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The impact of the corporate governance quality on the dividend policy of companies in the BRICS countries

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Abstract

The article presents the results of a study aimed at determining the nature of the influence of the quality of corporate governance on the dividend policy pursued by companies in the BRICS countries. This relationship is determined based on empirical research on a sample of 122 large public corporations of the BRICS countries (based on 610 observations) for the period from 2015 to 2019. The study uses Tobit model, random effects, fixed effects, and OLS models. The results of this study show that the quality of corporate governance is significantly negatively correlated with dividend payments of companies. This means that companies in the BRICS countries adhere to the dividend substitution model (proposed by La Porta), or, in other words, compensate for the poor quality of corporate governance with high dividend payments. Taking into account the results of the study, the main methods of improving the quality of corporate governance are proposed in the final part of the article, which can contribute to increasing the value of companies in the BRICS countries.

Keywords: dividend policy, quality of corporate governance, determinants of dividend policy, agency conflict.

JEL: G30, G35.

Introduction

Dividend policy has a significant influence on sustainable development and growth of modern companies because it has a direct impact on the investment attractiveness for

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shareholders, the company's reputation, as well as on the current and future value of the company.

A company's policy regarding the payment of dividends to its shareholders is important for many reasons. First, it shows how attractive the company is for investment. Second, the size and form of dividends affect the market capitalization of the company. Third, the dividend policy is closely related to the financial stability of the company, and also shows its future position in the market.

Many different factors influence the dividend policy of companies, for example, the financial indicators of the companies (liquidity, the amount of earned net profit), life cycle stage, the cost of capital, the economic situation in the country, and so on. However, it should be noted that the corporate governance of companies plays an important role in making decisions about the distribution of profit.

A fundamental investigation of the impact of the quality of corporate governance on dividend policy is an article by La Porta et al., published in 2000 (La Porta et al., 2000). The authors have devoted many publications to the study of the development of legal forms and protection of investors' rights and came to the conclusion that countries with common law had stronger institutions and legal protection of both creditors and shareholders (including minority shareholders) in comparison with countries with civil law. According to the authors, the level of protection of investors' rights in a particular country is very important as a reflection of the development of legal norms and the quality of their implementation. The external institutional environment influences the nature of agency conflicts in corporations, therefore, two models are put forward on how dividend payments can contribute to the resolution of agency conflicts in countries with different legal systems. La Porta et al. propose two models for the relationship between dividend payments and corporate governance — the "outcome" model and the "substitute" model.

The "outcome" model proves that the quality of corporate governance is directly related to the dividend policy of companies. This thesis is explained by the fact that better corporate governance protects minority shareholders better. This model is more suitable for countries with common law, where the conflict between shareholders and management is more acute, and where ownership is rather scattered and not concentrated. Minority shareholders have higher legal protections and are required to pay higher dividends in the countries with common law. At the same time, management has to take into account the interests of existing shareholders and not pursue personal gain. As a result, shareholders are more confident that if the corporation has good investment opportunities, dividend payments will decline since free cash flow will be directed to profitable investment projects. Shareholders are confident that if dividends are reduced, they will benefit from the implementation of promising projects, as a result of which the share price will increase. If the quality of corporate governance is low, then shareholders will strive to get the maximum benefit from their investments now, because in the future there is a certain probability that a large share of the profits will go to majority shareholders (La Porta et al., 2000; Jiraporn & Ning, 2006).

The "substitute" model (La Porta et al., 2000) assumes that a corporation pays high dividends intending to have a good reputation in the stock market and signal to the

market that the rights of minority shareholders are not violated in the company. In this case, the company has the opportunity to raise funds in the financial markets on more favorable terms.

Since the publication of La Porta et al. in the field of corporate finance, the question of the relationship between corporate governance and the payment of dividends is of concern to researchers, but in the modern scientific world, empirical research does not give an unambiguous answer to this question. Some researchers acknowledge the "outcome" model in their papers (Brown & Roberts, 2016; Michaely & Roberts, 2006), while others find confirmation of the "substitute" model (John & Knyazeva, 2006). In recent years, research on the relationship between the quality of corporate governance and dividend policy is also gaining popularity in the Russian scientific literature (Ambardnishvili et al., 2017; Bocharova, 2009; Larin et al., 2019; Polugodina & Repin, 2009). Most modern studies are conducted in developed markets, while emerging markets have their own unique features. To date, the issue of the impact of the quality of corporate governance on dividend payments in the BRICS countries has not been fully investigated, which proves the relevance and practical significance of this paper.

Firstly, the authors analyze the literature on the impact of the quality of corporate governance on the dividend payments of companies and formulate the main hypotheses of the study. Then the research methodology is substantiated. Next, the paper presents the results of an empirical study of the impact of the quality of corporate governance on dividend payments of corporations in the BRICS countries based on panel data models with random effects and the Tobit model. Finally, we formulate recommendations on ways to improve the quality of corporate governance for companies from the BRICS countries.

1. Analysis of literature and substantiation of research hypotheses

Development and implementation of dividend policy is an important function of the corporate governance of corporations. The best corporate governance practice is to disclose the strategy of paying dividends to shareholders: the mechanism for calculating the number of dividends and the frequency of their payment should be transparent and understandable to shareholders. This regulation on the dividend policy may contain the following conditions:

- Amount of net profit that will be used for dividend payments
- Calculation of the size of the dividend to be paid for all types of shares
- Determination of the minimum amount of dividends on shares of all types
- Terms of dividend payment
- Form of payments.

