Empirical Paper

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Stock price reaction to an arrangement approval in restructuring proceedings – the case of Poland

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Abstract: The study aims to empirically analyze the reaction of stock prices to the information about the conclusion and acceptance of a debtor–creditor arrangement under restructuring proceedings of companies listed on the stock exchange in Poland. The following main research hypothesis was verified: public disclosure of information about an arrangement conclusion and acceptance in restructuring proceedings results in above-average rates of return due to investments in the stocks of these entities in the short term. Three events were assessed: the public disclosure of information about the conclusion of a debtor–creditor arrangement (Event 1), its approval by a court (Event 2), and the decision becoming final (Event 3). The research method applied was the event study. Event 1 and Event 3 leads to an above-average and statistically significant increase in stock prices on the day of the event. In contrast, no statistically significant above-average rates of return accompanied Event 2.

Keywords: event analysis, market efficiency, price reaction, restructuring proceedings
JEL classification codes: G11, G14

1 Introduction

Elon Musk's recent statements about accepting Dogecoin and not accepting Bitcoin as a form of payment for Tesla's products have reverberated through capital markets. His statements resulted in a significant change in the prices of these cryptocurrencies [Iyengar, 2021; Thorbecke, 2022]. This example shows that the disclosure of certain information can materially affect the prices of financial instruments. It is not an isolated case, and the number of events that impact the capital market returns studied by scholars continues to grow [Binder, 1998; Corrado, 2011; Wang and Ngai, 2020]. The origins of event analysis date back to the 1930s [Sorokina et al., 2013], whereas advanced methodology for this form of study was proposed by Fama et al. [1969] in an article entitled *The Adjustment of Stock Prices to New Information,* and it was further developed by many researchers [Brown and Warner, 1980, 1985; Dyckman et al., 1984]. Apart from the price reactions of different assets in capital markets to the events, the analysis also covers the events' impact on the volatility of the prices as well as their trading volume and liquidity [Yadav, 1992; Essaddam and Mnasri, 2015; Gurgul, 2020; Tweneboah-Koduah et al., 2020; Yue, 2021]. The studies examine the impact of positive, negative, and false event announcements on the above-mentioned variables. Due to their large number, it is

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difficult to specify all the events analyzed so far. They include, for example, fake news [Clarke et al., 2019], publishing information regarding stock exchange recommendations [Liu et al., 1990], mergers [Keown and Pinkerton, 1981; Rosen, 2006], profits [De Bondt, 2000, pp. 71–81], stock splits [Gulen and Hwang, 2012], planned dividend payments [Michaely et al., 1995], corporate strategy, customers and partners, products and services, management changes, legal developments [Neuhierl et al., 2013], unexpected deaths of senior corporate executives [Johnson et al., 1985], corporate governance [Brogi and Lagasio, 2018], frauds [Sharma and Verma, 2020], R&D process [Perez-Rodriguez and Valcarcel, 2012], daily coronavirus confirmed cases and deaths [Ashraf, 2020], corporate social responsibility (CSR) [Pérez et al., 2020], voluntary integrated report publication [Nakajima and Inaba, 2021], and information security events [Ali et al., 2021], as well as changes in environmental policies and regulations in the US during Donald Trump's presidency [Nerger et al., 2021], coronavirus outbreak [Liu et al., 2020; Mirza et al., 2020; Singh et al., 2020], terrorist attacks [Tahir et al., 2020], and environmental pollution [Bouzzine, 2021]. The impact of these events was examined at different time intervals, i.e., seconds, minutes, days, months, or years [Kothari and Warner, 2007; Dutta and Dutta, 2015; Mazza, 2015; Lalwani et al., 2019].

In addition to the above-mentioned circumstances, significant events, which directly affect many companies and impact their results, are related to bankruptcy and restructuring proceedings. Within these proceedings, it is possible to identify many key moments and communications about them that significantly impact the value of companies. These include, for example, filing for the initiation of bankruptcy or restructuring proceedings, dismissal of the bankruptcy or restructuring application by a court, concluding a debtor–creditor arrangement under restructuring proceedings, executing an arrangement, etc. The literature on the subject includes analyses of price reactions only to some of the above events and only to a limited extent. However, no research shows whether and to what extent concluding a debtor–creditor arrangement affects the rate of return on stocks of public companies. It is worth mentioning here that the implementation of the agreement requires the realization of three minor stages, namely: conclusion of a debtor–creditor arrangement, court approval of the arrangement, and arrangement approval becoming final. These events are a crucial part of the restructuring process, and they are necessary but not sufficient to restructure the company successfully. In our opinion, the lack of studies on this topic constitutes a research gap that this paper fills. The proposed research objective is to *identify stock price reactions to the conclusion and acceptance of an arrangement under restructuring proceedings of companies listed on the Polish stock market*. Companies listed on the main market of the Warsaw Stock Exchange and on Newconnect, which is a market for smaller entities, were included. Due to the lack of access to a wider database, the research was limited to companies listed on the stock exchange in Poland. However, in terms of capitalization, the Polish capital market is one of the largest after Russia among the post-communist countries in Central and Eastern Europe [FESE, 2021]. Because entering into an arrangement in restructuring proceedings is positive information for investors, the following main research hypothesis was proposed: *public disclosure of information about the conclusion and acceptance of an arrangement in restructuring proceedings results in above-average rates of return due to investments in the stocks of these entities in the short term*. The studies were conducted using daily time intervals. The research method used was event studies, and information about the arrangements was obtained from Electronic System for Information Transmission (ESPI) between October 2004 and June 2021.

Besides the introduction, the paper structure is as follows. The second section outlines the theoretical background. It presents the directions of bankruptcy and restructuring law changes in Poland and the EU. Moreover, it contains information on regulations and statistics concerning bankruptcy and restructuring in Poland and depicts concluding and accepting an arrangement. The key role of an arrangement between a debtor and creditors in the successful restructuring of a company is underlined, which can significantly impact the business value. It also presents the results of previous event studies concerning bankruptcy and restructuring processes in Poland and abroad. The third section presents the methodology with particular reference to the description of the event analysis method used in the study. The fourth section presents the research results. The final section discusses the findings, limitations, and implications of the research.

