Effect of the Annual Financial Results on the Stock Price

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Abstract

The paper analyzes the variation of the stock price as an effect of the publication of the financial statements by the companies listed on the stock exchange.

Starting from the general methodology of an event study analysis, the empirical research is supported by a parameter generalization module and one for the optimization of internal variables.

The main conclusion based on a sample of events, being the significant impact of Annual financial statements on share prices.

Key words: course stock exchange, event study analysis, empirical research, financial situations, optimization
J.E.L. classification: B10

1. Introduction

Listing a company on the stock exchange gives it a number of advantages which can be circumscribed to a cheap positive publicity, a continuous assessment made to the market to a potential preferential access to the financial capital, respectively. Additionally, the company has to fulfill certain obligations towards the operator of the respective market and indirectly to the investors. Regardless of the various contemporary stock markets, the transparency of the issuer can be found in the packages of regulations which regulate the issue of companies' obligations towards investors. An essential part of the content of the concept of transparency is the issuers' obligation to provide relevant data regarding the economic-financial activity carried out.

As the local legislation in the field changed, within these obligations of the issuers, the reporting of any event was prioritized significantly from the life of the society with an impact on its economic coordinates, be it we are talking about important contracts (in the sense of orders), new premises/offices, restriction of activity, mortgage or pledge contracts that exceed a certain value threshold assets of the company (20%) or about changes in management, escalations of the relationship unions-patronage etc. In addition to these occasional events, starting from the year 2004 companies listed on the stock exchange in Bucharest communicate to investors the so-called financial calendar, i.e. the specification of the publication date of the statements regarding the situations quarterly financial and, semiannually, more "complex" reports on the activity carried out.

As a rule, the financial calendar is submitted by the issuers to the associated service within the framework Bucharest Stock Exchange in January, possibly the first part of February. Taking into account the reports have a regular character and that the reporting date is known in advance, the publication of the financial reports have a particularly important in the life of a listed company. Basically, the size of the numbers found within the headings regarding turnover or profit will depend on a certain one measure the subsequent evolution of the price of the respective stock on the Stock Exchange. In these conditions, the event is carefully managed both by the issuers (obviously through the desire to presented the most favorable results), as well as by active investors who, in case their forecasts are confirmed, they can thus obtain an additional profit to the market (related to a naive buy & hold strategies) (Ball, Kothari and Watts, 1993), its size being generally proportional to the impact of this report on the market.

Also on the occasion of such an event, important profits can be made through the use of the best information because the financial reports statements still end up with a delay of 2 months at the disposal of investors, and their completion process involves a many people and times. We would still expect an certain discretion in what it looks at the essential figures from the issuers' financial statements, which is certainly not the case their "trumpeting" in private gatherings before the reporting date and without being accompanied of an official communication to all investors (Henderson, 1990).

2. Literature review

A current version of the obligations of companies listed on the Bucharest Stock Exchange can be found in National Securities Commission, regulation no. 1/2006, ch. III (Reporting requirements), section 2.

Precisely for this purpose, some "active" investors behave inappropriately (in the opinion ours) during the stock market meeting immediately after the resumption of trading of a symbol stopped as a result of the communication of the financial results (Dyckman, 1984). Improper, in the sense of printing artificially of a hysterical state by displaying and/or executing on the market (market orders) by large orders but very quickly changed out of obvious fear. Obviously, in the case of an informationally inefficient market, the consideration is justified a n1>0; however, the possible manifestations of inefficiency from the Bucharest Stock Exchange are acceptable within an 11-day interval centered on the date of the event.

A comparative analysis-evaluation of statistical characteristics of the two models was very good developed (Campbell, Lo and MacKinlay, 1996). Using a important number of functions, the application still requires some execution time non-negligible especially due to the memory stack overload caused by the (re)call function codes. There are, depending on the entered parameters and the extent of the report on which must generate it, performing the operations for a title containing 19 events it can take between 1 minute and 50 seconds and 24 minutes (on a 0.9 Ghz processor (Beaver, 1968).

The methodology was used on the Romanian market (Todea, 2005).

This situation, frequently verified within the Bucharest Stock Exchange, is explained by the fact that on reporting the preliminary annual results, their important elements are already quantified in accounting possible differences may arise from adjustments, corrections of accounting errors or restatements.

Unfortunately, November 2007 is an exception to this rule.

3. Research methodology

The contribution of the academic methodology consists in the additional introduction of a how to optimize the estimated parameters for the characterization of normal returns.

In the within this study, we used two methods for estimating normal returns in parallel: the constant average return method and the market model, the two being the most frequently used.