Corporate governance is aimed at improving the efficiency of a company in the market and, at the same time, the main task of corporate governance is to protect the rights of investors. A stable dividend policy, which provides for the regular payment of funds to shareholders on time, is more attractive to investors. At the same time, it is worth

considering the difference in the interests of majority and minority shareholders. Majority shareholders are interested in the long-term development of the corporation, so they will prefer to increase its capitalization. Minority shareholders, in turn, pursue short-term benefits, so they should receive stable dividends from their invested funds. Dividend policy can contribute to protecting the rights of shareholders, which is important for the corporate governance of a company. Without effective protection of the rights and interests of shareholders, dividend payments will not maximize the value of the company (due to possible incorrect investment decisions), will not increase the well-being of investors (due to the alleged concealment of funds by management, which may lead to cancellation or significant reduction of dividend payments).

The quality of corporate governance and dividend policy are closely interrelated. Due to the high quality of corporate governance, companies respect the rights of both minority and majority shareholders. A company makes a decision on the payment of dividends or reinvestment of profits, taking into account the interests of all investors. As a result, the value of companies is maximized. At the same time, today there is no unambiguous opinion on the relationship between the quality of corporate governance and the amount of the dividends paid: studies in different markets have come to opposite results. Therefore, we find it necessary to examine the relationship *between the quality of corporate governance and dividend policy in the markets of the BRICS countries*, since there is no consensus on this issue among scientists.

1.1. Hypotheses on the impact of the quality of corporate governance on dividend policy in the BRICS countries

A large number of empirical studies concerning the quality of corporate governance in relation to the dividend policy of companies were carried out on a sample of developed markets. These studies examine factors and variables that are more applicable to developed markets (John & Knyazeva, 2006; Adjaoud & Ben-Amar, 2010). Emerging markets have their peculiar features, therefore, the determinants that we will include in the econometric model and the results of testing hypotheses regarding their impact may differ significantly from the results obtained in developed markets.

It should be pointed out that in the BRICS countries under consideration, there are different quality criteria for corporate governance. In Brazil, the legal framework for corporate governance is quite specific. Corporate executives have the right to issue up to two-thirds of the authorized capital in the form of preferred stock without voting rights. In other words, majority shareholders can only own one-third of the company's capital. This imbalance can cause strong agency conflicts between voting shareholders and minority shareholders.

In a paper by T. Zagonel et al. (2018), based on a sample of 672 companies whose shares were listed on the São Paulo Stock Exchange in the period from 1986 to 2011 (a total of 30,134 observations), the authors conclude that companies in the Brazilian market do not strive for a target dividend payout ratio. At the same time, the authors

revealed a direct correlation between current dividends and dividends in the previous period. The amount of paid dividends is also affected by privatization of companies and the number of majority shareholders. It should be noted that if the agency problem decreases as a result of improving the quality of corporate governance, the dividend payout ratio increases.

A study of the Indian market, based on a sample of 84 companies and 755 observations in 2003–2013, shows that high-quality corporate governance contributes to the resolution of agency conflicts in the Indian markets. This is due to the fact that the management makes investment decisions and decisions on the payment of dividends taking into account the interests of external investors. Since the Indian market is a developing one, it is assumed that better corporate governance has a negative relationship with the payment of dividends, as the management prefers to invest money in promising profitable projects (Chauhan et al., 2016).

Similar results were obtained in the research by A. Saeed et al. based on an analysis of companies in India, China, Indonesia, Pakistan, Malaysia, Korea, Turkey, and Russia for the period 2010–2018. The authors conclude that stronger corporate governance and greater transparency and disclosure are negatively related to dividend payments (Saeed et al., 2020).

In Russia, shareholders will prefer the growth of companies in the future and an increase in the capitalization of companies over the dividends paid in the current period. It should be noted that dividend yield for shareholders in the Russian markets is quite low, even though more and more Russian companies are ready to use a significant part of their net profit to pay dividends. A study of the Russian market (Polugodina & Repin, 2009) proves that the quality of corporate governance affects the dividend payments of Russian companies. At the same time, dividend payments are an element of corporate governance. As the quality of corporate governance improves, dividend payments increase (Polugodina & Repin, 2009). This result confirms the "outcome" model. We have to check this thesis for companies from the BRICS countries.

On the contrary, a study by Omar A. concludes that companies in emerging markets, including the markets of Brazil, Russia, India, China, and South Africa, are characterized by the "substitute" model (Omar, 2016).

Thus, there is no consensus among scientists on this issue. Therefore, we find it necessary to simultaneously test two opposite hypotheses:

Hypothesis 1: The higher the quality of corporate governance, the higher the dividend payments of companies.

Hypothesis 2: The higher the quality of corporate governance, the lower the dividend payments of companies.

If *Hypothesis 1* is confirmed, it will mean that the markets of the BRICS countries follow the "outcome" model. In this case, it is more profitable for companies with better corporate governance to reduce the costs of agency conflicts by paying higher dividends. As we mentioned above, this model is peculiar for countries with common law, where agency conflict is most acute between shareholders and management. In countries with good legal protection for shareholders, companies pay higher dividends.

If *Hypothesis 2* turns out to be correct, this will mean that the conclusions of traditional agency cost models (Jensen, 1986), in which the payment of free cash in the form of dividends reduces agency costs, are still valid. Researchers (Easterbrook, 1984; Jensen, 1986) show that the negative correlation between the quality of corporate governance and the payment of dividends confirms the "substitute" model. As we indicated above, this model is typical for markets with low protection of minority shareholders. In such conditions, the controlling shareholder gains some benefit from the redistribution (tunneling) of funds. The problem of "tunneling" is considered on the basis of cases by Johnson et al. (2000). The authors provide the following definition in their article: "We use the term "tunneling" narrowly to refer to the transfer of resources out of a company to its controlling shareholder (who is typically also a top manager)" (Johnson et al., 2000, p. 22). The controlling shareholder acts to the detriment of minority shareholders, may transfer the company's resources in his own interest through transactions that, in fact, are outright theft or fraud, which is illegal. This problem often arises in emerging markets, where controlling shareholders rob their companies of assets and profits.