2 Restructuring proceedings in Poland and literature on restructuring effects

In the 21st century, EU countries, among others, launched initiatives to implement the second chance policy. These initiatives are described in many documents and legal acts, among which we can mention: *Overcoming the Stigma of Business Failure – for a Second Chance Policy. Implementing the Lisbon Partnership for Growth and Jobs* [2007]*; Think Small First. A Small Business Act for Europe* [2008]*; Business Dynamics: Start-ups, Business Transfers and Bankruptcy. The Economic Impact of Legal and Administrative Procedures for Licensing, Business Transfers and Bankruptcy on Entrepreneurship in Europe* [2011]*; Report of the Expert Group: A Second Chance for Entrepreneurs: Prevention of Bankruptcy, Simplification of Bankruptcy Procedures and Support for a Fresh Start* [2011]*; Commission Recommendation of 12 March 2014 on a New Approach to Business Failure and Insolvency* [2014]*; Entrepreneurship 2020. Action Plan. Reigniting the Entrepreneurial Spirit in Europe* [2013]. A key role in carrying out this policy is played by regulations and institutions that impact the effectiveness of business restructuring. Initiating corrective actions in the early stage of a crisis and allowing a continuation of business activity rather than its closure often contributes to maintaining jobs and has a positive impact on the economy [Falke, 2002; Hausemer et al., 2016; Kilborn, 2016, p. 583; Graham et al., 2019]. It also improves the financial health of companies and increases their value. However, this does not mean that every distressed company should be restructured. At the initial stage of proceedings, it is important to separate those entities that can improve their financial condition from those that do not show such promise. In the latter case, it is advisable to liquidate them. In order to improve actions for the implementation of the second chance policy in the EU countries, including among others, improvement of the effectiveness of restructuring proceedings, *Directive (EU) 2019/1023 of the European Parliament and of the Council of 20 June 2019 on preventive restructuring frameworks, on discharge of debt and disqualifications, and on measures to increase the efficiency of procedures concerning restructuring, insolvency and discharge of debt* was adopted. Despite steps taken to harmonize legislation, regulations on bankruptcy and restructuring are not uniform in the EU Member States and other countries [Newman, 2021]. In some states, provisions concerning bankruptcy and restructuring proceedings constitute a single legal act, while in others, they are regulated in two different ones. In addition, there are several recovery solutions adjusted to the requirements of individual countries. Hence, it can be seen that specific regulations are proposed for smaller and larger companies and different types of business entities (e.g., banks, insurers), depending on the financial condition of the entity. These regulations also differ, inter alia, in areas such as seniority of claims, voting rules on the agreement, the required majority for approval of the agreement, the appointment of creditors' committee, cramdown policy, new financing rules, the position of management, personal liability of directors, and release from debts [Clifford Chance, 2019; Restructuring & Insolvency/Chapters, 2022].

In Poland, several types of restructuring proceedings can be distinguished depending on the level of court involvement and complexity, among other things. Thus, there are proceedings where the entire procedure takes place out of court and those where the court's influence on the course of the recovery procedure varies – from full control to the court's activity limited to approving an arrangement, stating its execution or discontinuance [McCormack et al., 2016; Morawska et al., 2020]. After World War II, when Poland had a planned economy, the Polish bankruptcy and composition law was practically dead. However, formally relevant regulations existed from 1934, i.e., *the Regulation of the President of the Republic of Poland of 24 October 1934a, Bankruptcy Law and the Regulation of the President of the Republic of Poland of 24 October 1934b, Law on Composition Proceedings*. Only after the initiation of economic transformation, starting from 1990, did bankruptcy and composition proceedings begin to be conducted under the 1934 regulations. These regulations applied until 2003, when a new bankruptcy and reorganization law was introduced [Bankruptcy and Reorganisation Act of 28 February 2003]. This law, with amendments, continued to be in force until the end of 2015. It provided for three basic proceedings, i.e. liquidation, composition, and recovery. The first two were intended for insolvent entities and the last for entities at risk of insolvency. After it was in force for several years, it turned out that this law did not work in practice, i.e., the proceedings were

very long and costly and the number of arrangements small. Recovery proceedings were rare. Hence, a new restructuring law [*Restructuring Act* of 15 May *2015*] came into force from the beginning of 2016. Since then, bankruptcy proceedings have been governed by the above-mentioned 2003 act, while the restructuring law provides for several procedures of a corrective nature that differ in terms of court intervention and the degree of formalization.

As shown in Figure 1, the grounds for initiating a recovery procedure are insolvency or the risk of insolvency. Proceedings for the approval of an arrangement are among the least formalized. Most actions take place out of court. The debtor negotiates independently with their creditors to conclude an arrangement. The court only decides whether to approve such an arrangement. Other proceedings take place with greater court involvement. Accelerated composition proceedings are less formal than composition proceedings. Moreover, the latter concern a larger number of disputed receivables. Of all restructuring proceedings, recovery proceedings are among the most complex and involve the greatest influence of the court and the appointed supervisor on its course. However, they make it possible to restructure the debtor's company using more advanced restructuring measures than other proceedings. It also guarantees the greatest protection from creditors. During the COVID-19 pandemic, an additional temporary solution was introduced in the form of simplified arrangement approval proceedings (simplified restructuring proceedings), the provisions of which were in force until November 30, 2021 [Act of 19 June 2020 on Subsidisation of Interest on Bank Loans Granted to Entities Affected by COVID-19 and Simplified Arrangement Approval Proceedings Due to COVID-19, as amended]. These proceedings were conducted almost entirely out of court, with a 4-month maximum time limit for an arrangement.

One of the key steps in all restructuring proceedings is concluding a debtor–creditor arrangement and its acceptance by a court. Figure 2 shows the main stages of successful composition proceedings.

In the first stage, arrangement proposals are presented, and negotiations are held between the debtor and the creditors. Arrangement approval requires obtaining a legal majority as measured by both the

