The effect of investor protection on dividend payout policy

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We investigate the effect of investor protection on dividend payout policy in the context of the European Union. We specifically test if the outcome and substitute agency models of dividend payout from La Porta et al. are applicable to European markets in the timeframe from 2014 to 2016. We do so by utilizing Djankov's shareholder protection indices in logit and ordinary least squares regression models to test if shareholder protection affects the likelihood and amount of dividend payments. We find a positive relationship between shareholder protection variables and dividend payments and payment size, which supports the outcome model of dividends. Furthermore, we found negative relationships between certain shareholder protection variables and dividends what suggests a substitution hypothesis, but we did not find enough proof to support that.

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1. INTRODUCTION

In the financial world payout policy is a topic of major disagreement and discussion even over 50 years after the publishing of Modigliani and Millers seminal work.

Modigliani and Miller (1961) argued that under perfect market conditions payout policy is irrelevant, because an increase of dividends in one period will result in a decrease of dividends in the next. Furthermore, investors can use homemade dividends to shape any payout policy they desire. These perfect conditions include among others the assumptions that no agency costs exist, and that information is costless and available to everybody. Scholars have not yet reached a consensus on why dividends are being paid; rather the more we learn, the harder it gets to put the pieces together (Black, 1976). In this "dividend puzzle" different theories are competing with each other. One often discussed topic is the clientele effect, which describes how stock prices will change according to the demands of investors. This builds on the idea that investors are attracted to certain policies and will change their investments according to policy changes. Other scholars assume that managers use dividends to signal profitability to their shareholders based on information the shareholders might not possess, because of information asymmetry (Signaling Hypothesis). More recently these explanations have been categorized as rather secondary explanations and new theories have been on the rise. DeAngelo, DeAngelo, and Stulz (2006) argue, that the life cycles stage a company is in, defines its dividend policy. Another concept that is becoming more and more popular is the idea that dividends are used to mitigate agency problems between corporate insiders and outside shareholders (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000).

As managers' interest are not necessarily aligned with the shareholders', managers could act in their own interest and divert free cash flows for personal benefits or use them to fund negative NPV projects that promise other private benefits. If companies generate large free cash flows, which are basically excess cash flows that are not needed to fund positive NPV projects, Jensen (1986) stresses the importance of payout policy. So, minority shareholders that can't benefit from insider knowledge prefer to decrease the free cash flows through dividend payout. Complementary, Kalcheva and Lins (2007) show that under low country-level shareholder protection firm values are lower, if they have higher cash holdings and firm values are higher if dividends are being paid. Additionally, dividend payments expose companies to a conceivable need to raise future funds at the capital market, which in turn gives minority shareholders the opportunity to exercise some control over corporate insiders (Easterbrook, 1984).

La Porta et al. (2000) tested two models how dividends could be used to reduce agency costs. Firstly, the "outcome model", where dividends are paid, because minority shareholders pressure managers to discharge cash. Minority shareholders are afraid that insiders abuse their position and for example use excess cash for personal gains or invest in projects that first and foremost prioritize private benefits. Therefor outsiders prefer dividend payments over reinvestment and use their legal protection to pressure executives to disgorge cash. On the other hand, the "substitute model" describes dividends as a substitute for legal protection. According to this model by paying dividends firms try to establish a reputation for the fair treatment of shareholders, so that if the need arises they can raise cash externally at good conditions. This is more useful in countries with weak legal protections. The two concepts seem contradictory, because the outcome model claims that countries with high legal protection pay high dividends and the substitute model claims the opposite that countries with low legal protection pay higher dividends.

Bhattacharya and Daouk (2002) show an association between the enforcement of insider trading laws and lower cost of capital, yet are hesitant to claim causality, because of the attractiveness of the stock market as a confounding variable. La Porta, Lopez-De-Silanes, Shleifer, and Vishny (2002) show conforming with their prior research that a higher level of investor protection correlates with higher firm valuation. So, if coherent evidence can be found that the outcome model is correct, it might be beneficial or even necessary to increase shareholder protection and thereby increase firm valuation.

Even though, many studies found evidence for the substitute hypothesis (Brockman, Tresl, & Unlu, 2014; De Cesari, 2012; Jiraporn & Ning, 2006). If the substitute model holds true it might not be necessary to change policies, because companies compensate for low investor protection with dividends.

In this paper we want to contribute to the current literature by further analyzing the agency approach to dividends. Therefor we want to find which model better explains dividend payments with a more recent dataset and a different approach of measuring shareholder protection. Furthermore, as discussed above we want to find what implication our findings might have for policy makers, companies and shareholders. To achieve this, we want to answer the following research question:

"How does the level of investor protection affect the dividend payout policy of companies in the European Union?"

To answer this question, we used a sample of 12418 observations over a three-year period from the Orbis database and sourced country specific shareholder protection data from the Worldbank database. Our main focus in this research was to prove or disprove the outcome and substitute models created by La Porta et al. (2000). We argue that both models could be potentially part of the dividend puzzle, because even though they seem to be complete opposites they don't have to be if we split shareholder protection into conflict of interest variables and shareholder governance variables.

Our research shows that with an increase in shareholder protection variables, the likelihood of paying dividends and the size of dividend payments increases. This is in accord with the outcome model of dividends. Out of three shareholder governance variables that we used only ownership and control shows a consistent negative relationship with dividend payout amounts. It is not enough proof to support our claim of both models being applicable at the same time, but our results show that it is worth to explore in future research.

Through our research we contributed to the payout literature by finding support for the outcome model with a recent data and focus on the European Union. Furthermore, we introduced the possibility that individual aspects of shareholder protection could influence dividend payout decisions in different ways. It is hard to predict real world implications without follow up studies, but according to our results and previous studies shareholder protection should be increased to increase firm valuation.

The following paper will be structured as follows: In section 2 we will explain the theoretical framework of our research and develop our hypotheses. In section 3 we will discuss the methodology, which variables we use and why, as well as how we collect our data. In section 4 we will do a descriptive and analytical analysis of our data to finish in section 5 with conclusions and limitations of our research.

2. THEORETICAL FRAMEWORK

2.1 Agency Theory

Agency theory describes the relationship between principals and agents in business. It outlines how conflicts of interest or different goals can lead to problems. In an organizational context agency theory is mostly characterized through the owners hiring managers to run the organization in exchange for an agreed upon compensation. Out of the very nature of this relationship agency problem arise, which means that managers are acting in their own interest at the expense of the shareholders. According to Jensen and Meckling (1976) these problems manifest in different expenditures called agency costs. Firstly, monitoring costs incurred by the shareholder to keep managers from abusing their position of power; secondly "bonding costs" on the side of the managers, which include all costs to ensure shareholders of their good behavior; and thirdly the gap between shareholders welfare and managers decisions that still exists despite bonding and monitoring also referred to as "residual loss".

These costs can be reduced by decreasing the free cash flow available to managers through dividend payouts. (Jensen, 1986)

2.2 Agency Models of Dividend Payout

La Porta et al. (2000) describe two different agency models of dividend payout. In the "outcome model" dividends are described as the outcome of a working system, in which investors are able to extract cash through their legal protection. This does not mean that they can directly ask for dividends, but they have to do so in a more indirect way. Possibilities to do so are, that outsiders use their voting rights to support directors that offer more favorable dividend policies or that they sue companies for excessively using excess cash to benefit insiders. It is important to note, that the second option is not possible if they are just sitting on excess cash and not obviously using it for misconduct. "The greater the rights of the minority shareholders, the more cash they extract from the company, other things equal". (La Porta et al., 2000, p. 5) Therefore dividends are a direct outcome of corporate governance and the legal system. Furthermore, it is important to consider the growth prospects of a company, because if managers have lots of potentially profitable investment opportunities they are less likely to pay out dividends and rather reinvest.

