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Management of Enterprises' Finance – Theory and Practice ISSN 1899-3192

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THE IMPACT OF EQUITY BLOCK TRADE TRANSACTIONS ON SECURITY PRICES. EVIDENCE FROM POLAND*

Summary: Equity block trade transactions are executed outside the continuous trading system and the single price system and involve trading of large volumes of shares at an agreed price. There are companies which shares are recurrently the object of block trading activity. The continuous overload of one particular type of information relating to these shares – block trade prices, which may even be dissimilar during the same day – might result in a signal of a zero value to individual investors, even in periods in which block trading activity is rare. In the study I investigate the information content of one particular event – equity block trade transactions. Equity block trade transactions were randomly chosen. Each transaction relates to a company which is included in the WIG 20 index. This particular index gathers 20 biggest companies listed on the Warsaw Stock Exchange (Poland). Shares of these companies are persistently the object of equity block transfers. Two research methods are used: the first being the analysis of the literature and the second one being event study analysis. The applied event study is based on daily stock returns. The estimation window is 50 days long (days prior to the event window). The event window comprises of 1 pre-event day, the announcement day, and 1 post-event day. The single factor market model is used to calculate the normal return. The source of the data is Warsaw Stock Exchange and Emerging Markets Information Systems.

Keywords: event studies, equity block trades; Warsaw Stock Exchange.

JEL classification: G12, G14.

1. Introduction

In a number of papers S. Sunder [1997, p. 14] claims that "the firm can be seen as a set of contracts among rational agents". One particular type of agent – a shareholder

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– contributes to equity capital and is entitled to receive a dividend and a residual value of the firm. That equity capital is measured by accountants and by investors. Rational accountants disclose its value in financial statements on a regular basis (monthly, quarterly or yearly), whereas rational investors assign an exchange value to equity capital through the stock market on an ongoing basis. The actions of investors determined by the releases of new, value relevant information lead to the continuous fluctuation of securities' prices. The impossibility to state all factors that cause the changes in the securities' prices and thus the unpredictability of price movements at the capital markets was noted by L. Bachelier [1900, p. 1] in the introduction to his Ph.D. thesis: "The influences which determine the movements of the Stock Exchange are innumerable (…) Beside fluctuations from, as it were, natural causes, artificial causes are also involved […] The determination of these fluctuations is subject to an infinite number of factors: it is therefore impossible to expect a mathematically exact forecast". Nevermore the impact of various types of disclosures on prices of securities should be studied for cognitive purposes.

The paper addresses the matter of the impact of equity block trade transactions on security prices on the Warsaw Stock Exchange in Poland. These events relate neither to companies' assets nor to their environment, but may cause the change in the perceived value of equity capital, especially when the block trade price is different to the observed stock price. Very often institutional investors are involved in block trading activity. These rational investors are suspected to possess superior knowledge compared to individual investors, who are also rational. Block trading activity may result in the abnormal performance of a particular stock. However, there are companies which shares are recurrently the object of block trading activity. Individual investors are therefore continuously overloaded with one particular type of information – block trade prices, which may even be dissimilar during the same day. That might result in the rational treatment of block trading activity as a zero value signal, even in periods in which block trading activity becomes rare.

Two research methods are used: the first being the analysis and critique of the literature and the second one being event study analysis.

The paper is organized as follows. Section 2 describes the efficiency of capital markets and discusses the event study methodology from the theoretical point of view. Special attention is given to the methods applied in this paper. Section 3 grants credit to the contribution of the block trades research in the developed countries. The research concerning block trades in Poland is recognized as well. General information on the stock market in Poland is provided. This section ends with a brief description of regulations concerning equity block trade transactions on the Warsaw Stock Exchange. Section 4 includes the empirical part of this paper. It starts with the hypotheses tested. The description of the chosen sample follows.

All statistical values are presented in tables. The concluding remarks are included in section 5. The paper ends with reference.

2. Efficiency of capital markets and event studies

2.1. Efficiency of capital markets

The term 'efficiency' is widely used in economics. H. Gurgul [2012, p. 15] – with respect to this term – gives special credit to a logician and a philosopher T. Kotarbiński (1886−1981) and his mini-max principle: for a given outlay maximize the outcome, for a given outcome minimize the outlay. That principle defines the measurement of efficiency. However, it should also be noted that much earlier a similar philosophical approach was presented by G.W. Leibniz (1646−1716) in his principle *calculus de maximis et minimis* and by P.L.M. de Maupertius (1698−1759) in his *least action principle*. It cannot be denied that both of these principles relate directly to the efficiency concept and could be applied to economics.

In the XX century E.F. Fama [1970, p. 383] noted that "A market in which prices always 'fully reflect' available information is called 'efficient'". That full reflection of information in security prices had already been noticed much earlier by G.R. Gibson [1889, p. 11]. However, this was E.F. Fama [1970], who distinguished three levels of market efficiency: weak, semi-strong, and strong.

If the weak form is true, technical analysts could not earn abnormal returns, higher than available through "buy-and-hold" strategy [Riahi-Belkaoui 2004, p. 411-412]. If the semi-strong form is true, only insiders could earn abnormal returns, higher than available through "buy-and-hold" strategy. If the strong form is true, no one could ever earn abnormal returns, higher than available through "buy-and-hold" strategy.

If the semi-strong efficiency of capital markets is assumed, one can measure the impact of new information on the prices of securities [Gurgul 2012, p. 9], i.e. one can measure the change in the perceived value of the equity capital – the change in the intrinsic value of a firm. In this context A. McWilliams and D. Siegel [1997, p. 626-627] note: "Stock prices are supposed to reflect the true value of firms, because they are assumed to reflect the discounted value of all future cash flows and incorporate all relevant information".

That is done with the usage of event studies, as these studies first of all measure the effect of an event on the value of the firm on the rational, efficient markets[1]. Second of all these studies can be used to test the hypothesis of the efficiency of the market (especially the semi-strong level). In the context of the former purpose

[1] Compare: [Binder 1998, p. 111] and [Gurgul 2012, p. 15].

it is worth recalling E.J. Elton and M.J. Gruber [1991, p. 418]: "There is little reason to believe that markets are efficient with respect to some information and not with other similar information". Therefore, one can measure the effect of any event on the value of the firm and anticipate that similar event would lead to analogous results. Eventually a researcher can figure out whether a particular event was detrimental or beneficial to the firm's shareholders [McWilliams, McWilliams 2000, p. 1], as the effect is usually measured in relation to the common stock.

Researchers commonly agree [Campbell, Lo, MacKinlay 1997, p. 149], [Gurgul 2012, p. 28] that the first event study research was conducted by J. Dolley [1933]. The methodology was developed and improved in subsequent decades and it became more sophisticated. The current approach to event studies is approximately the same as the one introduced by R. Ball and P. Brown [1968] and by E.F. Fama, L. Fisher, M. Jensen and R. Roll [1969].