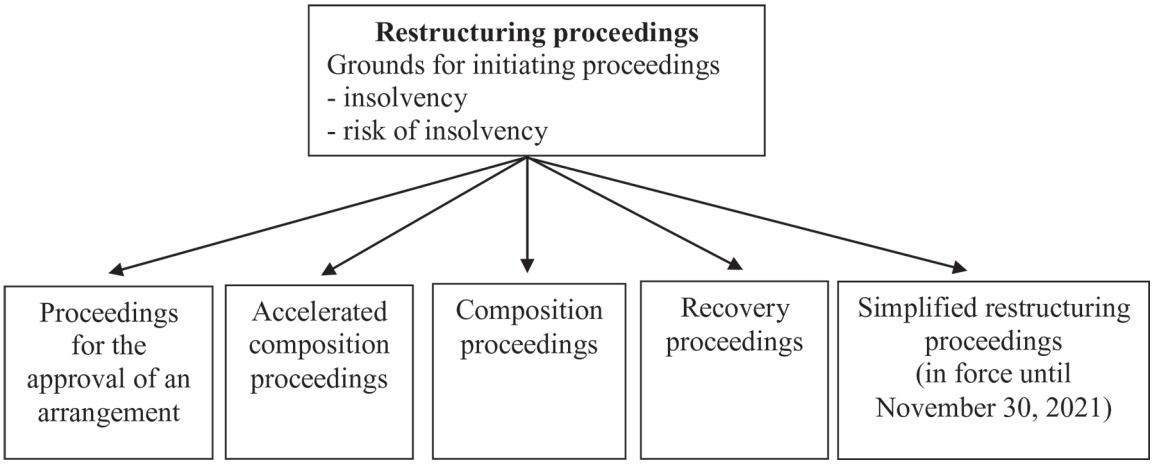


Figure 1. Types of restructuring proceedings in Polish law.
Source: Own elaboration.

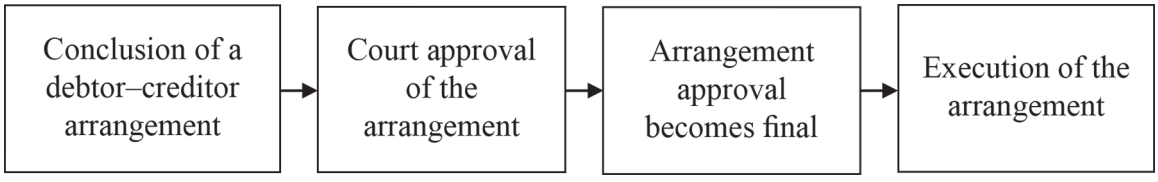


Figure 2. Stages of successful composition proceedings.
Source: Own elaboration.

number of votes and the value of the receivables. After the arrangement is concluded, the participants in the composition proceedings may report objections. After considering these objections and verifying the legality of the arrangement, the court approves or rejects it. The court's decision may be appealed. The final element required is the decision on the arrangement approval to become final. In the next stages, the company takes corrective actions and, at the same time, implements the provisions of the composition agreement. Successful proceedings end with the execution of the arrangement. If there are any problems with implementing the arrangement, the law provides a procedure for amending it. If the arrangement amendment is not effected or the circumstances indicate that it will not be executed, the arrangement is revoked and expires. Such situations often result in a declaration of bankruptcy.

One of the main problems in Poland was the relatively small share of insolvent companies that used legal bankruptcy and reorganization procedures, including a very low share of restructuring companies in relation to liquidated units. As shown in Table 1, it was not until the introduction of the new restructuring law and the simplified restructuring proceedings due to the COVID-19 pandemic that this trend was reversed. However, given the new law has been in force for a short time, it is difficult to accurately assess these changes for now, as many of the existing composition procedures have not been successful, and a large portion of the procedures is not finished yet [Zaremba, 2020].

There has not been much research using event analysis that would address bankruptcy and restructuring processes in the existing literature on the subject. For example, Clark and Weinstein [1983] and Schatzberg and Reiber [1992] reported a short-term stock price reversal effect following the publication of information about filing for the initiation of recovery proceedings in the US, i.e., significant drops in prices over the filing period were followed by an abnormal return rate. A similar effect was demonstrated by Datta and Iskander-Datta [1995], and Dawkins et al. [2007]. Coelho and Taffler [2008] studied the long-term impact of filing for a recovery procedure in the US. It turned out that 12 months later, the average abnormal return (AAR) rate was negative. Rose-Green and Dawkins [2000] revealed that companies initiating liquidation bankruptcy proceedings achieved larger price drops than companies filing for recovery proceedings. Meanwhile, Bonnier and Bruner [1989] showed that providing information about management board changes in distressed companies generates short-term positive price changes. Moreover, Chen and Church [1996] concluded that companies applying the going concern assumption achieved less negative returns than companies not doing so when the bankruptcy filing was made public. In addition to the above studies on listed companies in the US, analyses on the Malaysian and Polish markets were also conducted. In Malaysia, companies reporting bankruptcy generated a negative abnormal return in the short term. Furthermore, re-emerged firms experienced significantly less negative abnormal returns compared to delisted ones [Ahmad et al., 2016]. Similar observations were true to the Polish capital market – stock prices reacted negatively in the short term to the information about filing for liquidation bankruptcy or restructuring. However, the reaction was more severe in the case of companies filing for liquidation bankruptcy. It is worth mentioning that higher negative above-average returns were reported for companies listed on the less liquid stock market [Prusak and Potrykus, 2021a]. Another study concerned the reaction of stock prices to involuntary bankruptcies filed by creditors in bad faith. The study revealed that information about these applications did not generate negative above-average returns in the short term [Prusak and Potrykus, 2020].

The literature analysis shows that there is little research on price reactions to bankruptcy and restructuring processes. Most studies were devoted to analyzing the price reactions to the public disclosure of information about filing bankruptcy or restructuring. No research on stock price reactions to the news of arrangement that accounts for the success of the corporate recovery process has been carried out so far. The conclusion of an agreement between the debtor and the creditors is necessary for a successful restructuring. However, an arrangement often involves parties with different objectives and expectations, and diverse access to information. In addition, in many legal orders, we have to deal with so-called privileged claims and claims secured by the debtor's assets, making it even more challenging to reach a compromise [McCormack, 2017]. In the literature, this problem is extensively presented within the framework of contract theory, which examines the conclusion of formal and informal contracts by parties representing diverse interests and with different levels of information [Jackson, 1982; Schwartz, 1998; von Thadden et al., 2010; Lipson, 2016; Adler and Triantis, 2017; Silva and Saito, 2018; Skeel, 2020; Warren et al., 2021]. Furthermore, the creditors'

Table 1. Bankruptcies and restructurings in Poland in 2005–2021

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bankruptcy (liquidation) proceedings (business activities)	793	576	377	348	572	538	616	711	703	701	650	530	537	558	574	507	373
Bankruptcy proceedings with the possibility to make an arrangement (in accordance with the Bankruptcy and Reorganisation Act of 28 February 2003)	n/a	n/a	70	63	119	117	107	166	180	122	91	26	-	-	-	-	-
Restructuring proceedings (in force under the Restructuring Act of 15 May 2015)	-	-	-	-	-	-	-	-	-	-	-	204	348	417	445	380	562
Simplified restructuring proceedings (out of court, in force until November 30, 2021)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	356	1190

Source: Coface Reports [2009, 2013, 2019, 2021a, b, 2022].

vote on the arrangement is preceded by many analyses and valuations included in the restructuring plan. An agreement between the various creditor groups and the debtor on the shape of the arrangement may constitute positive information for investors [Chen et al., 1995; Garrido et al., 2021, pp. 16–25]. Consequently, on the grounds of signaling theory [Yasar et al., 2020], this positive information should therefore translate into higher stock prices in the short term. This assumption forms the basis for the hypotheses used in this study, which have been presented below. In the longer term, stock valuation is determined by a number of factors affecting the degree of implementation of the restructuring plan, which provides a benchmark in evaluating the company's operations and valuation.

