 1996 and earlier years are not available. The initial sample contained 146 observations. Some

which includes also small firms (MacKinlay, 1997).

[16] I apply such a way of cumulating returns (CAARs), since it poses fewer statistical problems compared to considering buy-and-hold abnormal returns. In short-term study, like the one carried out here, BHARs are unlikely to produce more reliable inferences (Barber and Lyon, 1997; Kothari and Warner, 1997).

[17] Brown and Warner (1980) document that t-test, on average, outperforms non-parametric counterparts as far as the power is concerned. This conclusion is more relevant for larger samples, however. In smaller samples normality assumption is more likely to be violated (e.g. due to presence of outliers), and thus, non-parametric tests may be employed to alleviate this problem (Kramer, 1999; MacKinlay, 1997). These tests usually require weaker distributional assumptions than their parametric counterparts. Therefore the results of t-test in the full sample are more informative than in the analysed sub-samples, where (due to their small sizes) non-parametric results should be more reliable.

[18] In order to obtain two-sided significance levels the values given should be doubled.

[19] *Parkiet* is an official newspaper of the Warsaw Stock Exchange, but its role in providing investors with pertinent information cannot be compared to *Wall Street Journal*, *Financial Times*, or *Het Financieele Dagblad* in their respective markets. Therefore, the archive of *Gazeta Wyborcza (*the largest Polish daily newspaper) was also examined.

[20] Moreover, the Polish market is still much smaller than many of its counterparts. Because of that, it is not tracked by as many analysts as, for example, British or American ones. This results in smaller amount of information collected on listed companies and lower reliability of the data.

observations had to be excluded from the preliminary sample, however. The reasons for exclusion were at least one of the following:

- It was not possible to identify at least one of the parties to the transaction.
- Data were unreliable or erroneous[21] (in two cases only).
- The transaction was a response to a tender offer. Following Barclay and Holderness (1991), I exclude such transactions from the sample, since the marginal influence of a particular deal on the ownership structure is then difficult to measure. However, I do not exclude transactions which led to subsequent tender offers[22].
- The transaction was tied with some other transactions agreed upon or revealed on the same (or very close) date, or more than one deal occurred in the event window. In such cases difficulties in disentangling confounding or contaminated event effects could occur.
- Transactions occurred between a company and its subsidiary or among subsidiaries of the same mother-company. In such a case block transaction price might not be very informative (e.g. the transaction may serve as a device of transferring profits within a capital group).
- One of the transaction parties is a subsidiary of the company whose shares were traded. The nature of such deals can differ from other block trades. If such a company acts as a buyer - the deal resembles a share buy-back. If it acts as a seller, it is either a kind of seasoned equity offering, or an anti-takeover mechanism to prevent a hostile takeover[23].

As a result, 53 block trades remained in the final sample. Although the sample period includes 44 months, most of the studied transactions occurred in the very last year of the interval analysed (see Graph 1).

[Graph 1 about here]

Variables characterising ownership structure before and after a deal were constructed on the basis of the *Parkiet* ownership-structure database and the same sources, which were used to retrieve transaction details. The ownership-structure database was also used to collect data concerning the number of shares outstanding in the company. Stock prices and stock index values were downloaded from the website of the Bank of Environment Protection brokerage house (Bank Ochrony Srodowiska). The stock prices are dividend- and split-adjusted. All accounting data come from the Notoria Serwis databases.

[21] For instance, reported fraction of shares held by all block holders exceeded 100%.

[22] Excluding such deals would diminish sample size substantially. The reason for that is that a shareholder who accumulates at least 10% of shares of a company within 90 days is legally obliged to bid for the rest of outstanding shares. Exceptions are the situations when State Treasury is the block seller, or when the deal concerns preferred stock (and thus is carried out outside the regulated market).

[23] Sale of shares to a friendly party can play this role since in Poland subsidiaries cannot exercise their voting rights in mother company (although they are residual claimants and have dividend rights).

5.2 Variable description

In testing and analysing market reactions to block deals, appropriate cumulative abnormal returns are used. To analyse the short-term announcement effect I employ CAR(0, 1). This variable is explained in regression models in order to verify Hypotheses 1-3. Investigating the reaction in the longer run, I consider cumulative abnormal returns in the period of 40 trading days (approximately 2 months) after the deal, i.e. CAR(0, 39).

Table 1 summarises descriptive statistics of the variables used in the analyses.

[Table 1 about here]

There are four measures of the level of premia to be found in the literature. The simplest one is the pre-trade premium (which I use while testing the *Superior Information Hypothesis*) defined as:

$$PREMIUM_i = \frac{p_{bi} - p_{mi}}{p_{mi}} \tag{1}$$

where p_{bi} denotes the price (per share) paid in the i-th block transaction, and p_{mi} is the open market share price before the trade. Analogously to Barclay and Holderness (1989), for p_{mi} I take the market price on day (-3).

A more appropriate way to estimate private benefits of control requires an analysis of standardised block premia, which are calculated according to the formula:

$$STD\_PREMIUM_i = PREMIUM_i \cdot \alpha_i \tag{2}$$

where α_i denotes the fraction of voting rights being transferred in the i-th block trade (Barclay and Holderness, 1989, 1991)[24]. *STD_PREMIUM* is one of the explanatory variables in the model employed to verify the *Superior Information Hypothesis.*

Two other measures of block premia have been developed; a post-trade block premium and a standardised post-trade block premium (*POST_PREMIUM* and *STD_POST_PREMIUM*). They are calculated in a similar way as *PREMIUM* and *STD_PREMIUM.* The difference is that instead of the pre-trade market price, the post-trade one is used as p_{mi}. Barclay and Holderness (1989, 1991) claim that such premia can be used to construct even more accurate measures of private benefits of control, since they capture the surplus paid above the price which the market perceives to be fair value of the security after the block trade. I also assume p_{mi} to be the market price on day 0[25].

