

DIVIDEND PUZZLE ON BULGARIAN STOCK EXCHANGE – OPPORTUNITY FOR AN ABNORMAL RISK-ADJUSTED RETURNS

1. Introduction

The dividend policy is one of the most contentious and controversial areas of corporate finances.² In parallel with the creation of fundamental theoretical framework on the problem in the 60s of the last century with the researches of Gordon (1959), Lintner (1956, 1962), Miller и Modigliani (1961) the debate "why the companies pay cash dividends and why investors have strong preferences to them" also started. Black (1976) analysed the situation and defined it as "dividend puzzle" because he failed to find convincing and rational arguments for deviations in theoretical assumptions. His conclusion remains valid to a large extent today: "The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don't fit together" [1976, p.5].

The essence of the puzzle is related to the fact that in conditions of perfect markets capital gain and dividend should be considered as perfect substitutes for each other. The reason of this is that after the distribution of dividends the price of a share should be reduced by the amount of the dividend. Thus, investors should be indifferent to the dividend policy. When investors need money they can create dividends or so called "homemade cash dividend" by selling part of the shares held. On this basis, it is surprising the strict dividend policy followed by most companies (Brav et al., 2005), and the attachment of investors to cash dividends (Loomis, 1968), provided that the dividend policy neither creates nor destroys shareholders' wealth.

The dividend puzzle is complicated additionally if taxes and transaction costs are added to the analysis. In many countries, including the Republic of Bulgaria, dividend yields are taxed more heavily than capital gains. Also, taxes on realised capital gains are due only when the whole or part of the position is closed. In this situation, the investors may prefer companies which do not distribute their gains or have low dividend yield. This should encourage companies, which cannot invest in projects with more than required yield from shareholders, to buy their own shares instead of paying dividends. However, transaction costs on the implementation of the sale/purchase of shares on the stock ex-

change should be taken into account. In general, they are significantly lower than the difference in the taxation of investors and they are a cheaper option for companies compared to expenses related to the dividend payment. It should not be neglected the fact that in the need of capital, repurchased shares may be sold on the market. Such a procedure is associated with significantly lower costs of issuing new securities (shares or debt).

This article focuses on the impact of the dividend puzzle on the yield of shares and possibilities for realising of abnormal returns (high-dividend-yield). Among the first authors who study the importance of dividend yield and share yield are Rosenberg and Marathe (1979), and Litzenberger and Ramaswamy (1979, 1982). The results of their studies have shown that high-dividend-yield stocks realise higher return than low-dividend-yield stocks. Later Fama and French (1988) and Hodrick, (1992) have found that dividend yield is a good predictor of subsequent return. On this basis, it is not surprising the investment interest in strategies based on selection of shares which have a high dividend yield.

2. Approaches for explanation of dividend puzzle and the performance of dividend yield strategies

In more general terms, the availability of dividend puzzle and the impact of dividend yield on the yield of shares should be classified as a breach of market efficiency hypothesis (Fama, 1970). This anomaly may be related to other empirically established regularities such as value (P/E, P/B ratio) effect (Basu, 1977; Fama and French, 1992), small firm effect (Banz, 1981) and market overreaction (De Bondt and Thaler, 1985; Jegadeesh and Titman 1993). The combination of high dividend yield, high P/E (P/B) ratio, lower risk than 'the market' and higher earnings sustainability, suggests good results from implication of dividend yield strategies (Clemens, 2012). However, it also suggests the need of parallel (or at least indirect) linking of those anomalies in terms of theoretical interpretation of dividend puzzle.

The leading rational approaches for the explanation of dividend puzzle are related to agency costs of firm's holding excess cash (Borges, 2009) and informational considerations (Bhattacharya, 1979 and Hakansson, 1982).

As a whole, the agency costs reflect conflicts of interest between managers and shareholders in firms, arising from the division between ownership and control of most public companies. Managers are appointed in firms in order to protect the interests of shareholders.

