

# RETURN ON STOCKS ON THE DAYS BEFORE RELEASE OF QUARTERLY EARNINGS REPORTS

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**Abstract:** *This research examines the return on stocks 1, 3, 5, and 10 days before the release of quarterly results. The sample consists of earnings announcements for 100 companies from the Warsaw Stock Exchange Index (WIG) between January 2010 and September 2017. The first purpose of the research was to investigate whether investors demanded a higher return on investment before the release of quarterly results. The second purpose was to examine whether stocks are falling or rising before the publication of surprisingly bad or good results. The research shows that investors demanded a higher return (risk premium) on stocks during the days before the publication of quarterly results, however the returns are statistically insignificant. Moreover, the research shows that stock prices tend to appreciate (depreciate) before surprisingly bad (good) results; however, the returns are again statistically insignificant. The examination of the return on stocks before the release of quarterly results shows that the effect of insider trading before a release of quarterly results is not seen on the Warsaw Stock Exchange.*

**Key words:** *investment, market efficiency, insider trading*

**JEL codes:** *D53, E44, G41 G12, G14*

## 1. Introduction

This research examines the association between stock returns before the publication of quarterly results and the type of quarterly result (positive or negative surprise). In addition, we investigate whether there is a risk premium for investors before the publication of quarterly results.

Ball and Brown (1968) investigated price movements accompanying economic events. Brown and Kennelly (1972) provide evidence that a significant portion of information in reports on earnings is reflected in stock prices prior to its publication. Similarly, Beaver et al. (1979) report that stock returns are also associated with the magnitude of the earnings forecast error; so, it is necessary to control for forecast error magnitude as well. This is because early (late) announcers could be releasing extremely good (bad) news. The relationship between stock price and the publication of information was first examined by Davies and Canes (1978). Atiase (1985) shows that stock returns around the announcement date are inversely related to the size (market capitalization) of the company.

Research conducted between 1984 and 1988 finds positive abnormal returns during earnings announcements (Chambers and Penman 1984; Penman 1987; Chari et al. 1988). Some authors suggest that higher returns before publication of quarterly results was justified by increased betas and variances during the period preceding earnings announcements (Stepleton and Subrahmanyam 1979). By conveying information about firms' activities, earnings announcements resolve some uncertainty about future cash flows, but the concurrent price reactions increase the variability and covariability of securities' returns during the announcements. Thus, it is hypothesized that return variances and betas, and therefore expected returns, increase during earnings announcement periods.

In Poland, Szyszka (2003) studies stock returns before the announcement of quarterly results. He examines whether Polish stocks anticipate the publication of unexpected results. He defines surprising results as a huge change in net profit from the previous quarter's net profits. He calculates the surprise using the Foster formula, which is based on the previous quarter's results. Szyszka concludes that stock prices rise before surprisingly good results and fall before surprisingly bad results.

## 2. Methodology and Data

The research presented here is significantly different from Szyszka (2003). First, I examine a wider spectrum of Polish companies: 100 companies versus 24. Second, I define earning surprise as a rapid price rise or fall following publication of results. Szyszka defined surprising results by the Foster formula. The biggest problem with this formula is that investors base their expectations not only on previous results but also on current information published by companies. Thus, they adjust expectations before an earnings announcement. Third, Szyszka examines the Polish market in an earlier stage of development, from 1997 to 2000, whereas I examine the Polish stock market 13 to 17 years later, from 2010 to 2017.

In this research, I examine stock returns 1, 3, 5, and 10 days before the announcement of a quarterly result. I select 100 companies listed on the Warsaw Stock Exchange from three major indices (20 companies from the WIG20, 40 companies from the mWIG40 and 40 companies from the sWIG80). Then, I identify dates of publication of quarterly financial statements between January 2011 and September 2017 for each of these companies.

In the first phase, I calculate the average return on companies' stocks at 1, 3, 5, and 10 days before the publication of the financial statements. In order to check whether there were positive returns, I calculated the alpha coefficient as:

$$\text{Alpha} = \sum_{i=1}^n (r_i - r_m), \quad (1)$$

where  $r_i$  is return on a company stock and  $r_m$  is return on a WIG index.

Alpha, according to Jensen (1967), is a measure of the marginal return associated with an additional strategy that is not explained by existing factors. I obtain the Capital Asset Pricing Model (CAPM) alpha by subtracting the return on the WIG from the return on a company.

