Stock price reaction to dividend surprises: evidence from the Russian market

Alexey Philippov, Oleg Shibanov*

October 2, 2019

Abstract

The question on how the stock price reacts to the dividend announcement has been widely studied across different countries. Evidence from the Russian market is scarce while existing studies claim counterintuitive negative reaction of stock price to the positive dividend surprise. We show that one have to be accurate with both methodology and data source while studying that question. First, the simple rank or t-tests for event studies do not account for the panel structure that seem to be important. Second, the dividend surprises may be measured inaccurately. We present evidence that results depend on the data source used, Bloomberg or I/B/E/S Thomson Reuters, where the latter may be less reliable for some of the series. We use panel data methods with Bloomberg data and show that the results for the Russian market is standard positive association of the stock price reaction to the dividend surprise.

1 Introduction

Distribution of the free cash flows of a company is one of the most important strategic decisions for the corporate management. What if instead of reinvesting the profit into developing business further, the company decides to pay the free cash in dividends? How the stock price tends to react? This paper is focused on the stock price reaction to dividend announcements. This question has been studied since 1956 and is well researched for the US stock market. Other less developed markets are not so well investigated.

Concerning dividend policy analysis, there are two broad approaches (Weigand & Baker, 2009). The first group of researches use econometric and statistical instruments to test hypothesis about the consequences of dividend policy. The second approach is largely based

*Corresponding author: oshibanov@nes.ru. Oleg Shibanov is at the New Economic School and SKOLKOVO. Alexey Philippov is a graduate of the New Economic School. We thank Olga Kuzmina, Casten Sprenger, participants of seminar series at the New Economic School and three anonymous referees for their comments and suggestions. All remaining errors are ours.

on survey methodology and more helpful in identifying the motives of dividends payment. Although this paper is certainly adheres to the first group, an understanding of the reasons why companies pay dividends is important, once we want to explain the econometric results. In this manner, Chiang, Frankfurter, Kosedag, and Wood (2006) point out that while econometric models do explain reality to a certain degree, "the most intriguing subject of finance: why do shareholders love dividends" can be investigated only via survey methodology. In the Appendix 2, we review the existing research on motives for paying dividends.

Main contribution of this paper is a novel view on the results that were found for the Russian market by Rogova and Berdnikova (2014), Teplova (2008) and Berezinets, Bulatova, Ilina, and Smirnov (2015). To the best of our knowledge, these are the only papers that study how the dividends affect the stock price in the Russian market. All three papers agree on the rather counterintuitive empirical result that positive dividend surprises are negatively related to the stock price reaction. Using more advanced and precise methods we revert this conclusion and find that positive dividend surprises are positively associated with cumulative abnormal returns when the dividends are announced. We follow three steps to improve on methodology: first, we use more precise definition of the dividend surprises (analyst forecasts rather than past dividends); second, we analyze the sample in a panel data setup (rather than t-stats); third, we demonstrate that our results are robust to different specifications on Bloomberg data, yet do not hold for I/B/E/S Thomson Reuters data that may be less reliable for analyst forecasts.

Neither of the three works discuss why they choose exactly that definition of surprises, forecast characteristics, and event study parameters. We perform several robustness checks to see whether the results are dependent on these parameters and found that the results are rather stable across different specifications.

So on average, there is a positive relationship between dividend surprise and stock price. We go further and investigate this effect controlling for the number of analysts who cover companies. In particular, we find that the reaction is way stronger for the companies that are not well-covered by financial analysts. In contrast, the companies that are better monitored by analysts do not experience significant reaction of stock price on dividend surprise.

We explain this as follows. For well-covered companies the dividend surprise does not reveal much of information to the market, as such companies are already closely monitored and scrutinized. That is all else being equal, with no information asymmetry M. H. Miller and Modigliani (1961) proposition holds and firm's decision about dividend payments does not affect its value. However, for worse-covered companies, about which market knows less, dividend might signal the market about future firm's perspectives.

It also turns out, if the company pays dividends several time per year then the reaction of stock price on dividend surprise is smaller. It goes in line with signalling theory because in that cases there is less information revealed to the market on the day of final dividend announcement. All in all, such conclusions indirectly also support the signaling theory of why the companies pay dividends.

The rest of the paper is organized as follows. Section 2 contains the literature review on the most related papers. Section 3 presents the empirical methodology. Section 4 describes data, and section 5 discusses the results. Section 6 presents robustness checks, and section 7 concludes.

2 Literature review

The apparently simple and practical question of how much of the company's profit should be paid out in dividends is of paramount importance for company management. However, even to date there is still no universal and unambiguous answer to this issue, despite the proliferating research on the topic of dividend payments.

In this section we shortly review the papers that are most relevant to our research. For the longer list of papers on dividends please see Appendix 2.

2.1 Motives for paying dividends

To date there exist numerous hypotheses on why the companies pay dividends. Among the most up-to-date investigations, a comprehensive overview of different motives contain, for example, papers of Weigand and Baker (2009) or Dewasiri and Weerakoon Banda (2016). Here we mention the signalling theory as it seems to be supported by our data.

2.1.1 Signaling theory

The signaling theory stems from the microeconomic works of Akerlof (1970) and Spence (1973). Its application to financial theory was developed by S. Bhattacharya (1979) who presented theoretical model with information imperfection resulting in signaling power of dividends, and M. H. Miller and Rock (1985), who highlighted the importance of evident information asymmetry between public investors and management. The idea of dividend signaling theory is that managers of the firm are naturally more informed than outside investors are and may decide to signal the market revealing their perception of future company's performance. Thus, under imperfect information dividend signaling hypothesis implies that in case of dividends cut, the stock price is likely to fall as the market will interpret it as a negative signal, and vice versa, dividends increase will result in stock price rise.

Empirically, there is mixed evidence on dividend signaling hypothesis (Dewasiri & Weerakoon Banda, 2016). H. DeAngelo, DeAngelo, and Skinner (1996), after analyzing NYSE firms, concluded that there is no connection between dividends and future earnings. The dividend-signaling hypothesis, they argued, does not hold because of managers' "behavioural bias", who estimate earnings prospects excessively optimistically in case of growth decline. This explanation overlaps with behavioral argument of Jensen (1993), which will be discussed later. Moreover, H. DeAngelo et al. (1996) also suggest that managers tend to make small cash commitments when they send signals and hence undermine the reliability of such signals. Among recent findings, Lu, Xi, and Lu (2014), and Chowdhury, Maung, and Zhang (2014) also do not support the signaling power of dividends after the analysis of Chinese firms. Nevertheless, there are researches that do support the signaling hypothesis, both through theoretical (Fairchild, 2010) and empirical works Patraa, Poshakwale, and Ow-Yong (2012) (analysis of Greece), Subba (2015) (analysis of Australia) and H. K. Baker and Kapoor (2015) (evidence from India). In these papers stock prices are shown to positively react to the unexpected increase in dividends.

All in all, many recent studies tend to agree on that dividends reveal no significantly new information to the market. Rather, the information contained in dividend signals just corroborates that current earnings changes are robust(Weigand & Baker, 2009). So most of the evidence shows no stock market reaction to the changes in dividends as everything is already contained in the earnings announcements. However, dividend signaling is plausible in relation to the unexpected or irregular changes, rather than annual issuance (H. K. Baker, Singleton, & Veit, 2011).

2.1.2 Evidence of the impact of dividend surprises on stock prices: Russia and Mexico

There are three papers on Russian stock market, and also an important paper on the Mexican stock market. Starting from the latter, U. Bhattacharya, Daouk, Jorgenson, and Kehr (1990) shows that in the Mexico there is no reaction of stock prices to news, neither on dividends nor on earnings. This seems to be a contradiction to the research on other markets, however the authors show that the outcome is probably the result of insider trading in the Mexican stock market. If the traders are able to use internal information they tend to trade even before the announcement of the news about the company.

Regarding the Russian stock market, the only three papers we know about study the same question of the relationship between dividend surprises and stock market reaction.

The first paper was the work by Teplova (2008). In contrast to the above described argument by Dhillon, Raman, and Ramirez (2003), the author defines dividend surprise using the naive method, i.e. as the simple change in dividends and classifies the sample into "good" and "bad" dividend announcements. Contrary to many empirical findings for other emerging markets it is found that on the Russian stock market increase in the dividend surprise negatively affects the stock price. The author explains this result as the evidence that the company does not have good investment opportunities and thus returns free cash to the shareholders. We discuss this in more details in the next chapter,

More recent research on the similar topic is the paper by Rogova and Berdnikova (2014). Basically, authors replicate the event study methodology used in Teplova (2008): they also use the naive dividend change measure for the dividend surprise, simply divide sample into "good" and "bad" news, and get similar conclusions about negative stock price reaction on the positive dividend surprise.

Finally, there is also a paper that estimates the same effect for Russian market using a better measure of dividend surprise. Berezinets et al. (2015) applies simple t-test using the standard event study methodology, but account for analysts forecasts taken from the

I/B/E/S Thomson Reuters database. In line with previous studies of the Russian stock market, Berezinets et al. (2015) find that stock price is negatively associated with increase in dividend surprise. Nevertheless, the problem arises with the I/B/E/S database. According to the Thomson Reuters representative we contacted, the company acknowledges that the way the dividend forecasts are converted into the national currency is imprecise. Namely, the exchange rate is not taken for a given day of the dividend announcement, and may rather be the average exchange rate over some time period. This may introduce additional error that is different from the ones mentioned in Payne and Thomas (2003) and Ljungqvist, Malloy, and Marston (2010).

In the next section we discuss the empirical strategy we employ.

3 Empirical strategy

3.1 Method of estimation

Most of the papers that study the impact of dividend announcement on the stock price use event study methodology.

First, one has to specify the event, the impact of which is under consideration. In our case we specify the event as the day of annual dividend announcement, so the day when a firm tells to the market the amount of dividends to be paid. It is the day that might potentially reveal new information about the company's business to the market.

Second, for this event day, marked $t = 0$, the abnormal return AR_0 is calculated. Abnormal return is the difference between actual and expected daily returns. Expected return is estimated based on the index model assumption. Most papers use the market model, according to which:

$$AR_t = R_t - \mathbb{E}R_t, \tag{1}$$

$$\mathbb{E}R_t = \hat{\alpha} + \hat{\beta} r_t^m, \tag{2}$$

where r_t^m is the market return at day t, and coefficients $\hat{\alpha}$, $\hat{\beta}$ are estimated using ordinary least squares (OLS). Following Amin, Dutta, Saadi, and Vora (2015) the estimation of the parameters of market model is based on the period $(t - 120)$ to $(t - 31)$ trading days. The thirty days' interval is excluded because some insider information might potentially leak to the market and distort the returns. We use daily frequency and check that results are robust if monthly data is used.

