BANK I KREDYT *listopad-grudzień 2007*

Do Corporate Governance and Ownership Determine Dividend Policy in Poland?*

Czy nadzór właścicielski oraz struktura własności mają wpływ na politykę dywidendową w Polsce?

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Received: 27 July 2007, final version received: 24 October 2007, accepted: 26 November 2007

Abstract

The goal of this paper is twofold. First, we explore the determinants of the dividend policy in Poland. Second, we test whether ownership and corporate governance practices determine the dividend policy in the non-financial companies listed on the Warsaw Stock Exchange. In order to test the impact of corporate governance we compose, for the first time, quantitative measures on the quality of the corporate governance standards for 110 non-financial companies listed on the WSE. Our results suggest that ownership as well as the increase in corporate governance standards controlling for other determinants bring about a statistically significant increase in the dividend payout ratio. The findings are based on the period 1998-2004.

Keywords: corporate governance, dividend policy, agency theory, ownership, transition economy

JEL: G30, G32, G35

Streszczenie

W artykule tym zostały postawione dwa zadania badawcze. Po pierwsze, przeanalizowano wpływ zestawów czynników, które mogą decydować o wypłacie dywidendy w spółkach giełdowych. Po drugie, przeanalizowano wpływ nadzoru właścicielskiego oraz struktury własności w spółkach giełdowych na wypłatę dywidendy. W tym celu, po raz pierwszy została przygotowana miara oceniająca jakość nadzoru właścicielskiego w 110 spółkach giełdowych notowanych na Warszawskiej Giełdzie Papierów Wartościowych w latach 1998–2004. Uzyskane wyniki badań empirycznych wskazują, że struktura własności oraz nadzór właścicielski mają statystycznie istotne znaczenie dla polityki dywidendowej spółek giełdowych w Polsce.

Słowa kluczowe: nadzór właścicielski (*corporate governance*), polityka dywidendowa, teoria agencyjna, struktura własności

* We are thankful for their constructive suggestions to Franklin Allen and Burcin Yurtoglu as well as to two anonymous reviewers of the National Bank of Poland's Journal on Economics and Finance.

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1. Introduction

Recent literature has shown that the patterns of corporate dividend payout policies vary tremendously between developed and transition equity markets. Glen et al. (1995) find that the payout ratios in developing countries are only about two thirds that of developed countries. Similar results are observed by Ramcharran (2001) who reports lower dividend yields for the emerging markets. However, a scarce body of literature has not provided a uniform explanation for these existing differences.

In our paper we investigate the determinants of corporate dividend policy and ownership in Poland. The equity market in Poland is quite young and underdeveloped, has less information efficiency and is more volatile. In addition, it also differs from those developed markets in such characteristics on firm levels as the ownership structure and corporate governance standards.

In developed countries, firms decide to be listed when they grow in size and need additional capital in order to grow. The ownership of these companies tends to become more diffuse and passes from a single entrepreneur or his family to other investors. In order to attract outside investors, family firms need to enforce corporate governance standards which provide protection of the interests of new shareholders. This trend of companies and stock market development is relatively new in the transition countries. Till recently the setting up of listed companies and the creation of stock markets was related mainly to the privatisation process of state owned companies. In the first decade of the transformation, governments used stock markets to transfer ownership of state owned companies through privatisation, which placed ownership of shares in the hands of domestic and foreign investors (Berglöf, Bolton 2002). At that time, the legal environment was weak and the corporate governance mechanisms were practically non existent. Under such circumstances, shareholders were from the very beginning at risk as they were often too dispersed to take action against non value maximization behaviour of insiders (Jensen, Meckling 1976). As a result, the dispersion of ownership and the weakness of the corporate governance mechanism/s led to a substantial diversion of assets by managers of many privatised firms in Russia and other transition countries (Boycko et al. 1995).

Despite the early dispersion following privatisation programmes, in many transition countries, including Poland, ownership has become significantly concentrated. The increased concentration of ownership and control in listed companies is the result of substantial foreign investments. Gugler and Peev (2006) document that the ownership concentration measured by the share of the largest owner was very high in the 15 transition economies over the period 1995-2005. Berglöf and Pajuste (2005) attributed the increase in ownership concentration to the introduction of mandatory bid rules in most of these transition countries. One of the regulations requires that investors passing a certain threshold must offer to buy either more shares or even an entire company. The mandatory bid rules have been introduced with the aim of protecting the interests of minority shareholders against an unwanted investor. Yet, the result is an increase of foreign ownership in listed companies in most of the transition countries.

Concentrated ownership is not only a feature of transition countries but is also present in developed Continental European countries. Barca and Becht (2001) show that concentrated ownership is the distinguishing feature of the listed and unlisted companies across Continental Europe. The literature suggests that minority shareholders may be at risk in companies controlled by strategic stakeholders (Shleifer, Vishny 1986). Additionally, with the lack of board independence, many companies are open to potential expropriation. Gugler and Yurtoglu (2003) claim that the power of the largest equity holder reduces the dividend payout ratio in Germany, whereas the power of the second largest shareholder increases dividend payout. Accordingly, in transition countries, the main conflict could be between a large, foreign controlling owner and a small, domestic minority shareholder. Hence, we assume that the preference for dividends should be even stronger in transition countries as shareholders encounter a great risk of expropriation by insiders.

As professional managers have yet to emerge in transition economies and the management in any case cannot be expected to be independent in countries with weak legal environment and heavily concentrated ownership structures, the main conflict in many listed companies is currently between controlling owners and minority shareholders. Given the weak legal environment and the low protection of minority shareholders' interests in transition countries, the question arises whether shareholders are able to extract from listed companies some returns in the form of dividends.

La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000), hereafter referred to as LLSV, indicate that dividend payouts are higher, on average, in countries with stronger legal protection of minority shareholders. Therefore, if the protection of minority shareholders has a positive impact on dividend payouts, then shareholder protection represented by the corporate governance standards should help explain differences in dividend payouts on firm-level. Indeed, while country-level investor protection is an important factor in preventing expropriation, firm-level corporate governance could carry equal or greater importance. Furthermore, corporate governance practices can vary widely even among firms in the same country operating under the same legal regime.

The existing studies for developed countries often fail to find statistically significant effects of corporate governance on firm performance in developed countries. Even when significant results are reported, they are often economically insignificant. (Gompers et al. 2003). In contrast, transition economies may offer more fertile ground for study. Black (2001) argues that substantial effects are likely to be found in the emerging economies, which often have weaker rules and wider variations among firms in corporate governance practices. For the above reasons, a study on the determinants of dividend policy and its association to corporate governance in a transition economy both offers an interesting subject and complements the existing corporate governance literature.

The agency theory points out that dividends may mitigate agency costs by distributing free cash flows that otherwise would be spent on unprofitable projects by the management (Jensen 1986). It is argued that dividends expose firms to more frequent scrutiny by the capital markets as dividend payout increases the likelihood that a firm has to issue new common stock more often (Easterbrook 1984). Alternatively, scrutiny by the markets helps alleviate opportunistic management behaviour, and, thus, agency costs. In turn, agency costs are related to the strength of shareholder rights and they are associated with corporate governance (Gompers et al. 2003). Furthermore, agency theory suggests that shareholders may prefer dividends, particularly when they fear expropriation by insiders. As a consequence, we hypothesize in this paper that dividend payouts are determined by the strength of corporate governance in a transition economy.

Taking into account the existence of two alternatives, i.e. the outcome and substitute models that explain dividend payouts, we test which model is more appropriate for explaining dividend policies in Poland. Specifically, our research examines how dividends are related to corporate governance standards that represent the strength of minority shareholder rights. In order to measure corporate governance standards, we construct the Transparency Disclosure Index (TDI) for listed companies in Poland. The TDI most accurately reflects corporate governance policies in Polish companies; they differ from the policies in developed countries as well as from practices in the emerging economies of Asia or Latin America. The construction of the subindices allows us to study particular corporate practices in depth. We include some control variables in the regressions in order to control for other characteristics that may also influence the dividend payout of a company. It is a crucial element because the former estimates, presented in the pertinent literature, tend to be fragile after the inclusion of additional controls used in standard corporate finance models.

In this paper, our objective is two-fold. We first analyse the impact of firm-level corporate governance standards and ownership on dividend policy for Polish companies listed on the Warsaw Stock Exchange (WSE). Second, we test additional hypotheses that may determine dividend policy. Our results are statistically strong and economically important. The findings imply a positive association between dividend payouts and corporate governance practices, indicating that firms pay higher dividends if shareholder rights are better protected. Our results support the hypothesis that in companies providing strong minority shareholder rights, the power is often used to extract dividends, especially when investment opportunities are poor. As a result, companies with weak shareholder rights pay dividends less generously than firms with high corporate governance standards. In addition, we show that an important determinant of the dividend payout ratio is the ownership and voting structure of the listed companies. However, we find only weak evidence for signalling effects of dividend payout in Poland.

The rest of the paper is organised as follows. Section 2 presents a literature review and our main hypothesis. In the second part of Section 2, we present the development of Corporate Governance practices in Poland. Section 3 presents the methodology used in this paper. Section 4 offers a discussion on the data, and section 5 is an overview of the results. Our conclusions and a discussion are given in the final section.

2. Corporate governance, ownership and dividend payout hypothesis

In a pioneering effort, Black (1976) finds no convincing explanation of why companies pay cash dividends to their shareholders. Since that introduction of the "dividend puzzle", a voluminous amount of research offers alternative and appealing approaches to solve it. Most of them are rooted in information asymmetries between firm insiders and outsiders, ownership and controlling structures and suggest that firms may indicate their future profitability by paying dividends.[1]

Gómes (1996), Fluck (1998), Myers, Majluf (1984) recognize that dividend policies address agency problems between corporate insiders and shareholders. Grossman and Hart (1980) point out that dividend payouts mitigate agency conflicts by reducing the amount of free cash flow available to managers who do not necessarily act in the best interests of shareholders. In line with that, Jensen (1986) argues that a company with substantial free cash flows is inclined to adopt investment projects with negative net present values. If managers increase the amount of dividend, all else being equal, they reduce the amount of free cash flows, thereby mitigating the free cash flow problem. Thus, dividend payouts may help control agency problems by getting rid of excess

[1] See Bhattacharya (1979); John, Williams (1982); Miller, Rock (1985).

cash that otherwise could result in unprofitable projects. Furthermore, Easterbrook (1984) argues that dividends help alleviate agency conflicts by exposing firms to more frequent monitoring by primary capital markets because paying dividends increases the probability that new shares have to be issued. This, in turn, leads to the investigation of management by investment banks, rating agencies and investors.

LLSV (2000) outline and test two agency models of dividends. First, the substitution model predicts that firms with weak shareholder rights need to establish a reputation for not exploiting shareholders. Hence, these companies pay dividends more generously than firms with strong shareholder rights. In other words, dividends substitute for minority shareholder rights. Second, the outcome model suggests that dividends are paid because minority shareholders put pressure on corporate insiders to disgorge cash. Accordingly, it is reasonable that outside minority shareholders prefer dividends over retained earnings. The results of LLSV (2000) on a cross section study of 4,000 companies from 33 countries with different levels of minority shareholder rights support the outcome agency model of dividends.

The severity of agency costs is likely to be inversely related to the strength of shareholder rights (Gompers et al. 2003). Companies exposed to agency conflicts are more likely to experience a wider divergence of ownership and control, where shareholder rights are more suppressed. Shareholder rights are related to agency problems and thus also to dividend payouts. In line with that, Bebczuk (2004) states that the testable prediction of this theoretical body is that dividend disbursements will be the higher, the better are the corporate governance practices in a company. In this case, corporate governance reflects the power of minority shareholders in the company. Therefore, our main hypothesis is that the strength of shareholder rights influences the dividend policy. In our opinion, the relationship should be especially strong in Poland, a country in transition, where the agency conflicts are strong and shareholder rights are weak. *We assume that in profitable companies with low investment opportunities, the dividend payout ratio will be positively related to the corporate governance standards on a firm level.*

The relation between control structures and dividend payout is a subject of several empirical studies. Barclay and Holderness (1989) note that large ownership stakes reduce the probability of bidding by other agents, thereby reducing the value of the firm. The role of the family in selecting managers and chairmen may also create impediments for third parties in capturing control of the firm. According to Burkart and Fausto (2001), when the protection of minority shareholders is the weakest, the agency problems are too severe to permit the separation of ownership and management. The danger is that owner-managers have a strong preference for control and do not encourage dividend payments. Claessens, Djankov and Klingebiel (2000) have documented that in transition economies there is a small separation between managers and stockholders, making a backlash against minority protection very likely.

Zeckhauser and Pound (1990) do not find significant differences in the dividend payout ratios between firms with and without large block holders using data on US companies. Hence, they conclude that ownership concentration and dividend policy cannot be considered substitute monitoring devices. However, Moh'd et al. (1995) document that in the US, more dispersed ownership, as measured by the number of owners, results in higher dividend payout.

