



Economic Research-Ekonomska Istraživanja

ISSN: 1331-677X (Print) 1848-9664 (Online) Journal homepage: <http://www.tandfonline.com/loi/rero20>

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To cite this article: Julijana Angelovska (2017) Investors' behaviour in regard to company earnings announcements during the recession period: evidence from the Macedonian stock exchange, *Economic Research-Ekonomska Istraživanja*, 30:1, 647-660, DOI: [10.1080/1331677X.2017.1305768](https://doi.org/10.1080/1331677X.2017.1305768)

To link to this article: <http://dx.doi.org/10.1080/1331677X.2017.1305768>



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Published online: 08 May 2017.



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Investors' behaviour in regard to company earnings announcements during the recession period: evidence from the Macedonian stock exchange

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ABSTRACT

The study investigates the reaction of investors to annual earnings releases as reflected in the volume and price movements of common stocks during a recession. We provide an apparent example where investors did not react to firm-specific positive earnings announcements. Event methodology is employed, and the returns in an event window, defined conventionally as the day before to two days after a firm-specific public earnings announcement, are not abnormal. The volume of trade in the event window is not atypical either. The psychological impact on the investors was such that fear could not be alleviated by the good news and good financial results.

ARTICLE HISTORY

Received 12 June 2014

Accepted 23 September 2016

KEYWORDS

Event study; information and market efficiency; earnings announcement; Macedonian stock market

JEL CLASSIFICATIONS

G12; G14; C12

1. Introduction

According to Fama (1965), financial markets are termed informationally efficient if security prices react to the announcement of new unanticipated information immediately, accurately, and in the right direction with no subsequent price trends. But empirical studies have suggested that stock prices do not always accurately reflect available information. In particular, financial markets under-react to information in some cases, while over-reacting in others (Bloomfield, Libby, & Nelson, 1991).

The literature argues that earnings announcements are one of the important signalling devices used by managers to transmit information to the public about a firm's future prospects (Lonie, Abeyratna, Power, & Sinclair, 1996). The literature on earnings informativeness about firm-specific prospects is long established and extensive, beginning with the seminal works by Ball and Brown (1968) and Beaver (1968). Earnings are an interesting phenomenon to observe, because they carry inside information about a company's future prospects (Aharony & Swary, 1980). The information content of corporate earnings announcements is an issue of obvious importance for investors. Earnings announcements can be used to assess the wealth and profitability of a firm and provide notice of possible dividends. It is assumed that such information will be important for investors and reflected in stock price

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movements (Hussin, Ahmed, & Ying, 2010), as soon as the information is publicly released to the market.

Investors on the stock market gain their profit by two resources, capital gains and dividends, and it is expected that in the recession period investors will more highly appreciate the latter. Empirical results from the US show that abnormal returns of dividend increase announcements during the recession at the beginning of this decade were larger than during the boom. Thus, investors seem to respect dividend increases more when stock prices are falling (Salminen, 2008). Salminen found that abnormal returns during the recession were positively slightly higher than during the boom. During a recessionary period of the business cycle, business and economic activity are usually low (Johnson, 1999), hence it is felt that it is important to assess the information nature of earnings announcements by observing the share price movement around the public announcement of earnings.

This study investigates the behaviour of investors towards earnings announcements during tough economic times by observing the trading volume and share price movement on the Macedonian Stock Exchange (hereafter MSE). The main question is whether earnings reports possess informational value for investors during the recession period. Is it possible to have a stock market where investors do not react to firms' earnings announcements? In such a stock market, stock prices will not react to corporate announcements.

The objectives are:

1. To investigate the behaviour of the prices after the event day. Event study is employed to test the following hypotheses:

H_0 : Expected abnormal return is zero for each stock for each day t in the event window.

H_1 : Expected abnormal return is different from zero for each stock for each day t in the event window.

2. To investigate if the volume is unusual within the event window. In the market microstructure literature, high volumes are associated with information arrivals (Kyle, 1985).

A study of share price adjustment to earnings announcements is of significance to investors, policy makers, regulators and researchers. Investors and portfolio managers, keen on increasing their portfolio returns, would be interested in identifying opportunities for profit making by trading around earnings disclosure dates in emerging markets.