The study of the international literature shows that various events, endogenous as well as exogenous, may be analysed. A number of papers applied the event study methodology for developing countries, such as Poland. The most recognized papers in the field include: [Papla, Adamczyk 2000], [*Z badań...* 2001], [Matuszewski 2002], [Gruszczyński 2002], [Gurgul, Majdosz 2003a, 2003b, 2004a, 2004b, 2004c, 2005a, 2005b], [Gurgul 2012], [Kowalewski 2006], [Trojanowski 2008], [Gurgul, Wójtowicz 2008-2009], [Czerwonka 2009], [Dobija, Klimczak 2010], [Dobija, Klimczak, Roztocki, Weistroffer 2012].

2.2. Event study methodology

The event study methodology has a clear general structure, although structures for the specific study may differ. H. Gurgul [2012, p. 31] notices the need for the four general steps which every event study should include:

1. Identification of the event;
2. Specification of time parameters for the research;
3. Determination of the relationship between a single company security return and the market return;
4. Estimation of the event effect on the basis of the sample.

J.Y. Campbell, A.W. Lo, and A.C. MacKinlay [1997, p. 150-152] describe the analysis as a 7-step approach, each of them is clarified below in detail based on the referred publication:

1. Event definition;
2. Selection criteria;
3. Normal and abnormal returns;
4. Estimation procedure;
5. Testing procedure;
6. Empirical results;
7. Interpretation and conclusions.

The first step is to clearly specify the event that will be examined (it can be for example an equity block transaction). That also involves the determination of the time period when the event takes place (τ) and when security price changes will be examined. That period is called an event window. It can include just the day when particular information hits the market and/or days before and/or after the event.

Assuming that observations of security prices are discrete, i.e. can be recorded in the intervals of 1, three periods should be spotted:

1. Estimation window – period from T_0 +1 until T_1; that period includes “n” observations, the first one being T_0 +1 , and the last one being T_1; all these observations can be coded as: $t_1 = T_0 +1, t_2, ..., t_n = T_1$.

2. Event window – period from T_1 +1 until T_2; that period includes “k” observations, the first one being T_1 +1, and the last one being T_2; all these observations are denoted as τ (if more than 1 day is included in the event window, these days can be coded as: $\tau_1 = T_1 +1, \tau_2, .. , \tau_k = T_2$).

3. Post-event window – period from T_2 +1 until T_3; that period includes “l” observations, the first one being T_1 +1, and the last one being T_2; all these observations can be coded as: $r_1 = T_2 +1, r_2, ..., r_l = T_3$.

The second step involves the determination of clear criteria that will enable the researcher to include firms in and exclude them from the research.

The definitions and the measures for abnormal and normal returns have to be specified in the third step. The definitions for these returns are as follows [Campbell, Lo, MacKinlay 1997, p. 151]: “The abnormal return is the actual ex post return of the security over the event window minus the normal return of the firm over the event window” and “The normal return is defined as the return that would be expected if the event did not take place”. Therefore the measure for an abnormal return for the company “i” is as follows:

$$AR_{i,\tau} = R_{i,\tau} - E\left(R_{i,\tau} \middle| X_\tau\right) \qquad \text{(Formula 1)}^2,$$

where: $AR_{i,\tau}$ – abnormal return for time period “τ” for company “i”,

$R_{i,\tau}$ – actual return for time period “τ” for company “i”,

$E\left(R_{i,\tau} \middle| X_\tau\right)$ – normal return for time period “τ” for company “i”, where X_τ is the conditioning information for the normal return model.

Further explanation is required with respect to that step. There are two general approaches to calculate the normal return of a particular security[3]:

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[2] Formulas in this section are quoted from [Campbell, Lo, MacKinlay 1997] unless specified otherwise. In some cases notation has been changed.

[3] Benchmark models of the normal return are also described in [Binder 1998, 117−119].

1. statistical approach (e.g. constant-mean-return model, one factor market model or multifactor models), which considers the relation between asset prices and returns just from the statistical point of view;

2. economic approach (e.g. Capital Asset Pricing Model, Arbitrage Pricing Theory) – which also considers economics arguments on investors' behaviour, i.e. it restricts the parameters of statistical models.

Constant-mean-return model assumes that the mean return of a given security is constant through time. In that approach X_t is a constant. One factor market model assumes that there is a linear relation between the market return and the security return. In that case X_t is a market return. Multifactor models include more variables, i.e. not only the market but also industry, capitalization, etc.

The theory and research underlying the CAPM and the APT will not be recalled, as economic approach in the recent years lost its superiority over the statistical approach. It was clearly noted by J.Y. Campbell, A.W. Lo, and A.C. MacKinlay [1997, p. 156-157]: "During the last ten years, however, deviations from the CAPM have been discovered, and this casts doubt on the validity of the restrictions imposed by the CAPM on the market model. Since these restrictions can be relaxed at a little cost by using the market model, the use of CAPM in event studies has almost ceased" and "On the other hand the use of APT complicates the implementation of an event study and has little practical advantage relative to the unrestricted market model […]. There seems to be no good reason to use an economic model rather than a statistical model in an event study".

Summing up, from the above approaches, the single factor market model is used most frequently, as: "The market model represents a potential improvement over the constant-mean-return model. By removing the portion of the return that is related to the variation in the market's return, the variance of the abnormal return is reduced. This can lead to increased ability to detect event effects" [Campbell, Lo, MacKinlay 1997, p. 155] and "In practice the gains from employing multifactor models for event studies are limited. The reason for this is that the marginal explanatory power of additional factors beyond the market factor is small, and hence there is little reduction in the variance of the abnormal return"[Campbell, Lo, MacKinlay 1997, p. 156].

One form of the general functional statistical relationship between returns (based on [Maddala 2001, p. 61]):

$$R_i = f(R_m) \qquad \text{(Formula 2)},$$

is the linear relationship described by the single factor market model (based on [Campbell, Lo, MacKinlay 1997, p. 155]):

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \qquad \text{(Formula 3)},$$

where: $R_{i,t}$ – the return in time period "t" on security "i" (it is the explained variable),

$R_{m,t}$ – the return in time period "t" on market portfolio "m" (it is the explanatory variable),

$\varepsilon_{i,t}$ – the zero mean disturbance term $E(\varepsilon_{i,t}) = 0$ with a variance $\sigma^2_{\varepsilon_i}$,

α_i, β_i and $\sigma^2_{\varepsilon_i}$ – are the parameters of the model.

α_i, β_i – are the deterministic components, whilst $\varepsilon_{i,t}$ is the stochastic (random component).