The identity of the block holders is found to affect the payout ratios as well. A high payout in companies with considerable institutional ownership is consistent with the idea that dividends are used as a way of compensating block holders for their monitoring activities (Shleifer, Vishny 1986). Short et al. (2002) have shown for the UK companies that larger managerial ownership translates into lower dividend payout ratios, while larger institutional stakes are associated with higher payouts. They interpret these results as a support for the free cash flow explanation of payout.

In Continental European countries, as compared with the UK and the US, the ownership structure is more concentrated and thus a conflict between a large shareholder and small minority shareholders is more likely. According to Gugler and Yurtogul (2003), dividends may signal the severity of this conflict. In their opinion, dividend change announcements may provide new information about this conflict. In order to test this hypothesis, Gugler and Yurtogul (2003) analyse 736 dividend change announcements and dividend payout ratios in Germany over the period 1992-1998. Their results show that dividends signal the severity of a conflict between a large controlling owner and small outside shareholders. Furthermore, they present evidence that larger holdings of the largest owner reduce the dividend payout ratio, while larger holdings of the second largest shareholder increase it.

Shleifer and Vishny (1997) emphasize that large investors represent their own interests, which need not coincide with the interests of other investors in the firm, or with the interests of employees or managers. In the majority of listed companies in Poland, ownership is highly concentrated. As a result, we assume that a conflict between controlling investors and small shareholders may be present. *Therefore, we hypothesize that the probability of dividend payout decreases with the increasing equity stakes of the largest shareholders.*

In Poland, the one-share-one-vote principle was adopted for listed companies in 2001. The new

Commercial Companies Code reduced the possibility of issuing preferred shares only to unlisted companies and narrowed from five to two the number of voting rights attributed to one share. Nevertheless, the principle of one-share-one-vote had an impact only in the case of new share issues. Preferential shares with up to five voting rights were still legally binding if they were issued prior to the introduction of the new Commercial Companies Code. As a consequence, even as the Polish law adopted the one-share-one-vote principle, multiple voting shares are still present in a large number of listed companies. Gugler and Yurtogul (2003) document for German companies that deviations from the one-share-one-vote principle of ultimate owners due to pyramidal and cross-ownership structures are associated with larger negative wealth effects and lower dividend payout ratios. *Based on the above, we assume that companies with a deviation from the one-share-one-vote will have a lower dividend payout ratio.*

In European business groups, Johnson, La Porta, Lopez-de-Silanes and Shleifer (2000) showed that controlling shareholders have strong incentives to siphon resources off member firms to increase their individual wealth. In Poland, controlling shareholders in listed companies are often foreign strategic investors. As a consequence, those companies have either a pyramiding or cross-holding structure, which potentially may alleviate rent extraction of minority shareholders. In India, Bertrand, Mehta and Mullainathan (2000) document that the ultimate owners of the companies' pyramids have strong incentives to divert resources from the firms low down in the pyramid towards the ones high up in the pyramid. The empirical evidence shows that when ownership concentration is high, excess funds are often redistributed for paying excessive compensations and investing in high private benefits projects. In Poland, it is assumed that intra-group transfers and transfer pricing may be used by foreigners to accumulate profits at the top of the pyramid where the controlling shareholder has the largest cash flow rights. We also expect that a conflict between controlling and minority shareholders should be present in foreign majority controlled companies. On the other hand, Bebczuk (2005) puts forward that foreign-owned firms are likely to have less stringent financial constraints and overcome situations of financial distress more easily. In addition, foreign shareholders may be interested in recovering fast the investments in economically and politically unstable countries, which may induce these firms to pay higher dividends than domestically-owned companies. However, we assume that even in this case foreign companies will rather use intra-group transfers than dividends in order to recover their investments. Therefore, we assume that companies controlled by domestic shareholders are more likely to be dividend payers.

LLSV (2000) argue that differences among countries in the structure of laws and their enforcement may explain the prevailing differences in financial markets and also show that financial market development is promoted by the better protection of investors. Analysing the European Union financial system, we should take into account that civil law prevails in most of its member states (Allen et al. 2006). Civil law promotes concentration of ownership and the possibilities to expropriate minority shareholders. LLSV (2002) show that it is mainly civil law countries, as compared with common law nations, that do not protect minority shareholders properly. In such states, divergence between control rights and cash flow rights constitute a rule rather than an exception. The existing discrepancy creates the incentives and the ability to seek other forms of compensation than dividends. *In Poland, where the discrepancy is often present, we expect the positive effect of the cash flow rights on dividend payouts.*

The importance of monitoring by investment banks has been recognized in literature (Smith, 1996). Shleifer and Vishny (1986) and Allen, Bernardo, and Welch (2000) note that institutional investors prefer to own shares of firms making regular dividend payments, and argue that large institutional investors are more willing and able to monitor corporate management than smaller and diffused owners. As a result, corporate dividend policies can be tailored to attract institutional investors who, in turn, may introduce corporate governance practices.

Lintner (1956) suggests that managers change dividends primarily in response to unanticipated and non-transitory changes in their firm's earnings, and they have reasonably well-defined policies in terms of the speed with which they adjust dividends towards a long run target payout ratio. Thus, the cash flow signalling hypothesis assumes that managers gradually adjust dividends in response to changes in cash-flows. Empirical studies by Fama and Babiak (1968) and recently Goergen, Renneboog and Correia da Silvia (2004) confirm the signalling hypothesis and find that managers reduce the dividends only when they face a persistent decline in earnings. In transition countries, the role of institutional investors has gradually increased, yet their ownership in public companies remains insignificant. In addition, most companies are listed for a very short period and therefore it is hard to assume that they have a long-term target dividend payout policy. *Therefore, we assume that the previous dividend payout will have a positive yet weak impact on the current payout ratio.*

Black (2001) reports a powerful correlation between the market value and corporate governance of Russian firms. A worst-to-best improvement in governance predicts a 700-fold increase in the market value of a Russian firm as a percentage of theoretical market value in developed countries. However, his sample

with 21 companies is small, and it is not controlled for endogeneity. Similarly, Durnev and Kim (2002) find that higher scores on both the CLSA corporate governance index and the S&P disclosure and transparency index predict a higher firm value for a sample of 859 large firms in 27 countries. Comparable results are documented by Klapper and Love (2002) who use the CLSA index for a sample of 495 large firms in 25 countries.

To capture the characteristics of specific countries and their markets, it is of primary importance to construct separate transparency indices. Whereas the existing studies on companies from transition economies employed either the CLSA corporate governance or the S&P disclosure index, for instance Black, Jang, and Kim (2006a), use unique features of Korea's corporate governance rules to construct the governance index for that particular emerging economy. The comprehensive corporate governance index is tested for a sample of 515 Korean companies. The paper proves that an overall corporate governance index is an important and likely causal factor in explaining the market value of Korean public companies. Being the reflection of the real corporate practices in Korea, the overall index produces statistically significant results.

In order to estimate the influence of particular governance practices on the amount of dividends more accurately, it is necessary to construct a corporate governance measure consisting of several subindices. Our empirical strategy follows Bebczuk (2005) who splits the general index of TDI into several subindices and constructs the TDI using public information on 65 non-financial public Argentinean companies, reflecting their transparency standards. His results point to a positive effect of the TDI on the amount of dividends, which disappears after controlling for size and Tobin's q. In contrast to Bebczuk (2005), Polish data show that corporate governance measures are statistically significant and explain some of the motivation in dividend payout even after controlling for firm specific characteristics. Thus, our results reveal an existing difference in the impact of corporate governance on dividend policy between an emerging country from South America and a Central European transition country.

3.1. Corporate governance in Poland

According to Bonin and Wachtel (2003), the stock markets in Central Europe leaped into existence before the institutional infrastructure was established. As a consequence, the equity listings often did not guarantee a transparent share registration, the ability to transfer ownership or the absence of manipulation of prices. To make things worse, the market regulations neither required any minimum standards for financial disclosure for firms nor promoted competitive activity. Hence, during the transition period corporate governance standards were very weak in Poland.

Following other stock exchanges in the region, the WSE started to implement corporate governance principles in 2001. At first, the Best Practices Committee, consisting of government and industry representatives, was set up with the aim to create the Best Practice Code for listed companies. The first Code was presented in autumn 2002 and since then all listed companies could declare if they would follow all or just selected rules of the Code. The Code has been reviewed and amended by the Committee twice. The modifications of the Code have been made based on the practical experience and recommendations of the European Commission. As of August 2006, the declaration on Best Practices was filled by 263 of 268 listed companies on the WSE. However, many of these companies follow only selected rules. To illustrate it, the least followed rule in the Code is the number and procedure of appointing independent members of the supervisory board. Thus, we assume that the Best Practice Code de facto presents only a partial implementation of corporate governance standards and minority shareholder protection in Poland.

On the other hand, the development of the stock exchange and the growing share of foreign investors enhanced the improvement of the corporate governance standards. Berglöf and Pajuste (2003) classify CEE countries into four groups, in terms of their approach to enforcement of investor protection and securities markets' regulations. According to their study, Poland and Hungary have chosen the strictest regulatory mechanisms aimed at investor protection from management and large block holder fraud in comparison to the remaining countries in the region. Furthermore, these two countries have also put considerable effort into enforcement often the most deficient part of the legal framework in transition economies, however with mixed results. Thereby, in our study we assume that corporate governance standards have improved in Poland and it may have an impact on the protection of minority shareholders and the dividend payout of listed companies.

It is notable that empirical studies on ownership structure in the CEE countries reveal strong ownership concentration. Using available information on the voting power held by the largest owner in the listed companies, Pajuste (2002) observes a median voting power of 39.5 percent for Poland in 2000. This number is close to respective figures observed in Continental European countries, e.g. 54.1 percent for Austria and 52.3 percent for Italy. The fact leads us to the conclusion that Polish corporations operate under the strong influence of strategic or controlling investors. It follows that insiders would be reluctant to pay dividends to outsiders, and that weaker minority shareholder rights would be associated with lower dividend payouts that are

offered by large block holders. Large blocks of shares enable investors to appoint managers and the majority of supervisory board members. In Poland, the main device enabling a block holder to control a firm while retaining a relatively small fraction of the cash flow claims is chiefly stock pyramids and dual-class share structures. Undeniably, a recent wave of reported abuses of minority rights by controlling shareholders and by the state in Poland is a predicted outcome.

Special consideration of the protection of shareholder rights is advocated by various institutions such as the World Bank and the Polish Forum for Corporate Governance (PFCG) that has conducted research in this field. The PFCG highlights that Poland has still to implement some of the solutions that would safeguard sufficient protection of shareholders. Among these solutions are the legal devices that should protect minority interests, improve supervisory board and management functioning, and raise corporate transparency. Additionally, the 2005 *World Bank Report on the Observance of Standards and Codes* highlights that in Poland the lack of rules on the approval of related party transactions is a relatively major weakness of corporate governance practices. The report mentions the case of Stomil Olsztyn to indicate that minority shareholders may be at risk in companies controlled by foreign strategic shareholders.

Michelin, the French tire manufacturer, acquired a majority stake in the Polish company Stomil Olsztyn. The French company was suspected by minority shareholders to have transferred profits through excessive license fees, disadvantageous export agreements and R&D support. All these transactions are estimated – by some analysts – to have caused about $50 million of additional costs for Stomil Olsztyn (Tamowicz, Dzierzanowski 2002). Furthermore, Michelin was suspected of being interested in pushing down the price in order to take private the company cheaply. The same situation may be applicable to a number of other cases as in the last decade the majority of going private transactions have been executed by foreign investors (Jackowicz, Kowalewski 2006). A large number of going private transactions may also indicate the existence of a potential conflict between foreign investors and minority shareholders in Poland.

Additionally, with the lack of supervisory board independence many companies are open to potential expropriation by large shareholders who, in turn, may create the necessary conditions for the dividend policies well explained by the outcome model and the concentrated ownership structure hypothesis. The ability to disgorge cash is detrimental to outside shareholders' interests, otherwise excess funds might be wasted by managers or diverted by large shareholders. Taking into account both the literature on dividend policies, companies' ownership structure and the development of corporate standards we hypothesize that *firms' corporate governance practices have a significant impact on the amount of the dividend payout ratio in Poland.*

3. Methodology

This section describes the three econometric methods we have used to investigate how dividend behaviour is affected by shareholder power restrictions, ownership structures and other firm characteristics. Methodologically, the three econometric techniques in the paper are: (1) pooled OLS, (2) pooled probit and (3) pooled Tobit. We describe briefly each procedure below.

The regressions analyse pooled cross-firm and time-series data to exploit additional information provided by the over-time variation in the dividend payout ratio and its determinants. This added information allows us to obtain more precise estimates and, most importantly, correct for potential biases associated with studies of the relationship between dividend payout and corporate governance. We employ the pooled OLS and probit estimators as a consistency check on the Tobit findings.