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² For more details on the issue of dividend policy see. Adamov, V. Firm Finances. Abagar, 2006, p. 363-388. Interrelationship between dividend policy and capital structure of a firm in Bulgarian condition is studied in Adamov, V., Zahariev, A. Corporate Capital Management, Abagar Publishing, 2012.

ers, but in practice these managers are hard to be controlled (especially by minority shareholders) due to the lack of complete information about what is happening in the company. As for the dividend policy, the main problem is related to management of cash reserves. If companies accumulate large cash reserves, it is possible for managers to take (consciously or unconsciously) actions which are not of shareholders' interest. The most obvious problem is connected with maintaining of high levels of cash and cash equivalents which generally have a much lower yield than the cost of capital of the firm. Unfortunately, in the search for a solution to this problem, managers often tend to take quite expensive for shareholders ventures such as buying luxury goods, supporting inefficient units (subsidiaries), investment in projects with negative NPV or currently observed takeovers of companies which consequently are overstated. In this regard, it is logical that investors want companies to pay cash dividends up to the amount of capital which is not used for initiatives that increase shareholders' wealth.

The second rational approach is focused on the importance of dividend announcement as a signal for future development of the company. The increase in dividends should be related to improved prospects for future gains but it can also mean a lack of investment opportunities for the company. Maintaining regular dividends should mean that the company is under control, while in taking a decision for dividend reduction it is expected a decline in future cash flows. In fact, there is a lack of consensus among researches about the signals of changes in dividends and convincing evidences of long-term relationship between them and the levels of future yields. But it is also a fact that the announcements of changes in the amount of dividends reflect on share prices in the proportional relationship (Aharony and Swary, 1980).

These approaches are unable to give an explanation for the so called "clientele effect" and they fail to explain why investors are willing to pay a premium for companies with higher dividend yield. Also these approaches do not affect the essence of the other associated anomalies. In this connection, the approaches dealing with dividend puzzle and falling within the scope of behavioural finance¹ are of interest for the study. These approaches were developed by Shefrin and Statman in 1984 and took into account the influence of the two theories of choice behaviour – the theory of self-control и prospect theory.

¹ Behavioural finance integrates knowledge about the specifics of human behaviour (psychology and sociology) in financial matters and models in order to explain the investors' actual behaviour and capital markets. For more details see. Pavlov, Ts. Critical Analysis of the Development of Behavioural Finance. Annual Almanac. Scientific Researches of Ph.D. Students in D. A. Tsenov Academy of Economics – Svishtov. №8 Tsenov Publishing House, 2014, p. 427-443.

The leading motive in both theories of choice behaviour is that investors do not regard capital gains and dividends as perfect substitutes for each other. According to the theory of self-control (Thaler and Shefrin, 1981, 1983) the deviations from the investors' rational behaviour are due to their inability to delay gratification because of a lack of self-control. The reflection of this dependence is observed in various spheres of life from the inability to stop unhealthy habits to simultaneously maintenance of children's deposits and taking consumer credits at negative interest spread. Particular to the analysed problem, investors prefer dividends because dividends provide a balance between the current and future consumption without the necessity of self-control to maintain this balance. If it is necessary to sell shares for current consumption (homemade cash dividend), willingness and self-control will be needed in order to not normally be consumed investment portfolio, thereby to distort investment objectives.

The application of the prospect theory (Kahneman and Tversky, 1979) to the analysis of dividend puzzle significantly contributes to clarify its essence. The theory examines the regularities in the investors' behaviour when making decisions in an uncertain environment. These regularities have an impact on the discussed problem in the following directions:

1) investors evaluate the usefulness in terms of potential gains and losses, making the dividend very attractive and yielding high prospect utility due to their distribution;

2) losses are assessed much more heavier than gains which is consistent with the empirical data showing that reductions in dividends have a greater impact on market assessments than their increase;

3) investors assess gains and losses from a given reference point, which changes over time, together with changes in dividends.

Thus in simultaneously payment of extraordinary and regular dividend, in the next period at the return to the value of regular dividend, investors regard this dividend as a loss. According to the prospect theory there is an additional difference between dividends and capital gains related to the need in the homemade cash dividend investors to take independent financial decisions for which results they feel personally responsibility. For example, if an investor sold shares to buy a commodity and then the share price increased highly, the investor would feel regret for the decision. But if in the same situation the company paid a cash dividend (with the same value), the representative investor would not feel such discomfort.

By modelling the specific characteristics of human behaviour and especially by the prospect theory, most market anomalies (Barberis et al., 1998) and puzzles (Barberis et al., 2001) are resolved. These anomalies and puzzles together with those examined here mean that the reason for their existence is mostly psychological. On this basis it is not surprising the con-

stancy in results of dividend yield strategies and hence their popularity in practice.