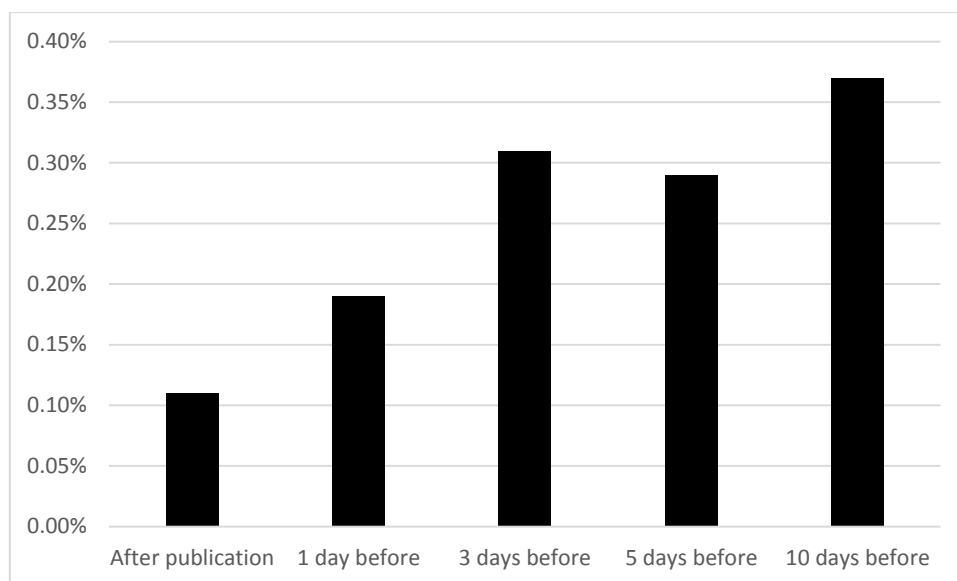
In the second phase, I divide the population of quarterly results into two groups. In the first group, I put companies for which there were positive surprises after a results announcement. In the second group, I put companies for which there were negative surprises after a results announcement. The positive (negative) surprise I define as a rise (fall) of alpha above (below) a certain threshold on the trading day after the result was announced. I use four different thresholds for positive surprises (3%, 5%, 7% and 10%) and four thresholds for negative surprises (-3%, -5%, -7% and -10%). If a company was listed for only part of the sample period, I include only available data.

In the last phase, I test the results for significance using the Student's t-test. I assume the normal distribution of alpha among companies and use a 5% significance level. The null hypothesis is  $H_0$ : there is no difference between the average alpha before publication of quarterly earnings and the average alpha on other days. The alternative hypothesis is  $H_1$ : 1, 3, 5, and 10 days before publication of surprising good (bad) quarterly results the average alpha is higher (lower) than average alpha in other days.

## 3. Results and Discussion

My analysis shows that a strategy based on buying stocks in the days preceding the publication of quarterly financial statements yields a positive return. If we buy stock of a company one day before an announcement, we can expect 0.19% return on our investment. Overall, the earlier we invest, the higher the return on our investment is. Moreover, the day following publication of results, investors can expect a positive a return of 0.11% (see figure 1).