The optimization module will choose from all of these the parameters that will lead to minimum error-related variances; in this way, for the purpose of the present study case, will choose only those values that best explain the behavior of returns.

In addition, a memorization of all the values recorded by these parameters is required because the problem of the triviality of this optimization is somewhat raised.

In this way, in the additional conditions set out above, for each even it is necessary to estimate 4,500 parameters (=5x3x300), and for the entire case study, which contains 313 events, 1,408,500 estimates are needed (=313x4,500). This effort becomes relatively impossible to achieve under the conditions of ensuring the quality of the results, and in these conditions, to cope with the huge volume of processing, we designed and developed in the C programming language is a computer application designed to automate ASE methodology. The application thus comes to ease this effort by conferring a generality extended to the study, at the same time completing the field of analysis through the possibility of a study phenomenal such as the sensitivity of output (abnormal returns)

to variations estimation parameters (mean, alpha, beta) or the study of redundancy related to a length too size of the event window.

The first step is the calculation the abnormal returns from the event window (it can be of a single abnormal return or several) for each share (RAj, t). The second step consists in the "standardization" of these squares by relating to the difference of abnormal returns from the estimated period related to each event.

4. Findings

The average abnormal return on date t will be calculated as the average of the standardized returns on date t for each individual event (this may or may not coincide with some action)

An RA′ valuej, t>1 indicates that the return is higher than normal respectively lower if RA′j, t<1. Variable RA′j, tis distributed according to a Fisher law with 1 and T-2 degrees of freedom, T representing the number of returns in the estimation period.

In the case of the average abnormal return RAM't the z-statistic calculated as below is used.

To carry out the event study, we chose 18 of the most intense traded securities within BVB because "acceptable" liquidity represents a essential criterion in estimating both normal and abnormal returns. Obvious, among these titles are large capitalization companies, as well as some companies relatively new, newly listed through public tender offers (McWilliams, A., Siegel, D., 1997).

For all these issuers, an important difficulty is the identification releases containing the financial calendar because, within a year, an issuer transmits dozens or hundreds of such communications identified only by the date of their publication. Buteven more time-consuming is the process of identifying changes to reporting data communicated initially, because they can come throughout the year thus imposing a sequential search in the content of all communications. It should be mentioned that some companies publishes the reporting data of the financial statements not as a day distinct, but as an interval of 3 to 8 days, thus making it more difficult to isolate the date the event, but thus justifying the use of the event window.

In the case of companies listed later on the Bucharest Stock Exchange, so without having a certain history of trading necessary to estimate abnormal returns, and here we are talking about the Commercial Bank Carpatica (BCC), SSIF Broker (BRK) and Flamingo International (FLA). To be able to test the impact of the first announcements of financial results reported by them we used the solution of the model market-adjusted returns, that is, we considered these securities as normal returns for the first announcements market returns, in our case represented by the BET-C index (may precisely, in the market model we make alpha = 0 and beta = 1). Data Info 1 contains the list of acronyms related to the 18 issuers, the beginning of the monitoring period and the number of daily observations, the last date being for all titles 27.08.2017.

Table no. 1. Data Info

Simbol	**Data start**	**Nr. obs**	**Simbol**	**Data start**	**Nr. obs**	**Simbol**	**Data start**	**Nr. obs**
ALR	11.12.2000	1656	CMP	05.01.2001 18.07.2005	1644	PPL	06.01.2000	1896
ATB	06.01.2000	1896	FLA	(08.01.2001)	1643	SCD	05.01.2001	1644
AZO	06.01.2000 09.06.2004	1896	IMP	05.01.2001	1643	SNP	03.09.2001	1476
BCC	(8.01.2001)	1643	OIL	08.01.2001	1643	SRT	05.01.2000	1897
BRD	15.01.2001 03.02.2005	1638	OLT	05.01.2001	1643	TBM	22.01.2001	1633
BRK	(08.01.2001)	1643	PCL	05.01.2001	1644	TLV	05.01.2000	1897

Source: Bucharest Stock Exchange

Another aspect worth emphasizing is the weak trading of these titles in certain periods, especially in the years 2010-2017, a phenomenon that was manifested by the lack of a quotation of closure for several consecutive days. This problem was partially solved by the association of these inactive days of the closing prices related to the last day on which the title, respectively was traded. If, at the absolute price level, this solution proves itself to be acceptable, unfortunately we cannot consider the same in the case of returns, because they will be null throughout the period of inactivity causing unwanted effects, from *Financial and monetary policies in the European Union* the movement of beta towards zero until the formation of distorted probabilistic distributions for returns. It is important to emphasize, however, that by choosing the most liquid titles these shortcomings have been minimized.