2. Literature review

2.1. Earnings announcements

Capital markets react to various corporate announcements, and one such significant announcement is the earnings announcement. An earnings announcement is an official public statement of a company's financial performance or profitability for a specific time period, typically quarterly, half annually or yearly. It is when a company publicly releases its financial information or statements showing its performance in the forms of profit and loss statements, balance sheets and cash flow statements for a specific period of time. Whereas the earnings announcement is a legal requirement for every company listed on a stock market, earnings also provide critical information to shareholders as far as the company's

past performance is concerned, and are used extensively in forecasting future performance and valuations of equity (Mlonzi, Kruger, & Nthoesane, 2011). The primary role of reported earnings is to provide some predictive information about future earnings and notice of possible dividends. This information should be useful for both present and potential investors in making rational investment decisions regarding the company. A reaction to earnings announcements is regarded as an interesting subject for analysis and the value relevance of earnings announcements has been an important topic in financial accounting over the last four decades (Booth, Kallunki, Sahlstro, & Tynnela, 2011). Different angles have been explored to define the importance of company earnings. Aharony and Swary (1980) argue that company managers use earnings as a signalling tool to convey information about the prospects of a company, and they also argue that like dividends, if earnings convey useful information, this will be reflected in stock price changes immediately following a public announcement. Black (1980) adds to this by highlighting that users of financial statements expect earnings to be a measure of value, rather than a change in value.

The behaviour of the stock returns around the announcements using monthly and daily return data respectively was examined by Brown and Warner (1980, 1985). Several studies focus on certain firm-specific characteristics for a better explanation of stock returns around the earnings announcements (Atiase, 1985; Grant, 1980). Ball and Bartov (1996) suggest that investors are not entirely naïve in understanding the autocorrelations of quarterly earnings, but rather they tend to underestimate the parameters of the autoregressive process, whereas Soffer and Lys (1999) dispute this argument by showing that investors' expectations, as reflected by stock prices, do not capture any predictive power of past earnings.

Findings on the effect of earnings announcements on market reactions interestingly are contradictory. Cready and Gurun (2010) found that lower earnings results exhibit positive cumulative average abnormal returns and move market values higher. Ball and Shivakumar (2008) report that earnings announcements provide a modest but not overwhelming amount of information in relation to the market, while Hussin et al. (2010) found that lower earnings lead to negative market reaction. Barker and Imam (2008) highlighted that a company exhibiting high earnings is viewed more favourably by users of financial statements (including investors) than a company with low earnings. A study by Dey and Radhakrishna (2008) of earnings announcements concludes that institutional investors do not earn excess returns from trading before or after the announcements, but the authors found that individual investors do earn significantly weak positive excess returns just hours after the announcements, even though they also suffer significantly negative excess returns on the day after the announcement. Louhichi (2008) provides evidence showing that intraday analysis of earnings announcements is more precise than the daily studies. Accordingly, Bernard and Thomas (1989, 1990) support the concept of intraday analysis by highlighting that new information exerts its full influence on the stock price within an hour after announcements. Other researchers have also found abnormal stock returns after the announcement of quarterly earnings (Chatuverdi, 2000; Foster, Olsen, & Shevlin, 1984; Kiger, 1972). Mendenhall (1991) found that stock price reaction to semi-annual earnings announcements yielded abnormal returns during both the pre-announcement and post-announcement dates, but Das, Pattanayak, and Pathak (2008) found no evidence of significant abnormal returns around quarterly earnings announcements and it could not be established whether the share price drifts are positive in the case of good announcements or negative in the case of bad announcements, meaning that these announcements carry little information value for

investors. Christensen, Smith, and Stuerke (2004) present an unusual finding that quarterly earnings of larger firms and firms with a larger analyst following are generally more informative and that there is a more positive association between market reaction and earnings announcements.