Alternatively, in the "substitute model" companies establish a reputation for an appropriate treatment of shareholders, to be able to raise cash externally at appropriate terms if the need arises. They establish such a reputation by regular and high dividend payments. This mechanism only works if they never stop paying dividends, which implies that as long as there is a chance that the company needs to issue equity in the future it is important to maintain its good reputation. That implies that the model builds heavily on the assumption that companies need to issue equity in the future. Building such a reputation is mostly relevant in low investor protection countries, because investors can't rely on the law as a safety measure, if misconduct happens. Therefor the substitute model claims that keeping other factors constant under low investor protection, higher dividends are being payed. In contrast to that, if there was a high level of investor protection, such a mechanism becomes less important and one would expect lower dividends being paid.

La Porta et al. (2000) conducted a cross sectional study of 4000 companies in 33 different countries and used three different ratios to measure dividends; namely dividends-to-cash flow, dividends-to-earnings and dividends-to-sales. Dividends-to-sales is only factored in to control for accounting tricks, that could be used to obscure earnings and cash flow measurements. Furthermore, they use two different dummy variables to measure investor protection, where one measures if civil or common law is practiced and the other measures if the index of anti-director rights is higher or lower than the median. Conclusively they found evidence to support the outcome model.

Several follow up studies support the outcome model. Using the Globe & Mail annual corporate governance index Adjaoud and Ben-Amar (2010) tested the two models with a sample of 714 companies listed on the Toronto stock exchange from 2002 to 2005 and found that board composition and shareholder rights are positively related to dividend payouts. LaRiviere, McMahon, and Neilson (2018) composed a laboratory experiment, where you have 100 tokens to invest. There they test over 6 investment periods the effects of high and low investor protection on investment decisions and dividends payments. The results of their experiment support the outcome model but suggest that high investor protection introduces new agency costs.

Goyal and Muckley (2013) research the influence of investor rights on payout policy with a sample of 52778 Asian companies. They find that high shareholder protection countries decide to pay out more often and pay higher dividends, which is in accordance with the outcome model of dividends. Yet at the same time they find that if creditor rights and regulatory qualities are low, companies are more likely to pay dividends. Their research suggest that dividend policy is mainly shaped by a conflict between shareholder rights and creditor rights, while determining that the first is more important, at least in Asia.

Jiraporn and Ning (2006) further study the association of shareholder protection and dividends in an agency context, with a sample of 3732 U.S. firms. Yet, contrary to La Porta et al. (2000), they find evidence to support the substitute model of dividends. Still one must consider that in contrast to La Porta et al. (2000) their sample consists only of US companies, which means there is no disparity in the legal system. Furthermore, they use a different measure for investor protection, because the US only uses common law. They use the Governance Index to measure the strength of shareholder rights. It uses governance provisions that are categorized in "delaying hostile bidders (Delay); voting rights (Voting); director/officer protection (Protection); other takeover defenses (Other); and state laws (State)" (Jiraporn & Ning, 2006, p. 7).

Another study conducted with an Italian sample of 176 firms over the five-year period from 1999 to 2004 further reinforces the claim of the substitute model (De Cesari, 2012). In Italy agency problems arise between large controlling shareholders and minority shareholders, because the controlling shareholders usually have low cash flow rights, while having high control rights. Therefore, they have the power to expropriate shareholders, while having a very small incentive to not do so. De Cesari (2012) finds that the higher the discrepancy between control rights and cash flows rights, firms prefer dividends over repurchase. This finding is consistent with the substitute hypothesis, because they pay out more dividends to decrease agency costs. Yet they do so by changing the dividend-repurchase mix and not by increasing their total payout. De Cesari (2012) thinks that firms are cautious about increasing payouts, because the costs of cash expenditure outweigh the benefits of reduced agency costs. This study focusses explicitly on the shareholder situation in Italy, so we cannot assume that the results are transferable to European countries with different shareholder concentrations.

Brockman et al. (2014) widened the focus and tested the effects of insider trading laws on payout policy with an international sample of 32503 firms from 24 different countries. To measure shareholder protection, they use the insider trading law restrictiveness index. Their results suggest that firms operating in countries with weak insider trading laws tend to use dividend payouts as substitute bonding mechanisms when the country-level legal protection fails. Furthermore, they pose that weak insider trading laws lead to a higher propensity of paying dividends, larger dividend amounts and greater dividend smoothing. This means that they commit to large and stable dividends, which is in support of the substitute hypothesis.

The current literature cannot agree on which model better fits dividend payouts. Above we summarized seven studies that came to different conclusions. While four of them favor the outcome model, three find that the substitute model fits better, which is not representative for the payout literature. Yet, they cover a wide range of different aspects like for example: Some use only dividends, and some include share repurchases, some focus on one country and others use company data from the whole world; furthermore, they use different ways to measure shareholder protection. In this sense we used a good mix to represent research in the field. A reason why the studies come to these divergent results might be, that payout policy is a very complex topic, that can't be explained by shareholder protection alone as well as their different approaches and definitions of shareholder protection. Yet, to improve on the current literature we try to add another piece to the dividend puzzle, so that we can get closer to a complete explanation. In contrast to other studies we believe that both theories could be partially correct and not true opposites as simplified explanations make it out. The simplified definition of the models is that dividends rise or fall with the level of shareholder protection, but shareholder protection is a very broad term. For example, the disclosure of conflicts of interest in trades, how liable officers are for their misconduct and how easy it is for shareholders to get access to critical information to sue officers are all factors that make it easier to extract dividends as in the outcome model. At the same time corporate transparency, the existence of an auditing committee, board composition and shareholder rights are also part of shareholder protection. Yet these variables rather focus on effective corporate governance and good public relations instead of helping shareholder disgorge cash from a company. With an increase in the above-mentioned variables, we should see a decrease in dividend payments, because they are not needed to build good relationships with investors as in the substitute model. So, we expect a negative relationship with these variables and dividend payout.

We do not expect either of the models to fit perfectly, but that both models might be partially true, and we will test them separately with the two hypotheses:

"In countries of the European Union investor protection is positively related to the propensity and magnitude of dividend payments"
(outcome model)

And

"In countries of the European Union investor protection is negatively related to the propensity and magnitude of dividend payments"
(substitute model)

In our hypotheses we focus on dividends and do not include repurchases for several reasons. Dividends are usually paid regularly and there are no dividend cuts unless it is absolutely necessary, because decreases in dividends signal negative prospects for the company. Additionally, dividends show a pre-commitment to cash distribution that flexible repurchases just don't have (John & Knyazeva, 2006). Therefore, repurchases can't substitute for shareholder protection (or at least not as well), because of their flexible nature and the absence of any commitments for future payments. Additionally, Brav, Graham, Harvey, and Michaely (2005) find through surveying and interviews that managers are reluctant to decrease dividends. In turn one can't see repurchases as the outcome of a working legal system or corporate governance, because of their opportunistic nature. Repurchases are definitely an important part of payout policy, but in this research, we will exclude them to not over- or underestimate the relevance of dividends.

Furthermore, there are several limitations that have to be taken into consideration. For example, the European Parliament enforced a legislation called Markets in Financial Instruments Directive (MiFID I), which ensures shareholder protection to a certain degree. Furthermore, this directive has been revised, changed and enforced since the beginning of 2018 under the new name MiFID II. That means that any research conducted right now will not accurately show the effects after the policy change. Yet we think that it is still relevant to study the effects with the available data before the revision to get a better understanding of the impact of investor protection on payout policy.

3. METHODOLOGY & DATA

3.1 Methodology

To answer out research question *"How does the level of investor protection affect the dividend payout policy of companies in the European Union?"* we use Pearson Correlations to determine the bivariate relationships of our variables on a scale from -1 to 1, where -1 means perfect negative correlation, 0 means no correlation and 1 means perfect positive correlation. These correlation coefficients help us to filter our variables for ones that show no correlation with our dependent variable as well as to preliminary idea of the relationships of the variables used.