At the same time, tunneling may be legal, but in this case, the courts allow a significant infringement of the rights of minority shareholders. This problem is inherent not only in developing countries, but also in developed countries with stable markets (La Porta et al., 1999; La Porta et al., 2000). According to Johnson et al., "such legal tunneling takes a variety of forms, including expropriation of corporate opportunities from a firm by its controlling shareholder, transfer pricing favoring the controlling shareholder, transfer of assets from a firm to its controlling shareholder at nonmarket prices, loan guarantees using the firm's assets as collateral, and so on" (Johnson et al., 2000, p. 26). Meanwhile, dividend payments can be used as a tool to mitigate the agency problem between minority and majority shareholders, given the poor quality of corporate governance.

1.2. Hypotheses about the impact of additional factors on the dividend policy of the BRICS corporations

In this publication, we examine, first of all, the impact of the quality of corporate governance on the dividend payments of companies. The quality of corporate governance is a variable of interest. However, dividend payments are also influenced by factors such as the company's cash flow, financial performance, profitability, financial leverage, liquidity, investment opportunities, risk, company growth, and macroeconomic factors. Therefore, we use these factors as a variable of control to avoid bias in the coefficient for the variable of interest. Now we'll proceed to the formulation of hypotheses regarding the influence of control variables on the companies' dividend payments.

Hypothesis 3: *There is a positive correlation between cash (and cash equivalents) and dividend payments*. A company can pay dividends in cash or in the form of its own shares or other property. However, today most companies pay dividends in cash, so cash and cash equivalents are required to make payments to shareholders. *In our study, cash is*

measured as the total amount of cash and cash equivalents on the balance sheet of companies (Cash and Cash Equivalents — CCE).

Hypothesis 4: Net income is positively correlated with dividend payouts. Companies pay dividends based on the amount of net income for the reporting period. The more net income a company earned in the reporting period, the more dividends it can pay to shareholders. Net income is an economic factor affecting the dividend payments of companies (Cherednichenko, 2019). *Net income is measured as the financial result recorded by the company for the reporting period (NI).*

Hypothesis 5: Profitability has a positive impact on companies' dividend payments. Several studies show that firms with consistently high profits have higher free cash flows, which allows them to pay substantial dividends on a regular basis. The explanation of the inverse relationship is that it is more profitable for companies with high profitability to reinvest net income to new projects, rather than direct them to pay dividends. Therefore, we consider it necessary to examine this relation, because there is no consensus among scientists on this issue. *In this publication, ROA is used to measure profitability. This indicator is measured as the ratio of net profit to company assets (ROA).*

Hypothesis 6: Companies' debt negatively affects their dividend payments. A large debt of a company (or financial leverage) reduces the net profit from which dividends are paid. Pirogov and Volkova (2009) confirm the negative influence of debt on paid dividends. *In our study, debt (financial leverage) is measured as the ratio of short-term and long-term debt to the company's equity capital (D/E).*

Hypothesis 7: Increased liquidity has a positive effect on dividend payments. Liquidity of a corporation is crucial for the payment of dividends. Decreased liquidity will require companies to direct funds to the payments with highest priority. Dividend payments may be cut to maintain the solvency of companies. *In this study, liquidity is measured as the current liquidity ratio (CR). This ratio is calculated as the ratio of current assets to short-term liabilities (CR).*

Hypothesis 8: Low investment opportunities of companies positively correlate with the amount of dividends they pay. If companies have promising investment projects that will increase their value, their management will prefer to reinvest net income rather than pay dividends. Investment opportunity in this study is defined as the ratio of the market value of the company to the book value. *Potential investment can be measured by the P/B ratio, which is calculated as the ratio of market capitalization to the book value of the company's equity (P/B).*

Hypothesis 9: The correlation between the systematic risk of companies and their dividend payments is negative. According to the signal theory of dividend payments, it is proved that when the systematic risk decreases, the company increases the value of dividends paid. Pirogov and Volkova (2009) offered a hypothesis of a negative correlation between the risk ratio and dividend payout and used the beta coefficient in the CAPM model to measure business risk. *In our investigation, the risk factor is also measured by the company's beta (Beta).*

Hypothesis 10: The growth of a company negatively affects the payment of dividends. In many studies, the authors find confirmation of this hypothesis (Al-Malkavi, 2007). *In*

our study, company growth will be measured as a change in the balance sheet currency for the year (Firm Growth).

We can divide all the factors affecting the dividend policy of companies into *internal* and e*xternal* ones. The former group includes the characteristics of the companies that we considered in hypotheses 1–10. The latter group includes real GDP growth in each of the BRICS countries, as well as real world GDP growth. External factors also have a significant impact on the business and on the dividend policy of companies.

Hypothesis 11: The growth of real world GDP has a positive effect on companies' dividend payments. The economic situation in the world has a significant impact on the internal performance of a business. If the net profit decreases during a crisis, this may lead to a decrease in dividend payments (*GDPwrld*).

Hypothesis 12: An increase in the level of a country's real GDP has a positive impact on dividend payments. Indeed, GDP growth is associated with an increase in the amount of manufactured goods, and with an increase in their quality, corporations can receive higher profit, which has a positive effect on dividend payments (*GDPentry*).

Hypothesis 13: Country specificity influences dividend payments of companies. Country specificity is an important factor that affects dividend policy. As mentioned above, each BRICS country has its own legislative, cultural, and historical characteristics, which can be reflected in the statutory documents, which, in turn, can regulate dividend payments. *Discrete variables are used to measure this indicator: 1 — India, 2 — Brazil, 3 — China, 4 — South Africa, 5 — Russia.*

Hypothesis 14: An industry influences dividend payments. Many academic studies conclude that certain industries pay high dividends, while others pay low dividends or do not pay them at all. To analyze the impact of industry specifics, discrete variables are used: *1 — Communication services, 2 — Consumer services, 3 — Industry, 4 — IT technologies, 5 — Raw materials sector, 6 — Consumer goods, 7 — Energy, 8 — Utilities, 9 — Health care, 10 — Real estate.*

1.3. Indicators reflecting the quality of corporate governance

In the scientific literature, there are the following measurable variables for assessing the quality of corporate governance (Crisostomo et al., 2020; Faleye et al., 2011): influence of the CEO on the company's activities; activities and presence of the following committees — remuneration committee, appointment committee, risk committee, internal audit committee, etc.

