

## КОРПОРАТИВНЫЕ ФИНАНСЫ, ИНВЕСТИЦИИ, УЧЕТ

UDC: 336.64  
JEL: G17

## Dividend policy as a factor for managing company value: Comparing trends in emerging markets

Vit. V. Kovalev<sup>1</sup>, I. S. Drachevskiy<sup>2</sup>

<sup>1</sup> St. Petersburg State University,  
7–9, Universitetskaya nab., St. Petersburg, 199034, Russian Federation

<sup>2</sup> LLC Gazpromneft Center,  
14, Vilenskii per., St. Petersburg, 191014, Russian Federation

**For citation:** Kovalev Vit. V., Drachevskiy I. S. (2020) Dividend policy as a factor for managing company value: Comparing trends in emerging markets. *St Petersburg University Journal of Economic Studies*, vol. 36, iss. 1, pp. 95–116. <https://doi.org/10.21638/spbu05.2020.105>

Stock markets, which are a kind of catalyst for the level of development and dynamics of national and regional economies, have attracted the attention of researchers and practitioners, especially in emerging markets. The gradual transformation of emerging to developed market in terms of basic parameters cannot, by definition, be standardized and homogeneous from a regional aspect. The subject of this article is the formulation and testing of hypotheses about the influence of various dividend policy options on the value of oil and gas companies in emerging markets. In particular, we compare two estimates: (a) actual value of the company according to market data; and (b) theoretical (intrinsic) value of the company calculated on the basis of forecast data on systematic dividend payments using the simulation method (Monte Carlo method). The identification of statistically significant relationships between these estimates allows us to build a real mechanism for managing the company's value in the context of the Value-Based Management (VBM) model. The logic and methodology of modeling and assessing the intrinsic value of the company, substantiated by the authors, was tested on actual publicly reported data of the largest listed companies in the oil and gas sector in a number of emerging markets in various regions of the world. The choice of sector was determined by particularities of the development of these companies, in particular the existence and certain continuity of the dividend policy. In developed markets, modeling business value in conjunction with dividend payments has been studied since the mid 1970s. The specifics of emerging markets (including the Russian case) are such that in fact only in recent years it has become possible to conduct research aimed at identifying the characteristics of the dividend policy of companies represented in these markets. Until recently, a relatively small history of

dividend payments did not allow the construction of more or less reasonable hypotheses about trends and features. Moreover, results obtained were largely insignificant from the standpoint of statistical methods (an extremely small amount of data). It was not necessary to talk about a certain continuity of the dividend policy in the context of a rather stochastic procedure for accruing dividends at an early stage of public business in emerging markets. The situation has begun to change in recent years. The authors of this article substantiate the assumption that the existence of a successive dividend policy is an indispensable condition for the transition of the emerging stock market to the developed category.

*Keywords:* emerging markets, Intrinsic (fundamental) value, company value, equity, market capitalization, CAPM, dividend policy, VBM, ROE, Monte Carlo method.

## Introduction

The increase in the value of company's business is traditionally viewed as one of the most important targets of financial management. For example, the concept of Value Based Management (hereinafter — VBM), popular at the turn of the twentieth century, implies managing a company's various fiscal and non-fiscal drivers to increase shareholder value. The concept originates in the works of A. Rappaport [Rappaport, 1986] and B. Stewart [Stewart, 1991], who focused on practical business value administration in system management consulting. The theoretical component was developed by later research. Work by T. Copeland, T. Koller and J. Murrin systematically and consistently reviewed the goals, tasks, tools, and business processes aimed at business value maximization [Copeland, Koller, Murrin, 1995]. This is the period when the main goal of VBM-modelling — welfare of shareholders and increase in shareholder value — was formulated.

Shareholder value of a company might be regarded as an intrinsic value of owned capital. At present, in theoretical terms, there are several ways to use the VBM concept to calculate the intrinsic company value. For example, J. Arnold [Arnold, 2000], J. Knight [Knight, 1998], and S. Penman [Penman, 2010] consider various analytical management practices directed at maximizing shareholder welfare. H. Ashbaugh and P. Olsson [Ashbaugh, Olsson, 2002] focus on the popular method of managing the value of a business through the residual profit model. In the Russian context, these approaches to VBM modelling have been structured [Volkov, 2001]. These works identify several ways to calculate the intrinsic value of the company, which the author subdivides into operational and fundamental (capital) approaches.

The main feature of VBM modelling research is that it generally applies to established (developed) markets, as well as to traditional companies in these markets. This is logical and mathematical — the more stable the company is, the longer its history of being in public markets, the more predictable and consistent the markets themselves, and thus the more accurate statistics can be collected to formulate and test hypotheses. At the same time, for emerging markets<sup>1</sup> and for relatively young companies, the classic language of

---

<sup>1</sup> Currently, the business environment uses a list of emerging markets compiled by Morgan Stanley. In the beginning of 2019, the list included 26 countries: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, South Korea, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Qatar, Russia, Saudi Arabia, South Africa, Taiwan, Thailand, Turkey, and the UAE. Based on stock market indices of these countries, the MSCI Emerging Market Index was calculated. (Emerging markets: the modern index strategy. URL: <https://www.msci.com/documents/1296102/15035999/USLetter-MIS-EM-May2019-cbr-en.pdf/fb580e1e-d54c-4c68-1314-977bbff69bd7?t=1559125400402> (accessed: 13.09.2019)). It should be noted that the classification of these countries as emerging markets is based on

VBM models is not always applicable (and most studies highlight the initial non-systemic, stochastic effect of certain factors, and it is only later that there emerges systematicity that makes it possible to describe the markets as developed). It should be noted that some studies sometimes have opposite results. For example, the above mentioned residual profit model worked better in emerging markets, while its application in developed markets was, on the contrary, rendered difficult. One study by P. Morck, B. Young and W. Yui [Morck, Young, Yu, 2000], attempts to explain this by a number of difficult-to-verify mathematical factors that accompany prognostic VBM models.

Thus, emerging markets seemed to be left out of theoretical studies. The processes that prevail in them, on the one hand, do not lend themselves to meaningful theoretical description. On the other hand, the registered influence of certain factors in emerging markets gradually increases the validity of the proposed models. It is possible to talk about identifying those points or periods that characterize the transition from stochastic effects in emerging markets to clearly defined models in developed ones. Besides, it is possible to speak of periodization of the influence that these factors have on emerging markets at different stages of their development. Finally, the possibility of building a statistically significant model in the market can serve as a condition for classifying that market as developed, as it is carried out on the basis of a formalized characteristic, rather than on historical tradition. Such are the factors that predetermine this study.

A significant segment of research within the framework of VBM-modelling is devoted to developing applied algorithms to calculate a prognostic value of a company and to compare it with its actual value. (This explains the choice of public companies as an object of research.) A description of such models can be found in the works of H. Ashbaugh and P. Olsson [Ashbaugh, Olsson, 2002], S. Penman and T. Sougiannis [Penman, Sougiannis, 1998], R. Frankel and C. Lee [Frankel, Lee, 1998], and many others. Traditionally, a public limited company is considered one of the highest forms of business development. Its status and history in the market make it possible to speak of a link between the value of the business and the return on invested capital<sup>2</sup>. In this research we compare actual market value of businesses (market capitalization of the company as an analogue) with the estimated value determined on the basis of the dividend discount model and its application to companies in emerging markets.

## Formulation of hypotheses and research algorithm

The dividend discount model is based on distributing proceeds between shareholders. One of the main prerequisites for its application in the developed market is a certain level of stability of dividend accrual and payment. For emerging markets, the application of this model is impeded, largely due to companies' relatively unsettled dividend policies, especially during initial stages of development. Strictly speaking, in the beginning dividends are usually accrued in a stochastic way (depending on the current situation), but this

---

historical continuity rather than on verified formalized characteristics. Large international financial institutions, such as the IMF and the World Bank, also conduct independent classification of countries and markets into "developed" and "emerging". It should be noted that, for all the differences, the core of countries whose markets, due to different classifications, are emerging, remains unchanged.