For the 18 issuers, between January 2014 and August 20, we inventoried a number a total of 313 announcement data, as extracted from the financial calendars submitted to the BSE.

After carrying out the ASE on the entire sample consisting of the 313 data of announcement, resulted in the average abnormal returns from Data Info 2, which also includes the value the z statistics, respectively the probability of rejecting the null hypothesis, H0: RAM t = 0. Easy to notice, H0is rejected in the entire event window with a probability of over 99.99% both in the case of using the constant average model and in the case of the market model.

Consequently, the following conclusion emerges: the impact of publishing the results financial impact on the stock market price is a significant one and it manifests both before the date their publication, as well as afterwards. In this way, the hypothesis of one is categorically rejected informational efficiencies in the semi-strong sense of BVB.

The results obtained after executing the computer application are very diverse allowing, as I have already specified, the performance of a complex set of analyses. In what in the following we will reproduce only the most important directions by scoring, in the sense of possibility the subsequent exploitation in practice, the main conclusions obtained.

Table no. 2 Data Info

Day	**Model media constant**			**Model of market**		
t	**RAM_t**	**$z(RAM_t)$**	**Prob-H_0**	**RAM_t**	**$z(RAM_t)$**	**Prob-H_0**
-5	1,8784	135,40	1,00	1,9207	141,93	1,00
-4	1,4652	71,71	1,00	1,8968	138,24	1,00
-3	1,6021	92,82	1,00	1,8843	136,32	1,00
-2	1,8301	127,97	1,00	1,9952	153,42	1,00
-1	1,2817	43,43	1,00	1,8140	125,48	1,00
0	1,7905	121,85	1,00	1,9999	154,14	1,00
1	2,6506	254,44	1,00	3,0753	319,91	1,00
2	2,2686	195,56	1,00	2,5558	239,82	1,00
3	1,8347	128,66	1,00	2,0202	157,27	1,00
4	1,7268	112,05	1,00	2,0940	168,65	1,00
5	2,1278	173,85	1,00	2,3816	212,97	1,00

Source: Bucharest Stock Exchange

Analyzing the level of average returns (RAMt) it is observed in both cases that the day +1 within the window, i.e. the one following the announcement date (0), records the most high value 2.65 and 3.07 respectively, both levels registering maximum values and for z statistic Decreasingly, days +2 and +5 follow, obvious signs of the persistence of the impact on the stock market. Higher values for RAM t obtained by using the market model can due to a better identification of abnormal returns, respectively a better differentiation their strong compared to the returns recorded in the event window. If constant mean model, the date of the event (day 0) does not seem to be special

compared to the others, being associated with a reduced average abnormal return, of only 1.72, phenomenon also encountered in the case of using the market model. It therefore follows that, as a rule, the issuers communicate their financial results after the close of the stock exchange session, postponing the impact on the next session.

4.1 Results conditioned by issuers

Running the application also allowed an analysis of the ASE results when it is run for each individual issuer, more precisely it led to the identification of particularities of behavior related to the publication of financial results. A first observation in the case these results would be the decrease in the probability of rejection of H0in the case of many days of the event window resulting in the fact that, at the issuer level, the publication of the results does not have a significant impact in the entire vicinity of the date of the event. A second observation is that RAM values t results following the application of the two methods (constant average model and the market model) are close, while maintaining the superiority of those estimated with the model of the market. A third observation is related to the behavior of the variance of abnormal returns related to a certain day within the event window, namely it is registered large dispersions on days with RAMt raised and reduced in the rest. The result is not surprising, but however, it indicates that within these days there are significant deviations from "normality".

Adapting the number of examples to the extent of the paper, we point out that in the case of the action Antibiotice Iasi (ATB) significant abnormal returns are much more common dominating the entire post-event period as well as day -5. The surprise is that the climax deviations are recorded on day -2, which reflects a heightened anticipatory behavior from the market in relation to this symbol. Compared to the other issuers, the Bank's shares Carpatica (BCC) do not seem to be significantly affected by the publication of the results, perhaps with except for the date of the event, respectively two days before it; otherwise, abnormal returns register low values, in some cases even raising the question of accepting the hypothesis zero (days -3 and +5).