With the help from our Pearson analysis results, we will then use binary logistic regression to determine the likelihood of dividend payments dependent on shareholder protection variables. Furthermore, to ascertain if the amount of dividend payments is related to shareholder protection we use Ordinary Least Squares regression models. This was a somewhat standard approach in the field, yet recently there was a shift from researchers using OLS to Tobit regression models, which are now commonly use in the field. Yet we still believe that OLS is the right approach for this research paper.

3.2 Dependent Variables

As the dependent Variable in our analysis we use dividends. For that we source total cash dividends from the cash flow statement (Div) and ordinary dividends from the profit and loss statement (Div2). Furthermore, we will us the ratio of dividends to equity (book value) as our main variable as we can't simply compare dividends without some kind of rationalization. Additionally, we use net income and operating cash flow to build ratios with dividends as the nominator as a control mechanism. One problem all these ratios have in common is that they contain firm specific data that could influence the relationship between dividends and shareholder protection. Therefor following Goyal and Muckley (2013) we use the natural logarithm of dividends as a dependent variable to circumvent this problem.

3.3 Independent Variables

As the main treatment variables, we use six indices that measure investor protection. Namely the business extent of disclosure index (EDI), that measures the extent to which investors are protected through disclosure of ownership and financial information; the director liability index (DLI), which measures the liability of self-dealing; the ease of shareholder suits index (SSI), that measures the ability to sue officers for misconduct; the extent of shareholders' rights index, that measures shareholders rights and role in decision making; the extent of ownership and control index, which measures governance safeguards protecting shareholders from undue board control; and the extent of corporate transparency index (CTI), that measures transparency on significant owners, executive compensation, annual meetings and audits.

The indices range from 0 (low protection) to 10 (high protection) only consisting of integer. The indices are constructed with a survey of corporate and securities lawyers and are published annually by the Worldbank. The collected data is based on two business cases that focus on securities regulations, company laws, civil procedure codes and court rules of evidence. The indices were first introduced in Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008) and components of the index were used previously in different studies, which indicates that the index seems to be accepted as a proxy for investor protection in the field. (Enomoto, Kimura, & Yamaguchi, 2015; Goyal & Muckley, 2013; Haidar, 2009)

As previously explained we divide the indices into two categories that relate to the models. The probably best option to extract cash as in the outcome model is for shareholders to sue officers for misconduct. For that they need excess to document that indicate officers' misconduct (EDI), directors need to be liable for their actions (DLI) and they need to be in a position to be able to sue the officers (SSI). We categorize these three indices as conflict of interest variables and expect a positive relationship with dividends.

The second category is shareholder governance and encompasses the shareholder rights index, the ownership and control index and the corporate transparency index. These variables are important for a good relationship between shareholders and directors. Therefor the higher the index the lower dividend payments will be, because they are not needed as bonding mechanisms.

Table 1
Variable Descriptions

Independent Variables

Variable	Description
Business extent of disclosure index (EDI)	The extent to which investors are protected through disclosure of ownership and financial information.
Extent of director liability index (DLI)	The liability of self-dealing.
Ease of shareholder suits index (SSI)	The ability to sue officers and directors for misconduct.
Extent of shareholder rights index (SRI)	Shareholders' rights and their role in corporate decision making.
Extent of ownership and control index (OCI)	Governance safeguards protecting shareholders from undue board control and entrenchment.
Extent of corporate transparency index (CTI)	Corporate transparency on significant owners, executive compensation, annual meetings and audits.

Dependent Variables

Variable	Description
Dividend-to-equity	Cash dividends as a percentage of equity. Equity is measured as total assets - total liabilities (book value).
Dividend-to-cash-flow	Cash dividends as a percentage of cash flow. Cash flow is measured as net cash from operating activities - additions to fixed assets (free cash flow).
Dividend-to-net income	Cash dividends as a percentage of net income.
Dividend-to-equity 2	Ordinary dividends as a percentage of equity. Equity is measured as total assets - total liabilities (book value).
Dividend-to-cash-flow 2	Ordinary dividends as a percentage of cash flow. Cash flow is measured as net cash from operating activities - additions to fixed assets (free cash flow).
Dividend-to-net income 2	Ordinary dividends as a percentage of net income.
lnDiv	Measured as the natural logarithm of the total cash dividend payments.
lnDiv 2	Measured as the natural logarithm of the ordinary dividends.
Payer	Takes the value 1 if a company pays out cash dividends and 0 otherwise.
Payer2	Takes the value 1 if a company pays out ordinary dividends and 0 otherwise.

Control Variables

Variable	Description
Liquidity (Liqu) +	Measured as the current ratio. (Current Assets/Current Liabilities)
Cash	Defined as cash and cash equivalents at the end of the year divided by total assets.
Size 1 (Size_1) +	Measured as the natural logarithm of total sales.
Size 2 (Size_2) +	Measured as the natural logarithm of total assets.
Profitability 1 (Prof_1) +	Measured as the Return of Assets using earnings before interest and tax divided by total assets.
Profitability 2 (Prof_2)	Measured as the Return of Assets using net income divided by total assets.
Investment opportunities 1 (TQ) -	Measured with Tobin's Q. Defined as the market value of equity divided by the book value of equity.
Investment Opportunities 2 (SGR) -	Measured as the sales growth rate. Defined as the change in sales divided by the previous year's sales.

All the above-mentioned independent variables measure the level of shareholder protection on a scale from 0 (low protection) to 10 (high protection) only consisting of integer. The index data is collected from the WorldBank Database.

All dependent variables have dividends as the nominator. Dividends are defined as total cash dividends paid out to common and preferred shareholders (Div1) or as ordinary dividends (Div2).

The dependent and control variables are collected from the Orbis Database.

3.4 Independent Control Variables

We control for four firm-specific control variables. In his research Redding (1997) points out that with an increase in firm size (Size) and liquidity (Liqu) the propensity to pay dividends rises. Dang, Li, and Yang (2018) found that dividend policy is relatively stable to changes in size proxies, but to be sure we use the natural logarithm of total sales (Size_1) as well as the natural logarithm of assets (Size_2) as size proxies. Liquidity is measured as current assets divided by current liabilities (current ratio). Additionally, we use cash and cash equivalents scaled by total assets as a second liquidity measure. DeAngelo et al. (2006); Fama and French (2001) find that profitability (Prof) and investment opportunities (SGR) are important predictors of dividend policy. Firms that are profitable and have less investment opportunities are able to pay out more money to investors and vice versa companies that have lots of investment opportunities will pay out less because they rather reinvest for future profits. Accordingly, we expect a positive relationship with profitability and a negative relationship with investment opportunities. Profitability will be measured as the return of assets in two ways: as Earnings before interest and tax scales by total assets (Prof_1) and as net income scaled by total assets (Prof_2). A popular measure for investment opportunities in the field is the sales growth rate (Brockman et al., 2014; La Porta et al., 2000). The variable is defined as the change in sales divided by the previous year's sales (SGR). Even though this proxy for investment opportunities is widely used and recognized in the field it does not measure investment opportunities, but rather realized growth. This means that at the time of measurement this variable could not have driven decision making. Therefor we use another variable for investment opportunities that captures the concept better, namely the Tobin's Q (TQ), which is the market value of a firm divided by the replacement costs of its assets. As the replacement costs of assets is very hard to determine and not practical to us in empirical research we use the book value of the assets as a proxy.

3.5 Sample

The original sample is collected from the Orbis database over the period from 2014 to 2016 and consists of all corporations that are listed on a stock exchange in the European Union. Furthermore, we filter the data for market capitalization bigger than 0 instead of just using active companies to avoid survivorship bias. Following (Fama & French, 2001) we then exclude banks, utilities and insurance companies, because of the heavy regulation in these industries that could affect our results. Furthermore, we exclude firms with missing data over the period from 2013-2016 for dividends, cash flow, total assets, total liabilities, net income, net sales, total sales and ROA before tax; as well as negative values for equity. This leaves us with a sample of 12418 cases over the three-year period across 26 countries.