Given that, the following main research hypothesis was proposed: *public disclosure of the information about an arrangement conclusion and approval in restructuring proceedings results in above-average rates of return on stocks in the short term*. As presented in Figure 2, concluding and approving a debtor–creditor arrangement consists of several steps. Successful completion of each stage involves positive information for the restructured entity. With this in mind, the following auxiliary hypotheses were proposed to verify the main hypothesis:

H1P: *Public disclosure of an arrangement conclusion in restructuring proceedings results in above-average stock return rates (Event No. 1).*

H2P: *Public disclosure of the court approval of an arrangement in restructuring proceedings results in above-average stock return rates (Event No. 2).*

H3P: *Public disclosure of an arrangement approval in restructuring proceedings becoming final results in above-average stock return rates (Event No. 3).*

3 Empirical research

3.1 Methodology

In the study, we only analyzed the short-term impact of the event on investment returns. Therefore, we did not consider firm-specific characteristics concerning at least their financial condition. This is because: (1) these characteristics could influence the return on investment, but over a longer period; (2) research conducted so far shows little or no difference in financial condition between companies that have and have not concluded an arrangement [Zaremba, 2020; Prusak and Galiński, 2021].

Due to the nature of the study and the use of event analysis, the examination was based on the companies listed on the stock exchange. This is because only these companies provide information about their stock prices. Taking into account data access, the study was limited to companies listed on the main market of Warsaw Stock Exchange and Newconnect. The information about arrangements was obtained from ESPI. In the first stage, over 390,000 current reports on the Polish Press Agency (PAP) websites from October 2004 to June 2021 were analyzed to select companies that initiated restructuring proceedings and concluded an arrangement with creditors. Based on the data analysis, all companies that entered into an arrangement in the indicated period were selected for further examination. Subsequently, the following data were considered: date of court's decision on arrangement or restructuring proceedings, date of public disclosure of information about the conclusion of a debtor–creditor arrangement, date of public disclosure of information about the court's approval of the arrangement, and date of public disclosure of information about the arrangement approval decision becoming final. It is worth mentioning that not all arrangements received court approval, but some approval decisions did not become final. In several cases, there are no data. Hence, the number of observations for the three study groups is not the same. The final number of the companies studied in three separate groups is shown in Table 2.

In addition to arrangements not approved by a court or decisions not becoming final, the final study sample was also limited by the lack of price changes within the adopted estimation window for five companies (see Appendix 1). Apart from these cases, the final study sample contains all companies quoted

Table 2. Number of observations by three study groups

	Arrangements concluded (Event No. 1)	Arrangements approved by a court (Event No. 2)	Arrangements becoming final (Event No. 3)
Population of the companies under study	37	36	32
Final study sample	32	32	30

Source: Own elaboration.

Table 3. Descriptive statistics for the number of days from the public disclosure of information about the studied events

No.	Descriptive statistics	Situation 1	Situation 2	Situation 3
1	Arithmetic mean	41.3	132.2	90.9
2	Median	23.0	100.5	76.0
3	Mode	14.0	56.0	41.0
4	Standard deviation	47.4	90.2	61.6
5	Kurtosis	7.9	0.3	0.4
6	Skewness	2.8	1.1	1.0
7	Range	198.0	319.0	238.0
8	Minimum	12.0	27.0	13.0
9	Maximum	210.0	346.0	251.0

Source: Own elaboration.

on Warsaw Stock Exchange (WSE) that underwent the analyzed procedure. The full list of companies and the assumed event dates for the three separate events and the start as well as the end dates of the estimation window are shown in Appendix 1.

Since information on the studied events could have been reported outside an active trading session, i.e., after the closure of a trading session or on a day free from trading sessions, the date of the event was assumed to be the date of the next trading session. All such cases for which the event date differed from the public disclosure date are indicated in bold in Appendix 1. The public disclosure of information about a given event, depending on its occurrence during an active trading session or outside it, was also the basis for grouping the studied sample into two subsamples, because—as demonstrated in previous studies—the information appearing during an active trading session has a different impact on the trading than in cases when the trading session is not active [Prusak and Potrykus, 2021b]. The sample also includes one company (see Appendix 1) that went through the entire procedure twice – first in 2011 and then in 2018.

To better illustrate the data, basic descriptive statistics were also determined for the studied events based on the number of days between:

- creditors' approval of the arrangement and the court approval of the arrangement (Situation 1);
- creditors' approval of the arrangement and the decision becoming final (Situation 2); and
- court approval of the arrangement and the decision becoming final (Situation 3).

The results are shown in Table 3.

Based on Table 3, it can be observed that the average time between the public disclosure of information about the creditors' approval of the arrangement and the court approval of the arrangement exceeds 41 days, with the most common time being 14 days. Moreover, for half of the cases studied, this time was less than 23 days. However, the longest gap between these two events was as long as 210 days. On average, the time between the public disclosure of the information about the creditors' approval of the arrangement and the decision becoming final exceeded 132 days, with a standard deviation of nearly 90 days. For half of the cases, the time was less than 100.5 days. On average, there were nearly 91 days, with a standard

deviation of 61.6 days, between the public disclosure of the court approval of the arrangement and the decision becoming final. This was less than 76 days for half of the cases, but the maximum time between these two events was 251 days, and the minimum was only 13 days. The above data show that the whole procedure can be shortened considerably on the part of the court.

It should also be noted that the analysis used daily time intervals. The event window under study was from 1 day before the event to 4 days after the event occurrence. Notably, a common estimation period was used for all three events to determine the market model parameters used to calculate above-average rates of return. We used the market model according to Sharpe [1963], and Corrado [2011]. The chosen market model was also strengthened by the conclusions of Castro-Iragorri [2019]. One such common estimation window allowed us to exclude disturbance events that result from the very close proximity of the examined events. A graphic representation of the course of the conducted study is given in Figure 3. The length of the estimation window was applied for 100 data points, with the last observation being 5 days before the public disclosure of the conclusion of a debtor–creditor arrangement. For that reason, in Figure 3 the estimation window, "–5" can be found at the ending point for it. And at the beginning point, the estimation window is marked with "–105" according to the length of the estimation window equal to 100 observations.