Today, there are a number of indices that are commonly used to measure the quality of corporate governance in companies. The most popular indices are ratings: ISS CGS, GMI Rating, CGS, GAMMA. These indices are calculated by agencies that evaluate each individual company according to a number of indicators, and as a result, assign it a rating. The methods of calculating indices and company indicators that are used in their calculation are shown in Table 1.

Table 1. Comparative analysis of corporate governance ratings

Rating agency	Index name / Year of creation	Index calculation method	Indicators
Institutional Shareholder Services	ISS CGS, 2003	The rating agency's analysts use publicly available documents and information on the company's websites. Based on the information collected, an index is calculated for each company	1. Audit 2. Board of directors 3. Articles of association / By-Laws 4. Education of the director 5. Remuneration of the executive and general director 6. Company ownership 7. Progressive practices 8. Legislation on hostile takeover
Governance Metrics International	GMI Ratings, 2000	Companies are rated on a scale from 1 (the lowest quality) to 10 (the highest quality). The rating reports include a summary of the company's profile from a corporate governance perspective and detailed information about the six categories used to calculate the GMI	1. Responsibility of the board of directors 2. Financial disclosure and internal control 3. Rights of shareholders 4. Rewards policy 5. Control and ownership of the company 6. Issues of corporate behavior and corporate social responsibility
Standard & Poor's	GAMMA, 2007	The information is not disclosed	1. Influence of the ownership structure 2. Rights of shareholders 3. Transparency, audit, risk management 4. Efficiency of the board of directors, strategy, remuneration policy
Moody's	CGS, 2003	The information is not disclosed	1. Board of directors 2. Audit committee and key audit functions 3. Payment policy 4. Rights of shareholders 5. Ownership structure 6. Transparency of management
Fitch	CGS, 2004	The information is not disclosed	1. Independence and quality of management 2. Transactions between related parties 3. Integrity of the audit process 4. Remuneration of the head based on the results of the company's activities 5. Ownership structure

Source: compiled by the authors.

In our research, we prefer to use the ISS index, which is the most well-known corporate governance rating and is assigned to the prevailing number of public companies. The choice of the index was also influenced by the way it was calculated. Firstly, ISS takes into account a large number of criteria, which gives a more accurate assessment of the quality of corporate governance in the company. Secondly, the calculation of the index is transparent and straightforward, which gives it an undeniable advantage over other indexes. Index values range from 1 to 10, with 1 being the best corporate governance, and 10 being the worst. The rating agency's analysts use publicly available documents and information on websites to collect data on 61 criteria.

2. Research model

In the last twenty years, the question of correlation between the quality of corporate governance, and the impact of this quality on company activity, is gaining increasing popularity among researchers. To answer this question, two econometric models are mainly used: the panel model of random effects and Tobit analysis. Less often, OLS models are used in research.

For example, in a study by (Atanassova & Mandell, 2018), which tested the relationship between the quality of corporate governance and dividend policy, the authors used the Tobit model with regression on dividends on management characteristics, compensation, and ownership, as well as on several controls. Adjaoud and Ben-Amar (2010) tested the relationship between the quality of corporate governance and free cash flow with growth opportunities and dividend policy using the random-effects model as well as the Tobit model. Similarly, the Tobit model is used in the study (Chang et al., 2018), in which researchers check the relationship between corporate governance and the dividend policy of companies. At the same time, Al-Rahahleh (2017) investigated the relationship between the quality of corporate governance, gender diversity in the board of directors and dividend policy, using the OLS model.

It is also worth noting that, as mentioned earlier, researchers cannot come to a single conclusion regarding the relationship between the quality of corporate governance and dividend payments. One of the reasons for this disagreement lies in the choice of an econometric model for the study. As mentioned above, the authors use various statistical and regression methods in their studies. The conclusions obtained by the authors, including the values of the coefficients in the regression model based on the OLS model, do not take into account the *censored* nature of the dependent variable (dividend payments). Therefore, when analyzing the impact of the quality of corporate governance on the dividend payments of companies, Tobit regressions for panel data are used more often. If the probability of dividend payment is used as a dependent variable, then it is more correct to use probit and logit regressions, where it is possible to take into account financial constraints, as well as information asymmetry. This study uses Tobit analysis for panel data and a random-effects model. The advantage of the standard Tobit model is the censored data of the dependent variable: in other words, the dependent variable can take

on any value from 0 to plus infinity. This assumption is necessary for our study because the dividend payout ratio can take on any non-negative values.

Many different studies were analyzed by Al-Rahahleh (2017), Jiraporn et al. (2011), Larin et al. (2019), and others to choose a *dependent variable*. Most authors use two dependent variables, representing the dividend payout in a corporation, which are represented by a binary variable and a coefficient showing the dividend payout. When testing models with a binary variable, it is assumed that it takes the value 1 if the company paid dividends in the reporting period. Otherwise, this variable equals 0. When choosing a coefficient reflecting the payment of dividends, the following indicators are most often used in research:

- Dividend payout ratio (DPR)
- Ratio of dividends to the assets of company
- Dividend policy of the corporation
- Dividend yield.