We use this specific form of the index model instead of CAPM model as the risk-free rate is not easy to define in the Russian market. So we abstract from the discussion on the choice of the risk-free rate and estimate the model without the risk-free rate of the form (2).

In a similar way, abnormal returns for the dates around $t = 0$ are calculated. This is to account for the possible inaccuracies in the data for dates of announcements, slow information dissemination and the possibility of insider information revealing earlier into the market. As a result, the researchers usually calculate the cumulative abnormal return (CAR) by summing up abnormal returns around the date of event. The returns are centered around the event day. We define cumulative abnormal return which comprises T days as:

$$CAR(T) = \sum_{s=-\frac{T-1}{2}}^{\frac{T-1}{2}} AR_s \tag{3}$$

For example, often researchers choose to focus on $CAR(3)$:

$$CAR(3) = AR_{-1} + AR_0 + AR_{+1}$$

The final step of the standard event study methodology is to test the hypothesis

$$H_0 : CAR(T) \quad are \quad sampled \quad from \quad a \quad distribution \quad with \quad zero \quad mean.$$

The starting point to test this hypothesis is to calculate simple t-statistic. Consequently, scholars have developed improvements of this test making it more robust to event induced volatility bias or cross-sectional correlation of abnormal returns (Boehemer, Musumeci, & Poulsen, 1991) and (Patell, 1976). Moreover, the non-parametric tests were also proposed such as the rank test of Corrado (1989).

These approaches, whatever modern test one applies and whatever modern corrections are made, do not utilize the information about the structure of the data sample. In this paper we *combine* event study methodology with the econometric method of panel data estimation. The sample containing “events” is specifically structured: annual panel data of dividend announcements made by many firms. This implies that for more precise estimation one have to use this specific structure to estimate the effect of interest. In other words, simple averaging of such events ignores the fact that each time series of dividends is attributed to the specific company in the specific industry. Although the majority of the papers use various tests for the significance of CARs, researchers mostly ignore panel data estimation methods.

One of the examples that uses panel data technics is Amin et al. (2015). The advantage of applying panel data methods, namely fixed effects estimator, is that it allows to avoid the bias caused by the omitted unobservable characteristics which are assumed to be constant for the given firm. Moreover, one can also include additional covariates into the model specification, omission of which could also bias the estimate of the true coefficient. We will describe the set of additional covariates later. We would like to emphasize the dominance of the fixed effects estimator relative to any test statistic.

3.2 Correct measure of dividend surprise

Probably one of the first papers that applied the event study methodology to assess how dividend surprises affect the stock price was Asquith and Mullins (1983). The crucial particularity of this work was that authors analyzed the sample of firms *initiating* dividend payments. Authors find that the stock price generally positively reacts on the positive dividend surprise. Importantly, authors use the firms that pay the dividends first time. That implies no need to account for the expectations about dividend payments.

Most empirical papers on this question use the same event study methodology, with slight variation in how to determine CARs, estimate the model for expected returns and which statistic to calculate. Also, the majority of papers use the *naive* estimate of the dividend surprise, which assumes that expected dividend the next year is the last year dividend:

$$\text{Expected Dividend}_{naive,t} = \text{Dividend}_{t-1}$$

However, more recent studies start to define the dividend surprise differently (Andres, Bongard, Haesner, & Thiessen, 2011),(Berezinets et al., 2015),(Amin et al., 2015). There are many publicly available information about the dividend forecasts that were made by financial analysts just before the announcement of the dividends. Therefore, it is more natural to base the dividend surprise measurement on the last forecast of analysts:

$$\text{Expected Dividend}_{analysts,t} = \text{Dividend}_{analysts,t}$$

Intuitively, there should be no reaction of stock price to the dividend announcement if the market already anticipated that amount of dividends. This argument assumes certain level of market efficiency, which is probably not a very strong assumption given the wide availability of dividend forecasts to the public investors. However, if the actual dividend significantly deviates from the forecast, the price can react to new information released into the market.

The paper by Dhillon et al. (2003) provides evidence that there is a risk of serious sample misclassification caused by the use of naive dividend change method. Authors highlight the importance to incorporate dividend forecasts into the measurement of dividend surprises. It is worth emphasizing that authors report large differences in sample composition based on two measures of dividend surprises: classification based on naive estimation overlooks many observations that has update of analysts' forecasts but in actual terms does not change. It is particularly important fact in the light of existing evidence for the Russian market.

We once again highlight two points about the existing papers on the Russian market:

1. Both Teplova (2008) and Rogova and Berdnikova (2014) use "naive method" to define dividend surprise;

2. All three papers do not account for the panel structure of the data and classify sample simply based on whether the dividend surprise was "good" or "bad" news.

In what follows we use Bloomberg analysts' forecasts to define dividend surprise as the main source. Yet we also check the results with Thomson Reuters data.

3.3 Model specification

We propose two main improvements to the simple approach to estimate the impact of dividend surprises on the stock price for Russian market.

First, we use fixed effects panel data estimator. This approach allows to control for unobservable firm specific characteristics and also to include additional set of covariates which account for the quality of forecast and time fixed effects. Second, standard errors are calculated more precisely: we will use the information for the industry and estimate robust standard errors clustered at the industry level. Note that there is no need to use two-way clustering here and to also try to cluster standard errors at the firm level. This is due to the nested levels of clustering; clusters should be chosen at the most aggregate level following (Cameron & Miller, 2010).

The estimated panel data model has the following identification assumption. Conditional on the set of covariates X and unobserved time-invariant omitted variables Z, $\mathbb{E}(\varepsilon|X,Z) = 0$. Using additivity of the unobserved variables, we estimate the following model:

$$Y_{it} = \alpha + X_{it}'\beta + \mu_i + \varepsilon_{it}$$

where μ_i represents the firm-specific time-invariant components for each firm i. So in this equation, each observation corresponds to the firm i at year t.

In the setup of this paper, the dependent variable is $CAR(T)$, where T = 3,5,...,11 (CAR window). The variable of interest is dividend surprise and the set of covariates X_{it} includes the characteristics of the firm (respective year earnings surprise, leverage, size, etc.) and the features of the dividends forecast (number of analysts from whom the forecast was derived, the standard deviation of analysts forecasts). The general model specification in this paper is:

$$CAR(T)_{it} = \alpha + \tau \text{Dividend Surprise}_{it} + X_{it}'\beta + \mu_i + \varepsilon_{it}. \tag{4}$$

Here i corresponds to the firm, t corresponts to the year, and T is the window for CAR calculation.

4 Data

The information about dividend announcements, analysts' forecasts and firm characteristics is taken from Bloomberg database. We also collect similar dataset from the Thomson Reuters I/B/E/S database to demonstrate how the results may differ. Our initial sample consists of about 3614 companies. However, only a fraction of these pay dividends, and for some that pay dividends we do not have any data on analyst forecasts. We clean our sample until we get the sample of publicly traded firms with both dividend payments and analyst forecasts.

Our final sample contains 51 companies that paid dividends and covers the longest available period of 2006-2015 (with gaps). The year 2006 is chosen as the starting point as there are no analysts' forecasts available before that period in Bloomberg. In what follows we describe in detail the variables used in the consequent analysis. The companies are in the 1. These companies are mostly large, from different sectors of the economy, and are either included or were included in the MICEX index. This means the companies are not representative of the whole universe of public companies yet are the main part and capitalization of the Russian stock market.

4.1 Variables description

4.1.1 Cumulative abnormal returns (CARs)

In the previous section we briefly described that the dependent variable in this paper is the cumulative abnormal return. The choice of CAR window, T, varies in the literature from 3 days (Andres et al., 2011) to 11 days (Rogova & Berdnikova, 2014). We concentrate on the 3-day estimation window in the main part and check that the results hold for the other CAR windows. Market return is the return on MICEX index and the stock price return is the daily change in price.

4.1.2 Dividend surprise

The event date is the date of dividends announcement provided by Bloomberg (or Thomson Reuters for the second sample). This is the day when the dividends are defined by the board of directors.

There are two most frequently used formulas for dividend surprise. The first is absolute dividend change, which is often normalized by the share price:

$$\text{Dividend surprise} = \frac{\text{Dividend} - \text{Expected Dividend}}{p_{-14}} \tag{5}$$

where p_{-14} is the stock price two weeks before the announcement.

The second approach is the relative change:

$$\text{Dividend surprise} = \frac{\text{Dividend}}{\text{Expected Dividend}} - 1 \tag{6}$$

Naive dividend surprise is simply the change in actual dividend payments.

Both Bloomberg and Thomson Reuters (I/B/E/S) aggregate data on analysts' forecasts. Based on the different forecasts the consensus forecast is derived via calculating mean or median. In practice, median is a better way to calculate aggregate forecast because it is more robust to outliers compared to the mean. We concentrate on median in our analysis.

4.1.3 Earnings surprise

In a similar manner, earnings surprise is calculated for each company and each year. That is there are also analysts forecasts for earnings available. Using them and actual earnings announcements we calculate relative and absolute earnings surprises based on mean and median analysts' forecast of earinings. This variable will serve as a control variable in our regressions.

Earnings are usually announced at a different date than dividends in Russia. However, we still use them assuming that previous announcements of surprises in earnings might have had an impact on the momentum in stock price as in Bernard and Thomas (1990). Most of the time we only observe EPS (earnings per share) forecasts in the December of the calendar year, and final earnings are announced no earlier than April of the next year.

4.1.4 Dealing with companies which pay dividends several times per year

There are Russian companies that pay dividends several times per year. Since we use annual data sample, for such companies we sum up the actual dividend payments during one year. The latest available forecast still represents the annual dividend forecast. The only difference is that actual dividend is partially known when the forecast is issued as the firm has already paid some interim dividends, and this might affect the stock price reaction to the final dividend announcement. To deal with this issue we introduce the dummy variable which is equal to 1 if the actual annual dividend was partially announced during the year, i.e. the company announced the dividends several times per year, and 0 otherwise. Unfortunately, we cannot obtain several forecasts for a given firm when that firm pays dividends.