The WIG index (Warsaw Stock Exchange Index) was employed as a benchmark. Logarithmic rates of return were applied for all calculations because they generate better test specifications than tests conducted based on arithmetic returns [Corrado and Truong, 2008]. The calculations were performed in R software [R Core Team, 2020] using the EventStudy package [Schimmer et al., 2015]. In addition, the adjusted Patell test was utilized to assess the statistical significance of the results; it was carried out following the methodology in Kolari and Pynnönen [2010]. The study determined the AAR and cumulative average abnormal return (CAAR) rates for the three studied events in all companies, breaking companies into subsamples by the time the event was reported (during the trading session or outside the trading session). We verified our three hypotheses based on the AAR value and, using the available data corresponding to the event day AAR(0) and additionally taking into account the CAAR, performed an adjusted Patell test calculated specifically for this value. The CAAR rate is used for checking the durability (if it exists) of the calculated positive abnormal rate of returns in a short period (event window). Using CAAR we will also be able to verify, in a case of a negative abnormal rate of return, if the reversal effect exists for Polish companies and is statistically

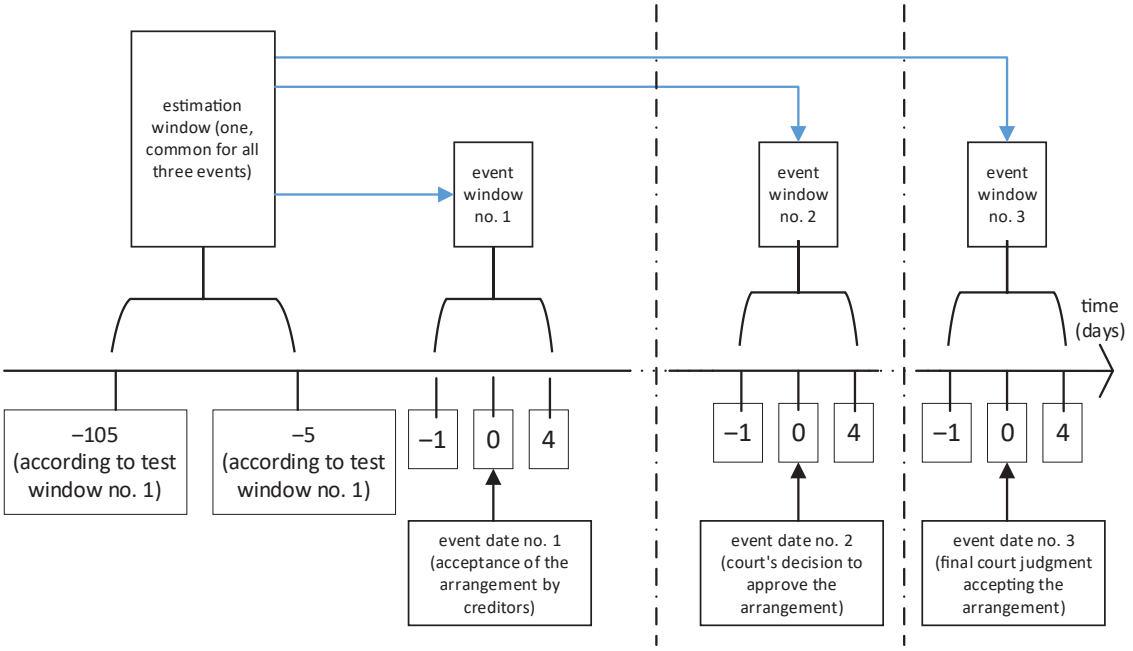


Figure 3. Graphic representation of the conducted event analysis.
Source: Own elaboration.

significant, as was discussed in this paper in a theoretical part for US companies, and as corroborated in the studies of Clark and Weinstein [1983], Schatzberg and Reiber [1992], Datta and Iskander-Datta [1995], and Dawkins et al. [2007].

3.2 Results

Table 4 shows the results for all three events under study. For each event, the following rows show the AAR for each day of the event window, the adjusted Patell Z statistic test, and the *p*-value. In addition, in the case of statistical significance of at least 0.1, the symbol "*" was used, and for 0.05 and 0.01 levels of significance, "**" and "***" were used, respectively. For each of the three events, in addition to the results of the entire study sample (denoted by the ALL grouping variable), the results were also presented in an identical arrangement by events that occurred during the active trading session (indicated by the IN grouping variable) and outside the active trading session (denoted by the OUTSIDE grouping variable). The sample size of each study was presented next to the name of the grouping variable by giving its "N" value.