4. RESULTS

4.1 Descriptive statistics

Table 2 shows summary statistics of all variables used in our analysis. We included our dividend variables in the table as a reference even though they are not used in the actual analysis. It is noticeable that Div2 has a mean of 50950, but a median of 0, which means that there are more companies that did not pay ordinary dividends than ones that did. Furthermore, the standard deviation of Div and Div2 are very high, which is not that strange as outliers were not removed from these variables, because they are not used in further analysis. Looking at the data Div2 is probably the better variable as Div has more missing values, which are probably mostly non-dividend payments. We can't prove this though and therefore can't recode the missing values into non-payments. This makes the variable mostly useless for our logit regression at least, because we have a very low number of no-payout cases and a very high number of payout cases. Our main independent variable dividends scaled by equity has a mean of .0719 and a median of .0405 with a standard deviation of .12135. The distribution is slightly skewed toward the lower end, but this is nothing to worry about in further analysis.

We have two sets of control variable proxies, which are meant to measure the same concepts. Yet, there are considerable differences between the proxies used. As expected our size proxies are very similar and show no noteworthy differences aside from the fact that Size_1 has a lower minimum value. Liquidity has higher values overall than cash due to the operationalization of the variable as the current ratio, which becomes large very fast if the company has little liabilities. On the other hand, cash is scaled by assets and therefor smaller, but

Table 2
Descriptive statistics

Variable	Mean	Median	Std. Dev.	Min.	Max.	N
Div	98832	5588	454793	0	9351109	6511
Div2	50950	0	298312	0	6590459	10486
lnDIV	8.836	8.787	2.481	0.499	16.051	6199
lnDIV2	9.242	9.172	2.278	1.792	15.701	4691
DIV/Equ	0.072	0.041	0.121	0.000	1.869	6499
DIV/CF	0.319	0.239	1.227	-21.779	23.974	6493
DIV/NI	0.520	0.363	2.054	-36.355	38.715	6489
Div2/Equ	0.036	0.000	0.088	0.000	2.435	10464
Div2/NI	0.281	0.000	1.437	-34.195	42.228	10468
Div2/CF	0.157	0.000	0.512	-8.134	8.597	10109
Payer1	0.957	1.000	0.204	0.000	1.000	6511
Payer2	0.447	0.000	0.497	0.000	1.000	10486
EDI	7.553	8.000	1.883	2.000	10.000	11948
DLI	4.578	4.000	1.739	2.000	9.000	11948
SSI	6.955	7.000	1.375	3.000	9.000	11948
SRI	6.409	7.000	0.947	4.000	9.000	11948
CTI	7.967	8.000	0.711	5.000	9.000	11948
OCI	5.759	5.000	1.464	2.000	9.000	11948
Liqu	2.681	1.508	5.716	0.000	126.515	11908
Cash	0.126	0.079	0.135	-0.092	0.692	11690
Prof_1	0.024	0.046	0.170	-1.422	1.413	11958
Prof_2	-0.003	0.028	0.197	-2.633	2.229	11985
Size_1	11.094	11.100	2.806	1.549	19.664	11956
Size_2	11.740	11.555	2.415	4.278	19.677	11992
TQ	1.390	0.408	4.926	0.000	181.818	11976
SGR	0.396	0.041	7.123	-354.290	365.920	11747

This table shows descriptive statistics of the variables used in the analysis. It displays mean, median, standard deviation, minimum and maximum values, as well as number of observations. For variables descriptions please refer to table 1.

the values can be negative. Prof_2 has a negative mean, while Prof_1 has a positive mean value. Yet their medians are both positive. Finally, our investment opportunity proxies are every different. TQ has higher mean and median, while SGR has a higher standard deviation and spread.

When looking at our independent variables we can see that the lowest value is 2 even though the index ranges from 0-10. This might be explained by the fact that we only analyze countries that are part of the European Union. The shareholder rights index and the extent of corporate transparency index even range from 4-9 and 5-9 respectively. This might cause problems in later analysis especially as our independent variables are country specific.

Furthermore, we looked at the frequency distribution of cases per country, which is shown in Table 3 in the appendix. The United Kingdom displays most of the observations with 21.2% of the whole sample. This is especially interesting as the United Kingdom is the only country in the European Union that practices common law. All other countries practice some kind of civil law. According to La Porta et al. (2000) common law countries have on average higher shareholder protection than civil law countries.

As we use country specific variables to measure shareholder protection an uneven distribution of observations per country might be a problem for our analysis. Aside from The UK there are three more countries namely Poland, France and Germany that make up more than 10% of the sample and together constitute more than 50% of the sample. Looking at absolute values we still have lots of observations per country even if their corresponding relative percentages are less than 1%.

4.2 Pearson Correlation

In this section we will examine the binary relationship between the variables used in our regression models. The full correlation matrix can be found as table 4 in the appendix.

All the dependent variables positively correlate with each other. Yet nearly all correlation coefficients are under .3, which indicates that even though they should all measure dividends it makes a big difference which dependent variable we use. Dividend to net income and dividend to cash flow show no to very little correlation to our independent variables. They are not as stable as equity and don't seem to be useful proxies. Therefor we will not use them in our further analysis. The natural logarithm of dividends shows the highest correlation coefficients with our independent variables. Yet, we need to be careful, as we constructed for example our size control variables with the natural logarithm as well and they highly correlate with each other with an r value of .75 and higher. For these reasons Dividends scales by equity will remain our main variable of analysis, but we will include the logarithmic dependent variables in our regression.

We observe correlation between all the independent variables at the 1% level, while the r-values range from -.228 to .441. The lowest correlation coefficient between -.1 and .1 are observed between OCI-SRI; SRI-SSI; SSI-DLI. We expected correlation in these ranges as all the indices are supposed to measure the overarching concept of investor protection. As the highest correlation between the independent variables is .441 we should not be overly concerned with multicollinearity issues, but we will keep it in mind for the further analysis. That we observe negative correlation coefficients between our independent variables shows that we can't expect them to influence dividend payout in the same way. We mostly see negative coefficient between variables of the two groups we defined, but shareholder rights seem to be directly contradicting the group we put them in, because it shows negative correlation coefficients with CTI and OCI.

As we predicted in our hypothesis the Extent of Director Liability Index (DLI), the Shareholder Suits Index (SSI) and the Business Extent of Disclosure Index (EDI) are positively related to Dividends scaled by equity (Div/Equ); EDI and SSI at the 1% level and DLI with a p-value of .013. Additionally, the Shareholder Rights Index (SRI), is significantly positively related to Div/Equ at the 1% level and the Ownership and Control Index (OCI) and Corporate Transparency Index (CTI) have negative correlation coefficients of which only OCI is significant at the 1% level.

The correlation coefficients between ordinary dividends scaled by equity (Div2/Equ) and the independent conflict of interest variables is somewhat similar to Div/Equ. We see positive significant correlation in all three and EDI is now significant at the 1% level. Out of the shareholder governance group SRI is now insignificant as well as CTI, which showed no relationship with Div/Equ as well. OCI is still significantly negatively related to Div/Equ.

There is a significant positive relationship at the 1% level between lnDiv and EDI, DLI and CTI. We expected this for EDI and DLI but predicted a negative relationship with CTI. SSI's correlation coefficient is negative and significant at the 1% level. SRI and OCI don't correlate with lnDiv and have very small r-values of .000 and -.021 respectively.

The Pearson correlations for the natural logarithm of the ordinary dividends (lnDiv2) are very similar with on average stronger correlations than lnDiv. The directions of the relationships are the same as lnDiv, but SRI is now significant and negatively related to lnDiv2.