4.1.5 Firm's characteristics

Following Amin et al. (2015) we use the logarithm of the firm's size (capitalization) just before the announcement, and return on assets of the last year to control for the profitability of the firms. The size of the firm is expected to have negative impact on the CAR: larger firms are better monitored, their stocks tend to be more liquid (and hence dividends may have more impact on price for illiquid stocks), and larger firms usually have longer historic information (Amihud & Li, 2006).

4.1.6 Forecast's characteristics

Forecast's characteristics are also used as additional covariates. In particular, we include the number of analysts used to build the consensus forecast and the standard deviation of their forecasts. The latter is interpreted as follows: if the standard deviation of the forecasts is large, it is close to the situation with no forecast at all as the market cannot easily recover information from these predictions. Market participants may ignore this information and react less to the surprises. As a result the CARs with higher volatility of forecasts are expected to be lower on average.

The number of analysts covering the firm is also a useful indicator of how well the firm is monitored. We define the dummy for the good coverage of the stock which is equal to 1 if the number of analysts that issued the forecast is greater than 4 (median of the sample), and 0 otherwise.

4.2 Summary statistics

Table 2 provides summary statistics for the variables used in the consequent analysis. Relative dividend surprises are bounded within 200% changes. In the robustness section we use data trimming to restrict the sample. For surprises definitions see section 4.1.2. Parenthesis near the CAR(T) variables contains information on whether the weekly or daily data was used for estimation of the market model.

5 Results

5.1 Standard event studies testing

Table 3 presents the standard t-test usually implemented in the event study procedures. The observations were divided into “positive”, “negative” and “neutral” groups based on e.g. Berdnikova and Rogova (2013). “Positive” group contains CARs which correspond to positive dividend surprises above the threshold 5%. Symmetrically, “negative” group has the threshold below -5%. The rest is called “neutral”. Daily and weekly CARs correspond to daily and weekly data used in the estimation of the market model.

Generally, the significance of the results is highly dependent on the event window and the data used to estimate the market model. In fact, the three papers on the impact of the dividend surprises for the Russian market mentioned in section 3.2 usually provide only one event window and one type of expected returns calculation, without checking robustness of the results to other ways of calculation. In our case, if significant, the signs of the CARs are consistent with the broad evidence from other markets that the positive dividend surprise is positively associated with positive stock price reaction and vice versa. The main difference with the existing papers is that we use correct measure of dividend surprise which allows us to change the results of Teplova (2008) and Berdnikova and Rogova (2013).

However, as discussed in the previous section, such simple test does not account for the panel structure of the data and cannot use additional information about the firms’ and forecasts’ characteristics. The next section presents the results from the estimation of the panel data models.

5.2 Panel data estimation: analysts’ characteristics

Table 4 presents the results of the fixed effects estimation of the model (4).

CAR(3) is computed using daily data and the market model, and both dividend and earnings surprises are based on the median consensus forecasts. We present both relative (first three models) and absolute (last three models) dividend surprise measures.

The set of additional controls, X, varies in the columns and includes the following variables. "Good Coverage" is the dummy variable that equals to one if the number of analysts used to draw the consensus forecast is greater than 4, which is the median number of analysts (see table 2). We use it as the interaction with dividend surprise. Following Amin et al. (2015), we include the standard deviation of the forecasts. Earnings surprise in the respective columns is computed as the dividend surprise using relative or absolute changes. Finally, we add the interaction of dividend surprise with the dummy equal to 1 if there were multiple dividend payments during the year (denoted as “many payments”), and 0 otherwise. All specifications include time dummies. Robust standard errors are clustered at the industry level.

We obtain positive association between cumulative abnormal returns on the day of dividend announcement with the dividend surprise. That is, positive dividend surprises on average correspond to the positive stock price reaction (columns 2 and 5), and the result holds both for absolute and relative surprises.

In columns 3-4 and 6-7 we add additional control variables to make our test to make our tests specified for companies with good (many analysts) or bad (few analysts) coverage. Although insignificant in the presented in table 4 specifications, the sign of the interaction term of the good coverage with dividend surprise is less positive than for the companies with worse coverage. Interpretation is that, if the company is better monitored, the CAR reaction to the dividend surprise tends to be lower for such companies as the market does not consider the surprise to reveal much news about the company.

Similar to (Amin et al., 2015), we obtain the result that uncertainty in the forecast of analysts significantly reduces the reaction of stock price to dividend change. Unlike in their paper, we find that dividend surprises are important for the Russian market, and they are more important than earnings surprises. This is a non-trivial statement as dividend surprises were insignificant in the (Amin et al., 2015) paper.

In the columns 4 and 7 we add control for the companies that pay dividends several times per year. This makes the dividends more predictable as we discuss in the section 4.1.4. The reaction of stock price seems to be less pronounced for the companies that pay dividends several times per year. Naturally, the informational asymmetry in this case is lower, so the market should not react that strongly to the unexpected dividends.

5.3 Panel data estimation: adding firm characteristics

The specification presented in the table 4 can be extended: one might try to control for firm specific characteristics. In particular, the size of the firm is expected to have negative impact on the CAR: larger firms are better monitored, their stocks tend to be more liquid, and larger firms usually have longer historic information (Amihud & Li, 2006). Also, one year lag of return on assets (ROA) is included to control for prior profitability and the number of analysts covering the firm (Amin et al., 2015).

The estimation of extended specifications with firm specific covariates is in the table 5. Columns 2 and 4 represent a simpler variant of the model, while columns 3 and 5 contain differential reaction for better covered firms, earning surprises and many dividend payments in the year. We see that the results do not change much with respect to the table 4. We still obtain stronger reaction for the firms that are not so well covered, and that more payments means lower sensitivity to the dividend surprise.

Moreover, the size of the coefficients does not change much. This means the result that CAR and dividend surprise are positively correlated holds and is quite stable to controls of the firm variables.

5.4 Comparing the results to the literature

Here we address the results found in other works which focus on the Russian market. As it was discussed above, we argue that negative relationship between stock price reaction and dividend surprise which were found in the previous researches can be explained by several decisions made by the researchers. First, they tests that do not allow to account for the panel structure of the data and other important characteristics of individual firms. Second, some researchers use inaccurate measure of the dividend surprise, that is, naive estimator in (Rogova & Berdnikova, 2014), (Teplova, 2008). The paper of Berezinets et al. (2015) does use better analysts forecasts, although I/B/E/S database has some probable inaccuracies in data collection. Finally, all aforementioned papers do not provide any robustness checks to other choices of event window or expected returns model estimation.

Table 6 provides additional evidence that naive expectations may be the driving force of these results. It presents the results of the estimation the main specification both with and without firm's characteristics. For comparability to the previous papers we use CAR(11) as the dependent variable where $CAR(11) = AR_{-5} + AR_{-4} + ...AR_0 + ... + AR_5$.

Columns 2 and 3 show the results for the relative surprises while columns 4 and 5 contain information about the reaction to absolute surprises. The estimation reveals that at 10% significance level, relative surprise with respect to the past dividends has negative impact on the stock price, even if we use panel data structure. This is true both for CAR(3) and CAR(11). We do not see any significance for the absolute surprises, and we have positive coefficient in columns 4 and 5.

This weakly significant negative relationship for the relative definition of dividend surprise corresponds to the results at (Rogova & Berdnikova, 2014) and (Teplova, 2008).

Finally, we provide the comparison to the Thomson Reuters I/B/E/S database. Table 7 presents the results of the estimation of the two specifications. Columns 2 and 3 correspond to the relative surprise, and columns 4 and 5 correspond to the absolute surprise. The specifications do not reveal any significance of the variable of interest. We also add forecast and firm specific covariates, which yields the specification with significant and positive relationship between stock price and dividend surprise (measured based on the median forecast of the I/B/E/S analysts). So, once additional set of controls is added, the results of Berezinets et al. (2015) seem to be reverted as well.

However, we shall be careful in our conclusion. Our sample does not fully coincide with the sample in the previous papers, and our time period is longer than in any of these papers. To make exact conclusion we would have to obtain the data of the authors of the papers and apply the panel data methodology to be sure that the results are comparable. We did not do such an exercise.

6 Robustness checks and discussion

We add several robustness checks that were not present in any of the mentioned researches concerning Russian market. We use the specifications presented in the table 5 as they includes the most comprehensive set of covariates. Essentially, the main impediment to robustness is the arbitrary choice of the event window, frequency of data to estimate the market model, and data trimming. We address all these issues by varying specifications in relation to each of these problems.

First, we change the event window and estimate the model using CAR(5) and CAR(11) as dependent variables instead of CAR(3) (see table 8). The significant positive relationship between positive dividend surprises and cumulative abnormal returns survives. It is worth noting differential reaction that depends on the analysts coverage. The impact of dividend surprise on the stock price is much more pronounced for the firms with worse analysts coverage, while for well-covered firms the effect is still positive but insignificant.

Second, instead of daily data, we use weekly data to estimate the market model based on which the CARs are calculated (see table 9). The results are still the same: positive association of dividend surprise with stock price.

Third, instead of median analysts' forecast we use the mean analysts' forecast both for earnings and dividends surprises. The results are present in the 10. The main results are the same and we still see positive relationship between dividend surprises and stock price reaction.

Finally, we trim the data and exclude 5% of outliers from both tales of dividend surprises. The results are basically the same as in the previous tables. See table 11 for the reference.

7 Conclusion

In this paper we reconsider existing counterintuitive conclusions about how the dividend surprise affect the stock price in the Russian stock market. We do the following steps:

1. Apply panel data methodology;
2. Use more consistent data from Bloomberg terminal;
3. Evaluate surprises with respect to the analyst forecasts.

Using this methodology we show that positive dividend surprise is positively associated with positive stock price reaction around the day of dividend announcement. The result is stable to the window of cumulative abnormal return and usage of different measures of expectations (mean or median).

The estimation of the effect using the level of analysts' coverage and the fact of several payments per year mainly support signalling theory of dividends payments.

Moreover, we usually observe serious aversion of management to cut the dividends in the future, which was confirmed in most survey-based studies. This also adds additional insight into why the stock price reacts on dividends increase positively: higher than expected dividend increase implies not only higher current cash payments, but also the higher *future* dividends stream.