It is worth noting that – from the econometrical point of view – the $\varepsilon_{i,t}$ component represents a total effect of: random influence, influence of all other variables not included in the model, errors in the measurement of all included variables in the model, errors stemming from the incorrect analytical structure of the model, and errors stemming from the choice of included variables in the model [*Wprowadzenie...* 2009, p. 17].

The fourth step literally means that the parameters of the normal performance model have to be estimated using data from the period before the event window. That period is known as the estimation window. The regression analysis is used (formulas for estimators of the parameters under ordinary least squares method will not be recalled; estimators for these parameters will be denoted as: a_i and b_i respectively).

In order to obtain the estimates of the unknown parameters α_i and β_i, the set of assumptions about $\varepsilon_{i,t}$ has to be made (based on [Maddala 2001, p. 64-65], notation changed):

1. Zero mean: $E(\varepsilon_{i,t}) = 0$.
2. Common variance: $Var(\varepsilon_{i,t}) = \sigma^2_{\varepsilon_i}$ for all "t".
3. Independence: $\varepsilon_{i,t}$ and $\varepsilon_{i,t+\Delta t}$ are independent for all $t \neq t + \Delta t$.
4. Independence of $R_{m,t+\Delta t}$: $\varepsilon_{i,t}$ and $R_{m,t+\Delta t}$ are independent for all t and $t + \Delta t$.
5. Normality: $\varepsilon_{i,t}$ are normally distributed for all t.

These assumptions can be stated as J.Y. Campbell, A.W. Lo, and A.C. MacKinlay [1997, p. 154] clearly affirm that "For the statistical models, it is conventional to assume that assets returns are jointly multivariate normal and independently and identically distributed through time". The first assumption is true if the OLS method is used, as the total for residuals, which are treated as approximations for $\varepsilon_{i,t}$, equals zero. Therefore the expected value equals to zero as well. The fifth assumption is used in the normal ordinary least squares method, and not in ordinary least squares method [*Wprowadzenie...* 2009, p. 37, p. 65].

However, that assumption should be met if for example tests based on F statistics are used. It is worth noting that other methods for the estimation of parameters can be used as well, especially when assumptions stated above are not met.

In the fifth step abnormal returns are calculated and testing framework for them is specified (including the null hypothesis and the techniques for the aggregation of abnormal returns of individual firms). It is assumed that the event causes the change in the price of a security. It is the abnormal return over the event window, which is a sole measure of the impact of the event on the value of the firm.

The abnormal return for a security "i" in the event window τ can be calculated using the estimators: a_i and b_i(from the OLS method), actual return over the event window $R_{i,\tau}$ and the market return over the event window $R_{m,\tau}$:

$$\hat{\varepsilon}_{i,\tau} = R_{i,\tau} - a_i - b_i R_{m,\tau} = AR_{i,\tau} \qquad \text{(Formula 4).}$$

Abnormal returns are jointly normally distributed.

All of the abnormal return observations ought to be then aggregated: first through time and later on across securities. If $CAR_i(\tau_1, \tau_k)$ is the cumulative abnormal return for security "i" within the event window τ (if the event window lasts for example two days it is the time period from τ_1 till τ_2; if more days are included in the event window, then it is a period in general terms denoted as τ_1 till τ_k)[4], then:

$$CAR_i(\tau_1, \tau_k) = \sum_{\tau_1}^{\tau_k} \hat{\varepsilon}_{i,\tau} = \sum_{\tau_1}^{\tau_k} AR_{i,\tau} \qquad \text{(Formula 5).}$$

And:

$$CAR_i(\tau_1, \tau_k) \sim N\left(0, \sigma_i^2(\tau_1, \tau_k)\right) \qquad \text{(Formula 6).}$$

That enables to draw overall inferences for the event for a particular company. The test for the null hypotheses: "H_0: event has no impact on the mean or variance of returns" is constructed with the usage of a standardized cumulative abnormal return:

$$SCAR_i(\tau_1, \tau_k) = \frac{CAR_i(\tau_1, \tau_k)}{\hat{\sigma}_i(\tau_1, \tau_k)} \qquad \text{(Formula 7).}$$

As J.Y. Campbell, A.W. Lo, and A.C. MacKinlay note the distribution of $SCAR_i(\tau_1, \tau_k)$ is t-Student with n – 2 degrees of freedom (where n is the number

[4] Various lengths of the event window may be considered at a time.

of observations in the estimation window). If the estimation window is long, the standard normal distribution can be used as well.

The standardization process should be deliberated on further. T.P. McWilliams and V.B. McWilliams [2000, p. 3] note that in order to obtain $SCAR_i(\tau_1, \tau_k)$, $CAR_i(\tau_1, \tau_k)$ should be standardized with $SD_i(\tau_1, \tau_k)$:

$$SD_i(\tau_1, \tau_k) = S_{ei}\sqrt{k + \frac{k^2}{n} + \frac{\sum_{\tau_1}^{\tau_k} R_{m,t} - k(\overline{R}_m)}{\sum_{t_1}^{t_n}(R_{m,t} - \overline{R}_m)^2}} \quad \text{(Formula 8)}^5,$$

where: $SD_i(\tau_1, \tau_k)$ – standard deviation of abnormal return for company "i" over the event window (time period from τ_1 till τ_k),

S_{ei} – standard deviation (standard error) calculated for company "i" in the regression process (single factor market model, OLS method) over the estimation period (time period from t_1 till t_n),

k – number of days in the event window,

n – number of days in the estimation window,

$R_{m,t}$ – the return in time period "t" on market portfolio "m",

$\overline{R}_m$ – the average return on market portfolio "m" in the estimation period (time period from t_1 till t_n).

As a result, according to T.P. McWilliams and V.B. McWilliams [2000, p. 3], the standardized cumulative abnormal return for company "i" can be calculated as:

$$SCAR_i(\tau_1, \tau_k) = \frac{CAR_i(\tau_1, \tau_k)}{SD_i(\tau_1, \tau_k)} \quad \text{(Formula 9).}$$

The next step involves the aggregation of $SCAR_i(\tau_1, \tau_k)$ across companies (securities). If the number of companies under consideration equals to N and each company is given an equal weight, then:

$$\overline{SCAR}(\tau_1, \tau_k) = \frac{\sum_{i=1}^{N} SCAR_i(\tau_1, \tau_k)}{N} \quad \text{(Formula 10).}$$

The test statistics is calculated as:

$$Z = \overline{SCAR}(\tau_1, \tau_k) \cdot \sqrt{N} \quad \text{(Formula 11).}$$

[5] Notation changed accordingly. It applies to the following formulas as well.