Return on equity (expressed in percentage terms), i.e. the ratio of net profit to the average value of equity in a given quarter, is assumed to be the measure of *PROFITABILITY.* In all models the value

[24] In most of the cases it is equivalent to the fraction of voting equity being transferred (as in Nicodano and Sembenelli, 1999). However, there exist companies in the analysed sample that issued preferred stock. Such stocks have superior voting rights, i.e. they give their bearer the right to exercise more than one vote per share (in the sample - from two up to five, depending on the company). None of the analysed block trades involved a transfer of preferred stock, however. Transfer of such equity is very rare in Poland. Furthermore, only common stocks can be traded on the Warsaw Stock Exchange. Transfer of prefered stocks in listed companies requires the permission of the Securities and Exchanges Commision (KPWiG) and is arranged outside the regulated market.

[25] I test for significance of post-trade premia and standardised post-trade premia in order to verify Claim 4. Moreover, regression models explaining standardised post-trade premia are estimated in testing for Claims 5 and 6.

of return on equity from the end of the last quarter before the deal is used. The *PROFITABILITY* variable is not defined for insurance companies, which is the case for 5 observations in the sample. In order to verify Hypothesis 1, this variable is employed as a regressor in the models explaining block deal announcement effects.

Blockholder-induced restructuring can be triggered only by an investor who plans a longer-term engagement in a company (Nesbitt, 1994). This feature of a buyer is captured by the *STRATEGIC* dummy, which equals one when a block acquirer is (or is going to be) a strategic investor in the firm, in which he is increasing his stake. I use this additional variable to verify the *Restructuring Hypothesis*.

A couple of variables are employed to operationalise the *Expropriation Hypothesis*. The relative size of a *FREE FLOAT* is measured by the fraction of votes, which are not held by block holders[26]. Additionally the *FULL_ CONTROL* dummy variable is computed. It is a function of oceanic Shapley values (discussed below). It equals one when a buyer gained full control or strengthened it due to the block transaction, and zero otherwise. Full control depicts a situation where buyer's oceanic Shapley value after a deal equals one, and thus his control monopoly is unlikely to be challenged by another block holder. Moreover, the expropriation threat seems to be the strongest when the buyer gains full control, but he does not plan to engage strategically in the company. This effect is captured by the interaction term of the variables *FULL_ CONTROL* and the opposite of the *STRATEGIC* dummy, i.e. *FULL_ CONTROL*(1 - STRATEGIC).*

Additionally, in the models explaining stock market reactions to announcements of block deals the *PRIVATISATION* control dummy is used. It equals one if State Treasury is the seller (this is the case for 9 deals), and zero otherwise. This control variable allows for taking into account differences in motives driving privatisation decisions and other block sales (Cornelli and Li, 1997).

In a sensitivity analysis, I use an additional control variable: the relative size of the block (proxied by the *% OF VOTES* variable defined below). One can expect market reactions to large block transfers to be more pronounced, which motivates the use of the first variable. A second control variable is *LEVERAGE*: higher indebtedness of the target firm constraints access to free cash flows, making expropriation difficult (Banerjee et al., 1997). Moreover, highly geared firms should also benefit more from direct or indirect decreases in expected bankruptcy costs provided by the new stakeholder. *LEVERAGE* (the ratio of total assets value to equity) is calculated for the end of the quarter preceding the deal. It is expressed in percentage terms and defined only for non-financial companies.

To capture the relationship between private benefits of control and the stake[27] being transferred in a deal in the models explaining block premia I use the variable *% OF VOTES*, which is defined as the fraction of voting rights assigned to the traded block of shares. Moreover, accordingly to the *Relative Power Hypothesis,* private benefits of control are the function of a stake held by a given investor, as well as his relative power. In recent financial literature, Shapley values (SVs hereafter) are the commonly accepted measures of such relative power (Zwiebel, 1995; Crama et al., 1999; Nicodano and Sembenelli, 1999; Crespi-Cladera and Renneboog, 2000), as they are argued to proxy investors'

[26] A block holder is assumed to be an investor controlling more than 5% of voting rights in the company and/or any of the parties to the deal analysed.

[27] The stakes are always computed on the basis of voting rights controlled by a given investor. Therefore, in some cases they do not coincide with the fraction of cash flow rights (measured by fraction of shares held) that characterise the stake. The latter variable is denoted by *% OF CAPITAL*.

power more accurately than the fraction of voting rights he controls. The SV of an investor equals the probability that he is pivotal in a randomly formed coalition of investors (Gambarelli, 1996). Following Crespi-Cladera and Renneboog (2000) I calculate so-called oceanic SVs. This approach assumes that the stakes of small investors are so dispersed that their role in exerting corporate control is negligible. SVs are computed on the basis of stakes held by block holders only (i.e. their stakes are re-scaled in a way that makes their sum equal to 100% and then SVs are computed in the usual way). This seems to be appropriate in Poland, where the ownership of shares not controlled by block holders is widely dispersed and absenteeism of small investors at the shareholders' meetings is a rule rather than an exception. Having computed oceanic SVs before and after the deal, I compute their changes for the buyer and the seller (denoted by ΔOSV_BUYER and ΔOSV_SELLER, respectively), and use them in some specifications as substitutes for the *% OF VOTES* variable. Additionally, in the models including *% OF VOTES,* I use the $FULL\_CONTROL$ variable to capture non-linearity of the relationship between the block size and the corresponding private benefits of control (postulated by Hypothesis 5). Yet another way of modelling the relationship between the ownership structure and control benefits extraction is to allow this benefit to depend directly on ownership concentration. This effect is captured by the *HERFINDAHL* variable, which is computed as the Herfindahl-3 index based on voting rights held by block holders after the deal.