We use two sets of independent control variables for robustness in our results. There is a strong correlation between our profitability measures at the 1% level with an r-value of .798; the size proxies have an even higher correlation coefficient of .874 with a p-value of less than .01; cash and liquidity are also positively related and significant at the 1% level. Yet their correlation coefficient is only .201, which only makes sense as they only roughly measure the same concept. Interestingly there is no significant relationship between our investment opportunity measures. One reason for that could be that the Tobin's Q measures investment opportunities and the sales growth measures realized growth. Additionally, we use a simplified measure for Tobin's Q to make it easier quantifiable.

The bivariate relationships between our control variables are as follows: Both profitability proxies are consistently positively related to all our dependent variables, which fits our predictions. While Size_2 is also positively related across all dependent variables there is a negative relationship between Size_1 and Div/Equ. We also predicted a positive relationship between liquidity and dividends, but they are negatively correlated across all four depended variables and not significant for dividends scaled by equity. Furthermore, cash is negatively correlated with the logarithmic dependent variables and positively related with the dividends to equity variables at the 1% level. We expected a negative relationship between our investment opportunity proxies and dividends and the sales growth rate is negatively correlated to all dependent variables, yet not significant except for lnDiv2. The Tobin's Q is significantly negatively correlated to lnDiv and lnDiv2. Yet it is positively correlated to Div/Equ and Div2/Equ, while the relationship with Div2/Equ is not significant. The unexpected positive correlation can be traced back to the operationalization of the Tobin's Q variable, which means that the correlation probably stems from the equity part of the variable. This would also explain the non-significance as the negative relationship with dividends and the positive relationship with equity cancel each other out.

4.3 Binary Logistic Regression

We use binary logistic regression to measure the likelihood of paying out dividends dependent on shareholder protection variables over a three-year period from 2014 to 2016. For our regression model we use the dependent variable Payer2, which is binary coded with 0 meaning no dividend payout and 1 dividend payout. We ran seven different regressions with different combinations of our independent and control variables. The full model is:

$$Payer2_t = F(\alpha_0 + \beta_1 EDI_t + \beta_2 DLI_t + \beta_3 SSI_t + \beta_4 SRI_t + \beta_5 OCI_t + \beta_6 CTI_t + \beta_7 Size_t + \beta_8 Liqu_t + \beta_9 TQ_t + \beta_{10} Prof_t)$$

We use Payer2, which was coded with the ordinary dividend variable (Div2), because the cash dividend variable (Div) has too many missing values that are probably no payment, but we can't prove it. If we run the regression with Payer1 the model has over 90% accuracy, but totally fails to predict the non-payments and is therefore not useful for our analysis.

Model 6 and 7 are basically the models that test our hypothesis. In model 6 we introduce EDI, DLI and SSI to the control model and expect a positive relationship with Payer2. Of these EDI and DLI show a significant positive relationship and SSI is not significant. These findings are in support of the outcome model. Likewise, we introduce only SRI, CTI and OCI into the control model (7) and expect a negative relationship. While two of the coefficients are negative all three variables are not significant at the 5% level. Hence there is no relationship between the variables and we did not find support for the substitute model.

In the first model, only the control variables were included as a base model for comparison. Furthermore, in model 2 we exclude the control variables to see how our variables perform without control in place. All variables are significantly related to Payer2 except the Ownership and Control Index, which is not significant with a p-value of .922. Additionally, the signs of the coefficients are not as we expected. EDI and SSI are negative, and CTI is positive. Model 3 and 4 show which control variables perform better in the full model with all independent variables included. We see that Cash, Size_2, Profitability_2 and Investment Opportunities_2 outperform the other set of control variables. In model 5 we excluded the two variables that were not significant in model 2, which were SSI and SRI. We see no change in the explanatory power of the model and the coefficients. The only major difference between the models is that the p-value of CTI changed from .034 to .055 and became insignificant at the 5% level.

Most of the explanatory power of our model comes from the control variables. In Model 2 we ran the regression without the control variables and Nagelkerke's R^2 was merely .04, while a full model yields an R^2-value of .409. A model with only the control variables (1) yields an R2-value of .398, which means with the introduction of our independent variables we only increase the explanatory power of our model by 1.1 percent points. Furthermore, in model 6, where we only included the conflict of interest variables we see an increase of 1 percent point in the explanatory power of the model. At the same time, we see only an increase of .1 percent points with the introduction of our shareholder governance variables. The overall increase in the explanatory power of the model with the introduction of out indices seems somewhat small, but it still is a significant increase. Besides, we research the relationship of dividends and shareholder protection keeping other factors constant.

We use the Hosmer Lemeshow test to check if there is a significant difference between the predicted and observed values. The test should yield non-significant results, but all values for the seven models are significant. Yet there seem to be problems with significant values for large sample sizes according to the creators of the test, which could be a reason for the significant values as our sample is bigger than ten thousand observations. To double check we use the Omnibus Test of Model Coefficients, which yields significant Chi Square values. That means that our model is an improvement over the null model.

4.4 OLS Regression

In our logit regression models, we tested if shareholder protection affects the likelihood of dividend payment. In this section we want to test how shareholder protection affects the size of dividend payments if they are paid out. To do so we use Ordinary Least Squares Regression over a three-year period from 2014 to 2016. We use the four different dependent variables lnDiv2 (A), Div2/Equ (B), lnDiv (C) and Div/Equ (D) and study them in panels. For each Panel A-D we run four models where we include only the independent control variables (1), the control variables and our outcome model variables (2), the control variables and our substitute model variables (3) and a full model with all variables included. We don't change our control variable proxies, but use the same set, that we deemed best after the Pearson analysis for all models. Additionally, we include R^2-values for all models. Below we show our two hypotheses in model (2) and (3) that are:

$$(2)\ Y_t=\alpha_0 + \beta_1 DLI_{t-1} + \beta_2 SSI_{t-1} + \beta_3 EDI_{t-1} + \beta_4 Size_{t-1} + \beta_5 Liqu_{t-1} + \beta_6 SGR_{t-1} + \beta_7 Prof_{t-1} + \varepsilon$$

(outcome model)

$$(3)\ Y_t=\alpha_0 + \beta_1 SRI_{t-1} + \beta_2 OCI_{t-1} + \beta_3 CTI_{t-1} + \beta_4 Size_{t-1} + \beta_5 Liqu_{t-1} + \beta_6 SGR_{t-1} + \beta_7 Prof_{t-1} + \varepsilon$$

(substitute model)

In Panel A the natural logarithm of ordinary dividends is used as the dependent variable. In the second model we introduced our independent variables that we linked to the outcome model into the control model and we expect all of them to have positive coefficients, which they do. The director's liability index and shareholder suits index are significant at the 1% level, but the extent of disclosure index is not significant with a p-value of .658. There are several possible explanations for this, but we will interpret this later for a comparison with the Dividend to Equity variable in Panel B. In model three we introduce the shareholder rights' index, the corporate transparency index and the ownership and control index into the control model. We would expect negative coefficients for all the independent variables, yet we see a positive coefficient of .059 for the shareholder rights' index and non-significance for the corporate transparency index. The only variable that meets our expectations is the ownership and control index, which has a negative coefficient of -.048 with a p-value of .001. Surprisingly, when we include all variables in the full model (4) EDI and CTI become significant and DLI and OCI become insignificant.