Lev (1989) argues that there is only a weak correlation between stock markets and earnings announcements; he claims that less than 10% of market returns around annual earnings announcements can be explained by the information release. Bhana (1995/96) postulates that an asymmetry of response behaviour exists with respect to positive and negative earnings announcements. The author argues that unfavourable announcements attract more attention in the market. Kadiyala and Rau (2004) investigated investor reaction to corporate event announcements. They concluded that investors appear to under-react to prior information as well as to information conveyed by the event, leading to different patterns: return continuations and return reversals, both documented in long-horizon return. Barac (2003) examined the information content of annual earnings announcements through their impact on the stock price movement in the case of Pliva's ordinary shares, listed on the Quotation I of the Zagreb Stock Exchange, and found evidence that annual earnings announcements made by Pliva convey new and material information to stock market investors, which is reflected in significant changes in stock return. Filip and Raffournier (2010) investigated the value relevance of earnings of Romanian companies over the years 1998–2004, and found that the association between accounting earnings and stock returns is comparable to the levels reported by studies conducted on more mature markets. The value relevance of accounting information in the Romanian capital market between 2005 and 2010 was investigated and results found usefulness of accounting data for investors' decision-making process, and its existence is usually given by a positive correlation between market and book values (Takacs, 2012). An event study analysis on an emerging Karachi Stock Exchange provides evidence that there is a bigger element of surprise in bad news than in good news as the market reaction to bad news is stronger (Iqbal & Farooqi, 2001). Laivi and Zaria (2012) found opposite results or weak evidence that the reaction to negative earnings news is lower than to positive news when investigating the price reactions to quarterly earnings announcements on the Tallinn, Riga and Vilnius Stock Exchanges during 2000–2009.

The studies are mostly silent on the state of the business cycle when the studies were conducted. The study by Mlonzi, Kruger, and Nthoesane (2011) found that there is substantial negative share price reaction to earnings announcements and concluded that during a recessionary period, shareholders' wealth is eroded in the small ALtX market.

In the 1990s, after a number of attempts to explain stock market behaviour by econometric analyses of time series on prices, attention shifted to developing models of human psychology. An important factor in market fluctuations is not the events themselves, but the human reactions to those events (Lee, Jiang, & Indro, 2002).

This research is intended to establish the information content of earnings announcements during a recessionary period of the business cycle of the small Macedonian stock market exchange.

2.2. Event study

The event study is an important research tool in economics and finance. The aim of event study analysis is to determine whether there is any relationship between the event and the

fluctuation of stock price by monitoring the changing of stock price and the occurrence of abnormal returns. Event study methods exploit the fact that, given rationality in the marketplace, the effects of an event will be reflected immediately in security prices and the impact can be measured by examining security prices surrounding the event. The roots of event study go back to Dolly (1939), who was the first to introduce event study analysis to the public. He examined the effects of stock splits to stock prices, but this theory has been significantly developed since the 1960s. The path-breaking event study conducted by Fama, Fisher, Jensen, and Roll (1969) innovated the methodology used in event studies since then. Even the most cursory perusal of event studies carried out over the past four decades reveals a striking fact: the basic statistical format of event studies has not changed over time. It is still based on the table layout in the classic stock split event study of Fama et al. (1969). The key focus is still on measuring the sample securities' mean and cumulative mean abnormal return around the time of an event.

Since the 1980s, the performance of event study methodology has been the subject of a number of studies. The main concern of this research is to analyse the power and the degree of specification of test statistics used in short-run and long-run event studies. Brown and Warner (1985), Dyckman, Philbrick, and Stephan (1984), Campbell and Wasley (1993) and Cowan and Sergeant (1996) analyse how the particular properties of daily stock returns affect the performance of several test statistics used in short-run event studies. On the other hand, Barber and Lyon (1997), Kothari and Warner (1997), Brav (2000) and Jegadeesh and Karceski (2004) examine the performance of alternative test statistics used in long-run event studies.

The main idea of the theory is that stock markets, i.e. investors, react to new information released by a company immediately. If there is any lag in the response of prices to an event, it is short-lived. The reason for this is that investors notice these 'anomalies' and buy or sell stocks and it disappears. Shiller (2003) says that the efficient market theory, as it is commonly expressed, asserts that when irrational optimists buy a stock, smart money sells, and when irrational pessimists sell a stock, smart money buys, thereby eliminating the effect of the irrational traders on market price. But this smart money system does not work successfully all the time. Throughout history, we have seen asset bubbles all around the world and the 'system' has failed.