Verification of the *Liquidity Costs Hypothesis* requires measuring of the absolute transaction size. For that I use natural logarithm of the deal value (expressed in millions PLN), and denote it by $DEAL\_VALUE$.

In the models explaining the level of block premia I include several control variables. For instance, I control for the possibility of a transaction being induced by the *RUSSIAN CRISIS* in 1998. A control dummy is constructed, equalling one, when the transaction occurred in period July 1998 - March 1999 (5 observations), and zero otherwise.

The possibilities of extracting private benefits of control may also vary across companies. Unfortunately, the small size of the sample does not allow me to control fully for the industry-specific effects. Therefore, I resort to a very general categorisation and classify companies either as financial (subdivided into banking and insurance sectors[28]) or non-financial ones. Other company-specific characteristics I control for are the profitability (see above) and the company risk (proxied by standard deviation of percentage daily returns on a company's stock within the estimation period). Inclusion of the *RISK* variable can be motivated by the proposal of Demsetz and Lehn (1985) who argue that monitoring by a large shareholder will increase in value, and hence concentrated ownership will be more likely, as the company's risk increases.

Nicodano and Sembenelii (1999) also indicate that firm characteristics such as size and leverage can influence the value of control rights in a company. Barclay and Holderness (1989) argue that larger firms offer potentially greater pecuniary and non-pecuniary benefits. However, large companies are usually subject to more extensive tracking by analysts and monitors, which makes the extraction of private benefits of control more difficult. In the sensitivity analysis, the natural logarithm of market capitalisation (expressed in millions PLN) proxies for company size ($FIRM\_SIZE$). Market capitalisation is computed as the product of the number of the shares outstanding and the market

[28] I do not use this further subdivision in any of the models. However, the accounting rules concerning these two types of companies (i.e. banks and insurance companies) differ much, which makes the division important. For instance, return on equity ($PROFITABILITY$) is not defined for insurance companies, and thus, they are excluded from the models which use that characteristic as an explanatory variable.

price on day (-1).

In a sensitivity analysis, I use *LEVERAGE* (defined above) as a control variable. High levels of debt might both increase and reduce control rents (Nicodano and Sembenelli, 1999). Increasing the leverage has a twofold effect. On one hand, it can increase the size of the company and thus overcome the owners' wealth constraint (Stulz, 1988). On the other hand, it can constrain managerial discretion by restrictive covenants and by the obligation to pay out future cash flows (Harris and Raviv, 1988), which reduces the possibility of extracting perquisites of control.

Idiosyncratic characteristics might affect the investors' ability to extract private benefits of control[29]. In order to control for possible heterogeneity of block acquirers, I employ the *STRATEGIC* dummy in sensitivity analyses. There is no reason to assume that all the sellers in block transactions are homogeneous either. They can also pursue various goals. For instance, when the State Treasury is selling its stake in the formerly state-owned company it may take into account other factors than obtaining the maximal possible price for the block. It might follow the criterion of maximising incumbent stakeholders' interests (which could mean, e.g. sustaining the employment) rather than obtaining the highest price (Cornelli and Li, 1997). Therefore I use the *PRIVATISATION* dummy in my sensitivity tests.

6 Valuation effects of block transactions

Graph 2 illustrates the abnormal stock performance around the announcement of a block deal. Block transactions are preceded by a positive abnormal stock performance. This (statistically insignificant) information leakage effect can be observed in the period of 3-4 weeks before the deal. The transaction is accompanied by an upward jump of CAARs and is followed by an 8-trading-day period when abnormal performance is close to zero. A decline of abnormal stock returns sets in 2 months after the deal. The pattern observed on the graph is very similar to the one reported by Barclay and Holderness (1991) for companies that remained independent after a block deal[30].

[Graph 2 about here]
[Table 2 about here]

Table 2 supports the claim that a block transaction is a major corporate event that leads to an abnormal stock performance, which is significantly positive. The short-run results offer support for the hypothesis postulating expected improvement of corporate governance induced by the transfer of control. In the full sample, market reaction to block transactions is positive. Moreover, no support for the *Superior Information Hypothesis* is found - the differences between market perception of a block deals from the two sub-samples (transactions concluded at a premium and at a discount) are statistically insignificant.

[29] Shleifer and Vishny (1997) provide an anecdotal example of such differences, coming from Russia. Following one of the investment bankers, they point out that a Western investor can control a Russian company with 75 percent ownership, whereas a Russian investor can do so with only 25 percent stake. Although in other markets, legal protection of all investors is usually equal, the discrepancies can emerge due to differences in skills and abilities of different shareholders. Moreover, some of the private benefits of control (e.g. synergies) can be enjoyed only by a particular group of investors.

[30] This is the case for the whole sample analysed here. Although in some cases buyers accumulated controlling stakes due to the deal, none of the analysed companies went private.

The analysis of abnormal performance over a longer time period provides additional insights into how block deals are perceived by the market. In both sub-samples slightly negative abnormal stock performance (significant at 10%) within 2 months following the deal can be observed. The difference between sub-samples is negligible however (t-statistic equals 0.122), which again rejects the *Superior Information Hypothesis.*

All companies in the sample remained formally independent after the analysed block transactions. This offers a plausible explanation of negative abnormal stock performance in the period following the deal. Polish law requires that a buyer who accumulates at least 10% of votes within 90 days bids for all the outstanding shares. In more than half of the cases, the deal size did not exceed that threshold (compare Table 1). If the buyer is not struggling for a full acquisition, the market might expect him to wait 3 months in order to avoid an obligatory tender offer rather than to buy more shares immediately after the block deal. This postponement could induce a negative abnormal performance in the two-month period after the deal.