Possible extensions of this research includes the following. Since we have found some support in favor of informational content of the dividend payments, one can try to introduce exogenous shocks that will identify whether this channel is causing positive stock price reaction on the dividend surprises. For example, the sample contains large number of firms from the oil, gas and energy sectors which are dependent on the oil price. As a result, oil price change can be considered as the exogenous shock to the future cash flows of the company.

References

Abrutyn, S. & Turner, R. W. (1990). Taxes and firms' dividend policies. *National Tax Journal*, *43*(4), 491–496.

Al-Ajmi, J. & Hussain, H. A. (2011). Corporate dividends decisions: evidence from Saudi Arabia. *The Journal of Risk Finance*, *12*(1), 41–56. doi:10.1108/15265941111100067

Akerlof, G. A. (1970). The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *Quarterly Journal of Economics*, *84*(3), 488–500.

Allen, D. (1992). Target Payout Ratios and Dividend Policy : British Evidence. *Managerial Finance*, *18*(1), 9–21.

Allen, F., Bernardo, A. E., & Welch, I. V. O. (2000). A Theory of Dividends Based on Tax Clienteles. *The Journal of Finance*, *55*(6), 2499–2536. doi:10.1111/0022-1082.00298

Amihud, Y. & Li, K. (2006). The Declining Information Content of Dividend Announcements and the Effects of Institutional Holdings. *Journal of Financial and Quantitative Analysis*, *41*(03), 637. doi:10.1017/S0022109000002568

Amin, A. S., Dutta, S., Saadi, S., & Vora, P. P. (2015). Institutional shareholding and information content of dividend surprises: Re-examining the dynamics in dividend-reappearance era. *Journal of Corporate Finance*, *31*, 152–170. doi:10.1016/j.jcorpfin.2015.02.002

Anand, M. (2004). Factors Influencing Dividend Policy Decisions of Corporate India. *The ICFAI Journal of Applied Finance*, *10*(2), 5–16.

Andres, C., Bongard, I. V. D., Haesner, C., & Thiessen, E. (2011). Dividend Announcements Reconsidered: Dividend Changes versus Dividend Surprises. *Academia*.

Asquith, P. & Mullins, D. W. (1983). The Impact of Initiating Dividend Payments on Shareholders' Wealth. *56*(1), 77–96.

Baker, H. K. & Farrelly, G. E. (1989). Corporate dividends: views of institutional investors. *Akron Business and Economic Review*, *20*(2), 89.

Baker, H. K. & Kapoor, S. (2015). Dividend policy in India: new survey evidence. *Managerial Finance*, *41*(2), 182–204. doi:10.1108/MF-01-2014-0024

Baker, H. K., Mukherjee, T. K., & Paskelian, O. G. (2006). How Norwegian managers view dividend policy. *Global Finance Journal*, *17*(1), 155–176. doi:10.1016/j.gfj.2006.06.005

Baker, H. K. & Powell, G. E. (2000). Determinants of Corporate Dividend Policy : A Survey of NYSE Firms. *Financial Practice & Education*, *10*(1), 29–41.

Baker, H. K., Powell, G. E., & Veit, E. T. (2002). Revisiting the dividend puzzle: Do all of the pieces now fit? *Review of Financial Economics*, *11*(4), 241–261.

Baker, H. K., Saadi, S., Shantanu, D., & Gandhi, D. (2007). The perception of dividends by Canadian managers: New survey evidence. *International Journal of Managerial Finance*, *3*(1), 70–91. doi:10.1108/17439130710721662

Baker, H. K., Singleton, J., & Veit, E. T. (2011). *Survey research in corporate finance*. Oxford University Press. doi:10.1093/acprof:oso/9780195340372.001.0001

Baker, M., Nagel, S., & Wurgler, J. (2006). The Effect of Dividends on Consumption. *National Bureau of Economic Research*, (w12288). doi:10.1353/eca.2007.0010

Baker, M. & Wurgler, J. (2004). A catering theory of dividends. *Journal of Finance*, *59*(3), 1125–1165. doi:10.1111/j.1540-6261.2004.00658.x

Baker, M., Wurgler, J., & Mendel, B. (2015). Dividends as Reference Points : A Behavioral Signaling Approach. *Review of Financial Studies*, hhv058–. doi:10.1093/rfs/hhv058

Berdnikova, G. [Galina] & Rogova, E. [Elena]. (2013). The analysis of market reaction on dividend announcements of Russian companies.

Berezinets, I., Bulatova, L., Ilina, Y., & Smirnov, M. (2015). Stock Market Reaction to Dividend Surprises: evidence from the Russian Market. *Doctoral dissertation, Saint Petersburg University, Graduate School of Management.*

Bernard, V. L. & Thomas, J. K. (1990). Evidence that stock prices do not fully reflect the implications of current earnings for future earnings. *Journal of Accounting and Economics*, *13*(04), 305–340.

Bhat, R. & Pandey, I. M. (1993). Dividend Decision: A Study of Managers' Perceptions.

Bhattacharya, S. (1979). Imperfect Information, Dividend Policy, and "The Bird in the Hand" Fallacy. *The Bell Journal of Economics*, *10*(1), 259–270.

Bhattacharya, U., Daouk, H., Jorgenson, B., & Kehr, C.-H. (1990). When an event is not an event: The curious case of an emerging market. *Journal of Financial Economics*, *55*(01), 69–101.

Boehemer, E., Musumeci, J., & Poulsen, A. (1991). Event study methodology under conditions of event-induced variance. *Journal of Financial Economics*, *30*, 253–272.

Boţoc, C. & Pirtea, M. (2014). Dividend Payout-Policy Drivers: Evidence from Emerging Countries. *Emerging Markets Finance and Trade*, *50*(s4), 95–112. doi:10.2753/REE1540-496X5004S407

Brav, A., Graham, J. R., Harvey, C. R., & Michaely, R. (2005). Payout policy in the 21 st century. *Journal of Financial Economics*, *77*(3), 483–527.

Cameron, A. C. & Miller, D. L. (2010). Robust Inference with Clustered Data. *Handbook of Empirical Economics and Finance.*

Chiang, K., Frankfurter, G. M., Kosedag, A., & Wood, B. G. (2006). The perception of dividends by professional investors. *Managerial Finance*, *32*(1), 60–81. doi:10.1108/03074350610641875

Chowdhury, R. H. C., Maung, M., & Zhang, J. (2014). Information content of dividends: a case of an emerging financial market. *Studies in Economics and Finance*, *31*(3), 272–290. doi:10.1108/SEF-04-2013-0046

Corrado, C. (1989). A non parametric test for abnormal security price performance in event studies. *Journal of Financial Economics*, *23*, 385–395.

Crutchley, C. E. & Hansen, R. S. (1989). A Test of the Agency Theory of Managerial Ownership, Corporate Leverage, and Corporate Dividends. *Financial Management*, *18*(4), 36–46. doi:10.2307/3665795

DeAngelo, H. & DeAngelo, L. (2006). The irrelevance of the MM dividend irrelevance theorem. *Journal of Financial Economics*, *79*(2), 293–315. doi:10.1016/j.jfineco.2005.03.003

DeAngelo, H., DeAngelo, L., & Skinner, D. J. (1996). Reversal of fortune. Dividend signaling and the disappearance of sustained earnings growth. *Journal of Financial Economics*, *40*, 341–371.

DeAngelo, H., DeAngelo, L., & Stulz, R. M. (2006). Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial Economics*, *81*(2), 227–254. doi:10.1016/j.jfineco.2005.07.005

Dewasiri, N. J. & Weerakoon Banda, Y. K. (2016). Why Do Companies Pay Dividends? *Corporate Ownership and Control*, *13*(2).

Dhanani, A. (2005). Corporate dividend policy: The views of British financial managers. *Journal of Business Finance and Accounting*, *32*(7-8), 1625–1672. doi:10.1111/j.0306-686X.2005.00643.x

Dhillon, S., Raman, K., & Ramirez, G. (2003). Analysts' Dividend Forecasts and Dividend Signaling. (June).

Easterbrook, F. H. (1984). Two agency-cost explanations of dividends. *American Economic Review*, *74*(4), 650. doi:10.2307/1805130

Elton, E. J. & Gruber, M. J. (1970). Marginal Stockholder Tax Rates and the Clientele Effect. doi:10.2307/1927599

Fairchild, R. (2010). Dividend policy, signalling and free cash flow: an integrated approach. *Managerial Finance*, *36*(5), 394–413. doi:10.1108/03074351011039427

Fama, E. F. & French, K. R. (2001). Disappearing dividends: Changing firm characteristics or lower propensity to pay? *Journal of Financial Economics*, *60*(1), 3–43. doi:10.1016/S0304-405X(01)00038-1

Farrelly, G. E., Baker, H. K., & Edelman, R. B. (1986). Corporate dividends : views of the policymakers. Aufsatz in Zeitschriften, Article in journal. Akron, Ohio: Univ.

Gordon, M. J. (1959). Dividends , Earnings , and Stock Prices. *The Review of Economics and Statistics*, *41*(2), 99–105.

Graham, J., Dividends, Kumar, A., Graham, C. S., & J. (2006). Do Dividend Clienteles Exist? Evidence on Dividend Preferences of Retail Investors. *Journal of Finance*, *61*(3), 1305–1336.

Harada, K. & Nguyen, P. (2011). Ownership concentration and dividend policy in Japan. *Managerial Finance*, *37*(4), 362–379. doi:10.1108/03074351111115313

Harkins, E. P. & Walsh, F. J. (1971). Dividend policies and practices. New York: The Conference Board.

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, *76*(2), 323–329. doi:10.2139/ssrn.99580

Jensen, M. C. (1993). The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems. *Journal of Finance*, *48*(3), 831–880. doi:10.1111/j.1540-6261.1993.tb04022.x

Jensen, M. C. & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360. doi:10.1016/0304-405X(76)90026-X

Jog, V. M. & Srivastava, A. K. (1994). Corporate Financial Decision Making in. *Canadian Journal of Administrative Sciences*, *11*(2), 156–176.

Kahneman, D. & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, *47*(2), 263–291. doi:10.1111/j.1536-7150.2011.00774.x

Kennedy, W., O'Brien, T. J., & Horn, C. (1987). Dividend Policy of large public utilitites: results of a nationwide survey of Chief Executives. *Financial Reveiw*, *22*(3), 69.