That statistics has approximately a standard normal distribution [McWilliams, McWilliams 2000, p. 3].

The approach to the event study analysis that assumes a particular distribution of returns (including the abnormal returns) is known as the parametric approach. If these assumptions are relaxed, a nonparametric approach has to be used. J.Y. Campbell, A.W. Lo, and A.C. MacKinlay [1997, p. 172-173] describe two nonparametric tests: the sign test and the rank test, and argue that: “Typically, these nonparametric tests are not used in isolation but in conjunction with their parametric counterparts. The nonparametric tests enable one to check the robustness of conclusions based on parametric tests”. It is therefore clear that nonparametric tests should be included in event study analysis.

The sixth step involves the presentation of empirical results and diagnostics.

The last – the seventh – step explains the event mechanisms that cause the changes in security prices.

At his point it is worth mentioning that other authors require more steps: E.J. Elton and M.J. Gruber [1998, p. 525-529] offer the 8-step approach, whereas A. McWilliams and D. Siegel [1997, p. 652] advocate the 10-step approach.

3. Block trades researchand stock exchange in Poland

3.1. Block trades research in the developed countries

The literature concerning the equity block trade transactions in the developed countries is extensive and provides valuable insight into the functioning of efficient markets. In case of listed companies the value of equity capital may change when a block trade transaction occurs. There are a number reasons for that. One of them is the common belief that institutional investors, who are participating in the block trade, possess superior knowledge concerning the market. As a result other investors acting in the rational way adjust the value of their equity capital. Another reason is that a buyer of large stake of a company may wish to reorganize it and thus increase future profits. And again other investors acting in the rational way adjust the value of their equity capital.

The authors who analysed the impact of block trades on security prices include: F.K. Reilly and D. J. Wright [1984], R. Ball and F.J. Finn [1989], M.J. Barclay and C.G. Holderness [1991], M. Atkins, M. Ward [1996], S. Sudarsanam [1996], A. Frino, E. Jarnecic, and A. Lepone [2007], etc.

F.K. Reilly and D.J. Wright [1984, p. 59], in the implications section point out that: “The belief that institutional trading increases stock price volatility has been quite pervasive on Wall Street and Washington. If anything, however, the empirical evidence supports quite the opposite conclusion. It appears that greater institutional trading in an individual stock or in stocks in general is associated with a lower level of stock price volatility".

R. Ball and F.J. Finn [1989, p. 419] conclude, inter alia, that: "In the Sydney equity market, an auction market which is small and thin by some standards, relatively large blocks do not themselves appear to affect prices".

M.J. Barclay and C.G. Holderness [1991, p. 878] in their conclusion point out that: "our evidence on negotiated block trades confirms a growing body of evidence that firm value is not independent of who owns the firm. Firm value increases when large-block ownership is transferred, apparently to those with more valuable managerial and monitoring skills".

The results of research carried out by S. Sudarsanam [1996] indicate that large block acquisitions are value enhancing events.

The particular research subjects, all hypotheses tested, and details concerning the samples will not be recalled in this paper, as the exact literature review is beyond the thematic scope of this paper.

3.2. Block trades research in Poland

The only empirical paper that discusses the equity block trades in Poland was published by G. Trojanowski [2008]. His final sample consisted of 53 block trades that had been observed from July 1996 till February 2000.He tested a number of hypotheses. G. Trojanowski [2008, p. 236] concludes inter alia that "the transfer of control rights that takes place in block trades in Poland constitutes a major corporate event, typically associated with positive abnormal stock performance".

3.3. Stock exchange in Poland – general information and trading

The only stock exchange that currently operates in Poland is known as the Warsaw Stock Exchange (in the following paragraphs denoted as the WSE). It is the biggest securities exchange in Central and Eastern Europe. On November 3, 2012 there were 436 listed companies. The average daily turnover in 2011 equalled to 1028 mln zł. Currently the WSE conducts trading in financial instruments on the following markets [http://www.gpw.pl/wse_markets], [http://www.gpw.pl/o_spolce_en]:

1. The Main List, which is a regulated market for well established companies; equities, bonds, pre-emptive rights, rights to shares, investment certificates, structured instruments, exchange traded funds and derivatives (futures contracts, options and index participation units) are traded there.

2. The NewConnect, which is an alternative trading system for startups and developing companies, especially from the sector of new technologies; equities, rights to shares, pre-emptive rights, depository receipts, and other equity based instruments are traded there.

3. The Catalyst, which is a regulated market, as well as an alternative trading system (four platforms in total: two for retail customers – the Catalyst, and two for wholesale clients – Treasury BondSpot Poland); municipal, corporate and mortgage bonds are traded there.

4. The Energy Markets, the Property Rights Market, the Emission Allowances Market; trade is organized and operated by the WSE Group (in cooperation with Polish Power Exchange, which is the only commodities exchange in Poland that received a license from Polish Financial Supervision Authority).

There are seven major indices at the WSE[http://www.gpw.pl/indeksy_en#indexes]:

1. WIG – 343 companies that are listed at the WSE Main List and meet base eligibility criteria),
2. WIG20 – 20 major and most liquid companies,
3. mWIG40 – 40 medium sized companies (next after 20 biggest),
4. sWIG80 – 80 smaller companies (next after 60 biggest),
5. WIG-Plus – 169 companies which do not qualify for the WIG20, mWIG40 or sWIG80 index but their average market value in the last quarter was between EUR 5m and 50 m,
6. WIGdiv – 30 companies with the highest dividend yield from WIG20, mWIG40 and sWIG80,
7. RESPECT – 20 companies that are socially responsible.

Additionally there are three national indices: WIG-CEE (27 companies), WIG-Poland (308 companies), WIG-Ukrain (11 companies); 11 sector indices: WIG-BANKING (13 companies), WIG-CONSTRUCTION (26 companies), WIG-CHEMICAL (5 companies), WIG-DEVELOPERS (22 companies), WIG-ENERGY (9 companies), WIG-IT (19 companies), WIG-MEDIA (13 companies), WIG-OIL&GAS (7 companies), WIG-FOOD (25 companies), WIG-BASIC MATERIALS (6 companies), WIG-TELECOM (5 companies); two indices based on WIG20: WIG20short, WIG20lev; one benchmark (customized) index: InvestorMS (277 companies); and one treasury bonds index TBSPIndex (16 companies).

From the year 2000 quotations on the WSE take place in the WARSET system (WARsaw Stock Exchange Trading System). In the end of December 2012 trading on the WSE started to be carried out on the new trading system UPT (Universal Trading Platform). Shares at the WSE are traded according to single price quotations as well as according to the continuous trading system. The opening and closing prices in the continuous trading system are determined by applying a number of clearly specified principles, according to the following order [http://www.gpw.pl/continuous_trading_system]:

1) maximization of trading volume,
2) minimization of the difference between the numbers of securities in buy and sell orders possible to execute at a given price,
3) minimization of the difference between the price determined and the reference price.