**Fig. 1** Average return before and after the publication of results

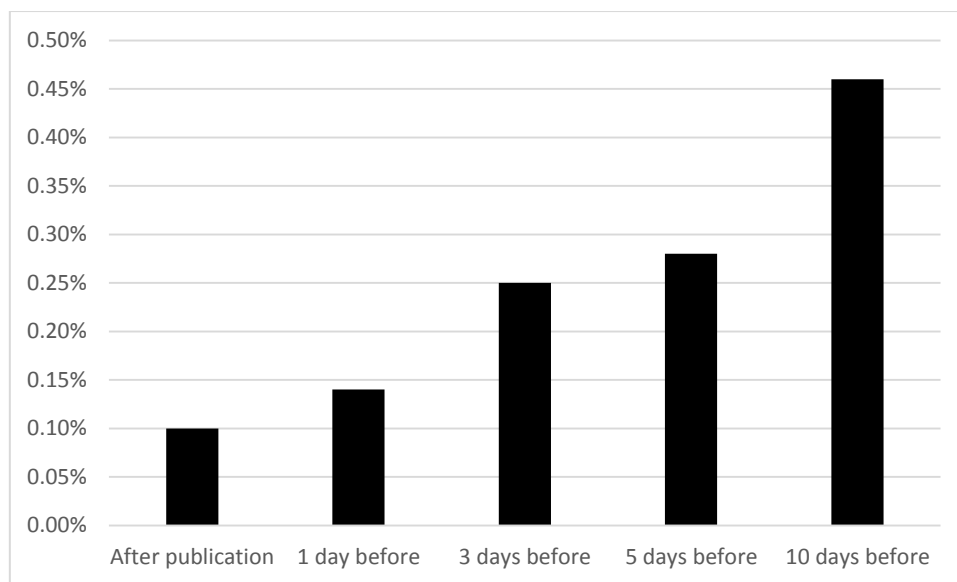


|        | After publication | 1 day before | 3 days before | 5 days before | 10 days before |
|--------|-------------------|--------------|---------------|---------------|----------------|
| Return | 0.11%             | 0.19%        | 0.31%         | 0.29%         | 0.37%          |

Source: Own calculation

If we buy stock 1, 3, 5, or 10 days before the announcement of results, we can expect an abnormal return on investment of 0.14%, 0.25%, 0.28%, or 0.46%, respectively. Furthermore, the day after the announcement, we can expect a 0.10% abnormal return on our investment (see figure 2).

**Fig. 2** Average alpha before and after the publication of results



|       | After publication | 1 day before | 3 days before | 5 days before | 10 days before |
|-------|-------------------|--------------|---------------|---------------|----------------|
| Alpha | 0.10%             | 0.14%        | 0.25%         | 0.28%         | 0.46%          |

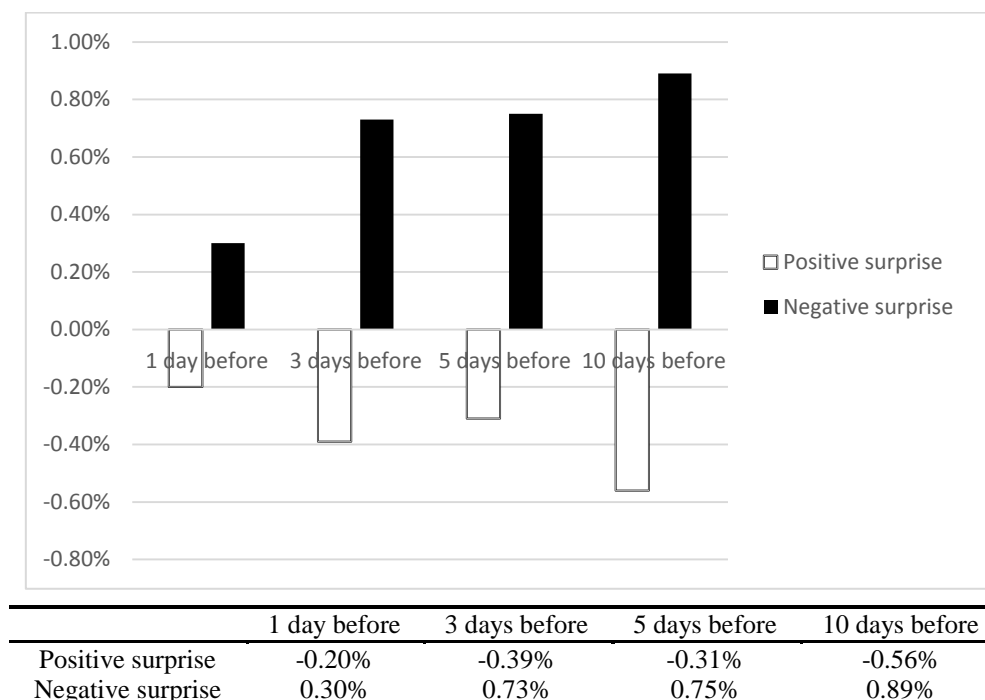
Source: Own calculation

The positive return above the benchmark (WIG) before and after the publication of quarterly results can be justified by the higher risk on investment. The uncertainty of the earnings result causes investors to demand a higher return on investment. After the publication of quarterly results, we observe a higher standard deviation of returns. The higher return can be seen as a premium for taking on this risk. This observation is in accordance with Modern Portfolio Theory (the higher the risk, the higher the potential return).

I also examine whether a surprise (negative or positive) could be anticipated in stock prices before the release of results. If investors are able to predict whether results will be higher (lower) than the market anticipates, the stock should appreciate (depreciate) before the publication date. After the financial statements are prepared, leakage of information about the results might occur. Insider trading (trading on non-public material information) may cause stock prices to rise before a positive surprise and fall before a negative surprise.