<sup>2</sup> In fact, there are few companies that have made non-payment of dividends (or, more precisely, reinvestment in business) their competitive advantage. For the absolute majority of public companies, a predictable dividend policy is a *sine qua non* for successful operation.

phase of *ad hoc* dividend calculation changes as the business develops and takes systemic forms. It is impossible to say at what exact year in company's existence or stage of emerging market development that this happens. Therefore, to provide adequate forecasts, analysts require well-established statistics, which predetermines specific phases in research within VBM-modelling (and there is, at least, a phase of random influence of factors and a phase of stability). Only after dividend policy has moved into a predictable phase (with at least some degree of certainty) can we make informed speculation about the impact of dividends on company value. Under the established dividend policy, the formula for calculating an intrinsic value can be applied to forecasting dividend payments indefinitely because of nonterminability of economic entities.

Market factors affecting the calculation (lack of comparable statistical data) are supplemented by methodological difficulties. There are three conflicting views in economic theory on dividends and their impact on the value of the business. One group of scholars, including M. Miller and F. Modigliani, believe that dividend payments do not affect company value. In their work [Miller, Modigliani, 1961] they studied the impact of dividend policy on a company's equity price. Their results suggest that dividend payment policies do not affect a company's value, provided that investment policy was stable, and that all investors behave rationally and have information on future investment programs and profits and were insured against risk. The logic of the assumption is that "every ruble paid to shareholders today in the form of dividends reduces the amount of retained earnings that might otherwise have been invested in new assets. On the contrary, after payments, the growth of assets is made by issuing new shares. The dividends shall then be paid to new shareholders and that will reduce the value of expected dividends of previous shareholders by the amount of dividends" [Miller, Modigliani, 1961].

In a second direction of research, dividend payments increase the value of the firm, and so companies should adhere to the policy of a high dividend payment ratio. This group of researchers includes J. Lintner, X. Babiaik, E. Fama, B. Graham and D. Dodd. Lintner [Lintner, 1956] makes a number of assumptions and statements concerning a company's dividend policy:

- 1) in general, companies tend to adhere to the established normative ratio of dividend payments in the long term;
- 2) managers are more interested in change (increase) in dividends than their absolute value. Dividend payments should be compared with retrospective payments;
- 3) change in the amount of dividend payments is a direct consequence of long-term and steady-state change in company profits. Managers seek to smooth out dividend payments;
- 4) managers do not always agree to increase dividend payments if there is a risk that they will return to the previous level. Managers are especially concerned to avoid situations when they would have to cancel an announced dividend increase.

Lintner developed a model based on the fact that the amount of current dividends depends partly on current profit and partly on the amount of dividends from the previous year, which in turn can be expressed through profit and dividends of the relative periods. This can be expressed by the following formula:

$$Div_t = \alpha \cdot T \cdot EPS_t + (1 - a) \cdot Div_{t-1}, \quad (1)$$

where  $Div_t$  — dividends of the current period;  $\alpha$  — adjusting coefficient;  $EPS_t$  — earnings per share;  $T$  — norm coefficient of dividend payout;  $Div_{t-1}$  — dividends of the previous period.

Thus, in this model Linter made an essential observation and drew attention to the need for continuity of dividend payments. The recent experience of empirical observations makes it possible to supplement this theory with a number of causal points: 1) sharp changes in the amount of dividends from year to year (both upward and downward) do not enhance the predictive value of future payments and, thus, undermine the credibility of the company for shareholders; 2) if a potential shareholder has non-zero confidence in a more or less stable cash dividend flow, he or she remains highly motivated to continue holding the stake; 3) shareholders are reluctant to part with such shares, which in turn contributes to the increase in the market value of stock. It is therefore possible to assert that a sustainable and predictable dividend policy, along with other factors, increases the company's market capitalization. For all its logic and clarity, it is not difficult to notice that a number of such theses have a pronounced behavioral orientation, which makes their verifiable mathematical evaluation difficult. Besides, in the Lintner model the influence of dividends is considered not in isolation, but in combination with the company profit per share. Strictly speaking, Lintner was not the first to indicate such a connection. B. Graham and D. Dodd formulated the following thesis as early as in the 1930s: "Value is increased by taking away value" [Graham, Dodd, 1951, p. 387] (i. e. the growth of the business value as a consequence of the prudent and justifiable withdrawal of a part of income for dividend payments). Their study was conducted on American companies before the Great Depression of 1929.

The concept of dependency between a company's value and dividend payments was further developed in the work of E. Fama and H. Babiak [Fama, Babiak, 1968]. Their statistical research showed that Lintner's investments explain company decisions on dividend payments quite well. When setting the size of dividends, managers take into account not only the company's past achievements, but also its prospects. According to R. Brealey, S. Myers, and F. Allen, there are a number of investors who evidently need shares with high dividends. Thus, the "propensity for shares with "high" dividends (high-dividend stocks) is natural for those investors for whom the securities portfolio serves as a permanent source of money for everyday life. Trusts and endowment funds also tend to generate this tendency when forming an investment portfolio" [Brealey, Myers, Allen, 2011, p. 402]. Economists also noted that there is a good reason why established companies that have significant cash flows in the absence of profitable investment projects, nevertheless pursue a high dividend policy. Shareholders of such companies do not always believe in the ability of managers to manage undistributed revenues "properly" and fear that these funds will not be directed to the development of the company to increase its profitability. Therefore, they should be withdrawn in the form of dividends. This position of certain groups of individuals, as well as institutional investors who have certain tax benefits from investing in shares of benchmark companies pursuing a policy of relatively high dividends, has been confirmed by a number of scholars (see [Graham, Kumar, 2006]). As in the case with Lintner's research, it should be emphasized that there is a significant share of behavioral considerations under this approach (motivation of shareholders, their preferences, the absence of division of shareholders into groups of interests), which make it difficult to mathematically verify the model.

Representatives of the third group have the following attitude towards dividends: if dividend payments are subject to a higher tax rate than capital gains, companies should pay dividends at a lower ratio. It is more reasonable for the company to preserve capital in the form of undistributed profits or to use it to repurchase shares. Thus, the company's dividend policy is partly determined by the government's tax policy. The fundamental principles of this approach were laid down by R. Litzenger, K. Ramaswamy. For more information on differentiation of tax rates and their impact on dividends see [Litzenger, Ramaswamy, 1982].

Thus, all the above mentioned views on the dividend policy can, to a certain extent, be combined into two large groupings depending on the impact of dividend payments on the company's value. The first group argues that the payment of dividends does not affect the value of the company, while the second group alternatively claims that the value of the company is closely related to dividend payments. As it has been noted, this correlation does exist, but it is difficult to establish its exact formalized (formula-based) interpretation.

Undoubtedly, the above models are largely based on rather tentative assumptions, especially concerning the absence of transactional delays in profit distribution. The procedure of profit distribution cannot be very flexible by definition. It is not always possible to conduct it fast enough due to the necessity to hold an extraordinary shareholder meeting. As a rule, these models are tested on established (developed) markets. Nevertheless, the possibility of applying these models to emerging markets at the current stage of their development is, in principle, real and understandable.

In the research on the dividend policy of the late 20<sup>th</sup> and early 21<sup>st</sup> centuries, several approaches have been formed regarding the possibility of a formalized description of the correlation between the company's income, its value, and its dividend policy. The first approach is based on the assertion that dividends signal to various stakeholders that the company is developing in the right direction. As soon as the company reaches a satisfactory level of dividends, and once its profit distribution policy becomes predictable, there is improvement in both absolute and relative values of the firm's development (the value of business increases, the exchange rate value of securities issued by the firm increases, the value of capital decreases, managers' bonuses grow, etc.). Earlier empirical research has mainly been aimed at finding links between the amount of dividends and business development value parameters. Such researchers as S. Benartzi, R. Michaely, R. Thaler, H. DeAngelo, P. Asquith, D. Mullins, and others contributed to the work. Thus, in a study [Asquith, Mullins, 1983] on the US markets, it was shown that with the growth of dividends, the share price also increases (investors trust companies and seek to buy their securities). The research in [Benartzi, Michaely, Thaler, 1997; DeAngelo, DeAngelo, 1990, p. 1429] establishes a positive connection between dividend payments and stakeholder fees, albeit with a certain lag. More recent studies by R. Joliet and A. Muller in this field have revealed regional differences in dividend payments and incomes of different stakeholders [Joliet, Muller, 2015, pp. 105–106].