3. The development of the capital market in Macedonia

Development of the financial system and institutions, especially of capital markets, is a key component of transition from planned to market economy in transitional countries. In fact, functioning banks and stock markets were virtually non-existent at the outset of reforms in the early 1990s (Barac, 2003). The modern history of the Macedonian capital market is associated with structural changes in the 1990s, crossing the country's transition to free market economy. The process of privatisation has already resulted in the formation of more joint stock companies, which have imposed the necessity of creating the market infrastructure for the transfer of newly created securities (Angelovska, 2014). Although many regional markets passing through the same transition period were established earlier, the constitution of the Macedonian Stock Exchange launched in September 1995. The years that followed showed that the stock market grew gradually, along with economic development and intensification of reforms (Table 1).

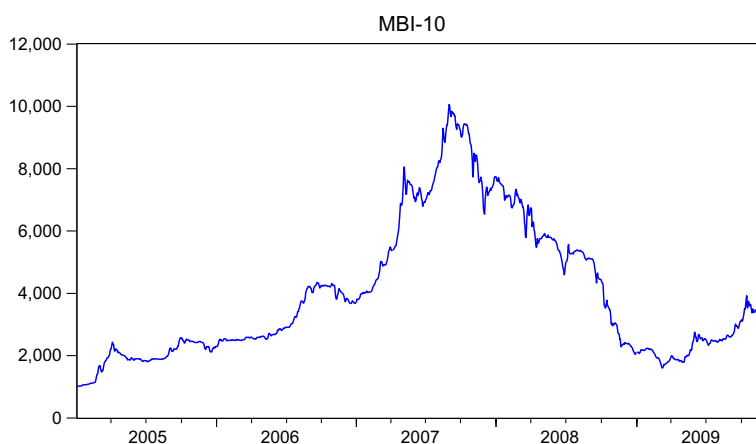
Table 1. Macedonian capital market in the period 1996–2008 (mil. EUR).

	GDP	Trading Volume*	Trading Volume (block transaction excluded)	Market Capitalisation**	Market Capitalisation/GDPx100
1996	3.319	0.65	0.67	/	/
1997	3.241	19.2	19.58	/	/
1998	3.150	76.97	10.46	/	/
1999	3.448	25.61	5.25	/	/
2000	3.893	128.12	19.1	/	/
2001	3.839	472.83	19.1	/	/
2002	4.001	94.19	31	523	13.08
2003	4.105	123.41	37.7	638	15.54
2004	4.325	135.41	44.8	889	20.56
2005	4.676	145.02	116.5	1.218	26.04
2006	5.176	506.91	176.6	1.780	34.39
2007	5.791	681.63	498.5	5.052	87.23
2008	6.509	202.04	132.7	2.082	31.22

*Official and regular market;

**Total market capitalisation (shares and bonds);

Source: Eurostat, Macedonian Stock Exchange.

**Figure 1.** MBI performance during the period 2005–2009. Source: Macedonian Stock Exchange.

The capital market in Macedonia has undergone a robust development since 2005 (Angelovska, 2014). The Macedonian Stock Exchange within its short history has witnessed its first bull and bear market and the stocks have experienced either extreme capital gains (2005–2007) or extreme capital losses (2008–2009). It can be noted from Figure 1 that the MBI (Macedonian Exchange Index) was in a ‘bear market’ in 2008 and 2009, with the market losing almost 80%. The peak was reached with index 10.057,77 at the end of August 2007. At the end of 2008 the index was 2.096,16 losing 80% of its value, and continued until March 2009 when the index fell to 1.598,50, finishing the year with 2.751,88. The investors in Macedonia and other transition countries that moved in a similar way had to pay very expensive the investment lectures about the behavior of the stock market, as they learned through the practice (Angelovska, 2014). Under this study, the period of recession is observed. It is supposed that in the recession period, investors will more highly appreciate the earnings announcements and the possible dividends coming from large positive earnings.

4. Methodology

Event study methodology was employed to test for abnormal performance. In general, event study analysis is a statistical method to measure the influence of an event such as an earnings announcement, by examining the response of the stock price around the announcement of the event. Normal rate of return means the expected rate of return of the testing period if the event did not occur. An event study analysis could determine whether there is an 'abnormal' return associated with an unanticipated event. The event of interest is the public announcement of earnings, and the event date is the first day on which such an announcement is made.