3.1. Pooled ordinary least squares model

First, we examine the relation between corporate governance, ownership and dividend payout and various controls for firm specific variables using cross-sectional time-series ordinary least squares (OLS) regression model with panel-corrected standard errors. Our general specification of the pooled OLS model is:

$$Dividend_{i,t} = \alpha + \beta_1 TDI_{i,t} + \beta_2 Ownership_{i,t} + \beta_3 X_{i,t} + \varepsilon_{i,t} \quad (1)$$

where the dependent variable *Dividend* is one of our three dividend payout ratios for firm *i* at time *t*. The main variable of interest in this paper is the corporate governance index *TDI*, as well as a set of *Ownership* variables. In addition, the model includes a fixed set of regressors *X* to control for firm-specific characteristics. We also control for industry-specific and year-specific effects.

3.2. Random effect probit model

We explain the likelihood that a firm pays dividends using random-effects panel probit regressions. In these models, the dependent variable equals 1 if a firm paid dividends in a particular year and 0 otherwise. The basic specification is given by:

$$Prob(Dividend)_{i,t} = \alpha + \beta_1 TDI_{i,t} + \beta_2 Ownership_{i,t} + \beta_3 X_{i,t} + \varepsilon_{i,t} \quad (2)$$

where the dependent variable is the probability that the firm *i* would pay dividends in period *t*. As before,

the model includes a fixed set of regressors to control for firm-specific characteristics that include Return on Assets, firm size, leverage, and investment opportunities as measured by Tobin's Q. In addition, we employ indicator variables corresponding to ownership and shareholder power restriction, and later include the ownership variables defined above. We also control for industry-specific and year-specific effects.

3.3. Random effect tobit model

Finally, we employ the random-effect tobit regression model, which is similar to the study of Bebczuk (2005). This empirical methodology is applied as the dependent variable is censored at zero and it has numerous individual observations displaying such value in our sample. The basic specification is given by:

$$Dividend_{i,t} = \alpha + \beta_1 TDI_{i,t} + \beta_2 Ownership_{i,t} + \beta_3 X_{i,t} + \nu_{i,t} + \varepsilon_{i,t} \quad (3)$$

As before, we add to the basic model a fixed set of regressors to control for firm-specific characteristics, i.e. firm size, leverage and Tobin's Q, and later a lagged payout is also included in the regressions. Finally, as before we control for industry and year effects. The random effect are $\nu_{i,t}$, and the error term is $\varepsilon_{i,t}$

There are two econometric problems with the regression models presented above. First, there may be simultaneity or reverse causality between the dividend payout ratio dependent variable and the independent variable corporate governance. We try to ameliorate the effects of simultaneity and reverse causality between the dividend payout ratio and corporate governance using of instrumental variables in the sensitivity analysis. Also, in the corporate governance literature the GMM-based techniques as well Granger causality tests have been recently employed in order to eliminate these effects. However, these methods are not appropriate in this study. First, we have only seven annual observations, and the instruments' structure for this technique would consume a great deal of our sample. Secondly, the short time span of our database creates biased estimates of its own, reducing the attractiveness of these methods. Finally, there are strengths and weaknesses associated with each methodology used in this study to examine the relationship between corporate governance, ownership and dividend payout. However, while the different methodologies have distinct strengths and weaknesses, they all produce remarkably consistent results in our study. As a consequence, we assume that our results are consistent, yet we are aware of the weaknesses of the applied econometric methods in this study.

4. Data and sample characteristics

In this section we briefly discuss our data sources and the variables' definitions. The financial and ownership data come from ISI Emerging Market and Notoria data bases as well as from the annual reports of the companies listed on the WSE. The statistics for the corporate governance index come from annual reports, filings with domestic regulatory agencies, and companies' websites. Data collection for the corporate governance index was completed between August and November 2005. Based on it we are presenting information on corporate governance index on the total 155 listed companies as of November 2005. The sample is later substantially reduced because we exclude the companies with missing performance or control variables. The final data set for the panel regressions consists of 110 listed companies.

The period analysed is 1998-2004. In addition, we have broken down our sample to run separate cross-section regressions for 1998-2001 and 2002-2004 sub-periods. Analysing the sub-samples, we hope to control for the rapid decline of the stock markets around the world as well as Poland's economic growth at the end of 2001, which might affect the behaviour and performance of firms.

4.1. Determinants of dividend policies

In this paper we attempt to distinguish the corporate governance and ownership perspective of dividend policy from other competing explanations.

In order to empirically test the impact of the corporate governance standards as well as our three hypotheses on the determinants of payout ratios we need appropriate indicators for dividend measure. Following the corporate finance literature, first we apply the ratio of cash dividend to cash flows as the main dividend measure and our dependent variable (Faccio et al. 2001; Bebczuk 2005). As cash flow is the relevant measure of company's disposable income, the ratio captures the choice either to distribute the money generated each year to shareholders or not. In the regression we employ as the depended variable the ratio of cash dividend to earnings and the ratio of cash dividend to sales. The diversity of measures of the dividend rate should help insulate our overall conclusions from biases in individual measures that might arise from accounting practices and manipulations by insiders. Our results show that employing the different dependent variables does not change the significance of our results.

We measure the strength of shareholder rights, following Black et al. (2006b) and Bebczuk (2005), by employing the corporate governance index TDI. It allows us to gauge the corporate governance practices in listed companies in Poland and is based on public information. The index reflects the norms of transparency and

Table 1. *Structure of the Transparency and Disclosure Index (TDI)**

	% of firms with public information on each item
A. Board structure and procedures (TDI-Board)	
Independency criteria for directors	22.08
Years in office of present Directors	23.38
Code of Conduct for Directors	74.68
Manager and director fees	70.78
Form of manager and director fee payment (cash, stock, stock options)	51.30
Rationale of manager and director fees	34.42
Information on whether manager and director fees are performance-based	38.96
Shareholdings of managers and directors	74.03
Number and percentage of independent directors	24.68
Details on the nomination process of new directors	1.30
Report on issues by dissident directors	0.00
Composition of different Board committees	6.49
Details on activities of different Board committees	1.30
B. Disclosure (TDI-Disclosure)	
Bio of main company officers	34.42
Bio of Directors	27.92
Calendar of future events	41.56
English-translated corporate website	85.71
Financial indicators for the last 5 years	81.82
Strategic plan and projections for the following years	29.87
Publication of Board meeting resolutions	94.16
Publication of shareholders' meeting resolutions	94.81
Details on the appointment process of new directors	0.65
Details on attendance of minority and controlling shareholders in shareholders' meetings	1.30
Reports on issues raised by dissident shareholders	0.00
Year of hiring of the external auditor	97.40
Report of the external auditor	97.40
C. Shareholders (TDI-Shareholders)	
Details of corporate ownership (principal shareholders)	94.81
Type and amount of outstanding shares	89.61
Document on internal corporate governance standards	1.30
Dividend policy in the past 5 years	18.83
Projected dividend policy for the following years	7.14
Rationale of the past and/or future dividend policy	11.04

* The Transparency and Disclosure Index (TDI) measures a broad set of corporate governance features for 154 listed firms in Poland, using public information as of August 2005 to November 2005. Public sources include Annual Reports, filings with national regulators, Internet sources, and business publications. For each feature, the company is given a value 1 if there is partial or total public information, and 0 otherwise. The subindex Board measures the structure, procedures and compensation of Board and Top Management members. The subindex Disclosure measures the degree to which the company reports relevant corporate facts to outside stakeholders. Finally, the subindex Shareholders measures the quality of information regarding the compensation to minority shareholders

Source: Own elaboration from public sources.

disclosure at the company level. The TDI comprises 32 binary items presented in Table 1, which cover a broad range of governance topics.

In the regression, our main explanatory variables for the free cash hypothesis and the dividend policy are Return on Assets and Tobin's q. We include Return on Assets as an accounting measure that is beyond management manipulation and shows a balance-sheet effect. It is calculated at the firm level as earnings before interest and taxes over total assets. The advantage of this measure is that it is not influenced by the liability structure of the corporation as it excludes interest payments and financial income. The ratio reflects the availability of resources to distribute once investment funding is secured, which should increase dividend payments. Tobin's q reflects expectations about future earnings and market perceptions about the value of the company. Companies' demand for funds for further

investments is represented by a high Tobin's q as a proxy for the firm's growth opportunities, which should have a negative impact on dividends.

Table 3 shows the different nature of implications for the two indicators as it is underscored by a weak significance in their correlation. It is worth mentioning that for the given indicators we observe a high standard deviation that is evidently attributed to the dot com crisis and the slowdown of the Polish and global economy in the years 2001-2002. We hypothesize that the higher the net income which is proxied by Return on Assets, the more dividends will be paid out to shareholders. On the contrary, a high value of the Tobin's q measure reflects growth opportunities for the company. This ratio has been applied in many studies, yet we are aware that the literature is still inconclusive about this ratio and its ability to predict future investment opportunities.

We test the hypothesis that dividends signal the severity of the conflict between a large, controlling owner and minority shareholders. In order to test this hypothesis we include into the regression the share of voting rights and cash flow rights held by the controlling investor. Ownership is defined as a percentage of the company's shares directly or indirectly controlled by the firm's largest, ultimate shareholder as disclosed in the firm's annual reports. In the same manner, cash-flow rights are defined as the cash flow rights of the largest shareholder. Consistent with the existing literature, we employ the ownership variable for companies where the largest shareholder owns 20 percent or more of the company's shares.

Voting rights mean control of the company and so dividend policy may become less important as a monitoring vehicle. In contrast, cash-flow rights represent the proportion of dividends received by investors. According to Gugler and Yurtoglu (2003) the discrepancy between the two creates the incentives and the ability to seek other forms of compensation than dividends. Therefore, we expect a negative sign for the coefficients of voting rights and a positive one for cash-flow rights. We also examine the relation between the ownership and cash-flow rights of the shareholder by including a dummy one vote rule, which equals 1 if the listed company imposes one-share-one-vote mechanism and 0 otherwise. A divergence from the one-share-one-vote mechanism permits a shareholder to control a company while retaining only a small fraction of the equity claims on a company's cash flows. Thus, the deviation from the one-share-one-vote most likely causes lower dividends (Gugler, Yurtoglu 2003). In addition, we control for the nationality of the largest shareholder. The dummy domestic equals 1 if the largest shareholder is domestic and 0 otherwise. Bebczuk (2005) puts forward that foreign owned companies are likely to have less stringent financial constraints and overcome more easily situations of financial distress. This, coupled with an alleged desire of recovering the investment as fast as possible in macroeconomic and politically unstable countries, may induce these firms to pay higher dividends than domestically owned companies.

We include the one year lagged dividend ratio of the dependent variables with the aim to test empirically the signaling cash flow hypothesis. According to Lintner (1956) and the more recent cash-flow signaling models, we should presume that companies attempt to maintain stable dividends, creating a persistent pattern over time. According to this hypothesis, managers change dividends primarily in response to unanticipated and non-transitory changes in their firms' earnings, and they have reasonably well defined policies in terms of the speed with which they adjust dividends towards a long run target payout ratio. Therefore, we expect to find a positive correlation between the present dividend payout ratio and its lagged value.

In order to assess the robustness of our results, we include more potential determinants of firms' performance in our empirical analysis. Following the tradition of the regression equations used in the corporate finance and dividend policy literature, we use some control variables, which may determine dividend payout. These variables are leverage, sales growth, size and years of listing.

The ratio of long term debt to assets is employed as a measure of firms' leverage and closeness to debt covenant restrictions. Leverage may influence firms' choices of payout policy because debt can also be used to alleviate potential free cash flow problems (Jensen 1986). High leverage and the implied financial risk should be associated with a lower dividend payout because it discourages both paying out dividends and taking further loans. Furthermore, highly levered companies may prefer to pay fewer dividends in order to contain default risk.

The variable annual growth rate of sales is used as a proxy for the product demand faced by the firm and its productivity. As in La Porta et al. (2000), the growth of sales controls for a corporation's growth opportunities, which might call for retention of earnings to finance investment projects internally. Thus, for those companies with high growth prospects we assume a negative relation to the dividend payout ratio.

We control for firm size which is often considered as a proxy for firm maturity and has been shown to affect dividend policy (Grullon et al. 2002). As a rule, large firms are well diversified and their further growth opportunities are often exhausted. Thus, we assume that large companies are more likely to use free cash flows to pay out dividends than to invest in growth opportunities. Moreover, firms with more assets-in-place tend to have higher dividend payout ratios (Smith, Watts 1992). Thus, we anticipate that firm size has a positive effect on dividend payout.

Following Black et al. (2003) we also control for firm years of listing as a control variable. We expect a negative coefficient because more recently listed firms are likely to grow faster and have more investment opportunities. Thus, we assume that recently listed companies will use free cash flow in order to expand rather than to pay out dividends.