Nevertheless, weaknesses of such reasoning are also evident — the studies reveal no isolated influence of the dividend policy itself, neither there is an aspiration to find a strict mathematical dependence between different data series. In fact, there is only an implicitly formulated thesis that a successful company has both acceptable development parameters and proper remuneration to its owners, although it is not quite obvious what it depends on.

The next group of studies devoted to the influence of dividends involves a combination of econometric models for establishing dependencies between dividend distributions (payments) and business development parameters in different markets. M. Amidu [Amidu, 2007, pp. 109–110] established that the actual value of dividends affects certain business profitability parameters of regional markets. He identified a link between the growth of return on assets, return on capital, and growth of sales revenues and dividends. D. Nissim and A. Ziv [Nissim, Ziv, 2001] found that dividend growth in one emerging market is closely correlated with the growth of company's income, usually with a lag of two or three years. Research in some African markets also confirmed the thesis that there is a direct correlation between the amount of dividends and profitability of the business [Yegon, Cheruiyot, Sang, 2014, p. 143]. It should be noted that such studies often represent some kind of local research focused on a narrow market or industry. To a certain extent, the authors confirm the hypotheses about the impact of dividend policy on the profitability, cost-effectiveness or financial stability of companies. The core idea of such studies is that in a successfully operating company there is an evident and stable connection between the permanent growth and the improvement of its financial and economic performance and dividend dynamics.

A relatively weak point in the described approaches is the fact that the direct impact of dividend policy in these models is not observed. Rather there is an associated trend (increasing profits and, accordingly, profitability parameters, leads to the growth of dividends) which does not depend on the geographical or any other localization of business.

Some researchers have examined the impact of dividends on business development parameters in conjunction with agency theory. The starting point is the proposition that the dividend policy is to some extent determined by corporate managers, who do not always act in the interests of the owners. In 1963, G. Donaldson demonstrated that managers, with all other conditions being equal, would rather choose reinvestment of profit into business, arguing that they have a better knowledge of the market situation and trends. Under this approach, shareholders may only receive the remainder of the distributed income, i.e. a dividend policy is implemented on the residual principle [Donaldson, 1963]. Such policy requires achieving a certain balance of interests in relationship “owners — top management”, which can hardly be mathematically justified. Subsequent studies mainly concerned the determination of the tax rate parameters for various types of revenues (including dividends), which have a critical impact on dividends. For instance, on study [Jacob, Jacob, 2013] considered the relationship between the level of taxation and the amount of dividends in the period from 1990 to 2008 in 25 countries. In 2017, a group of researchers, including W. He, L. Ng, N. Zaiats, and B. Zhang found that companies deliberately used dividend payments to reduce agency problems and improve their business reputation to attract external sources [He et al., 2017].

According to another line of research, dividend policy depends on the value of the company at different stages of its life cycle. For example, R. Hauser and J. Thornton have proven that established companies that pay dividends have a higher value than companies that do not pay dividends. In contrast, companies at early stages of life cycle that do not pay dividends have a higher value than similar firms that are prone to paying dividends [Hauser, Thornton, 2017, p. 676]. Similar conclusions were also drawn by L. Booth and J. Zhou, who proved that the dividend policy has a significant impact on the value of the business only in the later stages of the company's development [Booth, Zhou, 2017, p. 12].

A. De Cesari and W. Huang-Meier investigated the impact of private information included in the market share price on the value of interim (semi-annual, quarterly) dividends [De Cesari, Huang-Meier, 2015]. Public updates of a company's planned and actual cash flows and the expected yield should encourage investors to conduct strategic revaluation of the company's value (but the extent of this revaluation remains uncertain). The results presented in this publication suggest that managers use this information to make decisions about the company's dividend policy. This expert study emphasizes that any managerial decisions, including dividend payments, are largely determined by non-verifiable, stochastic information.

Summing up the theoretical views and approaches to dividend policy, it should be noted that they all explicitly or implicitly suggest a more or less significant role of behavioral considerations and factors formulated in support of the theses on the impact of dividends on the increase in business value. The arguments and reasoning are logical, but it is exceedingly difficult to implement them, especially if it is necessary to apply formalized econometric models. When a study presents a certain mathematical model, it is often either local in nature or far from always having a correct economic justification and explanation. The reasoning presented also demonstrates that authors quite often mistake simultaneous positive trends in company development (some analogue of false correlation) for positive research results. It is obvious that it is impossible to accurately assess the impact of any specific behavioral factor in the field of dividends (motivation, decisions, image), but it is possible to identify a generic regularity of the dividend policy impact, namely, whether and to what extent it contributes to the increase in business value. Researchers have no doubts about the fact that in developed markets the dividend policy of large companies is not a spontaneous decision, which is carried out on the residual principle and to which management pays little attention. However, so far its significance, origin, properties and scale have not been well understood. There is certainly a dependence of business value on dividends in a developed market, but how it manifests itself, to what extent and from what moment is still a debatable issue. It can only be claimed with some certainty that this dependence is a kind of marker of market development as such and the stability of the performance of the evaluated company in this market. The question of the impact of dividend policy on the value of the business in the emerging markets still remains unanswered, and the research can logically be supplemented by periodization of the degree of influence.

Other, albeit indirect, evidence of the impact of the predictability of dividend policy on business value growth is the fact that companies, for example, in the oil and gas sector in emerging markets tend to adhere to annual dividend growth policies. In other words, it is implicitly assumed that such a long-term and publicly advertised trend between the company and its shareholders contributes to the increase in market capitalization. As an example, it is possible to refer to the dynamics of dividend payments per share for the Russian company Rosneft<sup>3</sup> (official website data): 2006 — 1.33 rub.; 2008 — 2.09 rub.; 2010 — 2.76 rub.; 2012 — 8.05 rub.; 2014 — 8.21 rub.; 2016 — 5.92 rub.; 2018 — 25.91 rub. Obviously, these changes were observed unevenly, but the trend is evident — the average annual dividend growth rate over this period was about 20 % (see [Kovalev, Kovalev, 2019, pp. 481–484]).

---

<sup>3</sup> Rosneft Oil Company. URL: <https://www.rosneft.ru/Investors/dividends/> (accessed: 13.09.2019).



This article has thus raised a number of questions for research, namely: 1) whether it is possible to establish the impact of dividends on the share price of the company (excluding the impact of related factors); 2) when emerging markets enter the stage when the dividend policy begins to affect the share price; 3) whether it is possible to speak of the change of theoretical views on the role of dividends with regard to the emerging markets (we mean the correlation between the theory of dividend irrelevance and the theory of dependence of the share price on the dividend policy).

In the light of the above, two alternative hypotheses can be formulated:

*Hypothesis H1.* Dividend payments in an emerging market do not affect market capitalization of companies;

*Hypothesis H2.* In the course of time, a certain continuity in the dividend distribution policy in the emerging market affects the market capitalization of companies, which is one of the indications of the market transition towards the developed segment.

The nature of emerging markets, as noted, limits the ability to conduct research in this area due to the relatively short period of sustainable development of companies traded in these markets. Progressive economic development on a global scale has led to the spread of positive trends in both regional economies and local stock markets. Therefore, it has become possible to select a number of companies traded in emerging markets that have more or less well-defined dividend policies, a certain history of shareholder relations, and the companies themselves are well-established public entities. Undoubtedly, first of all it is worth paying attention to public companies in the oil and gas sector in the emerging markets of Brazil, Indonesia, Malaysia, Mexico, Argentina, Pakistan, Saudi Arabia, and Russia. There are a number of reasons to choose these markets: 1) wide geographic coverage (i.e. all continents), which in a certain sense allows to level out the relevant geographical features; 2) different economic structures across countries (political, administrative, tax, etc.); 3) oil and gas (raw materials) as an important part of economies in these countries, with public markets actually beginning to emerge when companies in this sector launch IPOs; 4) these markets are still referred to as emerging markets, often by inertia rather than by some formalized rationale.