Most often, such studies use the dividend payout ratio as the dependent variable. It reflects the strategic and investment decision of the company's management regarding the distribution of profits: how much will be paid to shareholders, and how much will be invested in profitable projects. This study will use the *dividend payout ratio (Div PO)* as the dependent variable. In our research the dividend payout ratio is calculated as the ratio of dividends paid to net income.

3. Description of the companies selected for the research

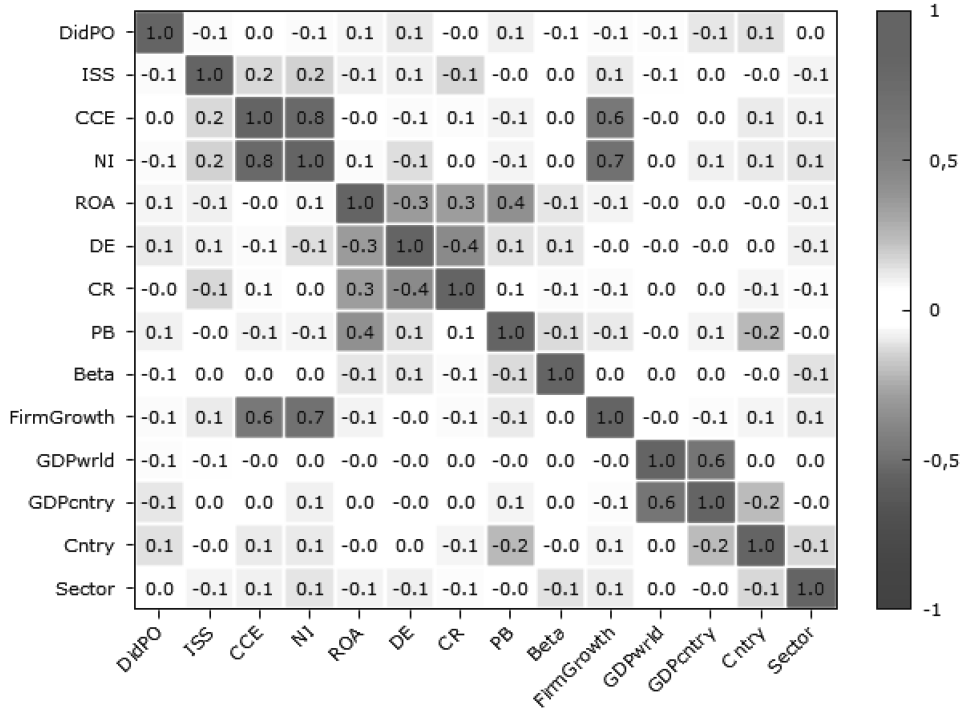
We are considering the BRICS countries because these five countries are the largest emerging markets in the world. The objects of this research are large public corporations of the BRICS countries — Brazil, Russia, India, China, and the South African Republic — whose securities are quoted on stock exchanges. The sample was formed on the basis of the Bloomberg information database. All financial indicators are presented in US dollars. This study examines companies from 2015 to 2019. The choice of such a time interval is due to the fact that for 2014 and earlier the indicator of corporate governance quality (ISS), which is used in this work, was assigned to a small number of companies, as a result of which the sample would not be representative. At the same time, it would be incorrect to consider the financial results of 2020 due to the impact of COVID-19 and the subsequent possible bias in estimates.

The sample includes only those companies for which there are no gaps in the data for the period from 2015 to 2019. After excluding companies with gaps in the data, 122 out of 2,327 companies remained. In total, 610 observations were considered over 5 years. The sample under consideration includes 30 companies from Brazil, 12 from Russia, 47 from India, 4 from China, and 29 from South Africa.

It is also worth noting that the sample includes companies operating in the following areas: energy, industry, commodities, real estate, telecommunications, consumer goods and services, utilities, healthcare, and the IT sector. Organizations engaged in financial

activities were excluded from the sample due to a different structure of assets and liabilities, which could distort the results of the study.

The correlation matrix is shown in Figure 1. Analysis of the matrix shows the presence of a relationship between significant indicators and the dependent variable.



Source: calculated by the authors based on the Gretl program.

Figure 1. Matrix of paired correlation coefficients

4. Research findings

4.1. OLS and random effects, results, and interpretation

To prove the relationship between the quality of corporate governance and dividend payments, a model based on panel data was built. To build a correct model based on panel data, it is necessary to define a model in which estimates would be effective and unbiased. Based on the test results, a choice should be made in favor of one of the models: OLS, a model with fixed effects or a model with random effects. All determinants that could cause multicollinearity in the model were excluded for the correct construction of the dependence.

For the correct construction of the model by the least-squares method, successive elimination of variables was performed using a two-sided *p-value* = 0.10. Appendix 1 shows

the excluded variables sequentially, as well as their *p-values*. After successive elimination of insignificant variables from the model, the results are presented in Appendix 2.

Summarizing the results obtained, we would like to focus on the following aspects: firstly, the quality index expressed by the ISS variable was excluded last with a *p-value* of 0.1, which suggests that the index was at the borderline significance level. Secondly, the equation is significant at the 1% level, but the value of the R-squared is small — 0.085, which indicates that the model explains only 8.5% of the results, and therefore this model is not considered in the work.

To choose between fixed and random effects models, the Hausman test must be performed. The Hausman test verifies a prerequisite for choosing a random-effects model: lack of correlation between individual effects and regressors. This premise is the null hypothesis in the model. The *p-value* of the test in this model is 0.01, which indicates that the null hypothesis is accepted at the 1% significance level, and it is advisable to use a model with random effects. At the same time, we would like to illustrate the results of the fixed effects model in order to emphasize the validity of the choice in favor of the random effects model. The results of the fixed effects model are presented in Appendix 3.