We use traditional event study (Fama et al., 1969) to determine excess returns for each firm for each day. The abnormal return is the difference between the realised return observed from the market and the benchmark return. The benchmark return is supposed to be the return of the stock if there is no event. The abnormal return is determined as the residual of market model expressed in (1).

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_t \quad (1)$$

where R_{it} is the return of stock i ,

R_{mt} is the return of market index,

β_i is systematic risk of stock i .

The empirical model can be stated as follows: when an event occurs, market participants revise their beliefs causing a shift in the firm's return-generating process. Ordinary least-squares (OLS) regression is performed to estimate the coefficients of the market model separately for each event using the non-event return data.

The estimated coefficients, α_i and β_i , are used to form predictions of R_{it} during the event period. Thus, the abnormal return for security i on event day t AR_{it} , is calculated as:

$$\varepsilon_{it} = AR_{it} = R_{i,t} - \alpha_i - \beta_i R_{mt}$$

We test each firm in our sample for abnormal returns for every day in the event window, using the methodology proposed by Brown and Warner (1985). The 'normal' period is defined as 80 days before the announcement day to 10 days after the announcement day. A t -statistic for each firm for each day in the event window (defined as one day before the announcement day to two days after the announcement day, i.e., -1 to $+2$) is calculated. Our null hypothesis is that excess returns for each day are equal to zero.

The mean abnormal return across event observations on day t denoted as \overline{AR}_t is the sum of individual abnormal returns on day t divided by the number of events (N),

$$\overline{AR}_t = \frac{1}{N} \sum_{i=1}^N AR_{i,t} \quad (3)$$

To find out if the volume is unusual during corporate earnings announcements, the average standardised volume was calculated. First, an individual share's daily volume (V_i) in a particular day t is divided by the average daily volume (\overline{V}_{ie}) for that share in the event period ($e = -80$ to $+10$).

$$\overline{V}_{it} = \frac{V_i}{\overline{V}_{ie}} \quad (4)$$

This gives us a normalised measure that is independent of firm size. Second, the normalised volume for each share is averaged across all shares for each day.

$$\bar{V}_t = \frac{1}{N} \sum_{i=1}^N \bar{V}_{it} \quad (5)$$

We define an ‘event period’ to be from 80 days before the public news announcement to 10 days after (or less, if data at the tails are missing).¹

Event-worthy news includes, but is not restricted to, dividend announcements, earnings announcements, restructuring announcements (changes in capital structure, mergers/takeovers, and acquisitions/spinoffs/selloffs), privatisation announcements, and board change announcements. In this study, earnings announcement published in annual financial reports are considered as event-worthy news. According to the Law on Securities, ‘price sensitive information’ shall mean data of a precise nature relating directly or indirectly to an issuer of securities and which, if it were made public, would be likely to have a significant effect on the prices of such issuer’s securities or an investor’s decision to purchase, sell or hold such securities. Under the law, listed companies are required to publish this information on the website SEI-NET, System for Electronic Information (<http://seinet.com.mk/>).

5. Data

The study is based upon 20 annual financial reports released by 10 firms comprising the MBI 10 index, during 2008–2009 (<http://seinet.com.mk/>). The daily returns of all 10 stocks listed on the MBI 10, published by the Macedonian Stock Exchange, are used for analyses. The daily closing prices and the daily volumes of trade are extracted from the official site of the Macedonian Stock Exchange (www.mse.mk). The daily returns are computed based on the closing price of each trading day. The dates on which earnings announcements are released by the companies are defined as the event dates ($t = 0$). For each event in the sample, a maximum of 91 daily returns are hand-collected. Given the limitations of the data-collecting process, we chose to limit the period under study within the period of the recession 2008–2009 after the bubble burst.

6. Empirical results

The dates and times of the company news announcements have been listed in Table 2; it is taken to be the day on which the news was first reported on SEI-NET. Macedonian companies reported good earnings that should be appreciated by the investors.