Table 3

OLS regression results with Div/Equ2 as the dependent variable (Panel B)

Model	1		2		3		4	
Independent Variables (predicted sign)	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
Constant	-0.097	0.000	-0.168	0.000	-0.115	0.000	-0.135	0.000
EDI (+)			0.000	0.909			0.001	0.461
DLI (+)			0.003	0.006			0.001	0.470
SSI (+)			0.008	0.000			0.007	0.000
SRI (-)					0.005	0.020	0.002	0.420
CTI (-)					0.001	0.692	-0.005	0.137
OCI (-)					-0.005	0.000	-0.002	0.232
Cash (+)	0.061	0.000	0.070	0.000	0.065	0.000	0.073	0.000
Prof_1 (+)	0.451	0.000	0.435	0.000	0.443	0.000	0.433	0.000
Size_2 (+)	0.008	0.000	0.009	0.000	0.009	0.000	0.009	0.000
TQ (-)	0.031	0.000	0.032	0.000	0.032	0.000	0.032	0.000
R^2-Adjusted	0.138		0.144		0.141		0.145	

Table shows panel B of four ordinary least squares regression models. Model 1 only includes the control variables; Model 2 includes the control variables and EDI, DLI and SSI; Model 3 introduces SRI, CTI and OCI to the control model; and model 4 shows the full model with all variables included.

In this section we will compare Panel B, which can be seen in table 3, to Panel A. With Div2/Equ as the dependent variable the extent of director liability index is again not significant. In the third model CTI is again not significant, but the direction of the relationship stays the same. Furthermore, the coefficients are a lot smaller than in Panel A, which make sense if one compares the mean and range of the variables. The mean of lnDiv2 is more than 200 times bigger than that of Div2/Equ, so if we compare coefficients we need to keep that in mind. In the full model all independent variables, except the shareholder suits index become insignificant. This is possibly a multicollinearity issue, as we see only significant correlation between Div2/Equ and the independent variables, while there is correlation between all the indices we use in the Pearson analysis. A possibility to circumvent this issue would be to average the indices as other researchers have done, but that would defeat the purpose of analyzing different aspects of shareholder protection. Additionally, we mainly focus on model 2 and 3 in our analysis as these are directly linked to our hypotheses.

Panel C and D yield somewhat very similar results as they are just a repeat of the analysis we just did with a different dividend variable. Panel C shows no important changes, but interestingly we get more significant variables in Panel D with Div/Equ as the dependent variable. In model 3 all variables are significant and in model 4 three of the six independent variables are significant. As we only changed the dependent variable that makes multicollinearity issues less likely, but it still yields the question: "Why do the coefficients become insignificant in the full model?" The problem with our shareholder protection variables is that they measure very different aspects of shareholder protection. As can be seen in our Pearson analysis some of our indices have negative correlation coefficients with each other. So, if we include all of them in the same model they partially cancel each other out and become insignificant.

Looking at the control variables in model 1, Cash, Profitability_1 and Size_2 have all positive regression coefficients as expected and are significant at the 1% level. Noticeable at first glance is that profitability has the highest regression coefficient by far with 7.177 versus .96 and .72 for size and cash respectively. The control variables have very similar value across the four models. We would expect a negative relationship between investment opportunities and dividends, yet the coefficient for Tobin's Q is positive and significant at the 5% level, except for the full model (4) where it is significant at the 1% level. Even though the low value of .021 or less of the coefficients across the models indicates that other explanatory variables are more meaningful than investment opportunities. Another explanation could be that Tobin's Q, especially in the simplified, quantifiable version we use, is not a good proxy for investment opportunities

The only difference in Panel B that is worth mentioning is that our investment opportunity proxy Tobin's Q is now significant at the 1% level across all models, but still contrary to our expectations with a positive coefficient

With lnDiv as our dependent variable, the first model, with only control variables included in the regression, has a very high explanatory power with an R^2 of .847. This seems too high for a complex variable like dividends to be explained to that extent by only four control variables. With the introduction of the independent variables EDI, DLI and SSI, we see an R^2 increase of .4% points (2); with the introduction of SRI, CTI and OCI we see an increase of .1% points in the R^{2-}value (3); and the full model with all independent variables included yields an increase by .5%points in the R^2-value (4). This is not the kind of drastic increase that we were looking for, but it is still an improvement with the independent variables included in the model.

In Panel B the most noticeable difference is the change of the explanatory power of the model: the R^{2-}value of the control model is .139. It increases by .7% points if we include EDI, DLI and SSI; by .3%points if we include SRI, CTI and OCI; and by .8% points if we include all variables. This is a lot less compared to the first panel, but it is more realistic, because there are so many different dividend theories that we did not account for in our model, e.g. signaling and life cycle theory. Additionally, the increase in the explanatory power after the inclusion of the independent variables is slightly bigger compared to Panel A.

5. CONCLUSION

Contrasting to similar research papers, we examine outcome and substitute models of dividend payout policy separately from each other, instead of assuming them to be complete opposites. Our reasoning is that different aspects of shareholder protection could lead to divergent payout decisions.

In our first hypothesis we test if shareholder variables focused on conflicts of interest like the disclosure of ownership and financial information, the liability of self-dealing and the ability to sue officers for misconduct are positively related to the likelihood and amount of dividend payments. We tested this with a logit regression model and found that with an increase in the extent of disclosure index and extent of director liability index the likelihood of dividend payouts increases. Contrary to our believes the shareholder suits index has no impact on the likelihood of dividend payments. Additionally, with an ordinary least squares regression model we tested if these variables are positively related to the size of dividend payments. We found consistently over different dependent and independent variable constellations that the directors liability index and the shareholder suits index are positively related to the size of dividend payments. These findings support the outcome model of dividends.

Our second hypothesis implies that shareholder governance variables like shareholder rights, corporate transparency and ownership and control are negatively related to dividend payments. We tested this comparable to our first hypothesis with logit and ordinary least squares regression models, whose results are less consistent and clear. First of all, the Ownership and Control Index is positively related to the likelihood of dividend payments. The Shareholder Rights' Index and Corporate Transparency Index are negatively related to dividend payout prospects, but they are very sensible to changes in variable constellations. Furthermore, without the conflict of interest related variables in our regression model we can't find a significant relationship. Examining the amount of dividends paid we get the following results: Except for Panel D the Corporate Transparency Index is not a significant predictor of dividends. Furthermore, the shareholder rights index is positively related to the amount of dividends paid across all panels and models. Only the Ownership and Control Index fits our expectations and is negatively related to dividend payout amounts. So, we did not find conclusive support for the substitute model of dividends.

By using different dependent variables and multiple proxies for our control variables we tried to make our results as robust as possible. Unfortunately, some of our variables were inconsistent over different models and panels, but we found proof that the likelihood to pay out dividends and their amounts in the European Union lean toward an outcome model. We did not find enough evidence to support the substitute model of dividends, but our results show that not all shareholder protection variables are positively related to dividend payout.

Therefor our research is a step in the right direction for future research in the field of payout policy. This shall not be our only contribution to the payout literature. We have shown that an outcome model is applicable to countries of the European Union with a recent dataset, while the current trend in the literature is rather in support of the substitute model. This specific focus un the EU instead of using a worldwide sample could be the reason for our results, that are not in accord with current trend in the field. Yet this more focused approach allows us to make more concrete statements about Europe. We were not able to proof that both models could be applicable at the same time with different focal points from shareholder protection. Yet we still believe that it is possible and that this might be an explanation for the conflicting results in the existing literature.

Our paper mostly focuses on theoretical contributions to the literature instead of real-world contributions. This is partially designed that way and in part due to some limitations of our research. Firstly, we did not include taxes and industry adjustments that could contribute to more accurate results. Furthermore, OLS regression was used to analyze our results instead of tobit regression, which would have included non-payment as an option. Yet we made up for this by analyzing it separately in our logit regression.

Additional research must be conducted on this topic and our first suggestion would be to improve on the limitations of our research and check for continuity of our results. Furthermore, it would be interesting to study this per country with firm specific shareholder protection variables instead of country specific ones. Another interesting point might be to compare common with civil law countries, but it would just be the United Kingdom's common law versus the other countries, if one does not wish to further distinguish between different civil law types. It would be possible though as the UK makes up a big portion of our sample.