There are serious reasons to believe that at present these companies are moving from an unregulated dividend payment to a sensible and predictable dividend policy, one of the essential features of which is sustainability. This should have an impact on the prognostic importance of research on the correlation between dividends and value. It is the existence of such a dependence between the value of the business and the forecasted dividend policy that can serve as a certain indicator of market development, which, in turn, gives grounds to classify the company and the market as developed.

Here is a general algorithm of the research conducted:

- 1) at the first stage, companies in the emerging markets with a sufficiently well-established dividend policy are selected. These are primarily companies in the oil and gas sector. Recently, despite all the difficulties in the international environment, it has demonstrated a certain continuity and functional consistency not only in developed but also in emerging markets;
- 2) actual data on dividend payments for 2011–2018 for the analyzed companies are systematized in order to establish dynamics and trends. Using simulation methods (Monte Carlo method), forecast dividends are calculated for the period of 2019–2025;

- 3) the estimated share's value is determined solely on the basis of forecasted dividends. Other factors (including related factors) are excluded from the model;
- 4) using correlation-regression analysis, the actual market capitalization data of each company is compared with the estimated dividend-based share value;
- 5) should there be a correlation between the two rows, it is possible to assert with some certainty that the dividend policy for this sample affects the market capitalization of the company;
- 6) should the resulting model be significant, there is consequently a correlation between the current market capitalization of the firm and its dividend-based value, which in turn confirms the thesis that the current market value of the firm is influenced by the expectations of dividends. It will allow to assert with some degree of conditionality that the given segment of the emerging market approaches the developed market.

We use a single-factor regression model. The dependent variable includes the market value of the share, calculated as an average for 2019 based on the data of the relevant stock exchanges. The right part will present the estimated value. Therefore, the model will look as follows:

$$Cap_i = \alpha_i + \beta_i \cdot V_{Ei} + \varepsilon_i, \quad (2)$$

where  $\alpha_i$ ,  $\beta_i$  — regression coefficients;  $Cap_i$  — company capitalization per share;  $V_{Ei}$  — intrinsic share value.

Since the formation of data series is based on annual company performance (with dividends usually paid once or twice a year), it is reasonable to calculate the actual asset value in the model as an annual average for the previous period in order to offset short-term exchange rate fluctuations. The specified formula will be used by us for calculations in relation to companies in emerging markets.

## Data selection and primary analysis

The following companies were selected to study the impact of dividend policy on the value of companies listed in international emerging markets: one company in Brazil (Petrobras (PBR)); one in Malaysia (Petronas (PETR)); four in Pakistan (Pakistan Petroleum Limited (PPL), Pakistan Oilfields Limited (PKOL), Oil and Gas Development Company (OGDC), Mari Petroleum (MGAS)); one in Argentina (Nafta (YPF)); one company in Romania (OMV Petrom (OMV)); and two companies in Poland (Orlen (PKN), Polskie Górnictwo Naftowe i Gazownictwo (PGNIG)). The Russian segment is represented by public companies in the domestic oil and gas industry: Lukoil (LKOH), Rosneft (ROSN), GazpromNefteft (GZPNF), Sibneft (SIBN), Tatneft (TATN), Bashneft (BANE), Surgutneftegaz (SNGS), Gazprom (GAZP), and Novatek (NVTK). The companies of the oil and gas sector, as noted, were selected because they usually have a relatively well-established practice of calculating dividends, and payments are made annually for a long period of time. Data for each company were obtained from published financial statements, the discount rate being calculated using the websites of the relevant stock exchanges. Eighteen companies were selected for the survey. Once the generated models have been tested and econometrically interpreted, this method can be applied to a wider sample of companies.

As already mentioned, in the classic version, the estimate of company value is based on the model of discounting the expected dividend flow (DDM). The quality of the simulation results is largely determined by the correctness and validity of the estimation of the basic model parameters, i.e. the discount rate and the forecast values of dividends.

Projected return on equity ( $r_e$ ) can be used as a discount rate, which is estimated using the Capital Asset Pricing Model (CAPM):

$$r_e = \beta \cdot (r_m - r_f) + r_f, \quad (3)$$

where  $r_e$  — expected return on equity;  $\beta$  — beta coefficient;  $r_m$  — market return;  $r_f$  — risk-free rate.

Obviously, in different emerging markets the initial parameters of the SARM model will have different values.

Independent calculation of market yield of a particular share can be made on the basis of average yield values of stock exchanges, trading in the securities of the analyzed companies, while government bond rates of the corresponding countries can be used as risk-free rates. To calculate the beta coefficient, which serves as a measure of market risk impact in a particular company, it is necessary to know the dynamics of company share yield. The situation is complicated by the fact that the available sample of oil and gas companies of a number of emerging markets is not large (one or two companies), so it is impossible to make a correct statistical calculation of some emerging markets (Mexico, Brazil) for this industry<sup>4</sup>. Certainly, it is possible to refer to subjective expert data for each country, collected by information and analytical databases, but it is scientifically more justified to build a methodologically justified rate estimate rather than general expert opinion. We now calculate the rates for oil and gas companies in the market with the highest representation of similar companies (as such we shall consider the Russian market) and extrapolate the evaluation data to other markets. As a risk-free rate, we will use the data on federal loan bonds of the Ministry of Finance of the Russian Federation. To calculate the expected yield, we have analyzed information from the relevant stock exchange (MOEX). Table 1 presents the expected yield for Russian oil and gas companies. According to the calculations, the expected yield is estimated at 14.65 %.

The discount rate in the Russian oil and gas market will be applied to other international companies included in the study<sup>5</sup>.

---

<sup>4</sup> The fact that the selected companies are public entities should, to a certain extent, facilitate the availability of information about them. Nevertheless, in the process of research we faced some difficulties in building comparable data series. This is largely due to the differences between the way companies are presented on national stock exchanges, and the lack of uniformity in the reports of the selected companies. Of course, the ideal option for analysis would be if the shares of these companies were quoted on one trading platform. Global information and analytical databases, such as Bloomberg, collect information from national stock exchanges in their original form. Therefore, the fact of being public does not mean that companies can be compared to each other precisely. This research tried to eliminate these differences — the selected companies present a comparable amount of information on the exchange value of financial instruments. Expanding the sample (to include additional companies of this sector from the regional markets into the model) at the present time, while their level of information openness and differences in data presentation will violate the principle of comparability.

<sup>5</sup> The individual rate estimation for each country will certainly be methodologically more correct, but it should be acknowledged that in order to conduct it, and then to consolidate and deduce some average market rate, it is necessary to perform serious calculations, in which case the result obtained in one market should not vary significantly. It should also be taken into account that companies in the oil and gas sector in emerging markets in general have approximately equal levels of interest rates to perform analytical compari-

*Table 1. Expected yield estimates for Russian oil and gas companies*

Company	Covariaion	Market portfolio dispersion	Beta	Market yield, %	Risk-free rate, %	Expected yield, %
Lukoil	0.0024	0.0051	0.48	18.79	7.05	12.69
Gazprom Neft	0.0057	0.0085	0.67	18.79	7.05	14.92
Rosneft	0.0059	0.0108	0.55	18.79	7.05	13.51
Tatneft	0.0101	0.0146	0.69	18.79	7.05	15.15
Bashneft	0.0049	0.0084	0.58	18.79	7.05	13.86
Surgutneftegas	0.0052	0.0083	0.63	18.79	7.05	14.45
Gazprom	0.0108	0.0146	0.74	18.79	7.05	15.74
Novatek	0.0070	0.0083	0.84	18.79	7.05	16.91
Average			0.65	18.79	7.05	14.65

Based on: Finam. URL: <https://www.finam.ru/> (accessed: 13.09.2019).

The estimated rate has a rather high value, which is certainly not typical for developed markets. We presume that it is affected by significant non-verifiable and non-quantifiable factors (for example, sanctions against Russia's national oil and gas industry). However, such factors (different in each case) can be extended to other selected markets; each market included in the sample is characterized by unique country-specific factors, which all together explain high interest rates.