3.4. Regulation of equity block trade transactions on the WSE

Equity block trade transactions are announced on the WSE website: gpw.pl, and are regulated by:

1) Warsaw Stock Exchange Rules (WSER).
2) Detailed Exchange Trading Rules (DETR).

The most important, general, rules governing equity block trade transactions for the companies constituting WIG20 index, which shares are traded on the WSE, are outlined below.

According to §154.1 of WSER block trades are executed outside the continuous trading system and the single price system.

Pursuant to §155.1 of WSER a block trade for shares that are included in the WIG20 index may be made if: at least one exchange member submits a buy order and a sell order for the same number of financial instruments at the same price and with the same settlement date, and the block has a value of at least PLN 250.000, and the maximum difference between the financial instrument price in the order and the last price of that financial instrument from a trading session does not exceed 10%. In accordance with §155.2 of WSER if a transaction is made outside the trading session hours, then the difference between the price of the financial instrument in the order and the reference price, taken as the turnover-weighted arithmetic average of prices of all transactions from the last trading session, may not exceed 40%.

It is worth mentioning that §155.3 of WSER states that the Exchange Management Board may permit a block trade even if the presented above requirements are not met.

According to § 7.2 of DETR (Chapter 9, Section 2) broker's orders for block trades may be submitted to the exchange only between 8:00 and 17:35 on the day the trade is to be made. If the trade is to be settled on the day it is effected, broker's orders may be submitted exclusively on such a day between 8.00 and 14.00.

According to § 7.3 of DETR (Chapter 9, Section 2) broker's orders for block trades referred to in § 155.2 of WSER may be submitted to the exchange only between 17:35 and 17:50 on the day the trade is to be made. Such block trades may not be settled on the day they are affected.

WSER and DETR include also other specific rules governing block trade transactions, which were not described in the paper, for example block transfers during the period between the admission of a financial instrument to exchange trading and its first trading date or for block trades in a foreign currency.

4. Empirical results

4.1. The event and the hypothesis

This paper examines the impact of equity block trade transactions on security returns in companies which shares are continuously the object of equity block trade transactions. Therefore a particular event under consideration is the equity block trade transaction. Three statistical null hypotheses were stated together with corresponding alternative hypotheses.

Hypothesis 1:

“H_0 : an equity block trade transactions have no impact on security returns”.

“H_1 : an equity block trade transactions have an impact on security returns”.

Hypothesis 2:

“H_0 : an equity block trade transactions have no impact on security returns if the block trade price was higher than the closing price on day –2”.

“H_1 : an equity block trade transactions have an impact on security returns if the block trade price was higher than the closing price on day –2”.

Hypothesis 3:

“H_0 : an equity block trade transactions have no impact on security returns if the block trade price was lower than the closing price on day –2”.

“H_1 : an equity block trade transactions have an impact on security returns if the block trade price was lower than the closing price on day –2”.

4.2. The choice of equity block trade transactions in the sample and further statistical issues

Companies included in the study constitute the WIG 20 index. The content of the index changes every year, sometimes even a few times per year. In the year 2012 the only change occurred on March 16. Table 1 presents the names of companies listed in WIG 20 index on December 31, 2012.

Table 1. Analysed set of companies

Regression nr “i”	Company’s name according to National Court Register	Regression nr “i”	Company’s name according to National Court Register
4	Asseco Poland S.A.	7	Lubelski Węgiel “Bogdanka” SA
18	Bank Handlowy w Warszawie S.A.	12	Polski Koncern Naftowy Orlen S.A.
15	Bank Polska Kasa Opieki S.A.	17	Powszechna Kasa Oszczędności Bank Polski S.A.
14	Boryszew S.A.	2	PGE Polska Grupa Energetyczna S.A.
16	BRE Bank S.A.	10	Polskie Górnictwo Naftowe i Gazownictwo S.A.
20	“Globe Trade Centre” S.A.	19	Powszechny Zakład Ubezpieczeń S.A.
11	Grupa LOTOS S.A.	13	Synthos S.A.
8	Jastrzębska Spółka Węglowa S.A.	3	Tauron Polska Energia S.A.
6	Kernel Holding S.A.*	1	Telekomunikacja Polska S.A.
9	KGHM Polska Miedź S.A.	5	TVN S.A.

* company not registered in Poland.

Source: own preparation on the basis of Warsaw Stock Exchange and National Court Register.

For the purpose of the research twenty block trade transactions were randomly chosen from all of the block trade transactions that companies, which were included in the WIG 20 index on December 31, 2012, experienced in the past. Each block trade transaction comes from the period in which a particular company was included in the WIG20 index. If the company experienced another block trade transaction during the period of 10 trading days before the chosen event (i.e. confounding event occurred), the event is chosen again[6]. There are 8 observations, for which the equity block trade price was lower than the closing price two days before the execution of the price (denoted as LOWER). There are 12 observations, for which the equity block trade price was higher than the closing price two days before the execution of the price (denoted as HIGHER).

The event window consists of three days (k = 3): τ_1, τ_2 and τ_3. An equity block trade transaction is executed at time moment τ_2. That day will be denoted as "0". The event window includes also the day before the execution τ_1, which will be denoted as – 1, and the day after the execution τ_3, which will be denoted as + 1.

The estimation window consists of 50 days before the event window (n = 50): $t_1, t_2, \ldots, t_n$. These days are denoted as: – 52, – 51, …, – 2.

The single factor market model is used as a benchmark for normal performance of a particular security.

Table 2 summarizes all the events and the statistical issues concerning the regression analysis. Table 3outlines the notation and provides further explanation of statistical matters.

Table 4 includes the values for abnormal returns over the event window, cumulative abnormal returns and standardized cumulative returns. Only seven companies were included in the table, since only for these companies the regression analysis resulted in the coefficient of determination higher than 50%. Thirteen cases were excluded because of very low value of the coefficient of determination. Such a low coefficient of determination restricts the prediction ability of the normal return over the event window.

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[6] The period of 10 days is chosen because of the enormous number of block trades transactions for some of the companies – for example TVN experienced 38 block trade transactions in 2011, but TPS experienced as much as 124 block trade transactions in 2011, and PZU experienced enormous 203 block trade transactions in 2011.