In order to check whether insider trading causes the market prices to move upward or downward before the release of quarterly results, I divided the surprises into two categories: positive and negative. Positive surprises occur when excess stock return (stock return less return on the WIG) on the trading day after the publication of results is more than 3%. Negative surprises occur when excess stock return on the trading day after the publication is less than -3%. The results are presented in figure 3.

**Fig. 3** Alpha before the publication of results with a surprise threshold of 3%



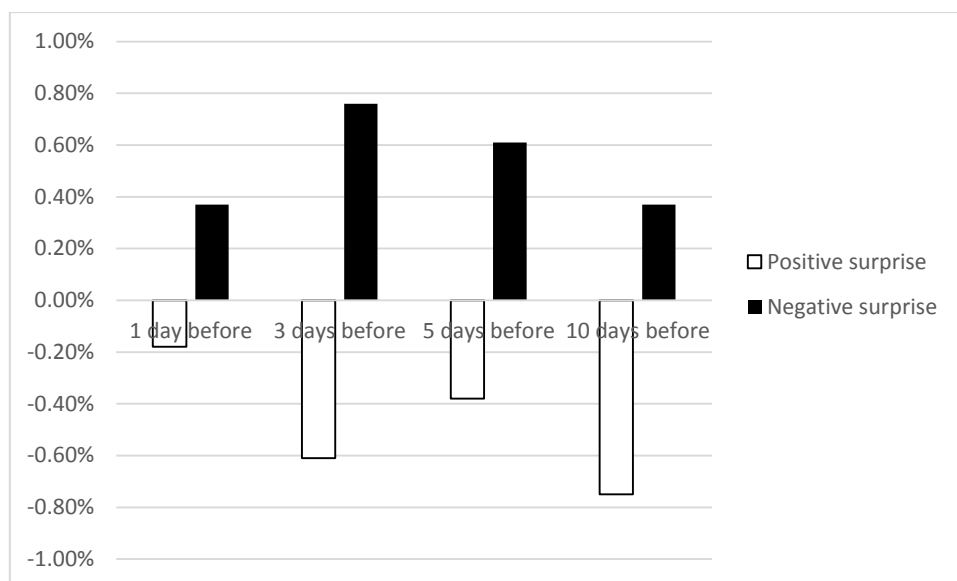
Source: Own calculation

The results show that an insider trading effect is not seen in returns before the publication of results. Moreover, before a positive surprise, we observe negative returns on investment. At 1, 3, 5, and 10 days before publication, stock prices fell on average 0.20%, 0.39%, 0.31%, and 0.56%, respectively. Furthermore, before a negative surprise, stock prices rose at 1, 3, 5, and 10 days before the publication of quarterly results, by 0.30%, 0.73%, 0.75% and 0.89%, respectively.

The mean daily alpha in the whole population is 0.03% and the standard deviation of daily alpha is 2.48%. At the 5% significance level we cannot reject the null hypothesis,  $H_0$ , so the average daily alpha coefficient 1 day before both positive and negative surprises is not significantly different from average alpha in other days.

Setting a higher threshold for a surprise, namely 5% above the WIG indices, gives slightly different results. Before a positive surprise, stocks on the Warsaw Stock Exchange (WSE) tend to underperform WIG. At 1, 3, 5 and 10 days before the publication of financial statements, stocks tended to underperform WIG by 0.18%, 0.61%, 0.38% and 0.75%, respectively. Similar to the 3% threshold data a negative surprise was preceded by an appreciation of shares above WIG by 0.37%, 0.76%, 0.61% and 0.37% in the given periods. The analysis is presented in figure 4.