Analyzing the results obtained, the following should be noted: firstly, as can be seen in Appendix 3, only 2 variables are significant: constant and financial results. Secondly, at the first stage of testing the model, 13 control variables are excluded at once due to perfect collinearity — they are not presented in the table. And the value of the R-squared should be taken into account: the model predicts only 41% of the results. Due to the above reasons, as well as the preliminary Hausman test, the model is rejected and is not used in our paper. Thus, we present the results obtained using the random effects model in Table 2.

Table 2. Model with random effects

Model: Random Effects (GLS), Observations Used — 610				
122 features included				
Time series length = 5				
Dependent Variable: DidPO				
Robust standard errors				
Determinant	**Decoding**	**Coefficient**	**Z — the ratio of ratings to mean**	***P-value***
const	Constant	51.747*** (11.217)	4.613	0.000
ISS	Quality index	–0.994* (0.585)	–1.700	0.089
CCE	Cash	0.057** (0.023)	2.478	0.013
NI	Financial results	–0.063*** (0.019)	–3.256	0.001

Table 2. Continued

Determinant	Decoding	Coefficient	Z — the ratio of ratings to mean	*P-value*
ROA	Return on assets	0.272 (0.242)	1.126	0.260
DE	Debt load	2.824* 1.678)	1.682	0.093
CR	Liquidity	0.148 (1.722)	0.086	0.932
PB	Investment opportunities	0.523* (0.283)	1.849	0.064
Beta	Risk	1.519 (8.233)	0.184	0.854
FirmGrowth	Growth	–0.012** (0.006)	–2.107	0.035
GDPwrld	World GDP growth rate per year	–0.230 (0.965)	–0.238	0.812
GDPcntry	GDP growth rate of the country for the year	–0.190 (0.281)	–0.678	0.498
DCntry_3	China	–15.586* (8.146)	–1.913	0.056
DCntry_4	South Africa	13.171** (5.673)	2.322	0.020
DSector_2	Consumer services	–22.612*** (7.367)	–3.069	0.002
DSector_3	Industry	–20.530** (9.061)	–2.266	0.024
DSector_4	IT technologies	–12.287 (8.393)	–1.464	0.143
DSector_5	Raw materials sector	–17.931* (9.747)	–1.840	0.066
DSector_6	Consumer goods	–9.413 (7.542)	–1.248	0.212
DSector_9	Health care	–28.492*** (7.896)	–3.609	0.000

Note: In the brackets under the values of ratio the value of standard error is indicated, ***p < 0,01; **p < 0,05; *p < 0,1.

Source: compiled by the authors.

The model initially included all the tested variables, however, the results showed that not all of them were significant. As a result, some of them were consistently excluded

from the model, including the following variables: Brazil, Russia, the energy sector, utilities, and real estate. The excluded variables are not significant at the 10% level, which suggests that they do not affect dividend payouts. At the same time, as mentioned earlier, not all insignificant variables were excluded due to the fact that these determinants were considered in hypotheses. As a result, it's important to clearly illustrate their relationship or its absence with dividend payments. As shown in Table 2, these variables are global GDP and GDP of countries, return on assets, as well as liquidity and risk indicators. Summing up the above, it is worth noting that the ISS corporate governance quality index is significant at the 10% significance level, which undoubtedly testifies to its impact on dividend payments. Unfortunately, the index is small and there are several variables that are more significant for the model. For example, financial results, consumer services, and healthcare are significant at the 1% level, while cash, firm growth, manufacturing, and the influence of South Africa are significant at the 5% level.

4.2. Tobit model, results and interpretation

All the variables discussed above are also used to test the final Tobit model. The dependent variable is the coefficient Div PO. The chosen model makes it possible to assess the influence of internal and external factors on the amount of the paid dividends. It is also worth noting that not all sectors and countries were significant in the model. Multicollinearity in testing the above factors was eliminated by using dummy variables. After sequentially eliminating non-significant variables using a two-tailed *p-value* = 0.10, the factors listed in Appendix 4 were eliminated. Thus, after successive elimination of insignificant variables, the final results of the model are presented in Table 3, which indicates the variable, its designation, coefficient values, standard error, as well as the *p-value* and significance of the factors.

Table 3. Results of Tobit regression

Model: Tobit regression, used observations — 610				
Dependent Variable: DidPO				
Standard Errors — QML				
Determinant	**Decoding**	**Coefficient**	**Z — the ratio of ratings to mean**	***P-value***
const	Constant	50.963*** (6.241)	8.166	3.18E-16
ISS	Quality index	–1.456** (0.597)	–2.438	0.0148
CCE	Cash	0.077*** (0.019)	4.108	4.00E-05
NI	Financial results	–0.082*** (0.026)	–3.142	0.0017

Table 3. Continued

Determinant	Decoding	Coefficient	Z — the ratio of ratings to mean	*P-value*
ROA	Return on assets	0.676*** (0.157)	4.296	1.74E-05
DE	Debt load	4.059** (2.050)	1.980	0.0477
PB	Investment opportunities	0.343* (0.191)	1.797	0.0724
FirmGrowth	Growth	–0.012*** (0.004)	–2.779	0.0055
DCntry_3	China	–23.449*** (8.152)	–2.877	0.004
DCntry_4	South Africa	9.780** (4.264)	2.293	0.0218
DSector_2	Consumer services	–25.423*** (6.463)	–3.933	8.37E-05
DSector_3	Industry	–19.562*** (6.123)	–3.195	0.0014
DSector_4	IT technologies	–14.530** (5.872)	–2.475	0.0133
DSector_5	Raw materials sector	–19.289*** (7.419)	–2.600	0.0093
DSector_6	Consumer goods	–9.465* (5.334)	–1.774	0.076
DSector_9	Health care	–30.041*** (5.858)	–5.128	2.92E-07

Note: In the brackets under the values of ratio the value of standard error is indicated, ***p < 0,01; **p < 0,05; *p < 0,1.

Source: compiled by the authors.