Table 2. Summary of the events and statistical matters concerning regression analysis

Sector	Telecom	Energy	Energy	IT	Media	Food	Basic materials	Basic materials	Basic materials	Oil & Gas
Company ticker	TPS	PGE	TPE	ACP	TVN	KER	LWB	JSW	KGH	PGN
ISIN[&]	PLTLKPL00017	PLPGER000010	PLTAURN00011	PLSOFTB00016	PLTVN0000017	LU0327357389	PLLWBGD00016	PLJSW0000015	PLKGHM000017	PLPGNIG00014
Regression number	i = 1	i = 2	i = 3	i = 4	i = 5	i = 6	i = 7	i = 8	i = 9	i = 10
Event number	1	2	3	4	5	6	7	8	9	10
BTP vs. CP on day –2[#]	LOWER	HIGHER	LOWER	LOWER	HIGHER	LOWER	HIGHER	LOWER	LOWER	HIGHER
Closing price on day –2	13.75	23.40	5.41	60.00	14.15	69.10	121.50	91.35	19.85	3.39
Closing price on day –1	14.00	23.91	5.37	59.00	14.75	65.50	124.00	91.20	19.05	3.45
Closing price on day 0	14.00	23.90	5.31	59.90	14.05	65.85	123.70	89.10	19.60	3.55
Closing price on day +1	14.05	24.11	5.39	59.00	14.15	64.20	123.80	91.85	19.35	3.57
Event day (exact)	2003-05-22	2011-05-11	2012-01-17	2010-02-03	2009-10-02	2011-12-13	2012-01-30	2012-05-24	2003-09-11	2010-06-14
Block trade price	13.40	23.85	5.31	59.50	14.20	63.75	122.30	89.10	19.60	3.50
Estimation window										
Date from (est. wind.)	2003-03-07	2011-02-24	2011-11-02	2009-11-19	2009-07-20	2011-09-29	2011-11-16	2012-03-08	2003-07-01	2010-03-30
Date to (est. wind.)	2003-05-20	2011-05-09	2012-01-13	2010-02-01	2009-09-30	2011-12-09	2012-01-26	2012-05-22	2003-09-09	2010-06-11
a_i	0.1815	0.0205	0.0765	0.1058	0.0822	0.1472	0.1366	0.0715	0.0612	-0.0345
b_i	1.5654	0.4963	0.7478	0.6766	1.3916	0.8358	0.5921	1.4669	1.2349	0.8528
$D(a_i)$	0.1439	0.1080	0.1575	0.1739	0.3383	0.3267	0.2035	0.2408	0.2590	0.2018
$D(b_i)$	0.1492	0.1501	0.1240	0.1881	0.1961	0.2070	0.1659	0.2416	0.1723	0.1281
t_a	1.2614	0.1900	0.4856	0.6084	0.2431	0.4504	0.6711	0.2968	0.2362	-0.1710
t_b	10.4889 ***	3.3063**	6.0315***	3.5968***	7.0955***	4.0375***	3,5694***	6.0723***	7.1682***	6.6587***
R^2	69.62%	18.55%	43.11%	21.23%	51.19%	25.35%	20.98%	43.44%	51.70%	48.02%
S_e	0.9999	0.7580	1.1055	1.2296	2.3589	2.3091	1.4389	1.6855	1.7266	1.4256
Homoscedasticity[$]	1.0526	1.0442	1.0283	1.0955	1.1408	2.2799*	1.3071	1.3688	1.0344	1.4238
Autocorrelation[$]	1.5068 (+)	1.7056 (–)	1.8262 (+)	1.9341 (–)	1.5349 (–)	1.7606 (-)	1.5657 (+)	1.9960(-)	1.5436 (+)	1.8775 (–)
Normality[$]	0.9740	0.9825	0.9856	0.9628	0.9562	0.9364*	0.9036**	0.9858	0.9300*	0.9508*
Randomness[$]	1.6358	0.3337	0.2748	0.0000	1.8446*	1.4843	0.3945	0.5293	0.7657	0.1044

Sector	Oil & Gas	Oil & Gas	Chemical	Metallurgy	Banking	Banking	Banking	Banking	Insurance	Developers
Company ticker	LTS	PKN	SNS	BRS	PEO	BRE	PKO	BHW	PZU	GTC
ISIN[&]	PLLOTOS00025	PLPKN0000018	PLDWORY00019	PLBRSZW00011	PLPEKAO00016	PLBRE0000012	PLPKO0000016	PLBH00000012	PLPZU0000011	PLGTC0000037
Regression number	i = 11	i = 12	i = 13	i = 14	i = 15	i = 16	i = 17	i = 18	i = 19	i = 20
Event number	11	12	13	14	15	16	17	18	19	20
BTP vs. CP on day –2[#]	HIGHER	HIGHER	HIGHER	HIGHER	HIGHER	LOWER	HIGHER	LOWER	HIGHER	HIGHER
Closing price on day –2	24.42	36.8	5.57	0.53	176.90	282	30.40	77.65	364.50	289.50
Closing price on day –1	27.92	36.75	5.61	0.56	175.20	271.50	30.80	75.00	367.00	287.50
Closing price on day 0	27.99	36.25	5.64	0.56	182.00	267.00	31.50	75.20	369.00	287.50
Closing price on day +1	28.69	36.75	5.65	0.55	179.00	270.50	31.50	69.00	364.50	285.00
Event day (exact)	2009-11-06	2010-01-08	2012-09-05	2012-09-19	2009-12-04	2010-05-05	2005-09-30	2011-08-08	2011-04-07	2006-04-04
Block trade price	27.50	37.00	5.82	0.58	178.00	268.00	31.50	74.00	367.00	293.00
Estimation window										
Date from (est. wind.)	2009-08-27	2009-10-23	2012-06-22	2012-07-06	2009-09-23	2010-02-18	2005-07-20	2011-05-26	2011-01-26	2006-01-23
Date to (est. wind.)	2009-11-04	2010-01-06	2012-09-03	2012-09-17	2009-12-02	2010-04-30	2005-09-28	2011-08-04	2011-04-05	2006-03-31
a_i	0.2590	0.1920	-0.1579	-0.3050	0.1490	-0.1527	-0.0365	-0.0334	0.0087	0.5600
b_i	1.0928	1.2486	0.4921	0.7639	1.6000	1.9649	1.2411	0.8928	0.9420	1.5490
$D(a_i)$	0.2329	0.1819	0.2921	0.2772	0.1724	0.2013	0.1742	0.2348	0.1659	0.4540
$D(b_i)$	0.1499	0.1444	0.3466	0.3329	0.1242	0.1935	0.2100	0.2253	0.2538	0.3729
t_a	1.1122	1.0551	-0.5405	-1.1004	0.8639	-0.7584	-0.2097	-0.1422	0.0523	1.2333
t_b	7.2894***	8.6443***	1.4198	2.2949*	12.8826***	10.1523***	5.9112***	3.9632***	3.7114***	4.1536***
R^2	52.54%	60.89%	4.03%	9.89%	77.57%	68.23%	42.13%	24.66%	22.30%	26.44%
S_e	1.6466	1.2835	2.0382	1.9036	1.2155	1.3912	1.1681	1.6045	1.1570	3.2056
Homoscedasticity[$]	2.1230*	1.3389	0.6456	1.6315	1.0388	1.7948*	1.6785	2.0552*	2.5831*	6.0409***
Autocorrelation[$]	1.5979 (+)	1.9257 (+)	1.9153(-)	1.8152 (-)	1.8398 (–)	1.9076 (+)	1.8781 (+)	1.7210 (–)	1.6793 (–)	1.6607 (–)
Normality[$]	0.9820	0.9845	0.9865	0.9395*	0.9787	0.9730	0.9723	0.8615**	0.9563	0.8508**
Randomness[$]	0.6925	0.8573	0.9090	0.8702	0.2748	0.5293	0.2748	0.7747	0.1044	0.7657

[&]ISIN = International Securities Identification Number.