**Fig. 4** Alpha before the publication of results with a surprise threshold of 5%



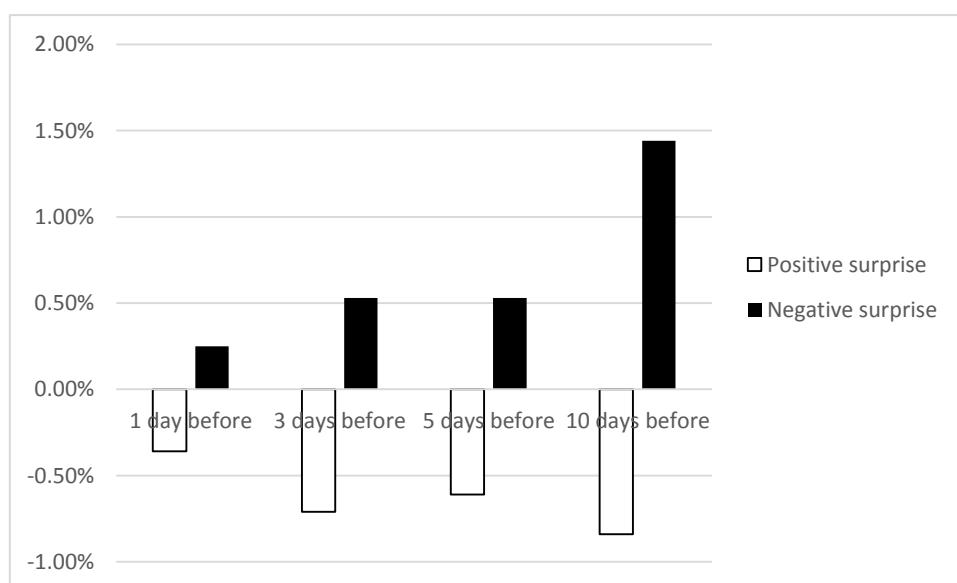
|                   | 1 day before | 3 days before | 5 days before | 10 days before |
|-------------------|--------------|---------------|---------------|----------------|
| Positive surprise | -0.18%       | -0.61%        | -0.38%        | -0.75%         |
| Negative surprise | 0.37%        | 0.76%         | 0.61%         | 0.37%          |

Source: Own calculation

The mean 3-day alpha in the whole population is -0.12% and the standard deviation of 3-day alpha is 4.42%. Using p-value of 0.05 we cannot reject the null hypothesis,  $H_0$ , so the 3-day alpha coefficients before both positive and negative surprises are not significantly different from average alpha in other 3-day periods.

In order to check whether a greater surprise was anticipated before the publication of results, I increased the minimum surprise level to 7%. The analysis is presented in figure 5.

**Fig. 5** Alpha before the publication of results with a surprise threshold of 7%



|                   | 1 day before | 3 days before | 5 days before | 10 days before |
|-------------------|--------------|---------------|---------------|----------------|
| Positive surprise | -0.36%       | -0.71%        | -0.61%        | -0.84%         |
| Negative surprise | 0.25%        | 0.53%         | 0.53%         | 1.44%          |

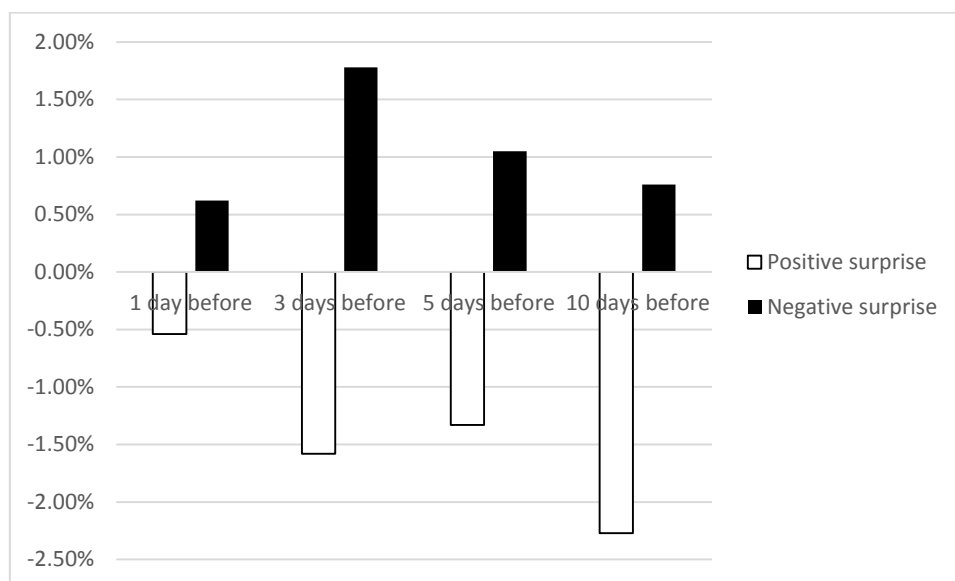
Source: Own calculation

The tendency of alpha before and after the publication of results, regardless of the change in threshold, remained the same. For positive surprises, returns 1, 3, 5, and 10 days preceding announcements were 0.36%, 0.71%, 0.61%, and 0.84%, below the WIG benchmark respectively. Moreover, investors bought stocks before disappointing results. At 1 day, 3 days, 5 days, and 10 days before a significant fall in the stock price (more than 7%), these stocks outperformed WIG by 0.25%, 0.53%, 0.53%, and 1.44%, respectively.