Table 4. Event analysis results, including AAR values

Event No.	Grouping variable/test statistics	AAR (−1)	AAR (0)	AAR (1)	AAR (2)	AAR (3)	AAR (4)
1	ALL (*N* = 32) AAR	−2.4%	2.0%	2.5%	−0.4%	−2.2%	−2.9%
	Adjusted Patell Z	−2.066	1.991	1.680	−1.894	−2.311	−0.992
	Adjusted Patell Z *p*-value	0.039**	0.047**	0.093*	0.058*	0.021**	0.321
	IN (*N* = 24) AAR	−2.2%	2.0%	4.5%	0.2%	−1.4%	−3.3%
	Adjusted Patell Z	−1.515	1.670	2.768	−1.615	−1.535	−0.772
	Adjusted Patell Z *p*-value	0.130	0.095*	0.006***	0.106	0.125	0.440
	OUTSIDE (*N* = 8) AAR	−3.0%	1.9%	−3.5%	−2.2%	−4.6%	−1.7%
	Adjusted Patell Z	−1.513	1.094	−1.438	−0.994	−1.970	−0.649
	Adjusted Patell Z *p*-value	0.130	0.274	0.151	0.320	0.049**	0.516
2	ALL (*N* = 32) AAR	−0.6%	0.3%	−3.6%	1.5%	0.1%	−1.9%
	Adjusted Patell Z	−0.575	0.815	−1.168	0.411	−0.307	−1.089
	Adjusted Patell Z *p*-value	0.566	0.415	0.243	0.681	0.759	0.276
	IN (*N* = 27) AAR	−0.7%	0.5%	−4.1%	2.4%	0.1%	−1.9%
	Adjusted Patell Z	−0.504	1.027	−1.077	0.777	−0.342	−1.145
	Adjusted Patell Z *p*-value	0.614	0.305	0.282	0.437	0.732	0.252
	OUTSIDE (*N* = 5) AAR	−0.2%	−0.6%	−1.2%	−3.1%	0.5%	−1.8%
	Adjusted Patell Z	−0.274	−0.315	−0.441	−0.743	0.018	−0.091
	Adjusted Patell Z *p*-value	0.784	0.753	0.659	0.457	0.986	0.928
3	ALL (*N* = 30) AAR	0.8%	5.2%	−0.6%	2.9%	−2.7%	3.8%
	Adjusted Patell Z	1.209	2.861	1.272	0.882	−1.553	2.290
	Adjusted Patell Z *p*-value	0.227	0.004***	0.203	0.378	0.120	0.022**
	IN (*N* = 17) AAR	−0.8%	9.6%	−3.0%	2.8%	−3.0%	4.5%
	Adjusted Patell Z	0.247	3.905	−0.226	−0.247	−0.054	0.428
	Adjusted Patell Z *p*−value	0.805	0.000***	0.821	0.805	0.957	0.669
	OUTSIDE (*N* = 13) AAR	2.8%	−0.5%	2.6%	3.1%	−2.2%	2.9%
	Adjusted Patell Z	1.552	−0.173	2.195	1.628	−2.299	2.986
	Adjusted Patell Z *p*−value	0.121	0.863	0.028**	0.104	0.022**	0.003***

Source: Own elaboration.

AAR, average abnormal return.

During the first event analysis, i.e., the public disclosure of information about the conclusion of an arrangement by creditors, several statistically significant above-average returns were observed for the entire study sample. On the day of the event, there was a statistically significant above-average and positive return. The calculated AAR rate on that day was 2.0%, with the value being significant at $\alpha = 0.05$. Thus, the H1P hypothesis posed in the introduction of the paper is confirmed. Therefore, it can be concluded that the public disclosure of entering into an arrangement in restructuring proceedings results in an above-average increase in stock prices. This pattern was confirmed on the day of the event, that is, for the day labeled as AAR(0). On the next day, that is, 1 day after the event, there was still an above-average positive return, and although its average value was 2.5%, it was statistically significant at $\alpha = 0.1$. This indicates a relatively long process of the market discounting this positive news. After increases on the day of the event and the day after the event, the next 2 days, i.e., AAR(2) and AAR(3), also saw statistically significant returns (at $\alpha = 0.1$ and $\alpha = 0.05$, respectively). Still, these were above-average negative returns of –0.4% and –2.2%, respectively. Thus, it can be seen that upon receiving such information, the investors try to earn profit quickly (within the next 2 days), which is also illustrated by the AAR rate 3 days after the event. Significantly, also the day before the event, the stocks of companies that are about to conclude an arrangement with creditors show a statistically significant above-average negative return. This can probably be attributed to difficult negotiations and the investors' concern about their success. It is significant, however, that the public disclosure of this positive information results only in a short impulse to obtain above-average positive return rates. The above-average return rates were negative on the other examined days of the event window. While dividing the study sample into two smaller subsamples, it was observed that for companies whose information is published during an active trading session, there are statistically significant positive above-average return rates on the day of the event and the day after. In addition, on the day of the event, the AAR is 2% ($\alpha = 0.1$), and 1 day after the event, it is already 4.5% ($\alpha = 0.01$). It is evident that the investors' reaction is spread over a few days and positive, but with a 1-day delay. This subsample had above-average returns that were not statistically significant on the remaining days. There were only eight cases when the information about arrangement approval appeared outside the active session, and none of the days in consideration saw a statistically significant above-average return. Interestingly, the positive above-average rate of return occurred only on the day of the event, which is likely due to more time the investors had to assess this information when the session was not active. There were above-average negative returns within the event window on the rest of the days analyzed.

The second event results, i.e., the court approval of an arrangement, were somewhat surprising. No statistically significant above-average rates of return were observed in any of the events in this study cross-section. In this context, it was not relevant whether all companies were studied together or by the time of public disclosure. Therefore, there is no basis for considering the H2P hypothesis valid. This means that the public disclosure of information about the court approval of an arrangement does not result in an above-average increase in the stock price of a company. The implication is that investors treat the public disclosure of such news as a formality, and a positive reaction that occurs after concluding an arrangement is not repeated when it is formally approved. This may also be related to the fact that out of 32 studied events, all arrangements gained court approval. Thus, it was not a stimulus to above-average returns because there was no uncertainty associated with it.

The situation is different when the decision on the arrangement approval becomes final. On the day of such an event, all studied companies recorded above-average positive returns of 5.2%, with the highest statistical significance of $\alpha = 0.01$. This means that the validity of the H3P hypothesis is proven. Therefore, it can be concluded that the public disclosure of information about the approval of the arrangement in the restructuring proceedings becoming final results in an above-average increase in the stock price for such a company. It is probably connected with the end of a long-term and difficult process and resuming the "normal" operation of the company, which encourages investors to purchase mostly undervalued stocks. The same effect was also found for companies for which the public disclosure of information was made during the active trading session. On the other hand, for companies for which the public disclosure of the court decision becoming final was made outside the active trading session, above-average and positive return rates were observed the day after the event. Importantly, the increases in the latter case were almost

four times lower. A graphic representation of the AAR rate for the three events analyzed in all companies is included in Figure 4.

Table 5 presents the analysis results in the context of the CAAR rate. Surprisingly, the first two events gave negative cumulative above-average returns in the event window analyzed. Admittedly, when examining the first event for companies for which the information appeared outside the trading session, the result was statistically significant only for the CAAR rate. However, the very fact of achieving negative rates was quite a surprise.