[#] HIGER – block trade price is higher than the closing price on day –2; LOWER – block trade price is lower than the closing price on day –2.

[$] Due to the formulation of the null hypotheses presented in Table 3, asterisks next to figures presented in rows: homoscedasticity, autocorrelation, normality and randomness are not expected.

Source: own computations with the usage of MS Excel 2003.

Table 3. Notation used in Table 2

i	Number of the regression
1	2
a_i	the OLS assessment of the unknown parameter α_i
b_i	the OLS assessment of the unknown parameter $ß_i$
$D(a_i)$	the standard error of a_i coefficient
$D(b_i)$	the standard error of b_i coefficient
t_a	the value of the t statistics for parameter a_i t_a – parameter is not significant at 10% [neither at 1% nor at 0.1%] significance level (t Student distribution, 48 degrees of freedom) t_a* – parameter is significant at 10% significance level (t Student distribution, 48 degrees of freedom) t_a** – parameter is significant at 1% significance level (t Student distribution, 48 degrees of freedom) t_a*** – parameter is significant at 0.1% significance level (t Student distribution, 48 degrees of freedom)
t_b	the value of the t statistics for parameter b_i t_b – parameter is not significant at 10% [neither at 1% nor at 0.1%] significance level (t Student distribution, 48 degrees of freedom) t_b* – parameter is significant at 10% significance level (t Student distribution, 48 degrees of freedom) t_b** – parameter is significant at 1% significance level (t Student distribution, 48 degrees of freedom) t_b*** – parameter is significant at 0.1% significance level (t Student distribution, 48 degrees of freedom)
R^2	Coefficient of determination (not the adjusted one, as there are fifty observations and only two assessed parameters)
S_e	Standard deviation
Homoscedasticity	Homogeneity of disturbance term variance is tested with the usage of Goldfeld-Quandt test. For the purposes of the test, the observations are arranged according to the increasing value of market (WIG) return. Observations are divided into two equal parts. Statistics F is used to test the null hypothesis that the variances of the disturbance term are equal in these two parts. The number of degrees of freedom for both parts is identical and equals to 23 = 25 – 2. F – the null hypothesis is not rejected at 10% [neither at 1% nor at 0.1%] significance level (F Fisher-Snedecor distribution) F* – the null hypothesis is rejected at 10% significance level (F Fisher-Snedecor distribution) F** – the null hypothesis is rejected at 1% significance level (F Fisher-Snedecor distribution) F*** – the null hypothesis is rejected at 0.1% significance level (F Fisher-Snedecor distribution)

1	2
Autocorrelation	Autocorrelation of disturbance term is tested with the usage of Durbin-Watson test. First order autocorrelation is tested. The null hypothesis states that there is no first order autocorrelation. Therefore the alternative hypothesis states that the residuals follow an AR1 process. DW – the null hypothesis is not rejected at 1% significance level (Durbin-Watson distribution) DW* – the null hypothesis is rejected at 1% significance level (Durbin-Watson distribution): $d_L = 1.324$ $d_U = 1.403$ (compare: [Savin, White 1977]) 0 – the test is inconclusive (Durbin-Watson distribution) (+) – alternative hypothesis related to the positive correlation (–) – alternative hypothesis related to the negative correlation
Normality	The assumption for the normality of disturbance term is not included in the OLS method (it is the assumption in the Normal OLS method). However, the usage of test statistics F requires the normality of disturbance term. The null hypothesis states that disturbance term is normally distributed. Statistics W from the Shapiro-Wilk test is used. W – the null hypothesis not is rejected at 10% significance level (W Shapiro-Wilk distribution) W* – the null hypothesis is rejected at 10% significance level (W Shapiro-Wilk distribution) W** – the null hypothesis is rejected at 1% significance level (W Shapiro-Wilk distribution)
Randomness	Randomness of the disturbance term is tested with the usage of the Wald-Wolfowitz run test. The null hypothesis states that the disturbance term is random. Due to large samples normal distribution tables are used (two sided test). Z – the null hypothesis is not rejected at 0.1% significance level Z* – the null hypothesis is rejected at 10% significance level Z** – the null hypothesis is rejected at 1% significance level Z*** – the null hypothesis is rejected at 0.1% significance level

Source: own on the basis of the most commonly used signs and test in econometrics textbooks.

Table 4. ARs, CARsand SCARs for cases in which the coefficient of determination was higher than 50%

Name of the company	TPS	TVN	KGH	LTS	PKN	PEO	BRE
Regression number "i"	1	5	9	11	12	15	16
BTP vs. CP on day –2	LOWER	HIGHER	LOWER	HIGHER	HIGHER	HIGHER	LOWER
AR_i for τ_1	0.5926	2.0678	–1.2891	0.0355	1.3381	–1.0510	1.9041
AR_i for τ_2	–0.5229	–0.4930	1.8892	1.4597	–1.4926	1.4370	1.6062
AR_i for τ_3	–0.3195	0.3886	0.4607	–0.5303	0.2859	–0.6370	2.6703
CAR_i for $\tau = <\tau_1>$	0.5926	2.0678	–1.2891	0.0355	1.3381	–1.0510	1.9041
CAR_i for $\tau = <\tau_1 ; \tau_2>$	0.0697	1.5748	0.6001	1.4952	–0.1546	0.3860	3.5103
CAR_i for $\tau = <\tau_1 ; \tau_3>$	–0.2498	1.9634	1.0608	0.9649	0.1314	–0.2510	6.1806
$SCAR_i$ for $\tau = <\tau_1 ; \tau_3>$	–0.1392	0.4674	0.3464	0.3269	0.0574	–0.1156	2.5348

[&] AR_i for τ_k – abnormal return for time moment τ_k calculated in company i (k = 1, 2, 3).
[#] CAR_i for τ – cumulative abnormal return for time period τ calculated in company i.
[$] $SCAR_i$ for $\tau = <\tau_1 ; \tau_3>$ – standardized cumulative abnormal return for time period $\tau = <\tau_1 ; \tau_3>$ calculated in company i.