[Table 3 about here]

In the regressions discussed below, CAR(0,1) is explained. The models examine factors that influence valuation effects of block transactions. Model 1 (reported in Table 3) offers strong support for the *Expropriation Hypothesis*. Market reaction to a block deal announcement (i.e., CAR(0,1)) and the size of the free float are negatively related. Such negative impact of the free float's relative size on the way the block deal is perceived, should be the strongest for companies where the acquirer's control power cannot be challenged by other block holders (in those cases accumulating even a small block may provide its holder with effective control). This is the case when, subsequent to the transaction, the buyer is a dominant block holder (i.e. the *FULL_CONTROL* dummy equals one). The sign of the coefficient corresponding to the *FULL_CONTROL* variable is negative and significant at 10% level. Therefore, I conclude that the data provide support for the *Expropriation Hypothesis* (compare also Models 3 and 4). This apparent concern of the Polish market about possible expropriation of small investors is in line with findings of La Porta et al. (1998). They document inferior minority shareholders' protection in the non-Anglo-Saxon corporate governance systems.

The market perceives a block deal more favourably if the buyer is, or is going to be, a strategic investor in the company, in which he acquires the stake. In such a case, value increasing measures are more likely (e.g. due to higher expertise of an acquirer in a given branch of industry[31]), which makes expropriation less probable. This claim is further supported by Model 2 (summarised in Table 3). The negative impact of the *FULL_CONTROL* dummy on market perception of a block deal is most pronounced for deals in which the acquirer gaining or strengthening full control is not a strategic investor. For such deals the abnormal returns are on average 4.29% lower than in case of other block transactions. This provides even stronger support for the *Expropriation Hypothesis.*

The *Superior Information Hypothesis* postulates that the level of block premia signals the prospects of the firm. However, the results outlined in Table 3 (Model 3) do not support the idea that the market believes in the signalling role of block premia. The relationship between a block trade announcement

[31] This argument seems to be especially relevant in Poland where a well-established Western company operating in the same or related industry usually becomes a strategic investor. Such an acquirer has a great potential to introduce value-increasing improvements and hence create shared benefits of control.

effect and the level of premia is strongly insignificant. Furthermore, as reported before, the dependence is also hardly observable in the longer run (compare Table 2). Hence, the *Superior Information Hypothesis* is rejected.

The *Restructuring Hypothesis* postulates that the market reaction to transfers of control should be more favourable in poorly performing companies. Therefore, one can expect that in such companies the acquirer's goal is more likely to be efficiency improvement rather than the extraction of private benefits of control. In Model 4 (presented in Table 3) I try to verify this claim. The data seem to reject the *Restructuring Hypothesis*. The sign of the coefficient corresponding to *PROFITABILITY* is insignificantly different from zero. Transfers of control in underperforming companies are not perceived any better than the ones in firms that do not face such problems. Hence, one can conclude that the market does not expect the new (or old, but strengthened) block holder to improve the company's operating performance. Therefore, the overall positive market reaction to the block deal reported before (Table 2) is bound to be driven by other factors, e.g. a speculative increase of prices due to an expected takeover.

The signs corresponding to the *PRIVATISATION* dummy in all the models discussed in this section are negative. Privatisations (as compared to other block deals) are not favourably perceived by the market. It seems a bit counterintuitive, as one might expect that the opposite reaction. The rationale behind that is twofold. In (partly) state owned companies management can be subject to political pressures. Additionally, the State which holds a stake in the company and engages in monitoring activities might have other objectives than profit maximisation - e.g. the State could promote excessive employment (Cornelli and Li, 1997). The relationship found here casts doubt on one of the most frequently cited goals of the privatisation process, namely efficiency gains (see e.g. Roland, 2000). If a transfer of control from a public to a private owner is to improve company performance, it should be perceived more favourably (or at least no less favourably) than a block deal agreed on by private investors. It is not the case in the analysed sample. Possibly, additional covenants included in privatisation deals (e.g. conditions sustaining the level of employment, or imposing some investment requirements) are suboptimal from the investors' point of view, making such block acquisitions less attractive. Furthermore, activism of the State as an important stakeholder can also bring about benefits for the dispersed shareholders, which could explain my results. For instance, the presence of the State in the ownership structure may limit opportunities for other block holders to inefficiently extract private benefits of control.

Some sensitivity checks have also been performed. None of the conjectures of the models summarised in Table 3 are seriously challenged by inclusion of additional control variables. First, *LEVERAGE* proved insignificant as a variable explaining CARs(0,1). Second, I have investigated whether the relative size of the transaction (measured by the *% OF VOTES* variable[32]) influences the market reaction to the control transfer. On the one hand, a larger block creates greater potential for corporate governance improvement introduced by the acquirer, but, on the other, it might also ease inefficient extraction of perquisites of control. These two opposite effects may offset each other, which explains the insignificance of the corresponding regression coefficient.

[32] Alternative proxies for the control power transferred in the block transaction (changes in oceanic Shapley values of deal parties) have been tried, rendering virtually the same results.

7 Determinants of block premia

Levels of block premia can be used to estimate the value of private benefits of control. Hypothesis 4 postulates that substantial blocks of shares carry significant fraction of voting rights, and hence offer their holders opportunities to extract private benefits of control. That is why the acquisition of a block requires payment of a premium over the market price. The data support this hypothesis (see Table 1). Both simple and standardised post-trade premia significantly exceed zero. Relevant t-statistics equal 2.766 and 2.633, respectively, which corresponds to a significance level of approximately 1%. The distribution of premia is further illustrated by Graphs 3 and 4[33].