The market model using equation (1) is calculated by each year, and estimated coefficients are shown in Table 3. These are coefficients that explicate the relationship between the stock and the market. Beta is the stock’s sensitivity to market return (the slope coefficient) and measures the sensitivity of a particular stock to general market movements or returns. It measures the systematic risk based on how returns co-move with the overall market. The level of sensitivity is between 0.19% and 1.56%. The coefficients are significant except for one company (Replek) which is excluded for further calculations.

Table 4 shows calculated t-statistics within the event window (–1 to +2 days). No significant abnormal returns can be noticed, either before or after the earnings announcement.

Table 2. Company earnings announcements in Macedonia (2008–2009).

Company	Event window	Event date and time	Earnings Bil. Denars
Toplifkacija AD	03.11.2007–17.03.2008	03.03.2008 12:23:19	80.119
Granit AD	06.11.2007–17.03.2008	29.02.2008 14:38:19	339.989
Replek AD	06.11.2007–17.03.2008	29.02.2008 13:56:19	182.966
Makstil AD	06.11.2007–17.03.2008	29.02.2008 13:47:18	166.041
Makpetrol AD	06.11.2007–17.03.2008	29.02.2008 12:49:20	164.000
ZK Pelagonija AD	06.11.2007–17.03.2008	29.02.2008 12:31:18	146.978
Beton AD	06.11.2007–17.03.2008	29.02.2008 12:01:18	26.914
Alkaloid AD	06.11.2007–17.03.2008	29.02.2008 09:33:19	376.530
Komerzialna Banka AD	02.11.2007–13.03.2008	27.02.2008 14:30:13	1.011.897
Stop.banka AD Bitola	01.11.2007–12.03.2008	26.02.2008 14:36:13	257.181
Toplifkaxija AD	03.11.2008–17.03.2009	03.03.2009 15:45:42	6.344
Replek AD	03.11.2008–17.03.2009	03.03.2009 09:14:41	236.575
Stop.banka AD Bitola	02.11.2008–16.03.2009	02.03.2009 15:35:40	184.695
Granit AD	02.11.2008–16.03.2009	02.03.2009 13:05:40	431.373
ZK Pelagonija AD	02.11.2008–16.03.2009	02.03.2009 09:49:39	222.702
Beton AD	02.11.2008–16.03.2009	02.03.2009 09:10:39	7.881
Makstil AD	29.10.2008–13.03.2009	27.02.2009 15:06:33	124.426
Makpetrol AD	29.10.2008–13.03.2009	27.02.2009 14:05:34	261.484
Komerzialna Banka AD	28.10.2008–12.03.2009	26.02.2009 14:00:31	1.377.590
Alkaloid AD	21.10.2008–10.03.2009	24.02.2009 09:00:27	501.784

Source: SEI-NET (<http://seinet.com.mk/>).

Table 3. OLS coefficients estimates using equation (1) in 2008 and 2009.

Company	2008			2009		
	A	β	R ²	A	β	R ²
Alkaloid AD	0.19	1.19***	0.69	0.29	1.24***	0.72
Beton AD	-0.09	0.89***	0.33	-0.16	0.47***	0.12
Granit AD	0.07	1.09***	0.60	-0.08	1.09***	0.58
Makpetrol AD	-0.07	1.14***	0.63	0.006	1.17***	0.50
Replek AD	0.02	0.19	0.02	-0.06	0.24*	0.03
Makstil AD	-0.11	1.56***	0.56	0.06	1.31***	0.24
Komerc. Banka AD	-0.02	0.61***	0.58	-0.01	0.97***	0.54
Toplifkacija AD	0.17	1.24***	0.58	-0.19	0.85***	0.32
Stop.banka AD Bitola	-0.09	0.42***	0.15	-0.16	0.29***	0.06
ZK Pelagonija AD	-0.14	0.72***	0.19	0.27	1.01***	0.37

*, **, *** indicate significance at the 10, 5 and 1% levels respectively.

Source: Author's calculations.

Table 4. T-statistics within the event window (-1 to +2).