Source: own computations with the usage of MS Excel 2003.

Table 5. The value of Z statistics

HIGHER[#]	LOWER[#]	ALL
0.3681	1.5831	1.3146

[#] HIGER – includes only companies for which block trade price was higher than the closing price on day –2; LOWER – includes only companies for which block trade price is lower than the closing price on day –2.
The critical values for the two-tailed test (normal distribution) are as follows: significance level 0.1% – critical value: 3.29053; significance level 1% – critical value: 2.57583; significance level 10% – critical value: 1.64485.

Source: own computations with the usage of MS Excel 2003.

Table 5 includes the value of the Z statistics for all of the companies included in Table 4. From the results of the research it may be concluded that:

Hypothesis 1: The null hypothesis that an equity block trade transactions have no impact on security returns cannot be rejected at 0.1% significance level, neither at 1% significance level, nor at 10% significance level.

Hypothesis 2: The null hypothesis that an equity block trade transactions have no impact on security returns if the block trade price was higher than the closing price on day –2 cannot be rejected at 0.1% significance level, neither at 1% significance level, nor at 10% significance level.

Hypothesis 3: The null hypothesis that an equity block trade transactions have no impact on security returns if the block trade price was lower than the closing price on day –2 cannot be rejected at 0.1% significance level, neither at 1% significance level, nor at 10% significance level.

From the statistical point of view the above results do not prove that the null hypotheses number 1,2 and 3 are true. It is not proved that indeed the equity block trade transaction does not have an impact on security returns. On the other hand it only means that the null hypotheses could not be rejected with the usage of the analysed data. The null hypotheses were not refuted. They were corroborated according to K.R. Popper's [1963] notation.

5. Conclusions and guidelines for further studies

5.1. Conclusions

Event study methodology is a powerful tool that enables researchers to identify events which cause changes in the value of equity capital. A number of studies on the subject have been carried out in developed markets. The developing markets lacked enough attention from researchers. Some of the events are endogenous and other exogenous. From the large set events one is especially interesting – equity block trade transaction. Through these transactions investors – often institutional – determine the exchange value of equity capital. These actions are conducted outside the exchange stock market mechanism. Rational investors, who act on a stock market, may assume that parties involved in the block trade possess superior knowledge and may react on these transactions by adjusting prices of securities. Therefore these events should be carefully examined first of all for cognitive purposes and second of all for professional purposes as a possibility to build a profitable investment strategy.

The cognitive purpose results from the general need for the classification of events into changing the perceived value of equity capital and into not changing it. The events which change that value should be promptly disclosed to the public. Moreover the disclosure rules should be regulated by law. Failure to comply with such laws should lead to a careful examination of actions of parties who benefited from it.

The professional purpose results from the continuous search of a profitable investment strategy. Events that increase the perceived value of equity capital would be encouraged, whereas events which decrease it would be discouraged. Investors would eagerly become shareholders or creditors of companies that are continuously objects of value enhancing events. On the other hand the cost of capital of companies which are objects of value detrimental events would increase.

In the study I analysed the impact of equity block trade transactions on security returns in companies which shares are continuously the object of equity block trade transactions. Three hypotheses were tested. The first one was a general one, and related to the impact of equity block trade transactions on security returns. That hypothesis was not rejected at the following significance levels: 0.1%, 1%, 10%. The specific hypotheses were tested as well. The second one related to the impact of equity block trade transactions on security returns if the block trade price was higher than the closing price on day –2. That hypothesis was not rejected at the following significance levels: 0.1%, 1%, 10%. The third one related to the impact of equity block trade transactions on security returns if the block trade price was lower than the closing price on day –2. That hypothesis was not rejected at the following significance levels: 0.1%, 1%, 10%.

Concluding it may be said that the current evidence does not allow to claim that the equity block trade transactions cause the change in security returns if that security is continuously the object of equity block trade transactions. Further studies should be conducted either to strengthen the belief that these transactions carry a signal of a zero value to investors or to reject null hypotheses that these events are not value relevant to investors.

5.2. Guidelines for further studies

A major limitation for a generalization of inferences stemming from the undertaken research is the size of the analysed sample. Therefore additional studies based on a greater number of alike events ought to be conducted. Furthermore, the high frequency of equity block trade transactions that relate to the analysed group of companies may bias the estimates of the parameters of single factor market models. Moreover, low coefficients of determination caused the need for the exclusion of some observations. Therefore even though a single factor market model is the most commonly used in event studies, it might be worth checking other models, which could predict normal returns.

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WPŁYW TRANSAKCJI PAKIETOWYCH NA CENY AKCJI. PRZYKŁADY Z POLSKI

Streszczenie: Transakcje pakietowe akcjami są wykonywane poza systemem notowań ciągłych i kursu jednolitego oraz dotyczą handlu dużymi pakietami akcji po uzgodnionej cenie pomiędzy stronami transakcji. Istnieją spółki, których akcje są często przedmiotem tego typu transakcji. Ciągły napływ szczególnego typu informacji dotyczących danych akcji – to jest uzgodnionych cen transakcji pakietowych, które mogą być niejednolite w tym samym dniu – może stanowić sygnał o zerowej wartości dla inwestorów, nawet w okresach, w których zawieranie transakcji pakietowych staje się rzadkie. W artykule bada się zawartość informacyjną transakcji pakietowych akcjami. Transakcje te dobrano losowo. Każda z transakcji dotyczy spółki należącej do indeksu WIG20. Indeks ten skupia 20 największych spółek notowanych na Giełdzie Papierów Wartościowych w Warszawie. Akcje tych spółek są często przedmiotem transakcji pakietowych. W artykule wykorzystano dwie metody badawcze: analizę i krytykę piśmiennictwa oraz analizę zdarzeń. Zastosowana analiza zdarzeń oparta jest na dziennych stopach zwrotu akcji. Okno estymacyjne ma długość 50 dni liczonych przed oknem zdarzenia. Okno zdarzenia składa się z dnia przed ogłoszeniem informacji, dnia ogłoszenia informacji oraz dnia po ogłoszeniu informacji. Dla obliczenia normalnej stopy zwrotu posłużono się jednoczynnikowym modelem rynkowym. Źródłem danych jest Giełda Papierów Wartościowych w Warszawie oraz Emerging Markets Information Systems.

Słowa kluczowe: analiza zdarzeń, transakcje pakietowe akcjami, Giełda Papierów Wartościowych w Warszawie.