The mean 5-day alpha in the whole population is -0.19% and the standard deviation of 5-day alpha is 5.59%. Using p-value of 0.05 we cannot reject the null hypothesis, H<sub>0</sub>, so the average 5-day alpha coefficients before both positive and negative surprises are not different from average alpha in other 5-day periods.

Finally, in order to examine the behavior of stocks before a large surprise, I increased the surprise level to 10%. The results are presented in figure 6.

**Fig. 6** Alpha before the publication of results with a surprise threshold of 10%



|                   | 1 day before | 3 days before | 5 days before | 10 days before |
|-------------------|--------------|---------------|---------------|----------------|
| Positive surprise | -0.54%       | -1.58%        | -1.33%        | -2.27%         |
| Negative surprise | 0.62%        | 1.78%         | 1.05%         | 0.76%          |

Source: Own calculation

The data confirm the previous analysis. Moreover, the results are even stronger.

The negative alpha before a positive surprise suggests that investors are particularly bad at predicting positive surprises. At 1 day before a positive surprise of more than 10%, stocks underperform the market by 0.54%. At 3 days, 5 days, and 10 days before an earnings announcement, stocks underperform even more dramatically, by 1.58%, 1.33%, and 2.27%, respectively. The larger the positive surprise, the greater the negative alpha.

The mean 10-day alpha in the whole population is -0.39% and the standard deviation of 5-day alpha is 8.10%. Using p-value of 0.05 we cannot reject the null hypothesis, H<sub>0</sub>, so the average 10-day alpha coefficients before both positive and negative surprises are not different from average alpha in other 10-day periods.

We observe, as in the previous tables, the opposite tendency before a large negative surprise. At 1 day before a massive drop in stock price, excess returns were on average 0.62%. At 3 days, 5 days, and 10 days before the publication of disappointing results, excess returns were on average 1.78%, 1.05%, and 0.76%, respectively. The results show that investors were poor at predicting not only positive surprises but also negative surprises. The larger the negative surprise after the publication of quarterly results, the higher the positive alpha before publication.

#### 4. Conclusions

My examination of the return on stocks before the release of quarterly results shows that the effect of insider trading before a release of quarterly results is not seen on the Warsaw Stock Exchange. Moreover, the opposite tendency is observed. Stocks appreciate in value just before a negative surprise and depreciate just before a positive surprise. This finding is contrary to Szyszka (2003) who finds statistically significant abnormal returns

before the publication of quarterly results. The difference may be attributed to different definitions of surprising results. In previous research, surprise was defined as a significant difference of net profit from that of previous quarters, whereas I define surprise as a rapid change in stock price following the publication of quarterly results. The second reason for the discrepancy may be the fact that the previous research was conducted on a less developed market (1997-2000). In a less developed market, anomalies are expected to be stronger than in a more developed market. The current research was conducted more than 10 years later. During this time the Polish stock market had developed and become more efficient.

The appreciation of stocks before publication of surprisingly bad results and the depreciation of stocks before publication of surprisingly good results can be explained by behavioral finance. According to behavioral finance, investors pick stocks not by fully analyzing them but based on pieces of information. This process is called satisfying. Investors read the news, analyses, and forecasts before buying shares. They tend to buy stocks that are expected to show good results. Thus, several days before the release of results, they buy shares, increasing the demand for the stock and causing a positive alpha. After the publication of the results, they tend to sell the shares because the expectations were not met.

Following a similar logic, investors read the news and sell stocks that are expected to publish weak results. The higher supply of shares causes stock prices to fall. The lower expectations before publication lead to investors buying shares of a company following the publication of good results.

It is worth noting that before the publication of quarterly financial statements, stocks usually appreciate. This is in accordance with Modern Portfolio Theory. Companies listed on the Warsaw Stock Exchange tend to appreciate at 1, 3, 5, and 10 days before the publication of results. At 10 days before the announcement of results, investors were able to earn a 0.46% positive abnormal return. The closer to the date of publication, the lower the uncertainty; investors take on less risk and the alpha is lower but still positive. The risk premium amounts to 0.28% at 5 days before publication, to 0.25% at 3 days before publication, and to 0.14% at 1 day before publication.

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