In each cross-section studied, negative rates outnumbered positive ones for the first two events. The authors of this study attribute this to a twin law defined in the literature as the reversal effect [Schatzberg and Reiber, 1992]. This is because, in the case of analyzed Events No. 1 and 2, it turns out that positive information triggered a return rate increase, however short-lived, which was followed by decreases stronger than the initial increase. For the third event analyzed, i.e., the public disclosure of information about the arrangement approval becoming final within the event window, the cumulative above-average return was considerably above zero, distinguishing this event from the previous two. This is related to the much

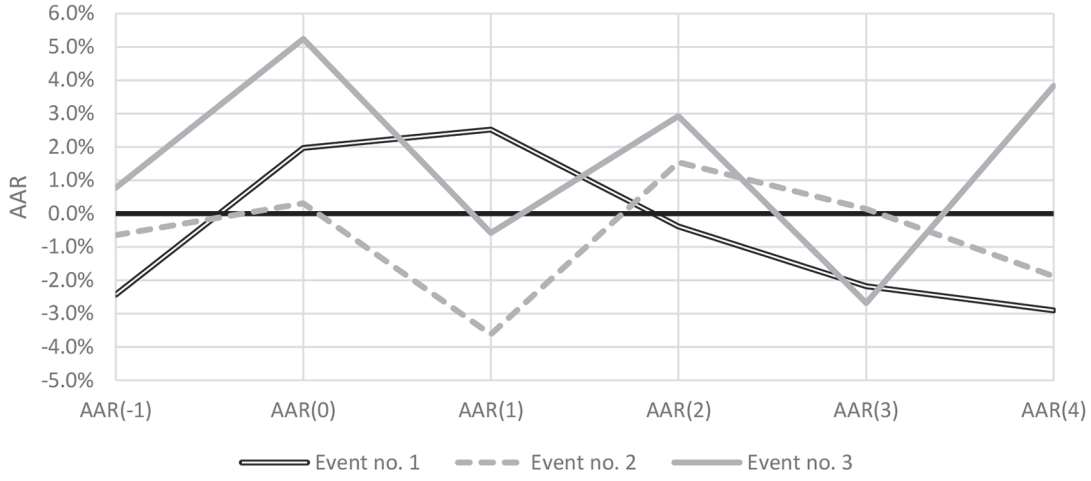


Figure 4. AAR rates during the event window.
Source: Own elaboration. AAR, average abnormal return.

Table 5. Event analysis results, including CAAR rates

Event No.	Grouping variable	CAAR value	Pos:neg CAAR	Adjusted Patell Z	Adjusted Patell Z *p*-value	Statistical significance
1	ALL (*N* = 32)	−3.4%	11:21	−1.392	0.164	
	IN (*N* = 24)	−0.2%	11:13	−0.426	0.670	
	OUTSIDE (*N* = 8)	−13.0%	0:8	−2.005	0.045	**
2	ALL (*N* = 32)	−4.2%	12:20	−0.742	0.458	
	IN (*N* = 27)	−3.8%	11:16	−0.532	0.595	
	OUTSIDE (*N* = 5)	−6.3%	1:4	−0.714	0.475	
3	ALL	9.5%	19:11	2.681	0.007	***
	IN (*N* = 17)	10.1%	11:6	1.618	0.106	
	OUTSIDE (*N* = 13)	8.8%	8:5	2.403	0.016	**

Source: Own elaboration.
CAAR, cumulative average abnormal return.

Table 6. Results from testing the hypothesis

Hypotheses	Based on AAR(0) result	Based on CAAR result
H1P: Public disclosure of an arrangement conclusion in restructuring proceedings results in above-average stock return rates (Event No. 1).	Confirmation of H1P. We observe positive and statistically significant (a = 0.05) abnormal rate of return on the event day.	There is no basis for considering the H1P hypothesis valid due to not observing any (positive or negative) statistically significant abnormal rates of return for ALL sample. The CAAR value is negative, but not statistically significant.
H2P: Public disclosure of the court approval of an arrangement in restructuring proceedings results in above-average stock return rates (Event No. 2).	There is no basis for considering the H2P hypothesis valid due to not observing any (positive or negative) statistically significant abnormal rates of return for ALL sample.	There is no basis for considering the H2P hypothesis valid due to not observing any (positive or negative) statistically significant abnormal rates of return for ALL sample. The CAAR value is negative, but not statistically significant.
H3P: Public disclosure of an arrangement approval in restructuring proceedings becoming final results in above-average stock return rates (Event No. 3).	Confirmation of H3P. We observe positive and statistically significant (a = 0.01) abnormal rate of return on the event day.	Confirmation of H3P. We observe positive and statistically significant (a = 0.01) abnormal rate of return on the event window.

Source: Own elaboration.

AAR, average abnormal return; CAAR, cumulative average abnormal return.

stronger positive reaction on the day of the event and the fact that the arrangement conclusion process ends at this stage, which is an unambiguously positive sign for the investors.

In Table 6, we summarize the findings obtained from testing our various hypotheses based on AAR and CAAR rates.

The data presented in Table 6 are a base for final conclusions that we make in a point presented in the following section, and they also constitute a basis for formulating policy implications for company managers and investors.

4 Conclusions

Our study contributes to the literature in three aspects. First, this study confirmed that in the analyzed companies, the public disclosure of information about entering into the arrangement in restructuring proceedings leads to an above-average and statistically significant increase in stock prices on the day of the event (confirmation of H1P). The same pattern was confirmed in the case of the public disclosure of information about the approval of an arrangement in restructuring proceedings becoming final (confirmation of H3P). In contrast, no statistically significant above-average rates of return were found for the second event analyzed, i.e., the public disclosure of information about the court approval of an arrangement (rejection of H2P). The market approaches such information as a mere formality that has no impact on stock price changes. This means that disclosing information about an arrangement positively impacts the rate of return on investment in the restructured companies in the short term, i.e., on the day of the event. Therefore, the main hypothesis is confirmed.

Second, the highest rates of return were found for the third analyzed event, for which the daily above-average returns were over 5% for all investigated companies and 9.6% for companies whose information was made public during the session. Moreover, the cumulative rate of return for the first two specified events was negative, which the authors of the present study attribute to the occurrence of the short-term reversal effect, the same that was demonstrated in Clark and Weinstein [1983], Schatzberg and Reiber [1992], Datta and Iskander-Datta [1995], and Dawkins et al. [2007]. In contrast, the cumulative above-average return for the third event analyzed was high and positive. Therefore, the completion of the restructuring process when the approval of the arrangement becomes final generates a clear signal for investors to purchase stocks of a given company.

Third, it was found that there were significant differences in the duration of the individual stages of the process analyzed. It was demonstrated that there is considerable room for shortening the legal proceedings, especially the interval between the court approval of an arrangement and this decision becoming final. What is surprising here is the significant variability of the results, expressed by a high standard deviation for the time between Events No. 1 and 2 and between Events No. 2 and 3.