3. Research methodology

Testing of the Bulgarian capital market for the presence of dividend puzzle will be done by examining the possibility of realisation of excess yield based on dividend yield strategies. To achieve this goal, active and passive portfolio strategies will be used.

The active strategy is realised in three steps:

(1) based on the last price on the year and allocated annual dividend of shares listed on BSE-Sofia, ten companies with the highest dividend yield are selected;

(2) an investment portfolio with equal weights (an equal amount is invested in each share) is drawn up with these ten issues;

(3) the procedure is repeated at the beginning of each year.

As for the other strategy there is no rebalancing and the portfolio is composed at the beginning of the sample of companies which regularly pay dividends during the period of the study¹. Again, the assets included in the portfolio are with equal weights.

The yield of both portfolios is calculated on an annual basis by equation (1):

$$R_{pt} = \sum_{i=1}^N \frac{P_{it} - P_{it-1} + D_{it} + I_{it} + S_{it}}{P_{it-1}}, \quad (1)$$

where

R_p is the return on the portfolio at year t ; P_{it} – closing price of share i at year t ; P_{it-1} – closing price of share i at year $t-1$; D_{it} – distributed dividend of the security i at year t ; I_{it} – realised interest rate of reinvestment of dividends received (because investors can reinvest at different percentages, I_{it} is set to zero); S_{it} – the value of shares received from the increase of capital with reserves (stock split).

Establishing whether any realised higher return from dividend portfolios is not due to the rational compensation for risk is a critical moment in the study. In this respect it is necessary to derive risk-adjusted returns. This will be done through the widely used model of Jensen (1968), in which risk-adjusted abnormal returns are available when $a > 0$:

$$R_{pt} - R_f = a + \beta_p (R_{mt} - R_f) + \varepsilon_{pt}, \quad (2)$$

where:

R_p is the annual yield of the researched portfolio; R_f – the risk-free rate; a – the abnormal risk-adjusted return; β_p – the estimated systematic risk of the portfolio; R_{mt} – annual market return; random deviation at time t .

4. Data Sources

For the realisation of the research, the market return must be put. The index SOFIX is seen as the personification of the market among the Bulgarian investment community. The index's calculation started at 2000 which determined the temporal sampling interval from 2000 to 2014. The values of SOFIX and the prices of the individual shares are extracted from the investor.bg and money.bg database (at split of the shares from an issue). The information about distributed dividends is received from money.bg and bse-sofia.bg.

The value of distributed dividends to SOFIX are derived on the basis of the structure of the index over the years and weighing the distributed dividends, according to the methodology for calculating the index – according to the free-float of the individual issues and the corresponding weight factor. Then the resulted values are converted into points for comparability in the calculation of market returns.

For risk-free yield (R_f) it is used a cumulative annual return of the Bulgarian quarterly government securities. The data source is minfin.bg.

In the selection of emissions, the preferred shares and companies that have paid less than two dividends during the period of the study are excluded.

Shares corresponding to the established criteria for inclusion in the passive portfolio are ten: 6AB (BSE code), 5ALB, 4F6, 5SR, 5MH, 57B, 52E, 55B (up to 2012 incl.), 4HE, 5MA.

5. Empirical Results

The obtained results are summarized in Table 1. The active and passive investment strategies, based on dividend yield, have been proven as extremely successful in the Bulgarian capital market. The regression equations and their parameters (α и β) are statistically significant at confidence interval of 95%. Positive values of α in both portfolios indicate the possibility of realisation of an impressive abnormal risk-adjusted return which exceeds 30%.

The portfolios have low systematic risk compared to SOFIX although they include a smaller number of companies, i.e. they have a weaker diversification. An important feature of portfolios is that they have fewer years with a negative yield, and also have twice higher ratio return / risk than SOFIX.

The difference between the average geometric annual yield of active and passive portfolios is only 3.59%. Such a premium cannot be regarded as com-

¹ Due to the specifics of the Bulgarian capital market, under regular payments of dividend it must be considered of the total excerpt (14 years), in maximum two inconsecutive years there can be gaps in the distribution of dividends.

pensation for the management of such an actively managed portfolio because this premium is commensurate with the potential transaction costs and bid-ask spreads. Of course, at a passive management there is a higher risk of ownership of companies in financial distress. Therefore it is necessary for two consecutive years of undistributed dividends, the position to be removed from the portfolio and possibly to be replaced by another.