In order to correct assessment whether there is a correlation between corporate governance and dividend payments we also include control variables to test the industry and other effects on governance. For instance, having added industry dummies, Gillan, Hartzell, and Starks (2003) find that industry factors play a dominant role in explaining the index of total governance as well as the variation of subindices. Likewise, Black, Jang and Kim (2006b) find that both governance and Tobin's q reflect industry characteristics. Taking into account the importance of industry effects on companies' performance, firms are classified into three broad sectors: primary, industry, services and utilities. They all vary in productive technology and international tradability. Finally, we also include year dummies to control for macroeconomic shocks.

4.2. Descriptive statistics and correlations

In Table 2, we present the descriptive statistics for our sample of 110 listed firms. The variation in the corporate governance measure across listed companies is noticeable. The average TDI equal to 0.41 illustrates that the corporate governance standards are on average relatively low in the listed companies. The minimum value of the TDI is 0.09 and the maximum is 0.78. Two of the three subindices of the TDI are relatively low. As expected, the subindex Shareholders is quite low at 0.35, and the subindex Board is even lower with a value of 0.32. The subindex Disclosure, with a value of 0.51, is the highest among the subindices. All the three subindices of the TDI report a minimum value of 0, while the maximum values are 0.73, 0.77 and 0.83, respectively. Thus, the subindices present large variation in corporate governance standards across listed companies in our sample. The high value of the TDI subindex Disclosure reflects good corporate governance practices in informing the shareholder, and the low value of the two other subindices indicate relatively low standards regarding management, board and minority shareholders.

Panel B of Table 2 shows that in our sample the average firm has corporate assets of PLN 626 million. Whereas the largest company has assets above PLN 3 billion, the smallest has assets amounting to only PLN 873,000. We employ three alternative measures of cash dividends. We use the cash dividend payout ratio to cash flow, cash dividend payout ratio to earnings and cash dividend payout ratio to sales. Panel B of Table 2 shows the descriptive statistics for the dividend payout ratios. The dividend payout ratio to cash flow averages 0.05. The minimum and maximum values of the dividend payout ratio are -4.24 and 2.87, respectively. Also, the dividends to earnings and dividends to sales present a large variation across companies. The mean value for this payout ratios are 0.1 and 0.01, respectively.

Table 2. *Descriptive statistics**

Variable	Observ.	Mean	Std. Dev.	Min	Max
Panel A: Corporate Governance Index					
TDI	110	0.406	0.134	0.094	0.781
TDI- Board	110	0.322	0.189	0.000	0.769
TDI- Disclosure	110	0.513	0.152	0.000	0.846
TDI- Shareholder	110	0.355	0.159	0.000	0.833
Panel B: Performance, Ownership and Control Variables					
Dividends to cash flow	760	0.053	0.409	-4.244	2.873
Dividends to earnings	760	0.096	0.673	-4.340	12.675
Dividends to sales	760	0.014	0.166	0.000	4.585
Debt to Assets	760	0.517	0.389	0.005	5.566
Sales	760	0.314	7.832	-0.975	215.730
Assets	760	625 620	3.04e+06	873	3.38e+07
Age	760	4.932	2.831	0.5	13
ROA	760	0.020	0.132	-1.162	0.329
Tobin's q	760	1.417	2.420	0.233	36.252
Ownership	760	0.336	0.219	0.040	0.974
CF rights	760	0.319	0.219	0.030	0.974
One vote rule	760	0.682	0.466	0.000	1.000
Domestic	760	0.685	0.465	0.000	1.000
Primary Dummy	760	0.164	0.370	0.000	1.000
Industry Dummy	760	0.627	0.484	0.000	1.000
Services Dummy	760	0.200	0.400	0.000	1.000
Utility Dummy	760	0.009	0.096	0.000	1.000

* Table shows the mean, standard deviation, minimum and maximum values of the corporate governance index, performance and control variables whose definitions are provided in Appendix.

Source: own compilation.

The majority of the companies in our sample have a domestic controlling shareholder. The mean of the largest, ultimate shareholder voting rights is 31.9 percent. The ultimate shareholding is calculated by multiplying the shareholdings on consecutive ownership tiers. Also, the data on ownership structure of the largest shareholder presents a lot of variation. The smallest share of voting rights is 3 percent, while the largest is 97 percent. The values of the cash flow rights for the largest block holder are a little smaller than for the ownership variables and reveal a discrepancy between voting and shareholder rights in Poland. In addition, we also analyse the effect of deviations from the one-share-one-vote rule. These deviations have potentially important implications with regard to dilution of control. Our data suggest that in almost half the companies in our sample we may encounter a deviation from the one share-one vote rule. Finally, we report that most listed companies in our sample are from the industry sector, followed by the service sector, while firms from the primary industry and utility service sectors are the least present.

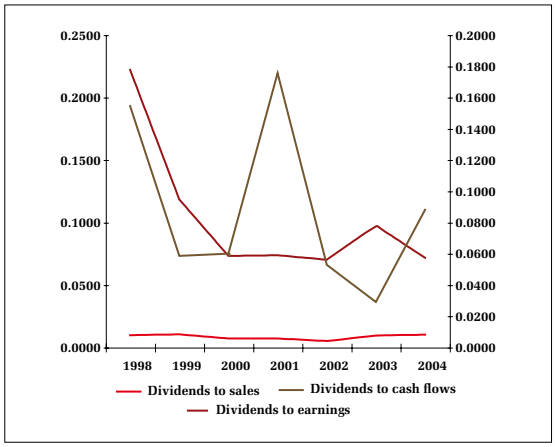
In Figure 1, we reveal summary measures for our three dividend payout ratios. It can be concluded that the most stable ratio was cash dividend to earnings in the period from 2000 to 2004. With the highest mean of 21.3 percent and the lowest mean of 5.7 percent observed in the years 1998 and 2003, respectively. Those results may reflect the economic slowdown of Poland in the years 2001-2002 and a rapid recovery since 2003. In addition, the downward change may be attributed to the worldwide stock price decline initiated in 2001. However, during the years 2003-2004, in the context of stabilized markets and economy, companies seem to have returned to the previous level of dividend payout ratios.

Figure 2 shows that Return on Assets decreased steadily from 0.07 in 1998 to -0.03 in 2001, but then rose again to the level of 0.02 in 2004.

Figure 3 shows that Tobin's q decreased with the decline of the stock market and the economic slow down in the years 2001-2002. Afterwards, the ratio increased again to 2.38 in 2004, which may be associated with the economy's recovery and the bullish stock market since 2003. Figure 3 also presents the evident increasing degree of riskiness inherent in the liability structures of listed corporations. The leverage ratio increased gradually from 0.38 in 1998 to 0.63 in 2004. This increase in external financing, mostly from the banking systems, can be partially attributed to the increased competition in the financial services sector and a decrease of interest rates in Poland.

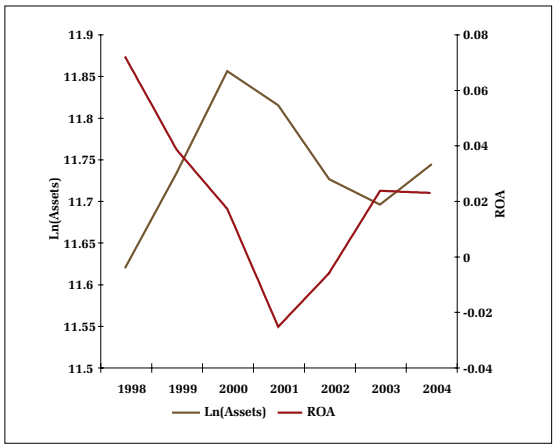
Table 3 presents a matrix of the Pearson correlation between explanatory variables as well as the corporate governance index TDI and its subindices. As expected, the TDI is positively and statistically significantly correlated with each of its subindices. Yet, only two of the three dividend payouts ratios are positively and statistically correlated with our corporate governance index. Meanwhile, only the subindex Shareholders is positively correlated to cash flow rights dividends at 5 percent statistical significance. The TDI and its three subindices are also positively and significantly correlated with the Return on Assets variable. While, the Tobin's q variable is positively correlated with the TDI and its subindices, the relation is only statistically significant for the TDI and the subindex Shareholders. Voting rights, cash flow rights and the one-share-one-vote rule are negatively correlated to TDI. Finally, the domestic origin is negatively correlated and statistically significant at 5 percent.

Figure 1. *Dividend measures by year, 1998–2004*



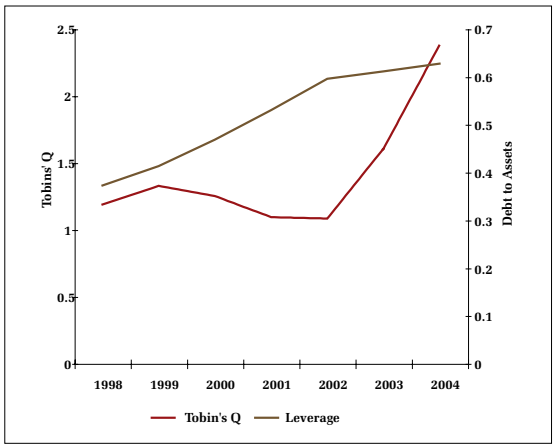
Source: own computation.

Figure 2. *Assets and return on assets by year, 1998–2004*



Source: own computation.

Figure 3. *Tobin's Q and debt to assets by year, 1998–2004*



Source: own computation

It is noteworthy that firm size, as measured by the total assets, is positively and significantly correlated with the TDI and all of its subindices. We assume that this correlation reflects partially the state owned origin of the largest listed companies in Poland. Those companies need to enforce corporate governance standards in order to be privatised through public listing. In most of these companies, foreign strategic investors have been attracted prior to the listing by the government in order to increase the value of the company and the share price. As a result, restructuring process and corporate standards have been thoroughly enforced. Furthermore, we assume that in those companies foreign investors guarantee that the once introduced corporate governance standards are kept with the aim to protect their own interest, which also serves the interests of other minority shareholders as well.

4.2. Comparison of summary data for dividend payers and non-dividend payers

The sample of listed companies is split into dividend payers and non-dividend payers to enable testing whether mean are different. Table 4 reports the mean value of the main variable of interests for dividend-paying and non-dividend-paying firms. The comparison supports our hypothesis on the association of dividend policy and corporate governance. Dividend-paying companies are on average larger, more profitable and less levered than non-dividend-paying ones. Dividends are higher in firms listed for a longer period. We also find support for the hypothesis on the separation of voting rights and cash flow rights based on the summary statistics. Our results show that, on average, dividend-paying companies do not follow the one-share-one-vote mechanism, which suggests a discrepancy between voting and shareholder rights. The average difference between dividend paying and non-dividend paying companies is statistically significant. On the other hand, we do not find a significant difference between companies controlled by a domestic or foreign ultimate shareholder.

Table 5 indicates that dividend paying companies have better corporate governance as estimated by the TDI and its subindices. The results are significant at 1 percent confidence level and present the expected differences across listed companies in our sample. The considerable differences in the variables support our assumption that financial determinants as well as corporate governance standards may have an impact on the dividend policy

Table 3. *Performance and explanatory variables: pairwise correlation*

	TDI				Dividends								To-bin's	Ow-ner	CF	One	
		B	D	S	CF	E	S	Debt	Sales	As-sets	Li-sting	ROA	Q	ship	ri-ghts	Vote	Do-me-stic
TDI	1																
TDI- Board	**0.86**	1															
TDI- Disclosure	**0.77**	**0.40**	1														
TDI- Shareholders	**0.67**	**0.49**	**0.37**	1													
Dividend to cash flow	**0.06**	**0.09**	0.03	0.00	1												
Dividend to earnings	**0.06**	0.04	0.08	0.02	-0.04	1											
Dividend to sales	0.05	0.03	0.06	0.02	**0.07**	0.21	1										
Debt to Assets	-0.02	-0.02	0.00	-0.04	0.00	**-0.08**	**-0.19**	1									
Sales Growth	-0.01	-0.02	0.01	-0.00	-0.00	-0.00	-0.01	-0.04	1								
Assets	**0.31**	**0.20**	**0.27**	**0.31**	-0.01	-0.01	0.00	0.01	-0.01	1							
Listing	**0.09**	0.03	**0.16**	0.01	-0.01	0.00	0.00	**0.23**	0.03	0.00	1						
ROA	**0.12**	**0.11**	**0.07**	**0.10**	-0.02	0.05	**0.19**	**-0.39**	-0.01	**0.07**	**-0.15**	1					
Tobin's q	**0.09**	0.04	0.03	0.20	-0.00	-0.02	0.03	**0.06**	0.01	0.00	0.03	**0.06**	1				
Ownership	**-0.16**	**0.22**	-0.02	**-0.10**	-0.04	0.00	0.04	-0.02	0.00	**0.08**	0.00	**0.12**	0.01	1			
CF rights	**-0.13**	**0.22**	0.00	-0.05	-0.03	0.01	0.02	**-0.09**	0.01	**0.09**	0.03	**0.13**	0.00	**0.97**	1		
One vote rule	-0.02	**0.09**	**0.11**	**0.07**	-0.05	0.01	**-0.11**	**-0.06**	0.02	**0.10**	**0.13**	-0.01	**-0.12**	0.06	**0.09**	1	
Domestic	**-0.16**	**0.10**	**-0.20**	0.03	0.02	-0.00	**-0.08**	**0.11**	0.02	**-0.13**	**-0.07**	-0.10	0.02	**-0.42**	**-0.47**	**-0.12**	1

* statistically significant at 10% or less in bold face

Source: own computation.