Li, L., Yin-feng, Q., Song, L., & Man-shu, W. (2006). Who Makes the Dividend Policy Decision and Their Motives for Doing So : An analysis based on a questionnaire survey of non-state- owned listed companies in China?

Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings, and taxes. *The American Economic Review*, *46*(2), 97–113. doi:10.1126/science.151.3712.867-a

Ljungqvist, A., Malloy, C. J., & Marston, F. C. (2010). Rewriting history. *Working paper*.

Lu, X., Xi, Y., & Lu, D. (2014). An empirical study about catering theory of dividends: The proof from Chinese stock market. *Journal of Industrial Engineering and Management*, *7*(2 SPEC. ISSUE), 506–517. doi:10.3926/jiem.1013

Miller, M. H. & Modigliani, F. (1961). Dividend Policy, Growth, and the Valuation of Shares. *The Journal of Business*, *34*(4), 411–433.

Miller, M. H. & Rock, K. (1985). Dividend Policy under Asymmetric Information. *The Journal of Finance*, *40*(4), 1031–1051. doi:10.1111/j.1540-6261.1985.tb02362.x

Miller, M. H. & Scholes, M. S. (1978). Dividends and taxed. *Journal of Financial Economics*, *6*, 333–364.

Mueller, D. C. (1972). A Life Cycle Theory of the Firm. *The Journal of Industrial Economics*, *20*(3), 199–219.

Partington, G. H. (1984). Dividend policy and target payout ratios. *Accounting and Finance*, *24*(2), 63–74.

Patell, J. M. (1976). Corporate Forecasts of Earnings Per Share and Stock Price Behavior: Empirical Test. *14*(2), 246–276.

Patraa, T., Poshakwale, S., & Ow-Yong, K. (2012). Determinants of corporate dividend policy in Greece. *Applied Financial Economics*, *22*, 1079–1087. doi:10.1080/09603107.2011.639734

Payne, J. L. & Thomas, W. B. (2003). The implications of using stock-split adjusted i/b/e/s data in empirical research. *The Accounting Review*, *78*(04), 1049–1067.

Perretti, G. F., Marcus, A. T., & Shelton, W. H. (2013). Determinants of dividend policies for ADR firm. *Managerial Finance*, *39*(12), 1155–1168. doi:10.1108/02656710210415703

Rogova, E. [E.] & Berdnikova, G. [G.]. (2014). Price reaction of the russian stock market on the dividends announcements. *Russian Journal of Management*, *12*(4), 3–28.

Shefrin, H. M. & Statman, M. (1984). Explaining investor preference for cash dividends. *Journal of Financial Economics*, *13*(2), 253–282. doi:10.1016/0304-405X(84)90025-4

Shleifer, A. & Vishny, R. W. (1997). A survey of Corporate Governance. *The Journal of Finance*, *52*(2).

Siegel, J. J. (2002). The Dividend Deficit.

Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, *87*(3), 355–374. doi:10.2307/1882010

Subba, R. Y. (2015). Corporate governance ratings and the dividend payout decisions of Australian corporate firms. *International Journal of Managerial Finance*, *11*(2), 162–178. doi:10.1108/IJMF-01-2013-0012

Tangjitprom, N. (2013). Propensity to pay dividends and catering incentives in Thailand. *Studies in Economics and Finance*, *30*(1), 45–55. doi:10.1108/10867371311300973

Teplova, T. (2008). Impact of cash dividend payments on Russian companies' market capitalization: event study testing on Russians and world's stock exchange. *Audit and Financial Analysis*, 1–15.

Turner, J. D., Ye, Q., & Zhan, W. (2013). Why do firms pay dividends?: Evidence from an early and unregulated capital market. *Review of Finance*, *17*(5), 1787–1826. doi:10.1093/rof/rfs048

Weigand, R. & Baker, H. K. (2009). Changing perspectives on distribution policy. The evolution from dividends to share repurchase. *Managerial Finance*, *35*(6), 479–492. doi:10.1108/03074350910956945

Appendix 1

Table 1: Companies in the sample

The table presents the companies we use in our analysis. They are mostly large companies from different industries.

Rosneft	Gazprom	SurgutNefteGaz	Lukoil	Bashneft
Gazprom Neft	Tatneft	Mechel		
Nornikel	Polyus	Severstal	NLMK	Alrosa
Magnitogorsk	TMK	Dorogobuzh	OGK-2	Mostotrest
Uralkali	Novatek	PhosAgro	Acron	NizhnekamskNeftekhim
Sberbank	VTB	Bank Spb	BM Bank	Cherkizovo
MTS	Megafon	Rostelecom	MGTS	M.Video
Inter RAO	RusHydro	Federal Grid	Unipro	
Mosenergo	Irkutskenergo	MOESK	Enel	TGC-1
Aeroflot	LSRG Group	Novorossiysk port	Organich Sintez	Transcontainer
Moscow Exchange	AFK Sistema	VSMPO	Magnit	

Table 2: Summary statistics

The table presents the summary statistics for the variables used in consequent analysis.

Variables	N	Mean	Median	S.d.	Min	Max
Dividend Surprise (mean, absolute)	354	-0.00119	-0.00119	0.0763	-1.320	0.140
Dividend Surprise (median, absolute)	354	0.00384	0.00384	0.0295	-0.230	0.140
Dividend Surprise (mean, relative)	300	-0.0274	-0.0274	0.513	-1	1.880
Dividend Surprise (median, relative)	300	0.0112	0.0112	0.524	-1	1.880
Earnings Surprise (median, absolute)	376	-0.0476	-0.0476	0.249	-3.420	1.140
Many payments	751	0.0586	0.0586	0.235	0	1
CAR(3) (daily)	452	0.00328	0.00328	0.0487	-0.163	0.457
CAR(3) (weekly)	452	0.000420	0.000420	0.0887	-0.381	0.621
CAR(11) (weekly)	452	-0.00353	-0.00353	0.0618	-0.259	0.424
CAR(11) (weekly)	452	-0.0244	-0.0244	0.166	-0.730	0.603
Forecast s.d.	337	0.0219	0.0219	0.204	0	3.746
# of analysts	816	3.642	3.642	4.664	0	20
Log Size	408	11.70	11.70	1.590	7.990	15.87
ROA	629	0.0546	0.0546	0.0996	-1.140	0.557

Table 3: Standard t-test

The table presents the standard t-test usually implemented under the event study procedure. The observations were divided into two groups. "Positive" group contains CARs which correspond to positive dividend surprises with threshold 5%: those CARs with the relative dividend surpise (relative deviation of actual dividend from the expected dividend) above 5%. Symmetrically, "Negative" group has the threshold below −5%. "Neutral" group contains observations within 5% absolute change. Daily and weekly CARs correspond to daily and weekly data for market model which was used for their estimation.

	Positive	Negative	Neutral	Positive	Negative	Neutral
		Daily CAR			*Weekly CAR*	
CAR(3)	0.0104***	-0.00434	-0.00859**	0.00553	-0.0106**	-0.0166***
	(0.00376)	(0.00353)	(0.00406)	(0.00512)	(0.00491)	(0.00536)
CAR(5)	0.00774*	-0.00248	-0.00663	-0.000724	-0.0125	-0.0183**
	(0.00427)	(0.00500)	(0.00416)	(0.00695)	(0.00794)	(0.00777)
CAR(11)	0.000172	-0.0148*	-0.000391	-0.0211	-0.0369**	-0.0202
	(0.00612)	(0.00841)	(0.00758)	(0.0133)	(0.0153)	(0.0148)
Observations	116	122	46	116	122	46

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Panel data estimation. Daily CAR(3), median consensus forecast

The table presents the results of the fixed effects estimation of the model:

$$CAR(3)_{it} = \alpha + \tau \text{Dividend Surprise}_{it} + X'_{it}\beta + \mu_i + \varepsilon_{it}$$

CAR(3) is computed using daily market model, and both dividend and earnings surprises are based on the median consensus forecasts. First three specifications utilize relative dividend change, the last three specifications – absolute dividend change (as discussed in section 4.1.2). Good Coverage is the dummy variable equal to one if the number of analysts used to draw the consensus forecast is greater than 4, which is the median number of analysts. Bad Coverage is dummy for less than 4 analysts covering the firm. Forecast s.d. is the standard deviation of the forecasts normalized by the stock price. Earnings surprise is computed as the dividend surprise. Many payments is the dummy variable equal to 1 if there were multiple dividend payments during the year. All specifications include time dummies and firm fixed effects. Robust standard errors are clustered on the industry level.

Median consensus	CAR(3) (Daily)					
	2	3	4	5	6	7
	Relative surprises			*Absolute surprises*		
Dividend Surprise	0.0180***			0.273***		
	(0.00435)			(0.0839)		
Dividend Surprise		0.0441**	0.0451***		0.456**	0.461**
× Bad Coverage		(0.0153)	(0.0150)		(0.161)	(0.160)
Dividend Surprise		0.0109**	0.0170***		0.132	0.277
× Good Coverage		(0.00424)	(0.00517)		(0.175)	(0.258)
Forecast s.d.		-0.0169***	-0.0173***		-0.0103***	-0.0100***
		(0.00301)	(0.00310)		(0.00307)	(0.00311)
Earnings Surprise		-0.00275	-0.00294		-0.00494	-0.00554
		(0.00267)	(0.00283)		(0.00760)	(0.00827)
Dividend Surprise			-0.0181**			-0.286
× Many payments			(0.00821)			(0.331)
Observations	284	250	250	347	318	318
R-squared	0.102	0.196	0.205	0.079	0.106	0.110
Number of firms	48	47	47	51	51	51
Firm fixed effects	Yes	Yes	Yes	Yes		
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Panel data estimation. Daily CAR(3), median consensus forecast. Adding firm's characteristics

The table extends the results of the fixed effects estimation of the model presented in the table 4:

$$CAR(3)_{it} = \alpha + \tau \text{Dividend Surprise}_{it} + X'_{it}\beta + \mu_i + \varepsilon_{it}$$

All variables are defined the same as in the table 4. Additionally, I control for the number of analysts (taken in logs) whose forecasts were used to calculate expected dividend. I also add the log of firm size and the lagged ROA coefficient. All specifications include time dummies and firm fixed effects. Robust standard errors are clustered on the industry level.