[Graphs 3 and 4 about here]

It is the relatively low level of observed block premia in the Polish market that is most striking. For instance, Barclay and Holderness (1989) report in their sample an average premium of 20.4% (as contrasted with 6.8% here), and the standardised post-premium of 4.3% (here: 0.98%). The simple premia difference is to some extent explained by the smaller average block size in the sample analysed here (12.35% as contrasted with 20.7% in the sample of Barclay and Holderness, 1989). This effect, however, should be absent in comparing standardised block premia. Still, this is not the case. Therefore, one can suppose that either private benefits of control in Poland are much lower than in the United States (which is rather unlikely), or that liquidity costs are very high in the market for blocks of Polish companies. The latter claim (coinciding with Hypothesis 6) is further supported by the fact that every third transaction in the analysed sample is concluded at a discount. In the American sample studied by Barclay and Holderness (1989) almost 80% of block deals were characterised by positive post-trade premia. In the models discussed below, the issue of liquidity costs is examined in more depth.

In the regressions, I employ the standardised post-trade premium as a dependent variable. Apart from having better statistical properties than the simple block premia, the standardised post-trade premium has also an intuitive interpretation, i.e. the value of private benefits as a percentage of the total value of the firm's equity (Barclay and Holderness, 1989)[34]. The estimation results are summarised in Table 4.

[Table 4 about here]

As postulated by the *Relative Power Hypothesis*, the coefficients corresponding to the relative block size (measured by *% OF VOTES*) are positive and highly significant in Models 5 and 8 (reported in

[33] In order to make these results comparable to those reported in other studies, one should limit the analysis to the companies following the one-share-one-vote rule. The results for this sub-sample of 39 observations (not reported here) are very similar to the ones obtained for the whole sample. Moreover, the premia paid for blocks of common stock in companies issuing preferred stock are, surprisingly, a bit higher than in those following one-share-one-vote rule. Hence, I argue that the presence of companies issuing preferred stock in the sample does not affect the conclusions.

[34] My conclusions turn out to be robust, however. Models explaining the simple post-trade premia render virtually identical results.

Table 4). Hence, on average, the acquisition of a larger block involves paying a higher standardised premium. Therefore, one can conclude that the acquisition of a larger block offers to the buyer an opportunity to extract more private benefits of control. Moreover, if the acquired block provides the buyer with full control, the associated premium is significantly higher. This effect is captured by the *FULL_CONTROL* dummy. Thus, the data offer support for Hypothesis 5. In alternative specifications (Models 6 and 7), I replace the *% OF VOTES* and *FULL_CONTROL* variables with changes in oceanic Shapley values of deal parties (i.e. with the ΔOSV_BUYER and ΔOSV_SELLER variables). Both models yield similar conclusions. Their explanatory power is slightly lower compared to Model 5, however. Thus, the *% OF VOTES* seems to proxy for the fraction of control power transferred in the block better than any of the other two variables tried (ΔOSV_BUYER and ΔOSV_SELLER variables). Ownership structure matters for opportunities of extracting private benefits of control, but this dependence is not very well described by a linear function of oceanic Shapley values. It is the size of the block (measured by *% OF VOTES*) and whether or not a block holder enjoys effective control that are more important. Nevertheless, oceanic Shapley values might be helpful in constructing measures of control effectiveness.

The *Liquidity Costs Hypothesis* postulates the larger block transactions to be associated with higher costs. Therefore, one can expect deals of substantial volume to be concluded at relatively lower premia compared to those of smaller value. This claim is supported by Models 5 and 8. The higher the value of a block, the smaller the standardised premium to. This finding reflects the fact that the Polish block market is not very deep, which offers an explanation for the surprisingly low level of observed block premia.

One more remark concerning Models 6 and 7 should be made. In contrast to Model 5, both modified models render highly insignificant coefficients corresponding to the *DEAL_VALUE* variable. This result weakens the strong support for the *Liquidity Costs Hypothesis* implied by Models 5 and 8[35].

The models reported in Table 4 present interesting resultss about the impact of the examined control variables. *PROFITABILITY* and *RISK* are idiosyncratic, firm-specific variables that have an impact on private benefits of control. The negative signs of the coefficients corresponding to *PROFITABILITY* (significant in Models 5-8) indicate that the possibilities to extract private benefits of control in poorly performing companies are higher than in those that do better. In the latter ones, factors other than extraction of control rents (e.g. expected stream of dividends) might be relatively more important determinants of block acquisition decisions.

The significantly positive coefficients corresponding to the *RISK* variable in all the models is in line with option theory. Acquiring an equity block is like purchasing a call on the residual firm value. The higher the volatility is, the more valuable the option should be. Hence, block premia paid for shares of high-risk companies should be larger.

In Model 8, the coefficient corresponding to the *HERFINDAHL* variable is significantly positive. This result documents that block premia depend on the fraction of votes being transferred, as well as on other ownership structure characteristics (as it is postulated by Hypothesis 5). However, it does not

[35] This result seems to be a bit surprising. Buyer's and seller's oceanic Shapley value changes and the *% OF VOTES* variable are highly correlated (Pearson's correlation coefficients equal 0.622 and 0.618, respectively). Moreover, all the three variables are positively correlated with *DEAL_VALUE*, and the strength of this relation do not differ much for the *% OF VOTES* variable.

necessarily mean that private benefits of control in companies characterised by highly concentrated ownership are larger. Rather, it suggests that acquiring a block in such a company may be difficult (e.g. due to liquidity reasons), and might require paying a substantial block premium.

I control also for the possibility that a block transaction was concluded during, or right after the Russian crisis (i.e. between August 1998 and March 1999). In such cases, I expected the level of premia to be lower than the average in the analysed sample. This is indeed the case - block deals concluded in the period surrounding Russian crisis are characterised by significantly lower premia. The impact of the *RUSSIAN_CRISIS* dummy amount to approximately 1.4-1.9 percentage points (depending on model specification).