Predicting the dividend flow is clearly a very complex and, to a large extent, subjective process. Besides, in the most cases it is impossible to achieve absolute accuracy in forecasting dividends in principle, and therefore any assumptions regarding the future can be made only with certain simplifications and provisional consent. Since the analyzed companies have a long history of development and are already characterized by certain stability and uniformity as regards their national dimensions, it is reasonable to base further analysis on the two most plausible assumptions:

- 1) dividends change (generally increasing at a certain rate);
- 2) companies are not inclined to increase dividend payments every year.

These assumptions are drawn from the most probable and at the same time the most divergent business development scenarios. In the first case, we assume the absence of any economic crises and dramatic downturns in this market. Under this scenario, companies develop progressively from year to year, so, logically, dividend payments should also grow with the growth of profits. The second scenario is more pessimistic — companies neither demonstrate any significant development, nor reduce their dividend payments to shareholders.

sons. From our point of view, the rate used in the study seems to be quite adequate due to the specific nature of emerging markets. In particular, the assumption of low interest rates in these markets (not higher than 10 %) seems rather doubtful, while high interest rates (over 20 %) can hardly be used for long-term forecasts. The applied estimated rate of 14.65 % is a kind of averaged value from our point of view. Since trends in emerging markets are similar, we consider the totality of all companies in our model as a single conditional consolidated market with segmentation for different countries (Russia, Malaysia, Brazil, etc.). These factors have determined the expediency of including the companies in the model and applying to them common calculation parameters as regards interest rates.

First of all, let us consider the first assumption, according to which dividends increase annually at a sustainable growth rate. The company intrinsic value ( $V_E$ ) can be calculated by the formula:

$$V_E = \sum_{t=1}^n \frac{DIV_t}{(1+r)^t} + \frac{1}{(1+r)^n} \cdot \frac{DIV_{n+1}}{r-g}, \quad (4)$$

where  $DIV_t$  — dividends per share in period  $t$ ;  $r$  — discount rate;  $g$  — sustainable dividend growth rate.

Some difficulty of calculation lies in the estimation of the growth rate  $g$  in the specified model. This parameter can be obtained for different markets in one of two ways: either by using the expert opinion of professional financial analysts, or by conducting calculations. It is impossible to predict the exact situation on different stock markets and how it will affect the company dividends (they can be either increasing or decreasing). Naturally, it is possible to expect some crises in the future, which will have a catastrophic effect on the company's position, reducing profits and dividend payments. However, it is hardly appropriate and productive to take into account such very tentative expert opinions when building formalized dependencies. We assume that in the near future the dividend payments will be accrued rather on the residual principle (i. e. the policy of previous years will continue), and subsequently the dividends will reach the projected growth rates.

To lessen subjectivity in the estimates of projected dividends, it is convenient to use the Monte Carlo method, with the help of which it is possible to generate series of expected values based on the predetermined parameters (standard deviations)<sup>6</sup>. In this study, the main positive difference between the Monte Carlo method and discrete methods of forecasting (i.e. artificial setting of dividend growth rates) is that this method allows us to establish specific values of a particular parameter and level out the subjectivism of discrete estimation methods. This technique is based on simulation modeling of random distributions of selected dividend parameters.

The Monte Carlo simulation method as a computer modeling method can be described through a sequence of stages.

*Stage 1.* Determining the key evaluation indicators against which the influence of the input factors will be measured. The key indicator in this case is the company intrinsic value per share.

*Stage 2.* Determining risk parameters; the main risk factor is the estimated dividend ratio.

*Stage 3.* Selecting the form of distributing random variables to be used as a basis for random number generation. In our study, normal distribution will be the mode of distribution when simulating random numbers.

*Stage 4.* Calculating the company intrinsic value per share<sup>7</sup>.

To illustrate the above scenario, we shall conduct simulation modeling for one company (for example, Lukoil). The forecast period for our model is 7 years.<sup>8</sup> Based on the ret-

---

<sup>6</sup> In our case, dividend payments will be the expected values.

<sup>7</sup> These calculations are performed using the built-in "data analysis" package in EXCEL. It is necessary to determine in advance the expected value of the parameter and its standard deviation as well as the quantity of numerical implementations of randomly generated values.

<sup>8</sup> The simulation method allows setting any forecast horizon. We have chosen a long-term strategy in planning (over 5 years), so the period of 7 years was chosen as the lower forecast horizon in long-term

respective data on Lukoil's dividend payments for a normally distributed random value, we shall calculate the standard deviation (in our case it amounts to 51.00). The next step is to carry out computer modeling of random variables based on the given parameters. Each simulation cycle includes 100 iterations. The results of simulation are presented in Table 2 (we give only a fragment of the mentioned 100 iterations). The average annual rate  $g$  is determined for each iteration from 2011–2025. The estimated value of Lukoil is then calculated on the basis of iteration data<sup>9</sup>.

*Table 2. Imitation of dividend distribution and company value calculation for Lukoil (per share), rub.*

Iteration number	Annual dividend distribution according to the Monte Carlo method							Estimated share value
	2019	2020	2021	2022	2023	2024	2025	
1	275.11	441.74	441.39	219.88	445.89	463.29	226.72	4 816.64
2	315.79	229.04	312.57	294.12	374.72	411.68	293.49	6 554.17
3	441.52	331.34	471.46	303.32	233.50	238.69	302.00	5 891.76
4	367.79	466.08	323.63	326.95	269.06	429.38	291.17	6 244.35
5	333.76	422.39	415.19	274.14	324.56	308.35	326.35	2 468.79
6	195.24	402.88	218.12	235.42	337.46	385.37	250.80	7 535.85
7	405.95	475.46	351.92	355.97	393.33	455.27	403.35	7 431.68
8	402.60	228.59	468.09	399.84	197.45	313.26	378.74	7 123.51
9	452.16	375.51	422.46	309.02	426.62	292.18	219.06	6 862.64
10	393.39	444.67	295.24	470.10	403.81	319.78	304.63	6 309.12
...	...	...	...	...	...	...	...	...
91	354.42	246.43	429.54	242.07	476.34	389.91	319.07	6 661.77
92	224.11	366.64	426.01	472.34	420.21	469.26	493.64	5 395.43
93	257.91	209.39	288.18	375.81	393.49	210.74	350.49	4 757.05
94	253.21	386.49	490.84	279.77	472.23	347.68	261.46	7 152.86
95	198.74	415.90	236.94	287.36	406.56	420.66	316.54	7 174.14
96	268.70	491.12	345.93	324.71	198.63	460.14	320.39	6 635.69
97	426.14	371.88	228.58	417.14	436.88	472.22	451.83	6 448.91
98	349.13	320.93	202.13	420.09	356.35	307.38	281.17	5 996.52
99	219.25	349.93	375.16	428.23	467.10	356.09	247.84	4 191.57
100	419.18	472.75	444.20	268.22	277.43	336.40	414.97	7 310.28

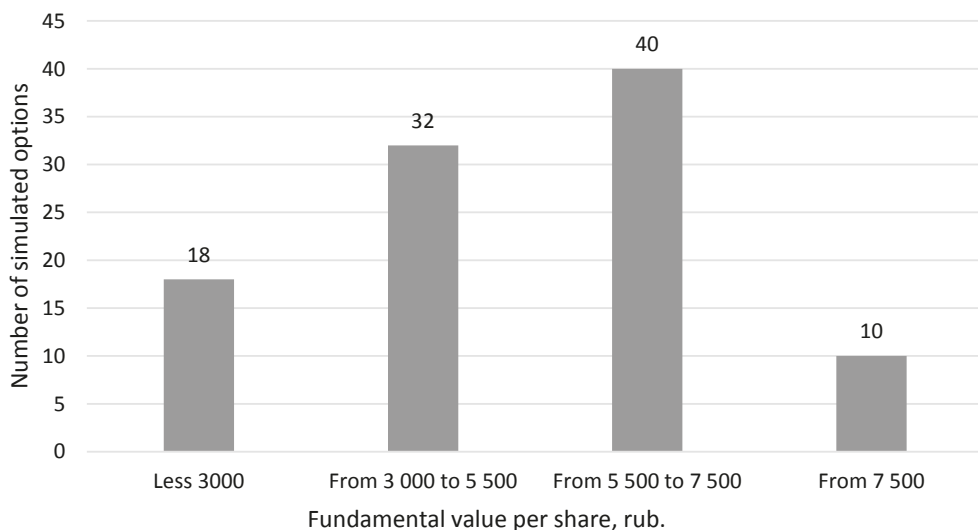
Note: the table is compiled using the Monte Carlo method. Based on the data, the average estimated share value was calculated

Based on: Finam. URL: <https://www.finam.ru/> (accessed: 13.09.2019).