Table 4. *Mean difference tests for balance sheet variables**

	Mean Non-Dividend Payers	Mean Dividend Payers	Difference	P-value
Debt to Assets	0.584	0.365	0.220	0.000
Sales Growth	0.402	0.113	0.289	0.639
Ln(Assets)	11.600	12.061	-0.462	0.000
Ln(Listed)	1.441	1.195	0.246	0.000
ROA	-0.004	0.073	-0.076	0.000
Tobin's q	1.407	1.438	-0.031	0.872
Ownership	0.338	0.333	0.005	0.785
CF rights	0.317	0.324	-0.007	0.675
One vote rule	0.721	0.592	0.129	0.000
Domestic	0.698	0.657	0.042	0.255

* Table shows the means of the balance sheet variables used in the estimation and whose definitions appear in Table 1, broken down into dividend payers and non-dividend payers. The sample covers 110 companies over 1998-2004.

Source: own computation.

of a company. Differences in means are statistically significant for all the financial control variables, except Tobin's q and sales growth, yet these variables should be negatively associated with dividend payout.

5. Results

Our empirical strategy is based on identifying fundamental determinants that explain dividend payout ratios and its relation with our corporate governance and ownership measures. In this section, we present the results of the three econometric techniques: (1) pooled OLS, (2) pooled probit and (3) pooled Tobit we have applied in the paper. We employ the panel OLS and probit estimators mainly as a consistency check on the tobit findings.

Our sample consists of 110 non-financial publicly traded firms with 760 observations over a seven-year period. It is divided into three sub-samples: 1998-2004, 1998-2001 and 2002-2004. The descriptive statistics of the samples, followed by the regression results and the explanation of the sensitivity analysis are presented below.

Using three different methods allows us to control for a recurring concern in econometric studies on determinants of a dividend policy and corporate governance it is the potential presence of endogenity. Specifically, if a causal positive link from performance to governance exists, the coefficient on governance is upward biased, making previous results unreliable. In order to address the issue of endogeneity, we employ an additionally instrumental variable and run a simultaneous equation model in the sensitivity analysis.

5.1. OLS regression results

This section presents our pooled OLS results. The pooled OLS sample is censored because it excludes companies that had a negative ratio of cash dividend to cash flows and cash dividend to earnings due to the lack of economic significance of these values. In the pooled OLS regression, where the cash dividend to sales is the dependent variable, we employ our full sample.

The results for the cash dividend to cash flows are presented in Table 6. We regress the dependent variable first against corporate governance index TDI and then progressively add our extensive set of performance, ownership and control variables. Table 6 shows the results with a partial set of independent variables in regressions (2)-(4) and the outcome with a full set of regressors are presented in regression (5). The OLS regressions reveal that the corporate governance index TDI has a positive and significant coefficient at 1 percent level in all our regressions. Adding control variables hardly changes the coefficient on TDI. Regression (5) implies that the increase in corporate governance index TDI by 1 point results in the increase of dividend payout to cash flows by 9.798 percent. This implies that companies where shareholder rights are protected, represented by the high value of the corporate governance index TDI, pay on average higher dividends. This is in accordance with the outcome hypothesis that suggests that high shareholder rights enable the minority shareholders to put pressure on the corporate insider to pay out higher dividends.

The regression shows that Return on Assets is negative and statistically significant. The coefficient Tobin's q has the expected sign, yet it is only very weak

Table 5. *Mean difference tests for corporate governance*

	Mean Non-Dividend Payers	Mean Dividend Payers	Difference	P-value
TDI	0.392	0.433	-0.041	0.000
TDI-Board	0.309	0.351	-0.042	0.005
TDI-Disclosure	0.498	0.540	-0.041	0.001
TDI-Shareholders	0.343	0.381	-0.038	0.003

* Table shows the means of the corporate governance and ownership variables used in the estimation and whose definitions appear in Table 1, broken down into dividend payers and non-dividend payers.

Source: own computation.

Table 6. *OLS for cash dividends to cash flow: TDI, ownership and balance sheet determinants*

	(1)	(2)	(3)	(4)	(5)
Constant	-5.007*** (-2.65)	-1.740*** (-3.16)	-2.039*** (-3.13)	-3.384*** (-2.81)	-4.749*** (-2.73)
TDI	7.602*** (2.89)	9.386*** (2.91)	9.442*** (3.00)	8.198*** (3.11)	9.798*** (2.82)
Debt to Assets		0.298 (1.06)	0.148 (0.63)	0.080 (0.39)	-0.054 (-0.33)
Sales		-0.003 (-1.22)	-0.004 (-1.43)	0.001 (0.46)	0.002 (0.86)
Ln(Assets)		-0.375** (-2.48)	-0.335** (-2.52)	-0.115** (-2.49)	-0.120** (-2.26)
Ln(Listed)		0.162 (1.41)	0.109 (0.79)	0.387*** (2.59)	0.686** (2.56)
ROA			-1.484*** (-3.41)	-1.587** (-2.26)	-2.069** (-2.25)
Tobin's q			-0.0413* (-1.80)	-0.081 (-1.62)	-0.087 (-1.57)
Ownership				-3.751** (-2.24)	-2.839* (-1.78)
CF rights				2.634** (2.30)	1.376 (1.52)
One vote rule				-2.102** (-2.50)	-2.658** (-2.34)
Domestic				0.554*** (2.60)	0.538** (2.23)
Lagged dividend					-0.010 (-0.87)
Primary dummy	1.430*** (2.62)	1.701*** (2.84)	1.724*** (2.89)	2.947*** (2.61)	3.622** (2.41)
Industry dummy	2.681*** (2.71)	2.859*** (2.75)	2.875*** (2.84)	3.638*** (2.73)	4.400** (2.53)
Service dummy	1.362** (2.57)	1.622*** (2.79)	1.657*** (2.95)	2.267*** (2.64)	2.855** (2.44)
Time dummies	Yes	Yes	Yes	Yes	Yes
Observations	673	673	673	673	565
R2	0.015	0.016	0.016	0.020	0.022

OLS regressions of Cash Dividends to Cash Flow on the Transparency and Disclosure Index (TDI) with performance, ownership and control variables added sequentially as shown

*, **, and *** indicate significance at 10%, 5%, and 1% levels.

t-statistics based on robust standard errors in parentheses

Source: own computation.

statistically. Those results only partially support the free cash flow hypothesis. As expected, the coefficient for voting rights is negative and statistically significant. Thus, companies with high ownership by large shareholder are significantly less likely to adopt a policy of paying dividends. Further, we report a positive and statistically significant relation of cash flow right. The result supports the hypothesis that dividends may signal the severity of conflicts between the controlling owner and the minority shareholder. Also, the one-vote-one-share dummy is negative and highly significant, again confirming the hypothesis on the conflict between insiders and minority shareholders. When the one year lagged dividend variable is included in the regression, the sign of the coefficient is positive but not statistically significant. As assumed, the country origin dummy is positive and significant, showing that, on average, domestic companies pay higher dividends than foreign owned firms. Finally, the control variables included in the regressions are, in general terms, either signed as expected or insignificant. Consistent with the literature, a significant negative relationship between firm size and dividend payouts is observed. Neither sales growth nor years of listing attain significance.

We repeat the regression using the cash dividend to earnings as a dependent variable. Table 7 presents the results of the pooled OLS regression with the TDI and with the expanded data set of independent variables. Our results reveal that the corporate governance index TDI has a positive and significant coefficient at 1 percent level in all the regressions. Again, after adding the regressors the variation of the coefficient TDI is very small. Thus, the results are consistent with the previous regressions on cash dividend to cash flows.

In line with our prediction, the coefficient for Tobin's q is negative and statistically significant. Although the coefficient for Return on Assets enters with a positive sign as assumed, it is statistically insignificant. As a result, again we find only weak evidence on the free cash flow hypothesis. As expected, the dummy for the one-vote-one-share variable is negative and highly significant. The coefficient indicates that a deviation of the voting and cash-flow right of the largest shareholder has an impact on the dividend policy. Finally, the coefficients for the two control variables leverage and size have the expected sign and are statistically significant at 1 percent and 5 percent level, respectively. The negative sign on sales growth indicates that firms with low growth prospects are more likely to pay out dividends, yet the coefficient is close to zero.

In the last OLS regression we regress cash dividend to sales against our corporate governance index TDI and the set of control variables. Table 8 shows the results for the OLS regression against TDI and later on with our set of regressors. TDI is highly significant in each of the regressions. Subsequent adding of independent variables scarcely changes the coefficient on TDI, and the t-statistics remains strong in all regressions.

Table 7. *OLS for cash dividends to earnings: TDI, ownership and balance sheet determinants*

	(1)	(2)	(3)	(4)	(5)
Constant	0.138 (0.59)	0.089 (0.39)	0.100 (0.43)	0.061 (0.25)	-0.082 (-0.44)
TDI	0.314*** (135.96)	0.242*** (4.68)	0.248*** (4.10)	0.344*** (4.43)	0.297*** (3.88)
Debt to Assets		-0.123*** (-4.26)	-0.110*** (-3.61)	-0.110*** (-3.24)	-0.141*** (-2.96)
Sales		-0.000* (-1.85)	-0.000 (-1.49)	-0.000** (-2.15)	-0.000 (-1.26)
Ln(Assets)		0.011** (2.12)	0.009** (2.34)	0.003 (0.77)	0.004 (0.90)
Ln(Listed)		0.009 (0.32)	0.010 (0.35)	0.016 (0.51)	0.067** (1.99)
ROA			0.097 (1.03)	0.086 (1.03)	0.092 (1.01)
Tobin's q			-0.005* (-1.73)	-0.007** (-1.95)	-0.005** (-2.21)
Ownership				-0.045 (-0.25)	0.191 (1.43)
CF rights				0.217 (1.06)	-0.013 (-0.08)
One vote rule				-0.035*** (-6.77)	-0.106*** (-3.48)
Domestic				0.048** (2.06)	-0.004 (-0.27)
Lagged dividend					0.027 (1.28)
Primary dummy	-0.043 (-0.19)	-0.053 (-0.21)	-0.052 (-0.20)	-0.055 (-0.22)	-0.008 (-0.03)
Industry dummy	0.006 (0.03)	-0.007 (-0.03)	-0.002 (-0.01)	0.003 (0.01)	0.014 (0.05)
Service dummy	-0.091 (-0.40)	-0.088 (-0.36)	-0.084 (-0.34)	-0.076 (-0.31)	-0.058 (-0.22)
Time dummies	Yes	Yes	Yes	Yes	Yes
Observations	677	677	677	677	568
R2	0.014	0.021	0.022	0.024	0.070

OLS regressions of Cash Dividends to Earning on the Transparency and Disclosure Index (TDI) with performance, ownership and control variables added sequentially as shown.

*, **, and *** indicate significance at 10%, 5%, and 1% levels.

t-statistics based on robust standard errors in parentheses

Source: own computation.

The coefficient for the variable Return on Assets is positive and statistically significant. The sign for the coefficient for the variable Tobin's q is negative but statistically insignificant. Thus, the result supports the free cash flow hypothesis. In opposition to our previous results, the ownership coefficient is positive and statistically significant. At the same time, the variable for cash flow rights is negative and statistically significant. Nevertheless, the dummy for the one-vote-one-share variable is again negative and highly significant, which we interpret as a signal of the severity of conflicts between controlling owner and small shareholders. The coefficient for the lagged dividend payment is positive and this time statistically significant. Thus, we find some evidence on the free cash flow signalling hypothesis. Finally, the control variables included in the regressions are, in general terms, either signed as expected or insignificant.

Summarizing the results for the OLS regression, we documented that the corporate governance index TDI has a strong impact on the dividend policy. Our results present mixed support for the free cash flow hypothesis as only in two of the three regressions the coefficient had the expected sign. However, we do find strong support for the severity of conflicts between controlling owners and minority shareholders. We observe that a deviation from the one-vote-one-share leads to lower dividend payout. Yet, the regressions present only weak evidence on the signalling cash flow hypothesis. The one year lagged dividend ratio has the expected sign in all the regressions, yet it enters statistically significant only in the last model where we apply cash dividend to sales. Finally, all the control variables either enter the regression with an expect sign or are insignificant. The control variable presents that, on average, less leveraged and larger firms are more likely to pay dividends. Dividends are less likely for firms with rapid sales growth and those without long listing history.

5.2. Probit regression results

Using pooled regression we try to establish whether shareholder rights affect the decision of managers to pay out dividends of any size or not pay anything at all. In the pooled probit regression, the dependent variable is a dichotomous variable equal to 1 if a firm pays dividends of any size and 0 if the company does not pay dividends at all.