I performed some additional sensitivity tests. *LEVERAGE* was insignificant, while all the other estimates remained virtually unchanged (as compared to Model 5). Controlling for company size poses serious collinearity problems, because Pearson's correlation coefficient for variables *FIRM_SIZE* and *DEAL_VALUE* equals 0.933. Replacing variable *DEAL_VALUE* with *FIRM_SIZE* rendered model estimates which hardly differ from the ones of Model 5. This result offers even stronger support for the *Liquidity Costs Hypothesis*, since many studies (e.g. Barclay and Holderness, 1989; Nicodano and Sembenelli, 1999) postulate that private benefits of control increase with the firm size. In Poland, liquidity costs in the block market seem to be so high as to outweigh the value of these benefits. Therefore, the negative impact of liquidity costs on the level of block premia might be even higher than implied by the coefficients corresponding to the *DEAL_VALUE* variable in Models 5 and 8.

I also controlled for the identity of block sellers by including the *PRIVATISATION* control dummy in Model 5. This model has lower adjusted R-squared value, while the relevant regression coefficient is insignificantly different from zero. In addition, I tried to control for buyer-specific features as well. In particular, I investigated whether (potential) strategic investors are paying premia similar to those paid by other types of buyers. The model rejects such a claim, as the coefficient corresponding to the *STRATEGIC* dummy is insignificantly different from zero. I have also experimented with other variables characterising ownership structure and its changes. As in Model 8, the results demonstrate that the block premia increase with ownership concentration. Nevertheless, none of the models tried seriously challenges the conjectures of Model 8, which ensures robustness of findings.

All the models presented in this section were estimated using the sample of non-insurance companies (for which the *PROFITABILITY* variable is defined). Qualitatively the same results can be obtained for the whole sample, as well for various possible sub-samples. Such sub-samples include all non-financial companies, firms following the one-share-one-vote rule, non-privatisation sample etc. However, due to smaller sizes of sub-samples, significance of estimates is usually slightly lower than in the models reported here. For the sake of brevity, these results are not reported here.

8 Discussion and concluding remarks

The current paper presents an empirical analysis of the Polish block market. Most of applied studies examining block trades investigate the American stock market and well-developed European markets. Hardly any empirical work has been done to study these issues for the emerging markets of Central Europe. One of the main reasons is that these markets, including the Polish one, are young, which makes it impossible to track the companies in the longer period after a block deal, due to the problem of short time-series.

The results show that transfers of control rights that take place in block trades in Poland constitute major corporate events, which are associated with significant abnormal stock performance. Although positive, this effect seems to be driven by speculative motives rather than by expected restructuring of poorly performing targets (no support for the *Restructuring Hypothesis* is found). This finding should be contrasted with the very strong support for the *Expropriation Hypothesis.* The market perception of a block transaction is negatively related to the size of the free float, since in the companies where ownership is widely dispersed, even a small equity block can provide the holder with effective control and enable him to extract control benefits at the expense of atomistic shareholders. Therefore, I argue that in Poland costs of ownership concentration seem to outweigh benefits, due to agency problems emerging among various groups of investors. This result brings about important policy implications, calling for improvement of corporate governance standards[36].

The findings reject *Superior Information Hypothesis*. The level of block premia paid does not seem to convey viable information about a company's prospects. Though quite low, premia and standardised premia detected in the sample are positive. This result implies that investors who hold blocks of shares of Polish companies can enjoy private benefits of control. Moreover, as expected, the level of premia (and thus, implicitly, the potential to extract private benefits of control) increases with the block size. Shapley values seem to capture poorly the strategic importance of owners and their possibilities to extract private benefits of control. Still, gaining effective control provides an opportunity to enjoy more control rents, and thus requires paying a higher price for a block. In addition, the level of premia increases with the ownership concentration (*Relative Power Hypothesis*).

Despite the fact that private benefits of control in Poland are likely to be large, observed block premia are much lower than in the well-developed markets. This suggests that high liquidity costs are induced by the insufficient depth of the Polish block market. The effect is significant enough to outweigh the positive impact of a company's size on the value of private benefits of control. Although the results are not completely robust, the Polish data seem to favour the *Liquidity Costs Hypothesis.*

Verifying the results of the present study for other transitional economies may be a very promising area for future research. It would validate explanations of some intriguing findings, assuring robustness of conclusions. Moreover, such a study could support (or reject) the claim about substantial similarities of Central European economies. Such an analysis is beyond the scope of this paper, however.

[36] Polish corporate governance system still lacks an appropriate legal framework and a code of practice in this area. Although the new corporate law being in power since January 1, 2001 may change this situation, it is still too early to analyse the impact of this change.

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Internet and CD-ROM databases

- Internet archive of *Gazeta Wyborcza*, http://www.gazeta.pl/~archiwum
- Internet archive and database of *Parkiet*, http://www.parkiet.com.pl
- On-line financial service of BOS brokerage house (DM Banku Ochrony Srodowiska), http://www.dmbos.com.pl
- *Wyniki finansowe spólek gieldowych* 1(23)/1999 and 1(27)/2000, CD-ROM databases, Notoria Serwis, Warsaw.

Tables

Table 1. Descriptive statistics of the analysed variables.