Using the obtained parameters of the intrinsic value, it is possible to determine the margins of its valid values. Figure illustrates the distribution of the obtained values. The

planning. Besides, in this particular case, the interim calculations have demonstrated that extending the planning period does not lead to a significant improvement in the model.

<sup>9</sup> The rate  $g$  for calculating intrinsic value can be set in several ways, each of which has certain limitations and conditions. In this case, dividend payments have been and will continue to be accrued on the residual principle for 15 years (8 retrospective years and 7 forecast years), without any explicit trend. At the end of this period, the company can be expected to reach a level of development that will allow it to follow a formalized algorithm in dividend policy, i.e. to increase dividends at a steady growth rate, which will be used to calculate the projected value. Undoubtedly, there are also other methods of determining the rate  $g$ .



*Figure.* Lukoil estimated share value  
 Based on: Finam. URL: <https://www.finam.ru/> (accessed: 13.09.2019).

histogram below shows that the largest number of simulated options of the estimated share value ranges from 5 500 to 7 500 rub. The average value in this case amounts to 5 983.02 rub.

We have thus provided a detailed description of the capital valuation procedure for one company using simulation methods. Similar procedures should be carried out for other oil and gas companies in emerging markets. With the discount rate at 14.65 %, the estimates conducted with the help of Monte Carlo method resulted in obtaining forecasted values of dividend payments and, accordingly, made it possible to determine the margins of estimated equity (share value) of the analyzed companies (Table 3). Here and below, the estimated values for companies from different countries were calculated in their national currencies: peso for Argentina, real for Brazil, ringgit for Malaysia, rupee for Pakistan, zloty for Poland, ruble for Russia, and leu for Romania.

Values presented in columns 6 and 7 of Table 3 demonstrate that 8 out of 18 companies have simulated shares value above the market average. By contrast, estimated values of other companies are lower than market figures. It should be emphasized that the calculated value represents the forecasted value of the company's share based on future dividend projections (no other factors have been included). Thus, these company value estimates are conducted in view of the position of shareholders (future estimated dividend flows are discounted to conduct theoretical assessment of company share). A logical conclusion is that, with all the assumed conditions, company share value is viewed by the company owners either as undervalued or overvalued, depending on specific circumstances.

Let us now consider a less optimistic situation, when dividends in the forecast period (from 2019 to 2025) will be the same as the last accrued value, i.e. will show practically no. The algorithm of calculation remains the same. The results are presented in Table 4.

Table 4 demonstrates that estimated values of company shares are, as a rule, lower than real market value (17 companies have estimated value below market values). Therefore, it is possible to draw a preliminary conclusion that the dividend stability is not typi-

**Table 3. Results of calculating model indicators with a constant growth rate: average DIV value for each period**

Country	Company	Lowest value	Highest value	Standard deviation	Variation coefficient	Estimated share value	Average market share value in 2019
A	1	2	3	4	5	6	7
Russia	LKOH	2 214.54	7 798.78	1 782.47	0.33	5 983.02	5 395.25
Russia	SIBN	124.04	414.27	74.97	0.31	234.19	371.62
Russia	ROSN	408.39	787.51	105.65	0.18	602.12	415.74
Russia	TATN	1 250.04	2 755.48	397.98	0.19	2 088.22	760.03
Russia	BANE	719.08	7 228.32	1 832.79	0.67	1 985.74	1 827.00
Russia	SNGS	56.69	313.55	69.47	0.38	180.11	25.81
Russia	GAZP	151.23	291.45	40.21	0.18	223.51	193.69
Russia	NVTK	302.84	808.08	128.73	0.21	632.59	1 220.18
Brazil	PBR	0.85	4.47	0.94	0.36	2.58	15.04
Malaysia	PETR	9.40	93.39	24.61	0.45	57.49	24.71
Pakistan	PPL	18.61	92.66	18.04	0.37	44.37	154.36
Pakistan	PKOL	356.46	537.38	42.93	0.10	439.86	420.74
Pakistan	OGDC	79.99	221.60	36.65	0.28	126.98	133.59
Pakistan	MGAS	56.93	136.56	22.18	0.25	84.02	1 092.07
Argentina	YPF	9.73	53.09	10.35	0.32	31.91	632.76
Romania	ROSNP	0.14	0.46	0.08	0.31	0.26	0.38
Poland	PKN	28.74	111.62	25.50	0.41	56.76	96.10
Poland	PGN	0.30	1.90	0.35	0.38	0.90	5.83

Based on: Investing. URL: <https://www.investing.com/> (accessed: 13.09.2019).

**Table 4. Estimates of basic model indicators at constant dividend value per share (in national currencies)**

Country	Company	Estimated share value	Average market share value in 2019
Russia	LKOH	1 706.13	5 395.25
Russia	SIBN	107.49	371.62
Russia	ROSN	176.82	415.74
Russia	TATN	579.47	760.03
Russia	BANE	1 084.76	1 827.00
Russia	SNGS	56.44	25.81
Russia	GAZP	113.36	193.69
Russia	NVTK	177.85	1 220.18
Brazil	PBR	1.64	15.04
Malaysia	PETR	21.63	24.71
Pakistan	PPL	33.98	154.36
Pakistan	PKOL	290.00	420.74



Country	Company	Estimated share value	Average market share value in 2019
Pakistan	OGDC	68.23	133.59
Pakistan	MGAS	40.94	1 092.07
Argentina	YPF	13.04	632.76
Romania	ROSNP	0.18	0.38
Poland	PKN	23.88	96.10
Poland	PGN	0.48	5.83

Based on: Investing. URL: <https://www.investing.com/> (accessed: 13.09.2019).

cal for the analysed sample. On the contrary, companies pursue the policy of a reasonable dividend increase (mostly periodic). This is a typical practice for companies that are regularly represented in the indices of the leading stock exchanges. Implicitly, investors expect companies to have a predictable sustainable dividend policy accompanied by an increase in dividend payments.

### Interpretation of results obtained

In order to test the relevancy of the results obtained, it is necessary to draw up a regression equation to determine the relationship between the estimated and actual share price. First, we shall test the results obtained with a view to the forecasted dividend growth. Next step is to test the results assuming that the dividends will remain constant throughout the forecast period.

First, we shall construct a regression equation for a model in which the dividends are subject to change as calculated by simulation. Based on the results of the calculations, the model takes the following form:

$$Cap_i = 123,31 + 0,83 \cdot V_{ei}.$$

The econometric interpretation of this model allows us to answer two questions: whether the given regression equation can explain the relationship between market and estimated values of the company; and what properties the equation coefficients have. The answer to the first question is provided by the determinacy coefficient, which in the present model equals 0.89, indicating a high correlation between the current market and estimated company value based on dividends.

To answer the second question, we shall run the Student's and Fisher's *t*-tests, comparing the estimated test values in a model with a critical level. If the estimated value in the tests exceeds the critical level, the model is considered significant and, therefore, the relationship between the company intrinsic value and market capitalization is established and reliable. Otherwise, if the critical value exceeds the estimated value, the relationship between the variables is discarded. In our calculations the Student's and Fisher's *t*-tests, estimated to be equal to 11.74 and 137.93, respectively.