In this model, the null hypothesis is accepted in the test for the normal distribution of errors, which indicates the distribution of errors according to the normal law. In addition, the equation is significant at the 1% level. The variables CCE, NI, ROA, FirmGrowth, Cntry_3, Sector_2, Sector_3, Sector_5, Sector_9 are significant at the 1% level. The variables ISS, D/E, Cntry_4 and Sector_4 are significant at the 5% level. The rest of the variables are significant at the 10% level. The resulting model looks like this:

$$DidPO = Tobit(50{,}96 - 1{,}46*ISS + 0{,}08*CCE - 0{,}08*NI + 0{,}66*ROA + 4{,}06*D/E + 0{,}34*P/B - 0{,}01*FirmGrowth - 23{,}45*Cntry3 + 9{,}78*Cntry4 - 25{,}42*Sector2 - 19{,}56*Sector3 - 14{,}53*Sector4 - 19{,}29*Sector5 - 9{,}47*Sector6 - 30{,}04*Sector9).$$

At the same time, the signs and values of the coefficient estimates are adequate. To make sure that there is no multicollinearity in the model, the VIF (variance inflation factor) coefficients were calculated. If at least one of the VIF_j, $j = \{2, ..., k\}$, where $k = n$, is greater than 10, this indicates multicollinearity. None of the coefficients is more than 10, which indicates the absence of multicollinearity in the model.

After testing all the variables in the Tobit model, which were substantiated in hypotheses, it turned out that, firstly, country GDP and world GDP are also insignificant, as in the model with random effects. This result can be explained by the fact that we are investigating the relationship between the quality of corporate governance, which is an internal factor, and dividend policy. Similar academic papers exploring this relationship also do not consider the macroeconomic impact in the context of the relationship between corporate governance and dividend payments. In addition, the tested model showed that the values of current liquidity and beta coefficient were not significant. It should be pointed out, that a similar result was obtained when testing a model with random effects, which indicates the stability of the results.

The signs obtained with the variables coincide with the expected results. The exceptions are net income and debt burden. It was assumed that an increase in net profit had a positive effect on the number of dividends paid. Perhaps this discrepancy is due to the fact that with an increase in the size of net profit, companies decide to invest more in projects or in the renovation and improvement of fixed assets, which is consistent with the specifics of emerging markets. It is also worth noting that we hypothesized that the debt (financial leverage) was positively related to the payment of dividends, since companies in the BRICS countries preferred to attract capital through issued shares to finance debt. Potential dividends are one of the incentives for shareholders to invest in a company, which explains the positive relationship between these variables.

Therefore, the estimates obtained using the Tobit model indicate that the tested internal and external factors influence the decision to pay dividends in the companies of the BRICS countries. An important conclusion of our study is the confirmation of the relationship between the quality of corporate governance and dividend payments, which validates the key hypothesis of the study that corporate practice affects the dividend policy pursued by the largest corporations of the BRICS countries. The main conclusions of our study are as follows. First, the coefficients and standard errors in the random-effects model are close to the values obtained from the Tobit analysis, which indicates that both models are of sufficient quality, their results are stable and can be used for further research. Secondly, the obtained coefficients for significant variables coincide with the hypotheses put forward earlier, except for indicators of financial results and debt. At the same time, the indicators of financial results, cash, return on assets, firm growth, China's country influence, commodity sector, as well as consumer services, and goods and healthcare sectors are significant at the 1% level. We would like to emphasize that similar signs were obtained when testing these determinants in an analysis based on the random-effects model.

It should be particularly noted that during the Tobit analysis, the corporate governance quality indicator (ISS) is significant at the 5% level, which confirms the influence of

corporate practice on dividend payments. At the same time, we obtained a negative relationship between the quality of corporate governance and dividend payments of companies from the BRICS countries. This suggests that with an increase in corporate practice, the amount of dividends paid decreases. This relationship shows that the dividend policy of the BRICS companies is consistent with the "substitute" model (La Porta et al., 2000).

Interpreting the results obtained, we can conclude that, all other things being equal, with an increase in the quality of corporate governance by 1, companies from the BRICS countries reduce the dividend payout ratio by an average of 1.456.

4.3. Recommendations for improving the quality of corporate governance

Investors receive profit from investments in the common stock of companies in two ways: when receiving dividends or when market of shares value increases. Dividend payments are one of the determining factors that investors take into account when deciding whether to invest money in certain shares. Based on our empirical study, we concluded, that the quality of corporate governance significantly affected dividend payments. At the same time, we proved that companies from the BRICS countries adhered to the dividend substitution model, or, in other words, compensated for the poor quality of corporate governance with high dividends.

Companies with high-quality corporate governance attract more investors because potential shareholders are confident that their rights will be respected and that management will act in accordance with the interests of shareholders and for the prosperity of the business. Therefore, investor demand for the common stocks of companies will increase. A diametrically opposite situation arises when shareholders are not confident that their rights will be respected and there is a risk that management will expropriate cash flows for its own purposes. Having its own corporate governance code increases the company's attractiveness for portfolio investors. Indeed, investment and consulting companies, which often act as advisors to such investors, regard the existence of the code as an additional advantage and a certain level of protection of shareholders' rights (Murychev, 2007).

To improve the quality of corporate governance, the following recommendations can be offered to corporations of the BRICS countries:

- Develop a clear and transparent dividend policy
- Create an internal corporate governance code
- Improve the procedures for holding general meetings of shareholders and meetings of the board of directors
- Improve the system of internal financial control
- Increase the transparency of business activities
- Engage independent directors
- Confirm financial statements with the help of independent auditors
- Work out a long-term development strategy for the firm.