In the case of BRD-GSG (BRD), the biggest impact is recorded on the immediate day following the publication of the financial results, the effects also being maintained on day +2. Using constant average model, in the case of SSIF Broker (BRK) days -5, +4 and +5 are noted as being abnormal, the results changing in the case of the market model, because for the first 3 events it was considered that the title evolved identically to the market. In this situation, most days in the event window are signs of stock market activity intense. For Compa Sibiu, the major impact is felt on the market on the very day of the event and somewhat less on day -2. For the company with the largest capitalization, Petrom (SNP), the results have a special importance, managing to animate this title throughout the period post-event, showing anticipatory transactions on day -4. Also, we note the existence of significant deviations even in the date of the event as a consequence of the fact that the issuer usually communicates its results before the start of the stock market meeting.

The special case is represented by the action of (TLV), which manifests the smaller abnormal returns in the event window, which would mean that publication the results do not come as a big surprise to market investors. It should be noted that the price of this share registers higher movements the day before publication results, but even here the rejection of H0it only occurs with a probability of 85%. So, we can say that the BT issuer's market shows the highest degree of efficiency informational in a semi-strong sense, the market anticipating the bank's results relatively correctly. It require certain clarifications related to this conclusion and they relate in particular to the possibility that the information regarding the financial results to "perspire" within the market and thus the eventualities price changes (in fact, it was mainly a question of appreciation of the quotation due to rates strong growth of the bank) to be realized long before the official date of the announcement, respectively the possibility that the bank's actions are influenced by other events which usually gravitates around the months of April-May (in essence, it is about AGOA decisions and AGEA regarding profit distribution).

4.2 Results conditioned by the type of reporting

A natural question would be whether the quarter for which the financial reporting is done does not does it have any different impact compared to the others, especially since the reporting related to the fourth quarter, for example, it represents the issuer's annual statements, with a lot of informational content more important than the quarterly ones. But, on the other hand, it is possible that these results annual not to bring additional information to the market because before them, about 2 months, the preliminary results are published, which usually represent a very good approximation of those annual , published later. Therefore, we can say that there are at least two major factors which act in the opposite direction on the size of the related average abnormal returns annual reports, the evolution of profitability within the window of the event being only the resultant of these two forces.

Another important influencing factor is the general trend of the market at the moment which the financial results of the companies are published. Intuitively, when these reports arise against the background of an appreciation trend, it is very likely that the eventual results good financials to have an amplified effect in the market, acting wonderfully as a motivation essential for strengthening the purchase decision against that title. In case of the results are below expectations, it is possible that the enthusiasm in the market mitigates the negative effect of them, the overall result being again a combination of abnormal returns higher or lower than would normally be required. The situation is similar in the case of a general depreciation trend of quotations, but this time the effect results above expectations is undersized, while results below expectations will cause amplified drops.

After carrying out the ASE on the entire sample consisting of the 313 data of announcement, resulted in the average abnormal returns from Data Info 2, which also includes the value the z statistics, respectively the probability of rejecting the null hypothesis, H0: RAM t=0. Easy to noticed, H0is rejected in the entire event window with a probability of over 99.99% both in the case of using the constant average model and in the case of the market model.

Consequently, the following conclusion emerges: the impact of publishing the results financial impact on the stock market price is a significant one and it manifests both before the date their publication, as well as afterwards. In this way, the hypothesis of one is categorically rejected informational efficiencies in the semi-strong sense of BVB.

The data thus obtained are presented in Data info 3.

As results from, Data Info 3, the highest abnormal returns are generated by the reporting of financial results for the third quarter followed by those annual preliminary. In this respect, the average abnormal return from day +1 is observed 5.78 (T3) and 2.56 (Prelim.), the null hypothesis being rejected in the case of both with a probability of over 99.99%. As a rule, the month of November, in which reports are made for the third quarter, is the month with appreciation at the stock exchange in Bucharest which partially explains the size of the returns abnormalities found.