Table 9 presents the results for a probit estimate on the probability of dividend payout aimed at analysing the

Table 8. *OLS for cash dividends to sales: TDI, ownership and balance sheet determinants*

	(1)	(2)	(3)	(4)	(5)
Constant	0.010 (1.07)	0.011 (0.97)	0.014 (1.23)	0.012 (1.00)	0.015*** (2.66)
TDI	0.007* (1.75)	0.005** (2.29)	0.005*** (3.15)	0.003*** (3.55)	0.004*** (3.70)
Debt to Assets		-0.010*** (-5.51)	-0.008*** (-4.37)	-0.010*** (-5.13)	-0.008*** (-3.64)
Sales		-0.000*** (-5.15)	-0.000*** (-3.63)	-0.000** (-2.28)	-0.000* (-1.65)
Ln(Assets)		0.000* (1.90)	-0.000 (-0.56)	0.000 (0.51)	-0.000 (-0.28)
Ln(Listed)		-0.000 (-0.01)	0.000 (0.37)	0.002 (0.87)	0.002 (1.22)
ROA			0.020* (1.88)	0.017 (1.61)	0.014** (2.30)
Tobin's q			0.000 (0.74)	0.000 (0.36)	-0.000 (-0.10)
Ownership				0.055*** (9.00)	0.046*** (2.83)
CF rights				-0.056*** (-11.52)	-0.048*** (-2.97)
One vote rule				-0.005*** (-3.63)	-0.004** (-2.53)
Domestic				-0.004*** (-2.63)	-0.004*** (-2.73)
Lagged dividend					0.309** (2.14)
Primary dummy	-0.005 (-0.57)	-0.005 (-0.46)	-0.005 (-0.49)	-0.000 (-0.02)	-0.001 (-0.20)
Industry dummy	-0.003 (-0.27)	-0.003 (-0.26)	-0.003 (-0.27)	0.002 (0.18)	-0.000 (-0.05)
Service dummy	-0.004 (-0.36)	-0.003 (-0.24)	-0.003 (-0.26)	-0.000 (-0.01)	-0.002 (-0.27)
Time dummies	Yes	Yes	Yes	Yes	Yes
Observations	760	760	760	760	650
R2	0.013	0.048	0.061	0.093	0.182

OLS regressions of Cash Dividends to Sales on the Transparency and Disclosure Index (TDI) with performance, ownership and control variables added sequentially as shown.

*, **, and *** indicate significance at 10%, 5%, and 1% levels.

t-statistics based on robust standard errors in parentheses

Source: own computation.

managerial decision and the different hypothesis. The results of the probit regression reveal that the corporate governance index has a positive impact, yet coefficient is only significant in the basic regression (1). As a consequence, we find limited evidence that corporate governance standards affect the probability of dividend payout. In the remaining probit regressions (2) to (5), the coefficient of corporate governance index TDI is statistically insignificant, suggesting no relation between the managerial decision to pay dividends and the strength of shareholder rights. Nevertheless, analysing the probit results we should take into account that our dependent variables in the regression do not present variation across companies and therefore we lose a lot of information which may explain the results.

As regards the hypothesis on the agency costs of free cash flows, only the Return on Assets variable is strongly significant and has the expected sign. The variable suggests that profitable firms have a greater likelihood of paying out dividends. The average slopes from the regressions confirm also our inferences about the conflict between the controlling owner and the minority shareholder. The coefficient for the one-vote-one-share is negative and significant at 5 percent level. The voting rights and cash flow rights variables have the expected coefficient, yet they remain statistically insignificant. The coefficient for the dividend one year lagged dummy is positive and significant. This result supports the cash flow signalling hypothesis and suggests that companies that paid out dividends in the previous year have greater probability of paying out dividends in the current year. The controlling variables have the expected signs. The probit regressions capture the effects of leverage and size on the probability of paying dividends. Specifically, a company with lower debt levels has a greater likelihood of paying out dividends. Also, larger firms are more likely to pay dividends. Neither sales growth nor years of listing have attained significance.

The elasticity at means for the regression with all the independent variables is presented in the last column of Table 9. The elasticity at means indicates the percentage change in the probability of a firm payout dividend as a result of a one-percent change in the relevant explanatory variable when all variables

Table 9. *Pooled probit for cash dividends: TDI, ownership and balance sheet determinants*

	(1)	(2)	(3)	(4)	(5)	dy/ex
Constant	-0.940 (-0.67)	-2.922* (-1.88)	-2.764* (-1.88)	-3.047 (-2.11)	-2.075** (-2.28)	
TDI	2.267** (2.31)	1.217 (1.21)	1.102 (1.15)	0.490 (0.48)	0.314 (0.48)	0.127
Debt to Assets		-2.646*** (-5.52)	-2.223*** (-4.63)	-2.206*** (-4.54)	-1.738*** (-3.99)	-0.940
Sales		0.000 (0.00)	-0.001 (-0.06)	-0.000 (-0.01)	-0.038 (-0.18)	-0.013
Ln(Assets)		0.299*** (2.92)	0.257*** (2.62)	0.329*** (3.10)	0.155** (2.11)	1.823
Ln(Listed)		-0.241 (-1.32)	-0.182 (-1.02)	-0.165 (-0.93)	-0.033 (-0.19)	-0.050
ROA			3.159*** (3.27)	3.193*** (3.27)	3.810*** (3.91)	0.043
Tobin's q			-0.030 (-0.89)	-0.038 (-1.07)	-0.045 (-1.44)	-0.065
Ownership				-1.863 (-0.81)	-1.536 (-0.94)	-0.516
CF rights				1.243 (0.53)	1.231 (0.74)	0.392
One vote rule				-0.610** (-2.43)	-0.429** (-2.49)	-0.293
Domestic				-0.069 (-0.25)	0.051 (0.29)	0.035
Lagged dividend					1.158*** (6.60)	0.363
Primary dummy	-0.828 (-0.63)	-0.744 (-0.64)	-0.731 (-0.65)	-0.210 (-0.19)	-0.008 (-0.01)	-0.001
Industry dummy	0.015 (0.01)	-0.045 (-0.41)	-0.032 (-0.03)	0.325 (0.30)	0.327 (0.49)	0.205
Service dummy	-0.438 (-0.33)	-0.398 (-0.40)	-0.420 (-0.38)	-0.090 (-0.08)	0.053 (0.08)	0.010
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	760	760	760	760	650	
Loglikelihood	-366.599	-342.996	-337.111	-333.675	-249.104	
McFadden's R2	0.064	0.168	0.200	0.218	0.356	
McFadden's Adj R2	0.041	0.136	0.163	0.173	0.302	
AIC	1.182	1.065	1.031	1.019	0.832	

Pooled probit for Cash Dividends on the Transparency and Disclosure Index (TDI) with performance, ownership and control variables added sequentially as shown. The last column presents the elasticities at means of the independent variables based on the (5) regression

*, **, and *** indicate significance at 10%, 5%, and 1% levels.

t-statistics based on robust standard errors in parentheses

Source: own computation.

are evaluated at their mean values. Based on it, we find that the corporate governance index TDI has a large impact on the probability of the dividend payout decision.

5.3. Pooled tobit regression results

Finally, we test the determinants of the dividend policy in a regression framework, where the dependent variable of the ratio of cash dividend payout is censored at zero, and pooled tobit procedure is used in this estimation. The results of the regression analysis for pooled tobit are shown in Tables 10–12.

Once more, we test the association of corporate governance with dividend policy in a multiple regression framework with other dividend determinants and firm specific characteristics. In Table 10 we regress dividend payout to cash flow ratio against the TDI. We add the corporate governance index TDI in the regressions to ascertain the impact of the strength of shareholder rights on dividend policy. In the same manner as in the previous regression, we then progressively add our set of independent variables that may determine the dividend policy, showing the results with a partial set of control variables in regressions (2)–(5). The last column in the regression summarizes tobit regressions that document more formally the marginal effects at means of the independent variables on the likelihood that a firm pays dividends.

The TDI is statistically significant in all the regressions. Adding regressors does not change significantly the coefficient on the TDI. Regression (1) implies that an increase in corporate governance index by 1 point results in an increase of dividend to cash flow by 522 percentage points. The regressions (2)-(5) present only a small, yet declining change in the coefficient in the TDI. The regressions present a positive and statistically significant impact of Return on Assets on dividend policy. As before, the coefficient of Tobin's q is negative, but it is statistically insignificant. Thus, the results, in our opinion, support the free cash flow hypothesis. The coefficient on the ownership and cash flow rights variables offer little insight into the potential conflict between a controlling owner and minority shareholders. On the other hand, the coefficient for the one-vote-one-share dummy is negative and statistically significant at 1 percent level. We may thus assume that the results

Table 10. *Pooled Tobit for cash dividends to cash flow: TDI, ownership and balance sheet determinants*

	(1)	(2)	(3)	(4)	(5)	Dy/dx
Constant	-43.076* (0.081)	-60.924** (-2.16)	-59.911*** (-2.22)	-69.060*** (0.007)	-81.210** (-2.49)	
TDI	52.189*** (0.003)	43.069** (2.28)	40.740** (2.25)	36.427* (0.052)	44.542* (1.92)	7.325
Debt to Assets		-49.411*** (-4.57)	-43.599*** (-4.02)	-44.169*** (0.000)	-57.544*** (-4.15)	-9.463
Sales		-0.102 (-0.19)	0.143 (-0.17)	-0.139 (0.890)	-2.095 (-0.27)	-0.345
Ln(Assets)		3.324* (1.73)	2.772 (1.49)	3.878* (0.052)	5.114** (2.06)	0.841
Ln(Listed)		-5.400 (-1.42)	-3.869 (-1.02)	-2.935 (0.430)	-3.692 (-0.63)	-0.607
ROA			66.017*** (2.64)	66.611 (0.008)	80.120** (2.48)	13.176
Tobin's q			-0.541 (-0.68)	-0.888 (0.283)	-1.382 (-1.34)	-0.227
Ownership				-57.744 (0.237)	-97.044 (-1.41)	-15.959
CF rights				57.162 (0.250)	95.193 (1.36)	15.655
One vote rule				-12.747*** (0.005)	-17.746*** (-3.10)	-3.086
Domestic				2.168 (0.661)	5.366 (0.87)	0.869
Lagged dividend					-0.268 (-0.93)	-0.044
Primary dummy	-14.146 (-0.61)	-9.816 (-0.46)	-10.022 (-0.50)	-1.053 (0.956)	1.547 (0.06)	0.256
Industry dummy	-0.577 (-0.03)	1.110 (0.05)	0.422 (0.02)	7.151 (0.700)	12.205 (0.53)	1.962
Service dummy	-12.465 (-0.54)	-8.763 (-0.42)	-9.877 (-0.50)	-3.355 (0.860)	-3.403 (-0.14)	-0.551
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	760	760	760	760	650	
Obs. left-censored at zero	562	562	562	562	491	
Log likelihood	-1125.104	-1110.026	-1106.095	-1101.588	-899.492	
McFadden's R2	0.015	0.041	0.048	0.058	0.070	
McFadden's Adj R2	0.003	0.026	0.030	0.036	0.043	
AIC	2276.208	2.909	2.895	2.878	2.782	

OLS regressions of Cash Dividends to Cash Flow on the Transparency and Disclosure Index (TDI) with performance, ownership and control variables added sequentially as shown. The last column presents the marginal effects at means of the independent variable based on the (5) regression.

*, **, and *** indicate significance at 10%, 5%, and 1% levels.

t-statistics based on robust standard errors in parentheses

Source: own computation.

provide evidence on the existence of a conflict between a controlling owner and minority shareholders. Again, we do not find statistical evidence for the cash flow signalling hypothesis. The coefficient for one year lagged dividend payment enters the regression with the expected sign, yet it is statistically insignificant. All the control variables enter the regressions with expected signs. As before, leverage is negatively associated with the variable cash dividend to cash flow at 1 percent significance confidence level. While size is positively associated with the variable cash dividend to cash flow at 10 percent significance level.

We repeat our estimation procedure, this time using as a dependent variable cash dividend to earnings in the pooled tobit regression. Table 11 presents the results on the relation between the corporate governance index TDI and dividend payout. The coefficient of TDI enters all the regressions positively, yet in the last one it is statistically insignificant. Therefore, the impact of TDI on corporate governance seems to be statistically weaker this time. On the other side, the marginal effects at means of the independent variable in the last column present that TDI has a strong impact on the dividend payout ratio.

The coefficient for the Return on Assets variable is positive and significant at 1 percent level. Also, Tobin's q coefficient has the expected sign and enters the last two regressions statistically significant. This confirms that the dividend policy may mitigate the agency conflict related to the free cash flows. As before, the results for the ownership hypothesis are statistically weak. The coefficients for voting rights and cash flow rights enter the regressions with the expected sign, yet they are statistically insignificant. In spite of that, the coefficient for the one-vote-one-share mechanism is negative and statistically significant again. This confirms that the discrepancy of ownership and cash flow rights may result in lower dividends. Alternatively, the coefficients on the one year lagged dividend payment ratio is positive, but again statistically insignificant. Control variables included in the regressions are either signed as expected or insignificant.