Conclusion

In the modern world, dividend policy is one of the most important factors influencing the value of corporations. Scientists began to pay special attention to the study of dividend policy only in the middle of the 20th century, but there is still no consensus regarding the factors that have a significant impact on it and under the influence of which it is formed. At the same time, the issue of the relationship between the quality of corporate governance and payment of dividends began to gain popularity in the scientific world quite recently: the first publication that laid the foundation for the study of the quality of corporate governance appeared only at the end of the 20th century. There is still no consensus on the relationship between the two above-mentioned indicators, and as a result, the question of the influence of corporate practice on dividend payments does not lose its relevance to this day.

When conducting an econometric study of 122 companies in the BRICS countries for the period from 2015 to 2019, two models were tested that are most often used in similar studies: Tobit regression and a random-effects model. The analysis shows that the coefficients and their signs for significant determinants are identical in both models, which indicates the stability of the results with different testing methods. It is also worth noting that the sample includes public companies of the BRICS countries, whose shares are traded on the stock exchange. This is necessary in order to put forward the thesis that the rest of the public companies that are not included in the sample due to the omission in the data are homogeneous, and the conclusion about the dividend substitution policy is also applicable to them.

According to the results of the study, it can be concluded that macroeconomic factors, such as real global GDP and country GDP, turned out to be statistically insignificant. At the same time, almost all hypotheses regarding the influence of internal factors were confirmed: the quality of corporate governance, cash and cash equivalents, financial results, return on assets, financial leverage, investment opportunities, and the company's growth turned out to be significant, which suggests that they have an impact on dividend payments in the BRICS countries. At the same time, liquidity and risk turned out to be insignificant, which indicates the absence of the influence of these indicators on dividend payments. It was also revealed that the country specificity of China and South Africa affected dividend payments. Industry specificities also showed interesting results: companies operating in the consumer and commodity sectors, industry, IT and healthcare, all other things being equal, paid less dividends.

The most significant conclusion drawn from the results of this study is the sustainable impact of the quality of corporate governance on the dividend policy of companies operating in the BRICS countries. As mentioned earlier, there is still no unequivocal opinion in the scientific world regarding this influence. However, as our empirical research shows, corporations in the BRICS countries adhere to the dividend substitution model or substitution theory, compensating for poor corporate governance with high dividend payments.

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Appendix 1. Excluded variables when constructing the OLS model

Determinant	**Decoding**	***P-value***
DSector_10	Real estate	0.907
DSector_8	Utilities	0.894
DSector_7	Energy	0.972
CR	Liquidity	0.851
Beta	Risk	0.751
GDPwrld	World GDP growth rate per year	0.708
DCntry_2	Brazil	0.426
DCntry_5	Russia	0.306
DSector_6	Consumer goods	0.152
PB	Investment opportunities	0.546
DSector_4	IT technologies	0.107
DSector_5	Raw materials sector	0.113
ISS	Quality index	0.100

Source: compiled by the authors.

Appendix 2. Estimation by the OLS method

Model: Pooled OLS, Observations Used — 610				
122 features included				
Time series length = 5				
Dependent Variable: DidPO				
Robust Standard Errors				
Determinant	**Decoding**	**Coefficient**	**Z — the ratio of ratings to mean**	***P-value***
const	Constant	37.335*** (4.086)	9.138	1.82E-15
CCE	Cash	0.068*** (0.025)	2.665	0.0088
NI	Financial results	–0.068*** (0.021)	–3.269	1.40E-03
ROA	Return on assets	0.694*** (0.205)	3.385	0.001
DE	Debt load	4.728** (1.928)	2.452	1.56E-02
FirmGrowth	Growth	–0.012** (0.005)	–2.517	0.0131
GDPcntry	GDP growth rate of the country for the year	–0.308** (0.139)	–2.218	0.0284
DCntry_3	China	–17.762** (7.820)	–2.271	0.0249
DCntry_4	South Africa	9.722* (5.540)	1.755	0.0818
DSector_2	Consumer services	–15.931*** (5.883)	–2.708	0.0078
DSector_3	Industry	–12.927* (7.143)	–1.810	7.28E-02
DSector_9	Health care	–19.2441*** (5.182)	–3.713	0.0003

Note: In the brackets under the values of ratio the value of standard error is indicated, ***p < 0,01; **p < 0,05; *p < 0,1.

Source: compiled by the authors.

Appendix 3. Fixed Effects Model

Model: Fixed effects, used observations — 610				
122 features included				
Time series length = 5				
Dependent Variable: DidPO				
Robust Standard Errors				
Determinant	**Decoding**	**Coefficient**	**Z — the ratio of ratings to mean**	***P-value***
const	Constant	49.113*** (10.711)	4.585	0.000
ISS	Quality index	0.168 (0.520)	0.324	0.747
CCE	Cash	0.014 (0.028)	0.501	0.617
NI	Financial results	–0.061*** (0.015)	–4.165	0.000
ROA	Return on assets	–0.173 (0.552)	–0.314	0.754
DE	Debt load	0.422 (2.270)	0.186	0.853
CR	Liquidity	–2.027 (2.233)	–0.908	0.366
PB	Investment opportunities	–0.181 (0.540)	–0.335	0.738
Beta	Risk	1.675 (11.280)	0.149	0.882
FirmGrowth	Growth	–0.004 (0.007)	–0.566	0.573

Note: In the brackets under the values of ratio the value of standard error is indicated, ***p < 0,01; **p < 0,05; *p < 0,1.

Source: compiled by the authors.

Appendix 4. Excluded variables in Tobit analysis

Determinant	**Decoding**	***P-value***
DSector_7	Energy	0.967
DSector_8	Utilities	0.948
DSector_10	Real estate	0.823
GDPcntry	GDP growth rate of the country for the year	0.758
CR	Liquidity	0.739
Beta	Risk	0.499
GDPwrld	World GDP growth rate per year	0.443
DCntry_2	Brazil	0.260
DCntry_5	Russia	0.224

Source: compiled by the authors.