Median consensus	CAR(3) (Daily)			
	2	3	4	5
	Relative surprises		*Absolute surprises*	
Dividend Surprise	0.0173***		0.266***	
	(0.00413)		(0.0772)	
Dividend Surprise × Bad Coverage		0.0424**		0.435**
		(0.0155)		(0.150)
Dividend Surprise × Good Coverage		0.0177***		0.306
		(0.00558)		(0.284)
Forecast s.d.		-0.0180***		-0.0109***
		(0.00345)		(0.00307)
Earnings Surprise		-0.00211		-0.00100
		(0.00337)		(0.00772)
Dividend Surprise × Many payments		-0.0203**		-0.383
		(0.00819)		(0.376)
log Size	-0.0120*	-0.00961	-0.0169***	-0.0137**
	(0.00610)	(0.00672)	(0.00522)	(0.00496)
ROA (lag)	0.0967**	0.0947	0.142**	0.142**
	(0.0384)	(0.0547)	(0.0523)	(0.0577)
log (# of analysts)	-0.00221	0.00261	-0.00460	0.00267
	(0.00534)	(0.00458)	(0.00764)	(0.00572)
Observations	263	245	341	316
R-squared	0.143	0.233	0.149	0.170
Number of firms	48	47	51	51
Firm fixed effects	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Panel data estimation with naive dividend change

The table presents the estimation if the dividend surprise is based on the naive measure:

$$\text{Expected Dividend}_{naive,t} = \text{Dividend}_{t-1}$$

$$CAR(11)_{it} = \alpha + \tau \text{Dividend Surprise}_{it}^{naive} + X_{it}'\beta + \mu_i + \varepsilon_{it}$$

For comparability, I report CAR(11) as dependent variable instead of CAR(3). Robust standard errors are clustered on the industry level.

Naive	CAR(11) (Daily)			
	2	3	4	5
	Relative surprises		*Absolute surprises*	
Dividend Surprise	-0.0158*	-0.0160*	0.497	0.497
	(0.00787)	(0.00874)	(0.401)	(0.390)
log Size		-0.0469***		-0.0524***
		(0.00865)		(0.0108)
ROA (lag)		-0.0840		0.00796
		(0.137)		(0.0809)
Observations	308	269	313	305
R-squared	0.069	0.128	0.082	0.144
Number of firms	49	49	51	51
Time dummies	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Panel data estimation using I/B/E/S dataset

The table presents the estimation of the simplest regression without firm and forecast specific covariates as well as full specification with all available covariates using the I/B/E/S Thomson Reuters dataset.

$$CAR(3)_{it} = \alpha + \tau \text{Dividend Surprise}_{it} + X'_{it}\beta + \mu_i + \varepsilon_{it}$$

Robust standard errors are clustered on the industry level.

Median consensus	CAR(3) (Daily)			
	2	3	4	5
	Relative surprises		*Absolute surprises*	
Dividend Surprise	0.00777	0.0134	0.145	0.152**
	(0.00502)	(0.0152)	(0.154)	(0.0577)
Dividend Surprise		-0.0169		-0.0973
× Good Coverage		(0.0184)		(0.237)
Forecast s.d.		0.247		0.150
		(0.239)		(0.502)
Earnings surprise		-0.00357		-0.000505
		(0.00391)		(0.0454)
Dividend Surprise		-0.0185		-0.0910
× Many payments		(0.0154)		(0.459)
log Size		-0.0246*		-0.0183
		(0.0131)		(0.0102)
ROA (lag)		0.0701		-0.0443
		(0.0626)		(0.0942)
log (# of analysts)		0.00571		0.00910
		(0.0131)		(0.00966)
Observations	187	146	237	174
R-squared	0.096	0.187	0.056	0.135
Number of firms	28	27	29	29
Time dummies	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8: Robustness check: various event windows.

The table presents the estimation of the same specifications as in table 5 using various event windows: CAR(5) and CAR(11).

Median consensus	CAR(5) (Daily)		CAR(11) (Daily)	
	2	3	4	5
		Relative surprises		
Dividend Surprise	0.0153***		0.0158*	
	(0.00408)		(0.00773)	
Dividend Surprise		0.0419***		0.0358*
× Bad Coverage		(0.0141)		(0.0186)
Dividend Surprise		0.0152		0.0135
× Good Coverage		(0.00927)		(0.0134)
Forecast s.d.		-0.0194***		-0.0322***
		(0.00347)		(0.00544)
Earnings Surprise		-0.00140		-0.00155
		(0.00361)		(0.00603)
Dividend Surprise		-0.0171		-0.00448
× Many payments		(0.0116)		(0.0155)
log Size	-0.0205**	-0.0193*	-0.0443***	-0.0450***
	(0.00697)	(0.00920)	(0.0111)	(0.0117)
ROA (lag)	0.121*	0.137*	0.0378	0.0917
	(0.0605)	(0.0676)	(0.105)	(0.120)
log (# of analysts)	0.00827	0.0134	0.0167	0.0118
	(0.00849)	(0.00787)	(0.0111)	(0.0160)
Observations	263	245	263	245
R-squared	0.112	0.190	0.093	0.118
Number of firms	48	47	48	47
Firm fixed effects	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9: Robustness check: Market model estimated on the weekly data.

The table presents the estimation of the same specifications as in table 5 using CARs calculated based on the market model estimated on weekly data.

Median consensus	CAR(3) (Weekly)			
	2	3	4	5
	Relative surprises		*Absolute surprises*	
Dividend Surprise	0.0214**		0.210*	
	(0.00857)		(0.108)	
Dividend Surprise		0.0429***		0.235
× Bad Coverage		(0.0144)		(0.135)
Dividend Surprise		0.0193*		0.365
× Good Coverage		(0.00983)		(0.233)
Forecast s.d.		-0.00938*		-0.00722
		(0.00461)		(0.00454)
Earnings Surprise		0.00120		0.00157
		(0.00415)		(0.0124)
Dividend Surprise		-0.0177		-0.450
× Many payments		(0.0193)		(0.469)
log Size	-0.00472	-0.00702	-0.0175**	-0.0152*
	(0.00662)	(0.00800)	(0.00667)	(0.00784)
ROA (lag)	0.119*	0.131*	0.194**	0.204**
	(0.0566)	(0.0636)	(0.0790)	(0.0804)
log (# of analysts)	0.00288	0.0164	0.00174	0.0138
	(0.00719)	(0.0101)	(0.00885)	(0.00792)
Observations	263	245	341	316
R-squared	0.096	0.183	0.098	0.145
Number of firms	48	47	51	51
Firm fixed effects	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10: Robustness check: Using mean instead of median forecast.

The table presents the estimation of the same specifications as in table 5 using mean analysts' forecast instead of median.

Mean consensus	CAR(3) (Daily)			
	2	3	4	5
	Relative surprises		*Absolute surprises*	
Dividend Surprise	0.0173***		0.0639*	
	(0.00204)		(0.0344)	
Dividend Surprise		0.0317**		0.468**
× Bad Coverage		(0.0127)		(0.162)
Dividend Surprise		0.0162**		0.413
× Good Coverage		(0.00563)		(0.273)
Forecast s.d.		-0.0115***		0.134
		(0.00361)		(0.0963)
Earnings Surprise		-0.000829		-1.11e-05
		(0.00453)		(0.00650)
Dividend Surprise		-0.00731		
× Many payments		(0.0137)		
log Size	-0.0130*	-0.00926	-0.0173***	-0.0131**
	(0.00627)	(0.00639)	(0.00512)	(0.00463)
ROA (lag)	0.0789**	0.0829	0.145**	0.144**
	(0.0365)	(0.0553)	(0.0506)	(0.0551)
log (# of analysts)	-0.00490	-0.00289	-0.00404	0.00243
	(0.00679)	(0.00379)	(0.00737)	(0.00541)
Observations	263	245	341	316
R-squared	0.096	0.183	0.098	0.145
Number of firms	48	47	51	51
Firm fixed effects	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 11: Panel data estimation. Trimmed sample.

The table extends the results of the fixed effects estimation of the model presented in the table 4:

$$CAR(3)_{it} = \alpha + \tau \text{Dividend Surprise}_{it} + X'_{it}\beta + \mu_i + \varepsilon_{it}$$

All variables are defined the same as in the table 4. Additionally, I control for the number of analysts (taken in logs) whose forecasts were used to calculate expected dividend. I also add the log of firm size and the lagged ROA coefficient. All specifications include time dummies and firm fixed effects. Robust standard errors are clustered on the industry level. The sample is trimmed based on the size of the surprise: 5% observations on both tales.

Median consensus	CAR(3) (Daily)			
	2	3	4	5
	Relative surprises		*Absolute surprises*	
Dividend Surprise	0.0168***		0.549**	
	(0.00372)		(0.201)	
Dividend Surprise		0.0467**		0.734**
× Bad Coverage		(0.0172)		(0.294)
Dividend Surprise		0.0151		0.371
× Good Coverage		(0.0101)		(0.282)
Forecast s.d.		-0.0179***		-0.0101***
		(0.00360)		(0.00315)
Earnings Surprise		0.00138		0.00183
		(0.00181)		(0.00799)
Dividend Surprise		-0.0160		0.0620
× Many payments		(0.0123)		(0.744)
log Size	-0.0114	-0.00795	-0.0136**	-0.00984*
	(0.00510)	(0.00505)	(0.00763)	(0.00685)
ROA (lag)	0.152**	0.145*	0.0827**	0.0749
	(0.0590)	(0.0684)	(0.0295)	(0.0489)
log (# of analysts)	-0.00475	0.000187	-0.00305	0.00129
	(0.00597)	(0.00384)	(0.00559)	(0.00442)
Observations	251	235	308	289
R-squared	0.142	0.222	0.137	0.153
Number of firms	47	46	51	51
Firm fixed effects	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 2

In this Appendix, we review the literature on dividend payments.

The voluminous research on whether the dividend policy matters for share price does not lead to a clear conclusion. As H. K. Baker et al. (2011) note in modern finance there are three possibilities, that were supported by different researchers:

1. Dividend policy does not matter for the share price. In this case the M. H. Miller and Modigliani (1961) irrelevance argument can be supported.

2. Increase in dividend payouts increases share price. That can be explained by the informational content of dividends: large dividends imply positive news about future company perspectives.

3. Increase in dividend payouts decreases share price. Here, the typical explanation is that high dividends imply the lack of investment opportunities, which is considered as a bad signal for the market.