Tabel no 3 Data Info

Day t	Quarter I (65 even.)			Quarter II (67 even.)			Quarter III (50 even.)			Quarter IV (65 even.)			Inception (66 even.)		
	RAM_t	z	Pr	RAM_t	z	Pr	RAM_t	z	Pr	RAM_t	z	Pr	RAM_t	z	Pr
-5	1.1980	1.11	0.87	1.3524	2.01	0.98	3.2035	10.78	1.00	2.2458	7.00	1.00	1.7165	4.06	1.00
-4	1.2297	1.29	0.90	1.1323	0.75	0.77	1.2327	1.14	0.87	2.0527	5.92	1.00	1.6325	3.58	1.00
-3	1.5325	2.99	1.00	1.0402	0.23	0.59	2.5793	7.72	1.00	0.7963	-1.14	0.13	2.2945	7.33	1.00
-2	1.5236	2.94	1.00	1.1272	0.72	0.77	2.5365	7.52	1.00	0.5694	-2.42	0.01	3.5521	14.46	1.00
-1	0.9137	-0.48	0.31	0.7243	-1.57	0.06	2.2240	5.99	1.00	1.3689	2.07	0.98	1.4103	2.32	0.99
0	1.6532	3.67	1.00	1.4376	2.49	0.99	3.6413	12.92	1.00	0.5650	-2.44	0.01	2.0887	6.17	1.00
1	1.7419	4.17	1.00	2.7343	9.87	1.00	5.7811	23.38	1.00	1.1544	0.87	0.81	2.5625	8.85	1.00
2	2.1239	6.31	1.00	1.7984	4.54	1.00	2.4870	7.27	1.00	2.9993	11.24	1.00	2.0033	5.68	1.00
3	2.2656	7.11	1.00	1.9671	5.50	1.00	1.3899	1.91	0.97	2.2480	7.01	1.00	1.2058	1.17	0.88
4	1.7173	4.03	1.00	1.1002	0.57	0.72	1.9724	4.76	1.00	1.8514	4.78	1.00	2.0638	6.03	1.00
5	2.0702	6.01	1.00	1.2443	1.39	0.92	2.1791	5.77	1.00	2.0340	5.81	1.00	3.1347	12.09	1.00

Source: Bucharest Stock Exchange

The lowest effect is registered in the case of the second quarter, because the reporting it usually occurs in August, a month with transactions well below the monthly average. Therefore, o explanation for the small-scale reactions to the half-yearly reports would be a more presence reduced number of investors-speculators in the stock market during this period. As for the returns abnormalities related to the first trimester and the fourth trimester, both of approximately the same magnitude, values significantly different from zero are found in the entire post-event period and in in the case of the annual results a high volatility on days -5 and -4 which indicates that these reports are taken seriously by investors. It is no less true that the reporting of the annual results is usually done after the annual AGOA and AGEA meeting therefore there is the possibility of exerting influences from other events as well, influence that can significantly affect stock prices.

5. Conclusions

In conclusion, the market trend can have a significant influence on the size abnormal returns only if they differentiate between results above expectations (good) and results below expectations (negative). Because in our study it was not done this differentiation (remember that this delimitation is subjective, actually true the problem is what exactly is meant by rational expectations regarding results) we will not analyze these influences in depth, but we will limit ourselves to the analysis of abnormal returns averages related to the reporting of the preliminary results, respectively those for the I quarter. Am chose these two categories because the preliminary annual results usually intervene in the months February-March, which constituted, at least in the period 2004-2007, the peak of the trends of appreciation from the BVB, and those related to the first quarter intervene in the months of April-May, i.e the already classic depreciation period.

To be able to answer all these questions, we will process the results again ASE forming five new samples of events related to the five reporting categories: quarter I, quarter II, quarter III, quarter IV and preliminary annual results.

The results obtained after executing the computer application are very diverse allowing, as I have already specified, the performance of a complex set of analyses.

6. References

- Ball, R., Kothari, SP, Watts, RL, 1993. *Economic Determinants of the Relationship between Earnings and Stock Returns. The Accounting Review,* Vol. 68, no. 3, pp. 622-638
- Beaver, W.H., 1968. *The Informational Content of Annual Earnings Announcements. Journal of Accounting Research*, Vol. 6, (Supplement), pp. 67-92. https://doi.org/10.2307/2490070
- Campbell, J.Y., Lo, A.W., MacKinlay, A.C., 1996. *The Econometrics of Financial Markets.* New Jersey: Princeton University Press. https://doi.org/10.1515/9781400830213
- Dyckman, T., Philbrick, D., Stephan, J., 1984. A Comparison of Event Study Methodologies Using Daily Stock Returns: A Simulation Approach. *Journal of Accounting Research*, Vol. 22, pp. 1-30. https://doi.org/10.2307/2490855
- Henderson, G.V. Jr., 1990. Problems and Solutions in Conducting Event Studies. *Journal of Risk and Insurance,* Vol. 57, no. 2, pp. 282-306. https://doi.org/10.2307/253304
- MacKinlay, A.C., 1997. Event Studies in Economics and Finance. *Journal of Economics Literature,* Vol. 35, no. 1, pp. 13-39
- McWilliams, A., Siegel, D., 1997. Event Studies in Management Research: Theoretical and Empirical Issues. *The Academy of Management Journal,* Vol. 40, pp. 626-657. https://doi.org/10.2307/257056
- Todea A., 2005. *Informational Efficiency of the Capital Markets.* Cluj-Napoca: Science Publishing House.