Variable	Mean	Median	Std. dev.	Minimum	Maximum
PREMIUM	9.08	10.56	19.23	-33.57	42.45
STD_PREMIUM	1.30	0.83	3.10	-6.38	8.51
POST_PREMIUM	6.80	9.01	17.91	-31.62	42.22
STD_POST_PREMIUM	0.98	0.63	2.72	-4.75	8.84
PROFITABILITY	10.02	8.93	14.62	-15.66	72.21
STRATEGIC	0.61	1.00	0.49	0	1
FREE_FLOAT	32.58	29.58	16.53	1.66	73.25
FULL_CONTROL	0.40	0.00	0.49	0	1
PRIVATISATION	0.17	0.00	0.38	0	1
LEVERAGE	188.39	169.05	97.76	112.61	613.00
% OF VOTES	12.35	9.83	9.59	2.25	52.10
% OF CAPITAL	12.77	9.88	9.51	2.38	52.10
Δ*OSV_BUYER*	0.23	0.17	0.29	0.00	1.00
Δ*OSV_SELLER*	0.19	0.10	0.27	0.00	1.00
DEAL_VALUE	3.05	2.56	1.89	-0.67	8.35
HERFINDAHL	1792.72	1142.00	1457.16	245.83	6430.37
RISK	3.12	2.99	0.77	1.59	5.08
RUSSIAN_CRISIS	0.09	0.00	0.30	0	1

Note: PREMIUM and STD_PREMIUM denote simple and standardised block premia, respectively. POST_PREMIUM and STD_POST_PREMIUM are simple and standardised post-trade premia, respectively. PROFITABILITY is proxied by (percentage) return on equity. STRATEGIC is a dummy variable equal to 1 in cases where the block buyer is a strategic investor in a target company. FREE_FLOAT denotes the fraction of voting rights not held by block holders. The FULL_CONTROL dummy is equal to one for companies, where buyer's control after a deal cannot be challenged by any coalition of block holders. The PRIVATISATION dummy equals one for the transations where the State Treasury is a block seller. LEVERAGE is proxied by the ratio of total assets to the value of equity. % OF VOTES and % OF CAPITAL denote the fraction of voting rights and of cash flow rights transferred in a deal, respectively. ΔOSV_BUYER and ΔOSV_SELLER are changes in the buyer's and seller's oceanic Shapley values, respectively. DEAL_VALUE is a natural logarithm of the block deal value (in PLN millions). HERFINDAHL is a Herfidahl-3 index characterising the firms' ownership structure after a block deal. RISK denotes standard deviation of daily stock returns in the estimation period. RUSSIAN_CRISIS is a dummy variable equal to one for transactions concluded in the period surrounding Russian crisis (VIII.1998-III.1999).

Table 2. Event study results.

	Value	t-stat.	Sig. level	Sign test stat.	Sig. level	Wilcoxon stat.	Sig. level
Full sample (N=53):							
CAAR(0, 1)	1.158%	1.899	0.032	-1.374	0.084	2.058	0.020
CAAR(0, 39)	-3.203%	-1.526	0.067	-0.275	0.392	-1.155	0.126
Transactions at premium (N = 36):							
CAAR(0, 1)	1.123%	1.665	0.052	0.500	0.309	1.335	0.093
CAAR(0, 39)	-3.039%	-1.353	0.092	-0.500	0.309	-0.896	0.190
Transactions at discount (N = 17):							
CAAR(0, 1)	1.233%	2.660	0.009	>0*	0.072	1.870	0.032
CAAR(0, 39)	-3.550%	-1.961	0.034	>0*	0.500	-0.639	0.274

Note: Asterisks denote the cases for which exact binomial distribution was used instead of employing normal distribution approximations.

Table 3. Models explaining announcement effects of block transactions.

Variable	Model 1	Model 2	Model 3	Model 4
INTERCEPT	0.0316	0.0487	0.0315	0.0284
	2.0547	3.6264	2.0203	1.5520
	0.0459	0.0007	0.0496	0.1292
FREE_FLOAT	-0.0006	-0.0008	-0.0006	-0.0007
	-1.9110	-2.2510	-1.8222	-1.5767
	0.0625	0.0293	0.0754	0.1234
STRATEGIC	0.0317		0.0321	0.0372
	2.1286		2.1439	2.3984
	0.0389		0.0377	0.0216
FULL_CONTROL	-0.0260		-0.0262	-0.0312
	-1.8440		-1.8545	-1.9156
	0.0719		0.0705	0.0632
FULL_CONTROL (1-STRATEGIC)*		-0.0429		
		-2.3458		
		0.0235		
STD_PREMIUM			-0.0003	
			-0.1636	
			0.8708	
PROFITABILITY				0.0448
				1.2300
				0.2265
PRIVATISATION	-0.0320	-0.0403	-0.0314	-0.0352
	-2.2611	-2.8377	-2.2118	-2.1178
	0.0288	0.0068	0.0323	0.0410
No. of observations	49	49	49	43
R^2	0.3108	0.2563	0.3112	0.3030
Adjusted R^2	0.2481	0.2067	0.2311	0.2089
F-statistic	4.9604	5.1685	3.8851	3.2175
Significance	0.0022	0.0037	0.0054	0.0164

Note: The numbers provided in each cell correspond to parameter estimate, t-value, and significance level for two-tail hypothesis, respectively. The dependent variable in all models is CAR[0; 1]. FREE_FLOAT denotes the fraction of voting rights not held by block holders. STRATEGIC is a dummy variable equal to 1 in cases where the block buyer is a strategic investor in a target company. The FULL_CONTROL dummy is equal to one for companies, where buyer's control after a deal cannot be challenged by any coalition of block holders. STD_PREMIUM denotes simple (pre-trade) block premium. PROFITABILITY is proxied by (percentage) return on equity. The PRIVATISATION dummy equals one for the transations where the State Treasury is a block seller.

Table 4. Models explaining block premia.