At the very high level, we can distinguish two main views proposed in 1950-1960s, which basically underpinned further directions of the research and arguments in this field. Lintner (1956) tends to be mentioned the first who researched the patterns in dividend payments. His analysis was based on the interviews with management of 28 companies during 1947 - 1953 period. The main observation of such straightforward approach was the persistency in dividend rates due to aversion of management, and arguably market, to any substantial changes in dividend payout ratio. In other words, most managers gave an indication that they try to minimize the probability that they will need to reverse changes in dividend policy too soon in the upcoming years. As a result, the dominating pattern in dividend payments can be described as what is now known as Lintner "partial adjustment model": in a given year companies adjust their dividends only partially relative to the "optimal" level determined by the actual financial indicators.

The second seminal work proposes an opposite view on dividend policy. While Lintner's arguments imply that dividend policy does matter for the firm from the market reaction perspective, M. H. Miller and Modigliani (1961) argue that under certain assumptions, dividend policy of the firm is irrelevant for its enterprise value. The main assumptions include perfect capital markets, rationality among market participants and no agency costs. If the amount of dividends paid, does not affect the value of the firm, why does then management regularly make complicated decisions on how much dividends should be issued? The question why do companies pay dividends is known today as dividend puzzle. M&M proposition is commonly viewed as an argument for irrelevance of dividend policy. In fact, the more sound and practical logic can be constructed to support the opposite: why dividend decisions might be relevant for the firm.

Overall, most of the researchers who try to analyze dividend policy thereafter tend to compare their results to at least one of these two works. A large class of papers replicate the approach of Lintner and conduct in-depth interviews with managements finding stylized facts about the patterns in dividend payments. Another set of works propose different hypotheses on why companies pay dividends, often via the indication of which Modigliani-Miller assumptions are violated.

The following section of the literature review is organized according to this division. First, we will discuss different hypotheses, because they will be useful for explaining the results of the following empirical research. After that, we will turn to stylized facts, which were discovered via interviewing the management of the companies.

7.1 Motives for paying dividends

To date there exist numerous hypotheses on why the companies pay dividends. Among the most up-to-date investigations, a comprehensive overview of different motives contain, for example, papers of Weigand and Baker (2009) or Dewasiri and Weerakoon Banda (2016). We will cover the intuition behind most of the existing hypotheses on why the companies pay dividends. As we have mentioned previously, most of them emphasize which assumption of the Modigliani Miller world is violated.

7.1.1 Signaling theory

The signaling theory stems from the microeconomic works of Akerlof (1970) and Spence (1973). Its application to financial theory was shortly developed by S. Bhattacharya (1979), who presented theoretical model with information imperfection resulting in signaling power of dividends, and M. H. Miller and Rock (1985), who highlighted the importance of evident information asymmetry between public investors and management. The idea of dividend signaling theory is that managers of the firm are naturally more informed than outside investors are and may decide to signal the market revealing their perception of future company's performance. Thus, under imperfect information dividend signaling hypothesis implies that in case of dividends cut, the stock price is likely to fall as the market will interpret it as a negative signal, and vice versa, dividends increase will result in stock price rise.

Empirically, there is mixed evidence on dividend signaling hypothesis (Dewasiri & Weerakoon Banda, 2016). H. DeAngelo et al. (1996), after analyzing NYSE firms, concluded that there is no connection between dividends and future earnings. The dividend-signaling hypothesis, they argued, does not hold because of managers' "behavioural bias", who estimate earnings prospects excessively optimistically in case of growth decline. This explanation overlaps with behavioral argument of Jensen (1993), which will be discussed later. Moreover, H. DeAngelo et al. (1996) also suggest that managers tend to make small cash commitments when they send signals and hence undermine the reliability of such signals. Among recent findings, Lu et al. (2014), and Chowdhury et al. (2014) also do not support the signaling power of dividends after the analysis of Chinese firms. Nevertheless, there are researches that do support the signaling hypothesis, both through theoretical (Fairchild, 2010) and empirical works (Patraa et al., 2012) (analysis of Greece), (Subba, 2015) (analysis of Australia), (H. K. Baker & Kapoor, 2015) (evidence from India)). All in all, many recent studies tend to agree on that dividends reveal no significantly new information to the market. Rather, the information contained in dividend signals just corroborates that current earnings changes are robust(Weigand & Baker, 2009).

However, dividend signaling is plausible in relation to unexpected or irregular changes, rather than annual issuance (H. K. Baker et al., 2011).

7.1.2 Free cash flow hypothesis

The second competitive paradigm is the free cash flow hypothesis. It was proposed by Jensen (1986), who defined free cash flow as a "cash flow in excess of that required to fund all projects that have positive net present value." Jensen argued that managers often have incentives to let the firm expand beyond optimal level. As a result, there is a problem how to stimulate managers not to invest into inefficient projects. Naturally, dividend payment is a straightforward way to reduce excessive cash holdings and hence is helpful to mitigate the incentives to invest inefficiently. In other words, there is a reduction in agency costs, which will be explained soon.

Fairchild (2010) also tries to combine free cash flow hypothesis with the dividend signaling one into a unified theoretical model. He developed the theory which supports reasons why the dividend cut may be considered as positive signal (firm has discovered new growth opportunities). And vice versa, dividend increase may lead to price decline, because market treat it as a lack of growing opportunities. Finally, he argues that this misconception can be solved via good communication with investors.

An adjacent to free cash flow hypothesis, there is also an argument that large shareholders prefer benefits of control to dividends payment (Shleifer & Vishny, 1997). This is called rent extraction hypothesis. Empirically, it was tested by Harada and Nguyen (2011), who confirmed that firms with large ownership concentration tend to pay small dividends.

Shleifer and Vishny (1997) also provide an interesting note concerning Russia: "Western investor can control a Russian company with 75 percent ownership, whereas a Russian investor can do so with only 25 percent ownership". This is because of various ways available to effectively manipulate foreign investors' rights.

7.1.3 Agency costs

The novel explanation for dividend puzzle was proposed by Easterbrook (1984). In this discussion, the violation of the M&M assumption that managers are perfect agents for investors is stressed, that is there are so-called agency costs introduced by Jensen and Meckling (1976). Easterbrook (1984) highlights two forms of agency costs: cost of monitoring and risk aversion of managers. The latter cost implies underinvestment in profitable projects because managers care about the total risk of the firm since their wealth directly depends on the company's performance, while investors with diversified stock portfolio are only concerned about non-diversifiable risk. The importance of dividends in reducing the agency costs lies in the following. First, the higher the frequency of dividend payments, the higher is the need to access the capital markets, the better is the monitoring of the managers from the market participants. Second, dividends can be helpful to adjust the level of risk taken by managers. H. DeAngelo and DeAngelo (2006) argue that agency costs cause additional pressure for payouts because reinvestment into new projects implies managers' possibility to expropriate stockholders.

Empirically, this explanation was tested by Crutchley and Hansen (1989). They concluded that dividends in tandem with optimal ownership structure and leverage are taken into account to reduce agency costs. Siegel (2002) also mentioned the idea of close monitoring from market: dividends give a persuasive evidence of firm's profitability and earnings' authenticity.

In more recent studies, Boţoc and Pirtea (2014) supported the agency costs hypothesis, when conducting GMM estimation for 16 emerging economies. Similarly, the evidence based on Australian data also consistent with this explanation (Subba, 2015). Contrary, there are findings that reject agency costs hypothesis. For example, Al-Ajmi and Hussain (2011) do not confirm the presence of agency costs motives when analyzing Saudi Arabian market.

In relation to agency costs, F. Allen, Bernardo, and Welch (2000) argue that dividend-paying firms tend to attract more institutional investors, because they are taxed at lower rates than individuals are. Higher attention from such professional market participants also helps to reduce agency costs.

7.1.4 Bird-in-hand argument

Lintner (1956) and Gordon (1959) pointed another possible reason of why the companies pay dividends. As the name suggests, "bird in hand", i.e. dividend, is preferable to alternative: uncertain future earnings. Since the dividends are more preferred to the investors, to maximize the share price the management needs to increase the payout ratio. However, this hypothesis was highly criticized by the consequent papers of M. H. Miller and Modigliani (1961) and S. Bhattacharya (1979). It was mainly tested via conducting surveys, which did not reveal significant evidence of this hypothesis (H. K. Baker & Kapoor, 2015; H. K. Baker et al., 2011).

Bird in hand argument is better to be considered as a possible reasoning, but not as a robust and proven argument.

7.1.5 Taxes and Clientele effects

Naturally, another MM assumption of no taxed, was also widely scrutinized. It has been suggested, that the difference in how the dividends and capital gains are taxed, may create different "clientele" or groups of investors with specific tax preferences. This argument was supported, for instance, by Elton and Gruber (1970) and M. H. Miller and Scholes (1978). So, if the taxation of capital gains is lower than that of dividends, investors might prefer shares with low dividends and higher reinvestment rate and vice versa, if the dividends are taxed relatively stronger than capital gains, then investors would prefer high dividend shares. In turn, investors vary in tax brackets, and hence, might seek dividend specific shares appropriate to their tax preferences.

7.1.6 Behavioral explanations

Shefrin and Statman (1984) presented behavioral explanation of the dividend puzzle. Their argument is largely based on the famous Kahneman and Tversky (1979) work in which an alternative prospect theory was developed and were highlighted the behavioral elements in decision-making process (certainty and isolation effects).

The factors like age, income level and retirement status are usually outlined by the researchers who find empirical evidence on behavioral explanation for the dividend puzzle (Graham, Dividends, Kumar, Graham, & J, 2006; M. Baker, Nagel, & Wurgler, 2006). Among examples of behavioral findings, there is observation that retired individuals prefer dividend-paying stocks due to their simplicity and that they are a good substitute for labor income. On the contrary, Turner, Ye, and Zhan (2013) did not find any empirical evidence on behavioral explanation when analyzed hand-collected data of the London stock market between 1825 and 1870 and conclude with the presence evidence for signaling hypothesis.

M. Baker, Wurgler, and Mendel (2015) incorporate the concept of loss aversion highlighted by Kahneman and Tversky (1979) and construct a concise theoretical model which unites the behavioral ideas and signaling theory. The proposed model is similar in spirit to Lintner (1956)'s partial adjustment model. M. Baker et al. (2015) suggest that investors compare current dividends and psychological reference point established by past dividends. Since investors are extremely dislike dividends cuts, dividends can efficiently signal the market information about earnings.