With 5% significance level and 16 degrees of freedom, the *t*-statistics value is 2.12; and the *F*-test value is 4.49. In our case, the calculated Student's and Fisher's *t*-values exceed their significance values. This means that the market share value in existing emerging markets does correlate with the estimated value calculated solely on the basis of dividends.

The obtained results allow us to conclude that in both cases the observed correlation is significant, there is no autocorrelation, and the values of  $t$ -statistics and  $F$ -test suggest the reliability of regression equation coefficients. Thus, there is a justified statement that the company estimated value as a dividend function and market capitalization are in direct correlation.

Let us provide economic substantiation of the obtained results. From a theoretical point of view, the data on market capitalization in developed markets in balance conditions should correspond to estimated values. Obviously, there can be no absolute compatibility, because there are always incidental market factors affecting the share value at a particular moment in time. It is more accurate to say that when operating with the high-efficiency market data, even a theoretically flawless model allows to obtain estimations which barely correspond to the actual ones, with some companies being overestimated (actual market capitalization is higher than the estimated value), and others being underestimated (actual market capitalization is lower than the estimated value). When the market is in equilibrium, the quality modeling shows no obvious shift in one direction or another: the proportion of undervalued and overvalued companies is approximately the same. If there is a shift to one side or the other (for example, the share of overvalued companies is significantly higher), and the market, again, is in equilibrium, it indicates that the forecast model does not adequately reflect actual market pricing trends.

The sample analysis was conducted according to two strategies: a growth strategy and a dividend invariability strategy. When investors in the sample companies focus on the growth of divisional dividends, the picture is typical of developed markets with a fairly high degree of efficiency. In our sample eight out of eighteen companies have an estimated value above the market, in contrast to the other ten. In case of dividend invariability strategy, the estimated values for the sample companies are within the same range (in this scenario, the estimated values for 17 out of 18 firms are lower than the market ones). This means that in the real market, investors include future increasing dividends in the share valuation of the sample, which results in the market price exceeding the estimated one. These two circumstances allow us to conclude that the companies in the sample are targeting continuous dividend growth.

## Research findings and conclusions

This article examined the dependence between the actual market capitalization of a company and the estimation of its intrinsic value as a distinctive feature of dividend policy. The general proposition was that when diagnosing a stable correlation of this kind, the reviewed markets and companies in them transition from the emerging market phase to the developed one (i.e. they are governed by the corresponding regularities). Accordingly, there have been put forward the hypotheses that there is no correlation between the current market capitalization and the estimated value as to the impact of the dividend policy. This very criterion, in our opinion, can be used to determine the current level of market development and, with a certain degree of conditionality, to classify it as developed or emerging.

In order to either confirm or reject the hypotheses, the intrinsic value of a number of oil and gas companies representing emerging markets has been calculated. The information trends in the markets in question seem to be roughly the same, i.e. with companies

evolving, their dividend policy is changing in the same way and the companies themselves are becoming more and more credible and predictive in providing information to their shareholders.

The study identified two key issues in calculating dividends: identifying the correct discount rate and determining meaningful forecast data on dividend payments. The discount rate in this study was obtained using the CAPM model for one of the emerging markets and extended to the others. The calculated discount rate of 14.65 %, with certain reservations, has been then extended to other emerging markets. The problem of assigning dividend forecast data was solved with the help of a Monte Carlo simulation model, which allows us to include relatively expected scenarios with predetermined deviation values. Also, we examined the case when the forecasted dividend values remained constant over a number of years. It should be noted that, in comparison with many researchers in this field, we were driven by the idea of determining the actual impact of dividends. The model excluded factors that could somehow affect the value of the business (profit, revenue, profitability factors, etc.), which is the distinctive feature of the research conducted. We have also excluded all accompanying trends that could give a false picture of the correlation between dividends and value. The research was undertaken from the perspective of the business owner, who sees a specific company share as a profitable financial instrument. This is expressed in the correlation between the incoming dividend flows and the outflow of the share's current market value. An extra focus of the research was to establish whether the share market value was overvalued or undervalued from the point of view of its holder. In order to offset the impact of other factors on the value of the share, the model was assigned only projectable dividend cash flows (whole number of factors, included as significant by other scholars, have been left out of this research).

The picture that emerges is interesting, provided that we consider not the entire conventional aggregate emerging market (18 companies from different countries), but a segment. In this study, the most significant representation in the sample is observed in the Russian market (8 companies). Based on the estimates, it is possible to assume that their values, based on dividends growth, are generally higher market capitalization values. This indicates that investors in the Russian market do not particularly pay attention to long-term dividend policy (the prevailing stock prices do not take into account dividend income). Thus, the Russian market is still more attractive for speculative players (gain on growth/decline), while investment savings (purchase of shares and receiving dividends) have not been fully formalized yet. All the obtained values have been tested for their correlation with market values based on econometric analysis. After checking a number of tests (*t*-statistics, *F*-test), as well as estimating the strength and significance of the identified relation, it was concluded that there is a correlation between the current market value and the estimated value of the company. Thus, the general hypothesis about the interdependence between dividends and the oil and gas companies' market value in the markets under consideration is confirmed.

The value calculation according to the model as proposed by the authors takes into consideration the investor's position (the infinite dividend flow is what determines the share price). Therefore, based on this study, it can be assumed that an average market investor is implicitly seeking to increase dividends paid by the company. Situations in which dividends do not increase lead to a significant undervaluation of the forecast company value as compared to the market ones. Thus, the markets expect the companies in our

sample to increase dividends (the increase is included in investors' estimations). Strictly speaking, the dividend policy should not necessarily be characterized by an even growth throughout the entire existence of the company. Apparently, it is more correct to speak about an increasing piecewise linear trend, i.e. the company as a whole follows the policy of not reducing payments to shareholders, but periodically, as resources accumulate, the level of dividends can be increased. Similarly, it is necessary to take into account inflationary expectations of the investors (inflation in emerging markets are generally higher, which should be considered by the investors in the long-term).

It is thus reasonably possible to assume that there are the same dividend policy mechanisms as those that operate in developed markets, and that market forces and behavioural factors work in the same direction. This fact enables us to assert that emerging markets (at least in the oil and gas sector) are increasingly subject to the rules and regularities characteristic of the developed markets in terms of dividend distribution. The existing segmentation in this area is becoming more and more conditional and subjective. From the point of view of interrelation of dividends and the market value of the companies, the attribution of markets in the sample as emerging is not quite justified. Besides, we actually presented a verification criterion which determines whether the market (company) development is in a stable phase, namely, the net impact of dividends on the business value. The further direction of the research may involve determining the nature of investment in the analyzed market (savings or speculative motivation of investors operating in the market).

## References

- Amidu M. (2007) How does dividend policy affect performance of the firm on Ghana stock Exchange? *Investment Management and Financial Innovations*, vol. 4, iss. 2, pp. 104–112.
- Ashbaugh H., Olsson P. (2002) An exploratory study of the valuation properties of cross listed firm's IAS and US GAAP earnings and book values. *Accounting Review*, vol. 77, iss. 1, pp. 107–126.
- Asquith P., Mullins D. (1983) The impact of initiating dividend payments on shareholders' wealth. *Journal of Business*, vol. 56, iss. 1, pp. 77–96.
- Arnold G. (2000) Tracing the development of value-based management. In: *Value-Based Management: Context and application*. G. Arnold, M. Davies (Eds). Wiley & Sons, pp. 7–36.
- Benartzi S., Michaely R., Thaler R. (1997) Do changes in dividends signal the future or the past? *Journal of Finance*, vol. 52, pp. 1007–1043.
- Booth L., Zhou J. (2017) Dividend policy: A selective review of results from around the world. *Global Finance Journal*, vol. 34, pp. 1–15.
- Brealey R., Myers S., Allen F. (2011) *Principles of Corporate Finance*. 10<sup>th</sup> ed. McGraw Hill, Irwin. 969 p.
- Copeland T., Koller T., Murrin J. (1995) *Valuation: measuring and managing the value of companies*. New York, John Wiley & Sons. 576 p.
- DeAngelo H., DeAngelo L. (1990) Dividend policy and financial distress: An empirical investigation of troubled NYSE firms. *Journal of Finance*, vol. 45, iss. 5, pp. 1415–1431.
- De Cesari A., Huang-Meier W. (2015). Dividend changes and stock price informativeness. *Journal of Corporate Finance*, vol. 35, pp. 1–17.
- Donaldson G. (1963) Financial goals: Management versus stockholders. *Harvard Business Review*, vol. 41, no. 3, pp. 116–129.
- Fama E., Blasiak H. (1968) Dividend Policy: An Empirical Analysis. *Journal of the American Statistical Association*, vol. 63, iss. 324, pp. 1132–1161.
- Frankel R., Lee C. (1998) Accounting valuation, market expectation, and cross sectional stock returns. *Journal of Accounting and Economics*, vol. 25, iss. 3, pp. 283–319.
- Graham B., Dodd D. (1951) *Security Analysis: Principles and Techniques*. 3<sup>rd</sup> ed. New York, McGraw-Hill Book Company. 432 p.
- Graham J., Kumar A. (2006) Do Dividend Clienteles Exist? Evidence on Dividend Preferences of Retail Investors. *Journal of Finance*, vol. 61, iss. 3, pp. 1305–1336.