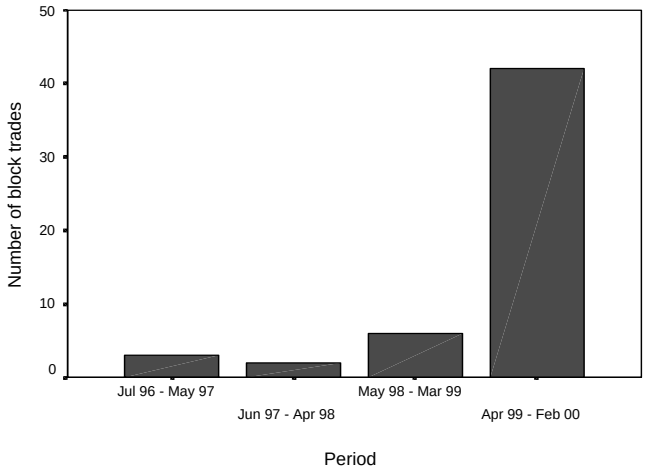
Variable	Model 5	Model 6	Model 7	Model 8
INTERCEPT	-4.4014	-3.6719	-3.7493	-4.0685
	-3.5124	-2.4993	-2.6385	-3.6014
	0.0011	0.0165	0.0117	0.0009
DEAL_VALUE	-0.2560	0.1003	0.0835	-0.2540
	-2.0038	0.5609	0.5048	-1.8661
	0.0519	0.5779	0.6164	0.0694
% OF VOTES	0.1409			0.1263
	4.8016			3.5709
	0.00002			0.0009
FULL_CONTROL	1.1359			
	1.9182			
	0.0622			
Δ*OSV_BUYER*		2.0723		
		1.5369		
		0.1320		
Δ*OSV_SELLER*			2.4193	
			1.6947	
			0.0977	
HERFINDAHL				0.0004
				2.2933
				0.0272
PROFITABILITY	-5.6378	-6.8344	-6.7988	-4.8032
	-3.5389	-3.1787	-3.4182	-2.7891
	0.0010	0.0028	0.0014	0.0081
RISK	1.5027	1.5070	1.5504	1.2707
	3.9612	3.3311	3.5728	3.8702
	0.0003	0.0018	0.0009	0.0004
RUSSIAN_CRISIS	-1.4223	-1.8716	-1.8886	-1.6281
	-1.8955	-2.1534	-2.2991	-1.7875
	0.0653	0.0372	0.0267	0.0814
No. of observations	47	47	47	47
R^2	0.5708	0.3196	0.3305	0.6104
Adjusted R^2	0.5064	0.2366	0.2488	0.5519
F-statistic	8.8660	3.8509	4.0475	10.4431
Significance	3.64E-06	0.0059	0.0045	5.95E-07

Note: The numbers provided in each cell correspond to parameter estimate, t-value, and significance level for two-tail hypothesis, respectively. The dependent variable in all models is standardised post-trade premium. DEAL_VALUE is a natural logarithm of the block deal value (in PLN millions). % OF VOTES denotes the fraction of voting rights transferred in a deal. The FULL_CONTROL dummy is equal to one for companies, where buyer's control after a deal cannot be challenged by any coalition of block holders. ΔOSV_BUYER and ΔOSV_SELLER are changes in the

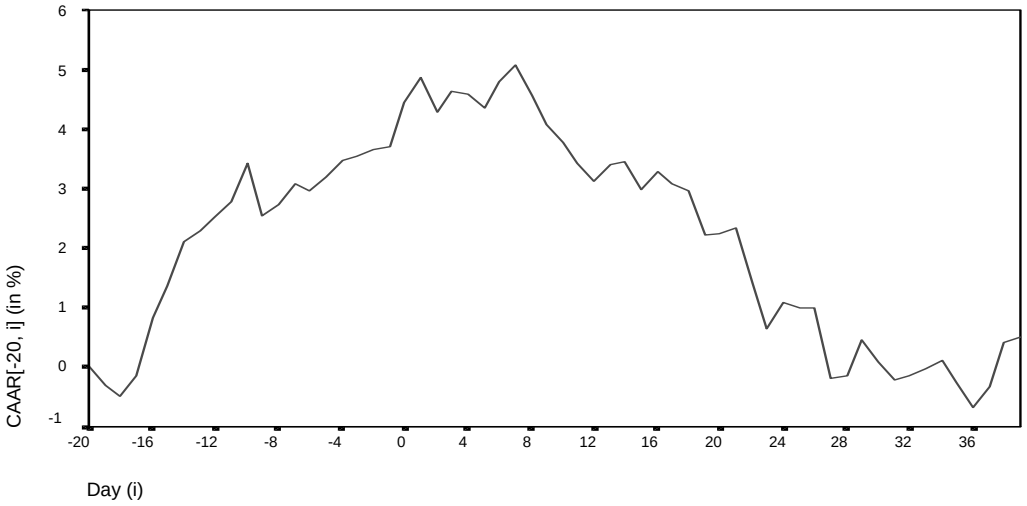
buyer's and seller's oceanic Shapley values, respectively. HERFINDAHL is a Herfidahl-3 index characterising the firms' ownership structure after a block deal. PROFITABILITY is proxied by (percentage) return on equity. RISK denotes standard deviation of daily stock returns in the estimation period. RUSSIAN_CRISIS is a dummy variable equal to one for transactions concluded in the period surrounding Russian crisis (VIII.1998-III.1999).

Graphs

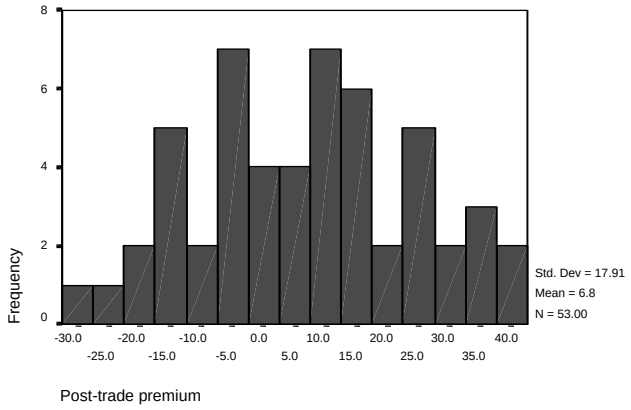
Graph 1. Number of block trades in different subperiods.



Graph 2. Cumulative abnormal returns around block transaction announcements.



Graph 3. Post-trade block premia.



Graph 4. Post-trade standardised block premia.