Interestingly, M. Baker et al. (2015) also point out that dividends are good signals, since "there is only one number to remember". That is, when compared to other forms of interaction with investors, e.g. shares repurchase, dividends are easier to understand and recall later as a future reference point.

7.1.7 Life-cycle theory of dividends

The proponent of this theory was Mueller (1972). The idea behind the life-cycle argument is that each firm naturally develops through different stages (start-up, fast growth, maturity and sometimes stagnation). Depending on the phase of cycle the firm is currently in, it will decide how much dividends to pay. At the early stages of development, firms tend to reinvest its profits and do not pay dividends, while in maturity the firm primarily repay its profits. This was also confirmed by Fama and French (2001) and in more recent studies by H. DeAngelo, DeAngelo, and Stulz (2006) and Perretti, Marcus, and Shelton (2013). I will also refer to this hypothesis in the context of reviewing survey-based studies.

7.1.8 Catering theory

The proponents of catering theory of dividends payment were M. Baker and Wurgler (2004). They argue that investors receive what they currently desire. Catering means that dividends are issued when investors put a higher stock price on dividend payers, and are skipped when investors prefer non-paying dividends stocks. Boţoc and Pirtea (2014) did not find any evidence for this hypothesis. However, Tangjitprom (2013) as well as H. K. Baker and Kapoor (2015) find support for catering theory while analyzing Thailand and Indian markets respectively.

7.1.9 Summary

Let us notice that such hypotheses as signaling, agency costs, free cash flow and tax clientele deserved much higher attention from the academic perspective, mostly because they were proposed earlier and are based on more solid foundational fields of microeconomics.

To conclude this part of literature review, we provided the set of hypotheses, not an exhaustive one, but containing the most frequently mentioned explanations for dividend puzzle. All in all, that is how Academia perceives the motives for dividends payment. Now, we turn to the second part of the literature review - existing researches on dividend puzzle based on the survey methodology. The reason to consider them separately is that it allows to contrast the views of Academia to the views of real decision-makers, namely managers who decide to pay dividends.

7.2 Survey-based methodology

Survey methodology, which usually takes the form of interviews, directly measures the decision makers' perception of why the dividends are paid. While this approach is not free from distortions (the questions asked should be properly structured and unambiguous), many results from such surveys are worth considering. For instance, if most of the interrogated managers claim, that they hardly even thought about a specific motive, say to send a signal to the market, when decided how much dividends to pay, then the signaling hypothesis is likely to be rejected.

Moreover, as the previous review of researches based on the secondary market data indicates, there is no unanimity among economists about the dividend puzzle. Having said that, the overview of the existing survey-based studies might be useful to narrow the gap between theoretical considerations and real evidence on dividend payment phenomenon.

A comprehensive overview of surveys contains the work of H. K. Baker et al. (2011). In this part of literature review, we follow this work, as it efficiently organizes this set of researches.

7.2.1 Surveys conducted in US

Actually, the Lintner (1956)'s paper I started this section with, was the survey. So I briefly repeat the main conclusions derived from this research. First, Lintner finds that for most of the respondents the reference point in decision making about dividends was the payout ratio (dividends divided by net income). Second, and probably key conclusion, is that earnings is the main determinant of dividends and managers tend to smooth dividend flow. This happens due to the time managers need to acknowledge the permanence of earnings change as well as investors' preference over a stability in payout ratio.

Another early research was the one conducted by Harkins and Walsh (1971). Authors also highlight the importance of stable payout ratio and find the partial adjustment pattern similar to Lintner (1956). Their explanation, though, is different: given the conflict between shareholders (willing more dividends) and management (willing to retain profits), eventually there is a compromise or partial adjustment of dividend payments that satisfies competing parties.

Farrelly, Baker, and Edelman (1986) used mail survey and contacted CFOs of NYSE listed firms in 1983. In line with Lintner's findings they also confirm that expected earnings and pattern of dividend payments are crucial to decide how much dividends to pay. Moreover, they also mention other important factors: availability of cash and concern about stock price increase. Although respondents did not indicate unambiguously the reason why they believe dividend policy might affect the stock price, the majority of them expressed clear agreement that dividend policy did matter for the firm's value. In fact, significant share of respondents marked "signaling hypothesis". The clientele effect did not find much support.

Interestingly, Farrelly et al. (1986) highlight that the companies from utility sector even do not consider the reduction or omission of dividend payments due to existing industry practice. The negative consequences for the firm's value might be very severe. Authors argue that this is probably due to high regulation, while more competitive sectors demonstrate more flexibility in dividend considerations. The similar findings were confirmed by Kennedy, O'Brien, and Horn (1987). I just emphasize here, that the found "stickiness" of dividends in utilities had a great impact on many consequent empirical researches, because many authors just exclude utilities from their samples.

H. K. Baker and Farrelly (1989) also conducted the survey of institutional investors by randomly mailing portfolio managers and investment advisers included into Financial Analysts Federation. Remarkably, a vast majority (more than 90%) respondents believed in positive relationship between the stock price and dividend increases. Moreover, it was also believed that unexpected changes in dividend policy might cause abrupt changes in stock price. This survey also demonstrated that tax considerations matter, and that there is no belief in signaling power of dividends (earnings are more informative).

Abrutyn and Turner (1990), on the contrary, found that there is no place for tax considerations, because less than half of 550 interviewed CEOs of largest American corporations, hardly even knew their shareholders.

H. K. Baker and Powell (2000) generally found the confirmation of analogous research of Farrelly et al. (1986). Among the most important factors determining dividend policy were still the continuity of dividends and the level of current and expected earnings. Concerns about stock price and firm's value were also indicated as highly important. H. K. Baker, Powell, and Veit (2002) concluded that this findings are similar across two exchanges, NYSE and NASDAQ.

In more recent study, Brav, Graham, Harvey, and Michaely (2005) also investigated dividend puzzle by interviewing 384 CFOs and highlighted "rules of the game", which are used when deciding on dividend issuance. In line with many studies, authors confirm that management extremely dislikes dividend cuts and prioritize maintaining stable dividend level. Sometimes even positive-NPV investment projects are rejected in order not to cut target dividend payments. Moreover, authors find that the relationship between dividends and earnings is not as high as it was suggested by the surveys of 1980-90s. Moreover, dividend conservatism is also typical for non-payers as they are reluctant to initiate dividend payments. Brav et al. (2005) did not find any support for agency, signaling and clientele hypotheses.

Brav et al. (2005) also suggest that share repurchases as an alternative to dividend payments become a more attractive option due to its flexibility: executives can alter payout or compensate stock option dilution. Tax motives are second-order concern. Interestingly, signaling in academic sense, i.e. to motive to separate the firm from its competitors, was never meant or even considered by most of the top executives.

Brav et al. (2005) conclude with the following "rules of the game", which were determined during their survey:

- The firm must not deviate from its competitors' dividend policy
- Dividends cuts are very harmful
- The firm should maintain a good credit rating

- Avoid actions that decrease EPS, because many investors tend to use earnings multiples to price stocks

Chiang et al. (2006) interviewed mutual fund managers and revealed that there were a strong agreement on the statement "Stocks that increase dividends send a message of financial strength to the market".

Overall, US evidence suggests that key determinants of dividend policy were stable over the half of the century: pattern of past dividend payments and firm's earnings appear to be the most relevant.

Stability of dividends and Lintner's partial adjustment ideas are very widespread across managers. As H. K. Baker et al. (2011) note, although the relevance of dividend policy for firm's value and stock price remains an open question, a vast majority of managers operate as though dividend policy is matters.

In terms of dividend puzzle explanations, US evidence find rather strong support for signaling motives, while agency costs and taxes are viewed as less important. Probably, this might be explained by the development of financial market in the US.

Now, to have more complete picture and to compare the results with voluminous US-based findings, we review researches conducted on other markets across the globe.

7.2.2 Surveys conducted outside of US

Partington (1984) examined Australian firms and also found that management tend to maintain dividend stability, partially adjust payout ratio with rising profits and cut dividends under exceptional circumstances.

Jog and Srivastava (1994) explored the Canadian market, which is, in fact, much less liquid and more concentrated than that of US. Respondents supported the statement that dividend increase will lead to the rise in stock price. Noticably, most of the managers absolutely disagreed that the stock price might go down after the rise in dividend payments, because investors will treat that as an indication of a lack of profitable opportunities. That is, dividend increases are usually considered to be positive news.

When comparing their findings to analogous US-survey, H. K. Baker, Saadi, Shantanu, and Gandhi (2007) conclude that high ownership concentration does not affect the usual finding on how managers conduct dividend policy.

Li, Yin-feng, Song, and Man-shu (2006) investigated dividend policy in China. Authors found strong support for agency costs hypothesis for paying dividends. They highlighted refinancing ability as well as stock price as key determinants affecting dividend policy.

Bhat and Pandey (1993) surveyed Indian companies and similar to most already discussed researches found support for importance of uninterrupted dividend flow. This indicates that signaling motives are also present among Indian managers. Their follower, Anand (2004) also concluded that signaling is perceived to be important in India.

Norwegian companies were also researched by H. K. Baker, Mukherjee, and Paskelian (2006). Unsurprisingly, Baker use the similar methodology it implemented earlier in US. It is worth noting here, that although management did not view the relationship between dividends and stock price as significant, they express agreement on signalling motives rather than tax-clientele one.

Signaling motives also dominate among UK respondents (D. Allen, 1992). Interestingly, D. Allen (1992) points out that dividends should be considered as leading, but not lagging relative to firm's earnings. Dhanani (2005) confirms that signaling is determinant motive and finds no evidence for MM irrelevance proposition.

7.2.3 Summary

This part of the literature review emphasizes further, how voluminous and how controversial existing researches on the dividend puzzle are. However, one can notice some stability in views of firms executives on the optimal dividend policy. As many surveys demonstrate, there exist several "golden rules", which most of the managers adhere to. Thus, dividend cuts are widely perceived by both market and managers as an unpleasant and harmful for firm's value action. Once again, managers do believe that dividend policy affects the value of the firm and hence its stock price.

As many recent researchers highlighted, there is no sense though to seek a universal explanation for dividend puzzle, that would be applicable to each and every firm or market. Probably, the conclusions should vary depending at least on the level of market development. For example, the signaling hypothesis is apparently more relevant on developed market (US, Canada, Australia), while developing market immediately found support for agency costs, where monitoring from professional market participants is less strong.