- Hauser R., Thornton J. (2017) Dividend policy and corporate valuation, *Managerial Finance*, vol. 43, iss. 6, pp. 663–678.
- He W., Ng L., Zaiats N., Zhang B. (2017). Dividend policy and earnings management across countries. *Journal of Corporate Finance*, vol. 42, February, pp. 267–286.
- Jacob M., Jacob M. (2013). Taxation, dividends, and share repurchases: Taking evidence global. *Journal of Financial and Quantitative Analysis*, vol. 48, no. 4, pp. 1241–1269.
- Joliet R., Muller A. (2015) Dividends and foreign performance signaling. *Multinational Finance Journal*, vol. 19, no. 2, pp. 77–107.
- Knight J. (1998) *Value-Based Management: Developing a systematic approach to creating shareholder value*. New York, McGraw-Hill. 307 p.
- Kovalev V.V., Kovalev Vit.V. (2019) *Korporativnye finansy*. 2<sup>nd</sup> ed. Moscow, Prospekt Publ. 640 p. (In Russian)
- Lintner J. (1956) Distribution of Incomes of Corporations among Dividends, Retained Earnings, and Taxes. *American Economic Review*, vol. 46, no. 2, pp. 97–113.
- Litzenberger R., Ramaswamy K. (1982) The Effects of Dividends on Common Stock Prices: Tax Effects or Information Effects. *Journal of Finance*, vol. 37, no. 2, pp. 429–443.
- Miller M., Modigliani F. (1961) Dividend Policy, Growth and the Valuation of Shares. *Journal of Business*, vol. 34, no. 4, pp. 411–433.
- Morck R., Young B., Yu W. (2000) The information content of stock markets: Why do emerging markets have synchronous stock price movements. *Journal of Financial Economics*, vol. 58, iss. 1, pp. 215–260.
- Nissim, D., Ziv, A. (2001) Dividend Changes and Future Profitability. *Journal of Finance*, vol. 56, iss. 6, pp. 2111–2133.
- Penman S. (2010) *Financial statement analysis and security valuation*. 4<sup>th</sup> ed. New York, McGraw-Hill, Irwin. 786 p.
- Penman S., Sougiannis T. (1998) Comparison of dividend cash flow and earnings approaches to equity valuation. *Contemporary accounting research*, vol. 15, iss. 3, pp. 343–383.
- Rappaport A. (1986) *Creating shareholder value: The new standard for business performance*. New York, Free Press. 270 p.
- Stewart B. (1991) *The quest for value: A guide for senior managers*. New York, Harper Business. 781 p.
- Volkov D. (2001) Models for evaluating the fundamental cost of equity of companies: compatibility problems. *St Petersburg University Journal of Management Studies*, no. 3 (24), pp. 1–35. (In Russian).
- Yegon C., Cheruiyot J., Sang J. (2014) Effects of Dividend Policy on Firm's Financial Performance: Econometric Analysis of Listed Manufacturing Firms in Kenya. *Research Journal of Finance and Accounting*, vol. 5, iss. 12, pp. 136–144.

Received: 29.08.2019

Accepted: 11.11.2019

#### Authors' information:

Vitaly V. Kovalev — Dr. Sci. in Economics, Professor; v.v.kovalev@spbu.ru

Ilya S. Drachevsky — idrachevskiy@gmail.com

### **Дивидендная политика как фактор управления стоимостью компании: сравнение тенденций на формирующихся рынках**

Вит. В. Ковалев<sup>1</sup>, И. С. Драчевский<sup>2</sup>

<sup>1</sup> Санкт-Петербургский государственный университет,  
Российская Федерация, 199034, Санкт-Петербург, Университетская наб., 7–9

<sup>2</sup> ООО «Газпромнефть-Центр»,  
Российская Федерация, 191014, Санкт-Петербург, Виленский пер., 14

**Для цитирования:** Ковалев Вит. В., Драчевский И. С. (2020) Дивидендная политика как фактор управления стоимостью компании: сравнение тенденций на формирующихся рынках. *Вестник Санкт-Петербургского университета. Экономика*. Т. 36. Вып. 1. С. 95–116.

<https://doi.org/10.21638/spbu05.2020.105>

Фондовые рынки, являющиеся своеобразным катализатором уровня развития и динамики национальных и региональных экономик, привлекают внимание исследователей и практиков, в особенности в странах с формирующимися рынками. Процесс постепенной трансформации формирующегося рынка до уровня, соответствующего по базовым параметрам развитому, по определению не может быть стандартизованным и однородным в региональном аспекте. Предметом настоящей статьи является формулировка и проверка гипотез о степени влияния различных вариантов дивидендной политики на стоимость компаний нефтегазового сектора на формирующихся рынках. В частности, речь идет о сопоставлении двух оценок: (а) фактической стоимости (ценности) компании по данным рынка и (б) теоретической (фундаментальной) стоимости компании, исчисленной на основе прогнозных данных о систематических дивидендных выплатах с помощью метода имитационного моделирования (метод Монте-Карло). Выявление статистически значимых взаимосвязей между этими оценками позволяет выстроить реальный механизм управления стоимостью компании в контексте модели ценностно ориентированного менеджмента. Обоснованная авторами логика и методика моделирования и оценки фундаментальной стоимости компании апробирована на фактических данных публичной отчетности крупнейших листинговых компаний нефтегазового сектора ряда формирующихся рынков различных регионов мира. Выбор сектора был обусловлен особенностями развития данных компаний, в частности существованием и определенной преемственностью дивидендной политики. На развитых рынках моделирование стоимости бизнеса во взаимосвязи с дивидендными выплатами изучалось начиная с середины 70-х гг. XX в. Специфика формирующихся рынков (в том числе и российского) такова, что фактически только в последние годы появилась возможность проводить исследования, направленные на выявление особенностей дивидендной политики представленных на этих рынках компаний. До недавнего времени относительно небольшая история дивидендных выплат не позволяла строить более или менее обоснованные гипотезы о тенденциях и особенностях. Кроме того, полученные результаты во многом были незначимыми с позиции статистических методов (крайне небольшое количество данных). Вести речь о некоей преемственности дивидендной политики в условиях довольно стохастического порядка начисления дивидендов на ранней стадии публичного бизнеса на формирующихся рынках не приходилось. Ситуация стала меняться в последние годы. Авторами настоящей статьи обосновывается предположение о том, что существование преемственной дивидендной политики является неременным условием перехода формирующегося фондового рынка в категорию развитых.

*Ключевые слова:* формирующиеся рынки, стоимость компании, фундаментальная стоимость, собственный капитал, рыночная капитализация, CAPM, дивидендная политика, VBM, ROE, метод Монте-Карло.

Статья поступила в редакцию 29.08.2019

Статья рекомендована в печать 11.11.2019

Контактная информация:

*Ковалев Виталий Валерьевич* — д-р экон. наук, проф.; v.v.kovalev@spbu.ru  
*Драчевский Илья Сергеевич* — idrachevskiy@gmail.com