Table 1

Risk and return characteristics of the active and passive dividend portfolio for the period 2001- 2014

Year \ Portfolio	SOFIX	Active portfolio	Passive portfolio
2001	14.06%	41.8%	25.4%
2002	69.12%	47.8%	56.9%
2003	154.16%	76.2%	86.9%
2004	39.39%	215.2%	164.0%
2005	33.87%	71.7%	72.4%
2006	50.15%	70.6%	77.0%
2007	45.72%	153.5%	167.3%
2008	-79.35%	-67.9%	-72.4%
2009	19.39%	39.4%	28.5%
2010	-14.35%	28.7%	44.5%
2011	-9.68%	6.6%	2.3%
2012	12.53%	31.4%	15.0%
2013	49.02%	38.9%	35.1%
2014	9.66%	26.1%	31.8%
Geometric return	14.93%	40.93%	37.34%
Annualized volatility	51.59%	65.98%	61.67%
Return / Risk	28.95%	62.03%	60.55%
Jensen's Alpha	--	35.78%	31.17%
Beta	1	0.68	0.73

6. Conclusion

Based on the analysis and the empirical results displayed, the conclusions are:

First: There is a dividend puzzle on the Bulgarian capital market and the dividend yield of the shares has a strong influence on their return.

Second: Through the use of basic and easy to apply in investment practice dividend yield strategies it can be realised high risk-adjusted excess returns on a consistent basis on the Bulgarian Stock Exchange – Sofia. For the individual investors, the application of passive investment is preferred, given the low transaction costs and the lack of efforts to maintain the portfolio.

Third: Currently, the specifics of human behaviour are the most plausible explanation for the availa-

bility of dividend puzzle and consistency of the results from the application of dividend yield strategies.

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Павлов Ц.Л. Головоломка дивіденду на Болгарській Фондовій Біржі – можливість для аномальних ризиків та скорегованих повернень.

Стаття досліджує розрив між теоретичними формулюваннями просування політики оптимізації дивіденду і емпіричними даними компаній і поведінкою інвестора, відомий в академічній літературі як "головаломка дивіденду". Досліджено існування цього явища і його вплив на загальні ціни. Мета вивчення – встановити чи є можливим пристосува-

ти високоприбутковість для усвідомлення розрахунку дивіденду. Емпіричні результати показують, що прибуток на активно або пасивно управляємий портфель високодохідних акцій покращує головний індекс Болгарської фондової біржі.

Ключові слова: головоломка дивіденду, політика дивіденду, вкладення дивіденду, ринкова ефективність, теорія перспективи, ринки капіталу.

Павлов Ц.Л. Головоломка дивиденда на Болгарской Фондовой Бирже – возможность для аномальных рисков и скорректированных возвратов.

Статья исследует разрыв между теоретическими формулировками политики оптимизации дивиденда и эмпирическими данными компаний и поведением инвестора, известный в академической литературе как "головаломка дивиденда". Исследовано существование этого явления и его влияние на общие цены. Цель изучения – установить возможность приспособления высокоприбыльности для понимания расчета дивиденда. Эмпирические результаты показывают, что прибыль на активно либо пасивно управляемый портфель высокодоходных акций улучшает главный индекс Болгарской фондовой биржи.

Ключевые слова: головоломка дивиденда, политика дивиденда, вложение дивиденда, рыночная эффективность, теория перспективы, рынки капитала.

Pavlov. Ts. L. Dividend Puzzle ON Bulgarian Stock Exchange – Opportunity for an Abnormal Risk-adjusted Returns

The present paper examines the gap between the leading theoretical formulations about the optimal dividend policy and empirical data on the companies and investor's behaviour known in the academic literature as "dividend puzzle". The existence of this phenomenon and its impact on share prices are explored. The aim of the study is to establish whether it is possible risk-adapted high-yield to be realized through dividend investing. Empirical results show that the yield on the actively or passively managed portfolio of high-dividend-yield shares outperforms the main index of Bulgarian Stock Exchange –Sofia.

Keywords: dividend puzzle, dividend policy, dividend investing, market efficiency, prospect theory, capital markets

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