Based on that contribution, we formulated the following implications, which we expect would be valuable for company managers and investors. Company managers should be aware that giving information about any step of restructuring proceedings to the public results in higher movement in company stock price when it is given outside the session. When company managers want to avoid extremely high rates of returns on their shares, they should take care to give all information about the analyzed process during an active session. Based on our conclusions, investors can formulate profitability investment strategies dedicated to companies that go through restructuring proceedings. On the day of the event (Events No. 1 and 3), a good strategy is to buy such shares and sell them at the end of that session for Event No. 1. For Event No. 3, selling should take place in a short-time period, i.e., a maximum of 4 days. In a short period, for Events No. 1 and 2, a short selling strategy is also desired. This is applicable especially in a window (2,4) for Event No. 1, and on the first and fourth day after the event for Event No. 2.

In addition, and this is distinct in the context of previous research, no significant differences were revealed in the results for the cumulative above-average return for events that occurred during the active trading session and the events that were made public outside the active trading session, which was true for all three examined situations. However, such a distribution of the study sample calls for expanded research in the future, as the number of subsamples (especially for the cases outside the session) was relatively small. Moreover, after considering more cases, the study could be supplemented with an analysis of intervals shorter than daily, e.g., minutes. Depending on data availability, which is a major limitation, it may also be possible to perform analogous analyses for other countries and compare the results. The next steps of the research may also include studies to assess the reaction of stock prices to negative information, such as a failure to conclude a debtor–creditor arrangement. In a further stage, the authors also intend to compare the impact of information about concluding an arrangement or failure to do so on stock prices.

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Appendix 1. Study sample structure

No.	Company name	Creditors' approval of the arrangement (Event No. 1)	Court approval of the arrangement (Event No. 2)	Court validation of the arrangement (Event No. 3)	Start of the estimation window	End of the estimation window
1	ACTION	January 10, 2020	August 7, 2020	December 17, 2020	August 6, 2019	January 2, 2020
2	AEDES	February 23, 2017	April 19, 2017		September 26, 2016	February 16, 2017
3	ALUMAST	June 22, 2011	July 5, 2011	July 26, 2011	January 24, 2011	June 15, 2011
4	ATONHT	February 28, 2020	**September 14, 2020**	February 8, 2021	September 25, 2019	February 21, 2020
5	BIOMEDLUB	**June 13, 2016**	**July 12, 2016**	**September 30, 2016**	January 13, 2016	June 6, 2016
6	BUMECH	July 12, 2018	September 19, 2018	March 18, 2019	February 9, 2018	July 5, 2018
7	DREWEX	October 7, 2014	October 28, 2014	**January 12, 2015**	May 12, 2014	September 30, 2014
8	DUDA	**July 27, 2009**	September 15, 2009	September 28, 2009	February 25, 2009	July 20, 2009
9	ELEKTROEX	December 5, 2005	December 21, 2005	**August 1, 2006**	July 7, 2005	November 28, 2005
10	IDEON	August 8, 2013	September 4, 2013	October 15, 2013	March 7, 2013	August 1, 2013
11	IDMSA	September 24, 2019	October 17, 2019	**April 6, 2020**	April 25, 2019	September 17, 2019
12	IMAGIS	January 19, 2017	March 28, 2017	June 14, 2017	August 22, 2016	January 12, 2017
13	INTAKUS	June 3, 2013	June 21, 2013	August 21, 2013	December 27, 2012	May 24, 2013
14	INTERBUD	October 2, 2019	November 14, 2019	**February 21, 2020**	May 7, 2019	September 25, 2019
15	INVICO	June 24, 2016	July 14, 2016	October 13, 2016	January 26, 2016	June 17, 2016
16	MARKA	June 13, 2017	July 18, 2017	September 26, 2017	January 12, 2017	June 6, 2017
17	MIRACULUM	May 23, 2011	June 6, 2011	**July 18, 2011**	December 21, 2010	May 16, 2011
18	MONNARI	**September 30, 2010**	October 22, 2010	**November 9, 2010**	May 6, 2010	September 23, 2010
19	ODLEWNIE	May 4, 2010	May 18, 2010	May 31, 2010	December 1, 2009	April 26, 2010
20	PBG	August 25, 2015	**October 9, 2015**	June 16, 2016	March 26, 2015	August 18, 2015
21	RAFAKO	**December 11, 2020**	January 13, 2021	June 29, 2021	July 17, 2020	December 4, 2020
22	REGNON	December 2, 2011	December 14, 2011	February 20, 2012	July 6, 2011	November 25, 2011
23	REGNON	May 25, 2018	**June 7, 2018**	**August 3, 2018**	December 20, 2017	May 18, 2018
24	RUCHCHORZ	**December 1, 2017**	December 14, 2017	**April 9, 2018**	July 6, 2017	November 24, 2017
25	SATIS	**December 3, 2019**	March 10, 2020	**August 3, 2020**	July 5, 2019	November 26, 2019

(*Continued*)

Appendix 1. Continued

No.	Company name	Creditors' approval of the arrangement (Event No. 1)	Court approval of the arrangement (Event No. 2)	Court validation of the arrangement (Event No. 3)	Start of the estimation window	End of the estimation window
26	SFINKS	February 11, 2021	March 10, 2021		September 10, 2020	February 4, 2021
27	TXM	May 25, 2020	June 17, 2020	August 31, 2020	December 18, 2019	May 18, 2020
28	VISTAL	**July 11, 2019**	July 25, 2019	September 4, 2019	February 8, 2019	July 4, 2019
29	VIVID	September 16, 2020	November 5, 2020	**December 23, 2020**	April 21, 2020	September 9, 2020
30	WILBO	October 29, 2014	November 12, 2014	**January 27, 2015**	June 3, 2014	October 22, 2014
31	WORKSERV	**December 28, 2020**	**January 12, 2021**	**February 22, 2021**	July 30, 2020	December 17, 2020
32	ZREMB	November 15, 2018	December 5, 2018	February 26, 2019	July 19, 2018	November 7, 2018
33	BUDOPOL	December 19, 2015	**February 11, 2016**	May 25, 2016	For these companies, a lack of price changes within the adopted estimation window was observed, and thus they were excluded from the research sample.	
34	ESTAR	**March 25, 2013**				
35	GETBACK	January 25, 2019	June 6, 2019	February 26, 2020		
36	UNIFIED	February 21, 2020	May 14, 2020			
37	VERTE	November 15, 2017	January 19, 2018			

Note: When the event date differed from the public disclosure date (i.e., public disclosure date is a weekend) then such date is indicated in bold.
Source: Own elaboration.