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8. APPENDIX

Table 4

Data sets per country

Country	Frequency	Percent
Austria	139	1.1
Belgium	293	2.4
Bulgaria	251	2.0
Croatia	251	2.0
Cyprus	159	1.3
Czech Republic	15	.1
Denmark	288	2.3
Estonia	37	.3
Finland	303	2.4
France	1563	12.6
Germany	1289	10.4
Greece	415	3.3
Hungary	56	.5
Ireland	153	1.2
Italy	514	4.1
Latvia	44	.4
Lithuania	57	.5
Luxembourg	96	.8
Malta	51	.4
Netherlands	297	2.4
Poland	1509	12.2
Portugal	110	.9
Romania	444	3.6
Slovakia	63	.5
Slovenia	73	.6
Spain	291	2.3
Sweden	1026	8.3
United Kingdom	2631	21.2
Total	12418	100.0

This table shows the frequency distribution of our cases per country and their corresponding relative values.

Table 5

Pearson correlation matrix

		DIV	Div2	lnDiv	lnDiv2	Div/Equ	Div/CF	Div/NI	Div2/Equ	Div2/NI	Div2/CF	Payer1	Payer2	EDI	DLI	SSI	SRI	CTI	OCI	Liqu	Cash	Prof_1	Prof_2	Size_1	Size_2	TQ	SGR
DIV	Pearson Correlation	1.000																									
	Sig. (2-tailed)																										
Div2	Pearson Correlation	0.913**	1.000																								
	Sig. (2-tailed)	0.000																									
lnDiv	Pearson Correlation	0.435**	0.434**	1.000																							
	Sig. (2-tailed)	0.000	0.000																								
lnDiv2	Pearson Correlation	0.484**	0.493**	0.954**	1.000																						
	Sig. (2-tailed)	0.000	0.000	0.000																							
Div/Equ	Pearson Correlation	0.115**	0.106**	0.218**	0.165**	1.000																					
	Sig. (2-tailed)	0.000	0.000	0.000	0.000																						
Div/CF	Pearson Correlation	0.049**	0.050**	0.091**	0.063**	0.156**	1.000																				
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000																					
Div/NI	Pearson Correlation	0.047**	0.029*	0.069**	0.034*	0.105**	0.060**	1.000																			
	Sig. (2-tailed)	0.000	0.025	0.000	0.026	0.000	0.000																				
Div2/Equ	Pearson Correlation	0.089**	0.147**	0.175**	0.144**	0.669**	0.054**	0.067**	1.000																		
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000																			
Div2/NI	Pearson Correlation	0.077**	0.105**	0.087**	0.041**	0.072**	0.040**	0.728**	0.186**	1.000																	
	Sig. (2-tailed)	0.000	0.000	0.000	0.005	0.000	0.002	0.000	0.000																		
Div2/CF	Pearson Correlation	0.045**	0.101**	0.130**	0.093**	0.117**	0.489**	0.061**	0.250**	0.146**	1.000																
	Sig. (2-tailed)	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																	
Payer1	Pearson Correlation	0.047**	0.047**	.c	0.058**	0.116**	0.056**	0.054**	0.082**	0.040**	0.078**	1.000															
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000																
Payer2	Pearson Correlation	0.107**	0.192**	0.344**	.c	0.105**	0.046**	0.046**	0.375**	0.219**	0.343**	0.289**	1.000														
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000															
EDI	Pearson Correlation	0.044**	0.034**	0.036**	0.030*	0.031*	0.023	-0.029*	0.046**	0.007	0.030**	0.032**	0.029**	1.000													
	Sig. (2-tailed)	0.000	0.000	0.004	0.042	0.013	0.059	0.020	0.000	0.453	0.002	0.010	0.003														
DLI	Pearson Correlation	0.071**	0.065**	0.193**	0.165**	0.036**	0.003	-0.025*	0.070**	0.021*	0.060**	0.013	0.131**	0.308**	1.000												
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.004	0.804	0.048	0.000	0.028	0.000	0.299	0.000	0.000													
SSI	Pearson Correlation	-0.010	-0.015	-0.064**	-0.042**	0.094**	0.017	-0.007	0.042**	-0.006	-0.002	0.016	-0.038**	0.411**	0.052**	1.000											
	Sig. (2-tailed)	0.423	0.128	0.000	0.004	0.000	0.165	0.555	0.000	0.562	0.867	0.185	0.000	0.000	0.000												
SRI	Pearson Correlation	-0.007	-0.012	0.000	-0.033*	0.034**	0.002	-0.015	0.018	-0.013	0.021*	-0.023	-0.015	0.037**	0.440**	0.071**	1.000										
	Sig. (2-tailed)	0.578	0.229	0.972	0.022	0.005	0.864	0.211	0.056	0.169	0.035	0.067	0.131	0.000	0.000	0.000											
CTI	Pearson Correlation	0.016	0.019	0.043**	0.073**	-0.021	-0.018	-0.016	0.008	0.003	-0.006	0.026*	0.017	0.345**	-0.279**	0.237**	-0.213**	1.000									
	Sig. (2-tailed)	0.187	0.050	0.001	0.000	0.092	0.146	0.203	0.421	0.754	0.535	0.034	0.077	0.000	0.000	0.000	0.000										
OCI	Pearson Correlation	-0.011	0.000	-0.021	0.006	-0.066**	-0.014	-0.011	-0.030**	-0.013	-0.025*	-0.029*	-0.004	-0.228**	-0.221**	-0.378**	-0.060**	0.139**	1.000								
	Sig. (2-tailed)	0.366	0.970	0.091	0.693	0.000	0.264	0.391	0.002	0.192	0.011	0.021	0.692	0.000	0.000	0.000	0.000	0.000									
Liqu	Pearson Correlation	-0.042**	-0.037**	-0.077**	-0.138**	-0.006	0.018	-0.007	-0.030**	-0.014	0.012	-0.015	-0.060**	0.013	0.016	-0.001	0.056**	-0.067**	-0.032**	1.000							
	Sig. (2-tailed)	0.001	0.000	0.000	0.000	0.618	0.137	0.589	0.002	0.140	0.209	0.233	0.000	0.152	0.072	0.906	0.000	0.000	0.000								
Cash	Pearson Correlation	-0.051**	-0.041**	-0.093**	-0.152**	0.141**	0.028*	0.024	0.072**	0.010	0.020*	-0.015	-0.019	0.076**	0.068**	-0.016	-0.010	0.045**	0.034**	0.201**	1.000						
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.026	0.052	0.000	0.322	0.040	0.222	0.050	0.000	0.000	0.076	0.257	0.000	0.000	0.000							
Prof_1	Pearson Correlation	0.023	0.060**	0.160**	0.110**	0.324**	0.097**	0.048**	0.205**	0.073**	0.141**	0.147**	0.328**	-0.085**	-0.067**	-0.030**	-0.046**	-0.019*	-0.016	-0.032**	-0.095**	1.000					
	Sig. (2-tailed)	0.063	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.033	0.076	0.000	0.000						
Prof_2	Pearson Correlation	0.018	0.053**	0.132**	0.066**	0.275**	0.084**	0.033**	0.165**	0.062**	0.126**	0.124**	0.296**	-0.076**	-0.039**	-0.030**	-0.016	-0.023**	-0.004	-0.017	-0.069**	0.798**	1.000				
	Sig. (2-tailed)	0.149	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.080	0.010	0.683	0.055	0.000	0.000					
Size_1	Pearson Correlation	0.394**	0.317**	0.755**	0.815**	0.035**	0.007	0.013	0.184**	0.097**	0.141**	0.129**	0.479**	-0.064**	0.145**	-0.111**	-0.044**	0.068**	0.013	-0.251**	-0.122**	0.341**	0.294**	1.000			
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.005	0.597	0.305	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.147	0.000	0.000	0.000	0.000				
Size_2	Pearson Correlation	0.421**	0.361**	0.812**	0.884**	-0.033**	0.004	0.004	0.143**	0.091**	0.142**	0.134**	0.465**	-0.040**	0.201**	-0.136**	-0.033**	0.062**	0.009	-0.154**	-0.181**	0.259**	0.251**	0.874**	1.000		
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.008	0.750	0.755	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.341	0.000	0.000	0.000	0.000	0.000			
TQ	Pearson Correlation	-0.079**	-0.032**	-0.277**	-0.277**	0.228**	0.013	0.004	0.000	-0.015	-0.024*	-0.050**	-0.086**	0.018	-0.048**	0.041**	0.001	0.016	0.002	0.010	0.087**	-0.132**	-0.124**	-0.172**	-0.201**	1.000	
	Sig. (2-tailed)	0.000	0.001	0.000	0.000	0.000	0.280	0.716	0.991	0.126	0.013	0.000	0.000	0.051	0.000	0.000	0.915	0.078	0.799	0.264	0.000	0.000	0.000	0.000	0.000		
SGR	Pearson Correlation	-0.017	-0.008	-0.024	-0.052**	-0.023	0.004	-0.002	-0.014	-0.007	-0.013	-0.036**	-0.034**	0.014	-0.003	0.027**	0.004	0.005	-0.009	0.010	0.016	-0.020*	-0.024**	-0.046**	-0.037**	0.008	1.000
	Sig. (2-tailed)	0.171	0.388	0.056	0.000	0.068	0.754	0.901	0.154	0.460	0.185	0.004	0.000	0.137	0.763	0.003	0.646	0.571	0.318	0.279	0.081	0.029	0.008	0.000	0.000	0.381	