Table 12 presents the results of the pooled tobit regression where our dependent variable is cash dividend to sales. As before, we run first the baseline regression with the corporate governance index TDI and than add our set of control variables. The results with a partial set of control variables are shown in regressions (1)-(4). The results with a full set of control variables are presented in the regression (5) and the marginal impacts of the independent variables are presented in the column (6). The TDI has the expected sign, yet it is only significant at 5 percent level in the baseline regression. Thus, we find only weak support this time for the hypothesis that

Table 11. *Pooled Tobit for cash dividends to earnings: TDI, ownership and balance sheet determinants*

	(1)	(2)	(3)	(4)	(5)	dy/dx
Constant	-1.039 (-1.47)	-1.547* (-1.79)	-1.588* (-1.81)	-1.963** (0.028)	-1.522** (-2.10)	
TDI	1.707*** (3.40)	1.179** (2.00)	1.090* (1.83)	1.135* (0.083)	0.835 (1.57)	0.150
Debt to Assets		-2.532*** (-6.63)	-2.238*** (-5.69)	-2.301*** (0.000)	-2.061*** (-6.07)	-0.371
Sales		-0.005 (-0.36)	-0.005 (-0.24)	-0.005 (0.825)	0.006 (-0.20)	-0.001
Ln(Assets)		0.145** (2.44)	0.122** (1.99)	0.150** (0.031)	0.128** (2.27)	0.023
Ln(Listed)		0.002 (0.01)	0.076 (0.61)	0.089 (0.487)	0.077 (0.59)	0.014
ROA			3.950*** (4.03)	3.896*** (0.000)	2.684*** (3.47)	0.483
Tobin's q			-0.043 (-1.41)	-0.055* (0.089)	-0.048* (-1.85)	-0.009
Ownership				-1.721 (0.291)	-1.036 (-0.76)	-0.186
CF rights				1.943 (0.243)	1.265 (0.91)	0.228
One vote rule				-0.353** (0.025)	-0.406*** (-3.12)	-0.077
Domestic				0.184 (0.283)	0.084 (0.60)	0.015
Lagged dividend					0.048 (0.71)	0.009
Primary dummy	-0.610 (-0.92)	-0.669 (-1.02)	-0.709 (-1.08)	-0.562 (0.405)	-0.331 (-0.60)	-0.056
Industry dummy	-0.014 (-0.02)	-0.137 (-0.22)	-0.190 (-0.30)	-0.066 (0.919)	0.003 (0.01)	0.001
Service dummy	-0.394 (-0.60)	-0.394 (-0.61)	-0.467 (-0.72)	-0.356 (0.590)	-0.194 (-0.36)	-0.034
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	760	760	760	760	650	
Obs. left-censored at zero	556	556	556	556	491	
Log likelihood	-553.054	-523.120	-513.042	-509.253	-347.081	
McFadden's R2	0.034	0.114	0.136	0.148	0.226	
McFadden's Adj R2	0.011	0.083	0.101	0.105	0.168	
AIC	1.502	1.393	1.365	1.358	1.121	

Pooled Tobit for Cash Dividends to Earnings on the Transparency and Disclosure Index (TDI) with performance, ownership and control variables added sequentially as shown. The last column presents the marginal effects at means of the independent variable based on the (5) regression.

*, **, and *** indicate significance at 10%, 5%, and 1% levels.

t-statistics based on robust standard errors in parentheses

Source: own computation.

corporate governance has an impact on dividend policy. As in the previous two models, the coefficient for Return on Assets is positive and statistically significant, which confirms the free cash flow hypothesis. Similarly, only the coefficient for the dummy variable one-vote-one-share is negative and statistically significant, which reinforces the hypothesis on the conflict between a controlling owner and minority shareholders. In this model the coefficients on the one year lagged dividend payment ratio is positive and statistically significant, which provides evidence on the signalling cash flow hypothesis. Control variables included in the regressions are, in general terms, either signed as expected or insignificant.

Taken together, the results for the pooled OLS, probit and Tobit estimation support the hypothesis that corporate governance standards may have an impact on the dividend payout ratio. Our results show that more profitable firms have higher dividend payout ratios. Conversely, companies with investment opportunities have lower payouts. That more profitable firms pay higher dividends while firms with better investments pay less is also consistent with the hypothesis that dividend may alleviate the agency conflict in connection with free cash flows. Besides, we present evidence that firms with the one-share-one vote mechanism have higher payout ratios, while firms with a large, controlling shareholder report lower dividend payouts. In our opinion, the results support the hypothesis that the dividends may signal the severity of the conflict between the controlling owner and minority shareholders. Finally, there is only weak evidence that managers have incentives to signal the information about the companies' future cash flows. The one year lagged coefficient for dividend payout seldom enters significantly into the regressions and thus presents only weak support for the signalling hypothesis.

The control variables show/indicate that, on average, larger and less indebted firms pay out higher dividends. The dummy variables included to control for potential industry are statistically insignificant in the regression models. Nonetheless, time dummies are in some specification significant at the 5 percent level, yet they are not reported.

Finally, we regress our three dependent variables representing dividend payout ratios on the TDI and the three subindices that comprise Transparency Disclosure Index: Board, Disclosure and Shareholders. The results of OLS and tobit regression for the whole period 1998–2004 and the two sub-periods 1998–2001 and 2002–2004 are shown in Table 13–16. All the regressions include the full variable set as well as time and industry dummies.

In most of the regressions, the TDI and each individual TDI subindex is statistically significant at 1 percent, 5 percent, or 10 percent level. The strongest

Table 12. *Pooled Tobit for cash dividends to sales: TDI, ownership and balance sheet determinants*

	(1)	(2)	(3)	(4)	(5)	dy/dx
Constant	-0.021 (-0.68)	-0.049 (-1.39)	-0.049 (-1.43)	-0.061* (-1.83)	-0.061* (-1.80)	
TDI	0.044** (2.27)	0.023 (1.07)	0.020 (0.92)	0.005 (0.23)	0.011 (0.47)	0.002
Debt to Assets		-0.081*** (-6.59)	-0.070*** (-5.48)	-0.072*** (-5.56)	-0.076*** (-5.26)	-0.014
Sales		-0.000 (-0.27)	-0.005 (-0.78)	-0.006 (-0.88)	-0.018** (-2.17)	-0.004
Ln(Assets)		0.006** (2.54)	0.005** (2.19)	0.007*** (2.94)	0.007*** (2.66)	0.001
Ln(Listed)		-0.005 (-1.27)	-0.004 (-0.80)	-0.002 (-0.47)	-0.002 (-0.26)	-0.000
ROA			0.111*** (3.75)	0.111*** (3.76)	0.148*** (4.39)	0.028
Tobin's q			-0.000 (-0.51)	-0.001 (-0.76)	-0.001 (-1.32)	-0.000
Ownership				0.077 (1.51)	0.056 (0.98)	0.011
CF rights				-0.089* (-1.74)	-0.069 (-1.18)	-0.013
One vote rule				-0.017*** (-3.11)	-0.019*** (-3.40)	-0.004
Domestic				-0.005 (-0.85)	-0.003 (-0.53)	-0.001
Lagged dividend					0.406*** (3.96)	0.077
Primary dummy	-0.022 (-0.77)	-0.021 (-0.78)	-0.021 (-0.82)	-0.008 (-0.33)	-0.007 (-0.26)	-0.001
Industry dummy	-0.005 (-0.18)	-0.006 (-0.24)	-0.007 (-0.29)	0.003 (0.16)	0.006 (0.25)	0.001
Service dummy	-0.013 (-0.48)	-0.008 (-0.31)	-0.011 (-0.42)	-0.005 (-0.19)	-0.006 (-0.22)	-0.001
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	760	760	760	760	650	
Obs. left-censored at zero	527	527	527	527	466	
Log likelihood	189.664	223.230	230.938	236.609	181.310	
McFadden's R2	-0.143	-0.568	-0.699	-0.770	-1.488	
McFadden's Adj R2	-0.047	-0.440	-0.554	-0.593	-1.178	
AIC	-0.343	-0.471	-0.508	-0.521	-0.475	

Pooled Tobit for Cash Dividends to Sales on the Transparency and Disclosure Index (TDI) with performance, ownership and control variables added sequentially as shown. The last column presents the marginal effects at means of the independent variable based on the (5) regression.

*, **, and *** indicate significance at 10%, 5%, and 1% levels.

t-statistics based on robust standard errors in parentheses

Source: own computation

results are for the TDI subindices Board, Disclosure, and Shareholders, in that order. The results are somewhat surprising as we expected to find the subindex TDI Shareholders as the most significant of all the TDI subindices because, in our opinion, it is the one that should be most related to dividend policy.

Table 13 presents the results of the OLS and tobit regression of the cash dividend to cash flows on the corporate governance index TDI and the three subindices. The OLS results show that the TDI and the three subindices are statistically significant for the whole period as well as the subperiod 1998-2001. Yet, for the

Table 13. *Pooled OLS and Tobit regression for cash dividends to cash flow on TDI and subindices*

	(1) (1998–2004)	(2) (1998–2001)	(3) (2002–2004)
OLS			
TDI	9.798*** (2.82)	20.327* (1.83)	0.174 (1.16)
TDI-Board	9.101*** (2.69)	19.100* (1.89)	0.053 (0.79)
TDI-Disclosure	4.590*** (2.55)	11.277* (1.80)	0.179*** (3.50)
TDI-Shareholders	-4.166*** (-2.30)	-10.183* (-1.95)	0.087 (0.44)
Tobit			
TDI	44.542* (1.92)	93.585** (41.078)	0.535 (1.06)
TDI-Board	28.179* (1.86)	45.987* (1.79)	0.364 (1.05)
TDI-Disclosure	28.188 (1.37)	100.117** (2.49)	0.151 (0.33)
TDI-Shareholders	9.451 (0.53)	1.675 (0.05)	0.428 (1.10)

Pooled OLS and Tobit regressions for Cash Dividends to Cash Flow on corporate governance measure TDI and the three subindices defined in the text (Board, Disclosure, Shareholders). Sample firms and control variables are the same as in the regression (5) in Tables 6 and 10. Each line of Table displays, for the whole period (1998–2004) and two subperiods (1998–2001 and 2002–2004), the estimated coefficient on TDI measures.

*, **, and *** indicate significance at 10%, 5%, and 1% levels.

t-statistics based on robust standard errors in parentheses

Source: own computation.

Table 14. *Pooled OLS and Tobit regression for cash dividends to earnings on TDI and subindices*

	(1) (1998–2004)	(2) (1998–2001)	(3) (2002–2004)
OLS			
TDI	0.297*** (3.88)	0.299*** (3.88)	0.293** (2.27)
TDI-Board	0.136* (1.92)	0.162* (1.90)	0.141 (1.24)
TDI-Disclosure	0.290 (3.48)	0.414*** (7.20)	0.201*** (2.65)
TDI-Shareholders	0.064 (0.70)	-0.094* (-1.73)	0.155*** (2.62)
Tobit			
TDI	0.835 (1.57)	0.800 (0.83)	0.978* (1.75)
TDI-Board	0.337 (0.95)	0.015 (0.02)	0.692* (1.80)
TDI-Disclosure	0.860* (1.83)	1.637* (1.86)	0.371 (0.74)
TDI-Shareholders	0.188 (0.48)	-0.132 (-0.19)	0.570 (1.30)

Pooled OLS and Tobit regressions on Cash Dividends to Earnings on corporate governance measure TDI and the three subindices defined in the text (Board, Disclosure, Shareholders). Sample firms and control variables are the same as in the regression (5) in Tables 7 and 11. Each line of Table displays, for the whole period (1998–2004) and two subperiods (1998–2001 and 2002–2004), the estimated coefficient on TDI measures.

*, **, and *** indicate significance at 10%, 5%, and 1% levels.

t-statistics based on robust standard errors in parentheses

Source: own computation.

subperiod 2002-2004 only the subindices representing TDI Disclosure is statistically significant at 5 percent level. For example, the coefficient on subindex TDI Disclosure implies that the improvement in corporate governance practice concerning disclosure in the years 1998-2004 by 1 point predicts a 4.6 points increase of dividend to cash flow ratio. The results for tobit are in line with the OLS results, yet they present a statistical weaker impact of the subindices on the dividend policy.

Compared with the previous results when cash dividend to earnings are applied in the OLS regression, the results seem to be more persistent over time. Table 14 shows that the corporate governance index TDI and the subindex TDI Board are statistically significant for the years 1998-2004. Nevertheless, the TDI and the subindices are all statistically significant for both of the subperiods. Again, the pooled tobit confirms the OLS results, yet they present a statistical weaker impact of the TDI and its subindices on the dividend payout ratio.

Table 15 presents the last regressions for corporate governance index TDI and its subindices, where the dependent variable is cash dividend to sales. In comparison to the two previous models, the regression results are much weaker statistically. In the OLS regression, the TDI is significant for the whole period and for the subperiod 1998–2001 as well as for the subindex Disclosure. On the other hand, in the pooled tobit regression neither TDI nor the subindices are statistically significant.

Table 15. *Pooled OLS and Tobit regression for cash dividends to sales on TDI and subindices*

	(1) (1998–2004)	(2) (1998–2001)	(3) (2002–2004)
OLS			
TDI	0.004*** (3.70)	0.007*** (3.73)	0.001 (0.25)
TDI-Board	-0.000 (-0.17)	0.003 (1.38)	-0.003 (-1.24)
TDI-Disclosure	0.007 (1.05)	0.007*** (4.58)	0.003 (0.27)
TDI-Shareholders	0.003 (0.59)	0.000 (0.04)	0.007 (0.81)
Tobit			
TDI	0.011 (0.47)	0.024 (0.78)	0.006 (0.18)
TDI-Board	-0.002 (-0.14)	0.002 (0.15)	-0.001 (-0.04)
TDI-Disclosure	0.015 (0.74)	0.033 (1.23)	-0.001 (-0.05)
TDI-Shareholders	0.015 (0.81)	0.010 (0.43)	0.022 (0.93)

Pooled OLS and Tobit regressions for Cash Dividends to Sales on corporate governance measure TDI and the three subindices defined in the text (Board, Disclosure, Shareholders). Sample firms and control variables are the same as in the regression (5) in Tables 8 and 12. Each line of Table displays, for the whole period (1998–2004) and two subperiods (1998–2001 and 2002–2004), the estimated coefficient on TDI measures.

*, **, and *** indicate significance at 10%, 5%, and 1% levels.

t-statistics based on robust standard errors in parentheses

Source: own computation.

Concluding, in all the regressions we find significant differences in results between the two subperiods. We observe that the relationship has sizeable effects for both subperiods: from 1998 to 2001 and from 2002 to 2004. We assume that the TDI of corporate governance measure is a valid measure of minority shareholder protection and thus also dividend payouts throughout our sample period. In our opinion, its prediction power is getting statistically weaker because companies have begun to implement the corporate governance standards represented by the Best Practice Code since 2001. Nevertheless, the TDI remain statistically significant and our results present a strong correlation between dividends' payout and companies' corporate governance standards. We should emphasize that our results show that the elements of the corporate governance index have more predictive power when aggregated into an index than individually.

5.4. Sensitivity analysis

A number of robustness tests are conducted. We test the sensitivity of the results to a number of alternative specifications of our regression[2]. First, we check the consistency of the results after removing outliers. These outliers are eliminated after considering the scatter plot of the dividend payout regressions involving corporate governance measure. We eliminate those companies that fall particularly far from the regression line and then repeat the estimation on a new sample. After dropping out the extreme observations, we still get a significant and positive relationship between corporate governance practice and dividend payout.

Obviously, in case of leverage and Tobin's q, endogeneity could challenge the reliability of the econometric model. As for leverage, this could be the case if firms set in advance some dividend targets and adjust the debt ratio to meet them correspondingly. In the case of Tobin's q, endogeneity might be present as long as investors prefer high dividends and properly anticipate the disbursement to be declared after every fiscal year.

Standard econometric techniques for addressing possible endogeneity require identifying a good instrument. The instrument should ideally be exogenous and not influenced by the dependent variable dividend payout to cash flow ratio. The instrument should be correlated, preferably strongly, with the independent variable of the TDI, but otherwise uncorrelated with the dependent variable of interest. It means that the instrument should predict the dependent variable only indirectly, through its effect on the independent variable.

To address endogeneity, we use ln(assets), the standard deviation of Return on Assets in the previous three years and sector dummies variables as the exogenous instrumental variables. In line with most

[2] The results of robustness analysis are not reported but are available upon request.

Table 16. *Cash dividends to cash flow: instrumented*

	(1)	(2)
Constant	0.296 (0.468)	-0.448 (0.333)
Ln(Assets)	0.258*** (0.059)	0.051** (0.025)
Lagged dividend payment dummy		-0.489*** (0.073)
ROA		2.244*** (0.464)
Tobin's q	-1.689*** (0.368)	-0.016 (0.014)
Debt to Assets	-3.242*** (0.483)	-0.965*** (0.192)
Dummy 1999	-0.096 (0.114)	
Dummy 2000	-0.006 (0.120)	-0.015 (0.111)
Dummy 2001	-0.144 (0.123)	-0.054 (0.117)
Dummy 2002	-0.120 (0.119)	-0.102 (0.120)
Dummy 2003	-0.057 (0.117)	0.000 (0.114)
Dummy 2004	-0.096 (0.114)	
Industry dummy	0.295** (0.131)	0.141 (0.090)
Primary product dummy	0.086 (0.123)	0.056 (0.118)
Observations	656	652
Chi2	127.978	209.335
Obs. left-censored at zero	498	493

Pooled Tobit results for yearly data 1998–2004 and a maximum of 110 non-financial listed firms. In regression (1), Q is instrumented with ln(Assets), the standard deviation of ROA in the previous three years and sector dummies. Debt to assets is instrumented with ln(Assets), tangibility (fixed to total assets), ROA and sector dummies. In regression (2), the lagged dividend payment dummy takes the value 1 if the company paid any cash dividends in the previous year, and 0 otherwise. The yearly cash dividends are those announced once the company's fiscal year has ended, and the accounting variables are calculated from fiscal year's statements.
*, **, and *** indicate significance at 10%, 5%, and 1% levels.
t-statistics based on robust standard errors in parentheses

Source: own computation.

capital structure theories, we also instrument leverage variable with tangibility, assets and Return on Assets, as well as sector dummies. In Table 16, the regression (1) presents the regression results with instrumental variables and shows that neither leverage nor Tobin's q lose explanatory power after being instrumented. We report a negative sign of the leverage ratio and Tobin's q, ruling out the possibility of endogeneity.

There are not many ways of measuring the variables that enter the regression. Nevertheless, as we want to ensure that the results are not due to our choice of indicators, we perform a number of robustness tests using alternative measures for dividend payout and corporate governance practices. We repeat the regressions reported in this paper using an alternative measure for the dividend payout ratio. The new ratio is defined as dividends to assets or dividends to equity. In both cases, the results are qualitatively the same as those previously reported. The TDI and its subindices are significantly and positively associated with the alternative dividend payout measures.

We also run a regression using an alternative index for corporate governance practices employing the Polish Corporate Governance Rating for 50 listed companies instead of the TDI. The coefficient is still positive, yet the results are very weak statistically. As an alternative index for corporate governance practices, we also employ a variable that reflects the number of rules followed by the listed companies from the WSE Best Practice Code. In this case, the coefficient is relatively small and not statistically significant. Therefore, in our opinion, the Best Practice Code may not be used as a proxy for corporate governance practices. We also compute the regressions changing the ratios for both the dependent variable and the main regressor, using the Polish Corporate Governance Rating, and in either case the signs of the estimated coefficients do not change.

Finally, changing the conditioning information set has not affected our results. Further increasing the set of explanatory variables included in the regressions with the company's age and dummy variables for state owned origin or for ADRs does not change either the significance level or the sign of the estimated coefficients. Concluding, the results of the sensitivity test using a different set of data remain unaffected by an array of robustness checks and confirm our previous findings on the link between corporate governance practices and dividend payouts.

6. Conclusions

Our empirical results demonstrate that corporate governance is an important determinant in explaining the dividend policy of Polish public companies. The constructed Transparency Disclosure Index (TDI) for 110 companies listed on the WSE has proved to be an appropriate measure of the quality of corporate governance. In line with our predictions, and controlling for other factors, we find a strong positive correlation between the overall TDI and dividend payout, which is robust across different regression specification and time sub-samples. Our measure for corporate governance, the TDI and its subindices enter the regressions positively and significantly. Those results are in line with the outcome model assuming that when shareholders have greater rights, they can use their power to influence dividend policy.

Our results for the remaining dividend determinants are in line with the corporate finance literature and expectations. We find that larger companies and more profitable firms without good investment opportunities pay more dividends. That more profitable firms pay more dividends while firms with better investments pay less is also consistent with the propositions of Easterbrook (1984) and Jensen (1986) about the role of dividends in controlling the agency costs of free cash flow.

Relating dividend rates to the discrepancy between the controlling shareholder's voting rights and its cash flow rights, our results complement the evidence in Gugler and Yortogul (2003) for German companies. We document that Polish firms with a large shareholder have, on average, lower payouts. On the other hand, we observe that an increase in cash flow rights leads to a higher dividend payout. Next, we conclude that the one-share-one-vote mechanism significantly reduces the dividend payout ratio in Poland. We find that the smaller the ratio, the larger the incentive of the controlling shareholder to seek compensation other than through dividends payout. Nevertheless, we do not find any evidence of the foreign ownership of listed companies that often have pyramid structures, which has an impact on the dividend payout ratio.

Based on the empirical finding by Lintner (1956) and the more recent signalling models, we assumed that firms may attempt to maintain stable dividends payout ratios. However, our findings for Polish listed companies do not support the signalling theory and we do not find any persistent pattern of dividend payout over time. Our results are attributed to the underdevelopment of the capital market in Poland. As a result, the number of listed companies is relative small and most of them have a very short history as a listed public company. In such a situation, companies may not care about maintaining stable dividend payout ratios over time and use other techniques to compete for investors.

Our results provide evidence that in Poland listed companies, where corporate governance practices are high and, as a consequence, shareholder rights are strong pay out higher dividends. Thus, we show that individual companies are not entirely trapped by the weak legal regimes and enforcement in transition countries. Companies may demonstrate a commitment

to protecting investors by improving their corporate governance standards. Putting our results in the context of the literature, this study contributes twofold to the literature on the dividend policy. Using an extensive dataset on Polish listed companies, we show that corporate governance is a significant determinant of the dividend policy in a transition economy. In addition, we provide a new insight on the dividend determinants in a transition capital market. We document that some of the existing theories, like the agency or ownership theory, may be applied to a country in transition, while others, like the signalling theory, do not hold.

Finally, a recurring concern with econometric studies on corporate governance and performance is the potential presence of simultaneity and reverse causality. Specifically, if there exists a casual positive link from companies' performance to corporate governance, the estimated coefficient on corporate governance would be upward biased, thus rendering the previous results anything but reliable. We have tried to address this issue using three different econometric methods as well instrumental variables. Yet, we are fully aware that due to limited sample the present econometric methods do not allow us to fully control for the problems mentioned.

Concluding, our results present strong evidence that corporate governance and ownership may determine the dividend policy of listed companies on the WSE. Yet, much more needs to be done in this direction as policymakers in Poland and other countries need to learn how to encourage the expansion of corporate governance practices without creating a burden for listed companies. In our opinion, our results suggest that corporate governance regulations are needed in order to improve the performance of listed companies as well as the protection of minority shareholders. In the long term, improving regulations should result in the development of the stock market in Poland. Therefore, researchers need to continue to develop the next stage of work on the channels of how corporate governance and regulations affect performance of listed companies and how to apply these regulations to listed companies and thus enhance the growth of the stock market.

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Appendix. *Definition of variables*

Dependent and control variables	
Dividends to cash flow	Cash dividends to cash flow (total earnings plus depreciation)
Dividends to earnings	Cash dividends to total earnings
Dividends to sales	Cash dividends to sales
Debt to assets	Total debt to assets
Sales	Percentage sales growth
Ln (Assets)	Logarithm of the company's total assets
Ln(Listed)	Logarithm of the company's years on stock exchange as of 2004.
Return on assets	Earnings before interest and taxes to total assets
Tobin's q	It is the market value of equity plus the book value of liabilities to book value of assets
Ownership	It is the product of all voting rights of the main ultimate shareholder along his control chain, based on a 20% cutoff.
CF rights	It is the product of all cash flow rights of the main ultimate shareholder along the control chain, based on a 20% cutoff.
One vote rule	This variable takes the value 1 if there are shares having higher voting power than others of the main ultimate shareholder, and 0 otherwise
Domestic	This variable takes the value 1 if the main ultimate shareholder is an Polish individual or family, and 0 if it is a company located abroad.
Industry dummy	This variable takes the value 1 if the company belongs to the industry sector, and 0 otherwise. The activity classification is taken from the NACE.
Primary dummy	This variable takes the value 1 if the company produces agricultural products, livestock, minerals or other commodities, and 0 otherwise. The activity classification is taken from the NACE.
Services dummy	This variable takes the value 1 if the company provides services, and 0 otherwise. The activity classification is taken from the NACE.
Utilities dummy	This variable takes the value 1 if the company supplies utilities, and 0 otherwise. The activity classification is taken from the NACE.