This table shows Pearson correlations for all variables of analysis. Two asterisks show significance at the 1% level and one asterisk marks significance at the 5% level. For variable descriptions please refer to table 1.

Table 6

Logistic Regression with Payer2 as the dependent variable

Model	**1**		**2**		**3**		**4**		**5**		**6**		**7**	
Independent Variables	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
Constant	-6.016	0.000	-1.317	0.000	-6.344	0.000	-6.567	0.000	-6.751	0.000	-6.888	0.000	-6.133	0.000
EDI			-0.043	0.001	0.100	0.000	0.098	0.000	0.104	0.000	0.084	0.000		
DLI			0.248	0.000	0.147	0.000	0.098	0.000	0.086	0.000	0.095	0.000		
SSI			-0.075	0.000	0.002	0.913	0.020	0.338			-0.006	0.736		
SRI			-0.182	0.000	-0.063	0.024	-0.043	0.124					0.036	0.152
CTI			0.241	0.000	-0.045	0.273	-0.088	0.034	-0.078	0.055			-0.015	0.650
OCI			0.002	0.922	0.059	0.001	0.054	0.003	0.047	0.006			-0.006	0.731
Liqu					0.027	0.000								
Cash	0.845	0.000					0.742	0.000	0.740	0.000	0.737	0.000	0.908	0.000
Size_1					0.413	0.000								
Size_2	0.458	0.000					0.451	0.000	0.453	0.000	8.971	0.000	8.807	0.000
Prof_1					7.199	0.000								
Prof_2	8.838	0.000					8.966	0.000	8.978	0.000	0.448	0.000	0.461	0.000
TQ					-0.009	0.146								
SGR	-0.012	0.027					-0.012	0.037	-0.012	0.037	-0.012	0.036	-0.012	0.029
N	10350		10801		10617		10303		10303		10303		10303	
Nagelkerke R^2	0.398		0.040		0.409		0.409		0.409		0.408		0.399	
Percentage correct predicted:														
No Payout	78.7		75.2		78.9		79.5		79.6		79.6		78.900	
Payout	70.2		33.1		70.7		70.7		70.7		70.9		70.100	
total	74.9		56.9		75.3		75.6		75.6		75.7		74.900	
Hosmer Lemeshow	143.078	0.000	229.546	0.000	94.207	0.000	129.816	0.000	127.995	0.000	139.246	0.000	146.831	0.000
Omnibus Test of Model Coefficiants	3759.592	0.000	3651.111	0.000	3760.508	0.000	329.725	0.000	3757.473	0.000	3747.923	0.000	3646.639	0.000

Table 5 shows seven logit regression models with the dependent variable Payer2. For variables descriptions please refer to **table 1**.

Table 7

OLS regression results (Panel A, C, D)

Panel A: OLS regression results with lnDIV2 as the dependent variable								
Model	**1**		**2**		**3**		**4**	
Independent Variables (predicted sign)	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
Constant	-4.010	0.000	-4.897	0.000	-4.081	0.000	-4.261	0.000
EDI (+)			0.004	0.658			0.029	0.002
DLI (+)			0.029	0.001			-0.014	0.203
SSI (+)			0.094	0.000			0.103	0.000
SRI (-)					0.059	0.000	0.035	0.026
CTI (-)					-0.013	0.501	-0.127	0.000
OCI (-)					-0.048	0.000	-0.010	0.318
Cash (+)	0.720	0.000	0.843	0.000	0.776	0.000	0.913	0.000
Prof_1 (+)	7.177	0.000	6.991	0.000	7.110	0.000	6.960	0.000
Size_2 (+)	0.960	0.000	0.966	0.000	0.966	0.000	0.978	0.000
TQ (-)	0.018	0.027	0.020	0.011	0.020	0.013	0.021	0.008
R^2-Adjusted	0.847		0.850		0.848		0.852	

Panel C: OLS regression results with lnDiv as the dependent variable								
Model	**1**		**2**		**3**		**4**	
Independent Variables (predicted sign)	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
Constant	-4.443	0.000	-5.321	0.000	-4.744	0.000	-4.969	0.000
EDI (+)			0.002	0.810			0.025	0.023
DLI (+)			0.055	0.000			0.011	0.401
SSI (+)			0.075	0.000			0.075	0.000
SRI (-)					0.089	0.000	0.055	0.003
CTI (-)					-0.010	0.661	-0.088	0.001
OCI (-)					-0.051	0.000	-0.015	0.183
Cash (+)	0.691	0.000	0.822	0.000	0.781	0.140	0.876	0.000
Profitability_1 (+)	7.313	0.000	7.130	0.000	7.211	0.212	7.093	0.000
Size_2 (+)	0.988	0.000	0.993	0.000	0.995	0.008	1.003	0.000
Tobin's Q (-)	0.016	0.145	0.020	0.064	0.018	0.011	0.019	0.078
R^2-Adjusted	0.816		0.820		0.819		0.821	

Panel D: OLS regression results with Div/Equ as the dependent variable								
Model	**1**		**2**		**3**		**4**	
Independent Variables (predicted sign)	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*	*Coeff.*	*Sig.*
Constant	-0.064	0.000	-0.121	0.000	-0.049	0.046	-0.084	0.001
EDI (+)			-0.002	0.059			-0.001	0.542
DLI (+)			0.003	0.000			0.001	0.278
SSI (+)			0.007	0.000			0.007	0.000
SRI (-)					0.004		0.002	0.008
CTI (-)					-0.003	0.010	-0.006	0.199
OCI (-)					-0.004	0.000	-0.002	0.000
Cash (+)	0.060	0.000	0.066	0.000	0.065	0.000	0.072	0.000
Profitability_1 (+)	0.419	0.000	0.397	0.000	0.412	0.000	0.406	0.000
Size_2 (+)	0.006	0.000	0.007	0.000	0.007	0.000	0.007	0.000
Tobin's Q (-)	0.023	0.000	0.022	0.000	0.023	0.000	0.023	0.000
R^2-Adjusted	0.152		0.158		0.155		0.158	

Table 7 shows three ordinary least squares regression models, that are a continuation of table 3 for robustness of the results. Model 1 only includes the control variable; Model 2 includes the control variables and EDI, DLI and SSI; Model 3 introduces SRI, CTI and OCI to the control model; and model 4 shows a full model with all variables included. The table shows three of the four panels we test, for the dependent variables Div/Equ, lnDiv and lnDiv2.