Company	2008				2009			
	Day (-1)	Day (0)	Day (+1)	Day (+2)	Day (-1)	Day (0)	Day (+1)	Day (+2)
Alkaloid AD	-0.22	-0.62	0.20	0.54	0.11	0.09	-0.03	0.21
Komerzialna Banka AD	-0.34	0.50	0.33	1.24	0.25	-0.21	-0.12	0.69
Makpetrol AD	-0.25	0.07	-1.03	0.17	0.07	-0.01	0.58	0.55
Granit AD	0.49	-0.35	0.05	-0.62	0.00	0.50	-0.31	-0.29
Beton AD	1.41	-0.31	0.75	0.14	0.01	-0.07	0.14	-0.12
Toplifkacija AD	-2.32	0.15	-0.09	-0.20	-0.48	0.66	0.65	-1.61
Makstil AD	0.52	0.10	0.29	-0.59	-0.01	-0.08	-1.10	0.48
ZK Pelagonija AD	-0.22	0.06	-0.90	0.15	-0.16	0.56	0.52	0.56
Stop.banka AD Bitola	2.46	-0.23	0.12	0.50	0.04	0.14	-0.23	0.20

Note: If the t-statistic is larger in absolute value than 1.96 or 2.58, the relevant ARs are statistically nonzero at the 5% and 1% level of significance respectively.

Source: Author's calculations.

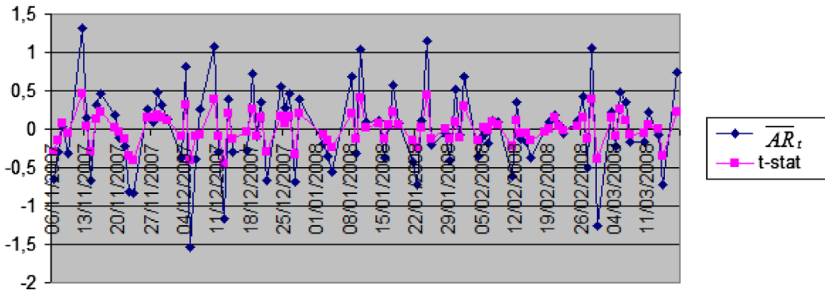


Figure 2. Average abnormal return and t-statistics across all 10 shares in 2008. Source: Created by the author.

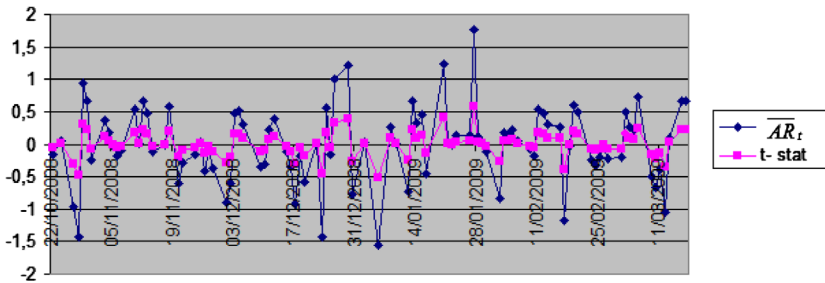


Figure 3. Average abnormal return and t-statistics across all 10 shares in 2009. Source: Created by the author.

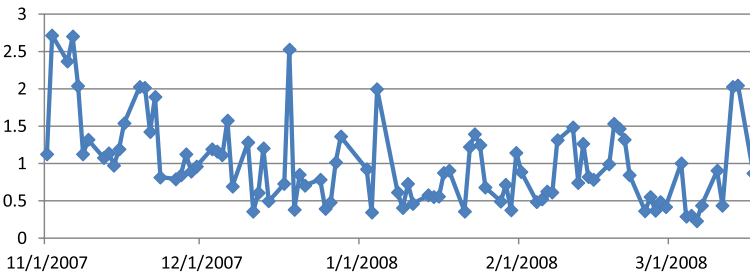


Figure 4. Average standardised volumes in 2008. Source: Created by the author.

The movement of share prices is not influenced by the announcement. If the corporate announcement has an effect on stock prices, we would expect to see rejections. We can notice statistical significant t-statistics only for two companies in the day before the announcement. The interesting point is that company Toplifikacija AD had a statistically significant negative coefficient in 2008, beside the positive earnings announcement.

Figures 2 and 3 present graphs of the average abnormal return and t-statistics across all 10 shares in the event time by days within the sample period (-80 to +10) in 2008 and 2009. If the corporate announcement has an effect on stock prices, we would expect to see rejections of the null hypothesis on each day in the event window. Rejections in the event

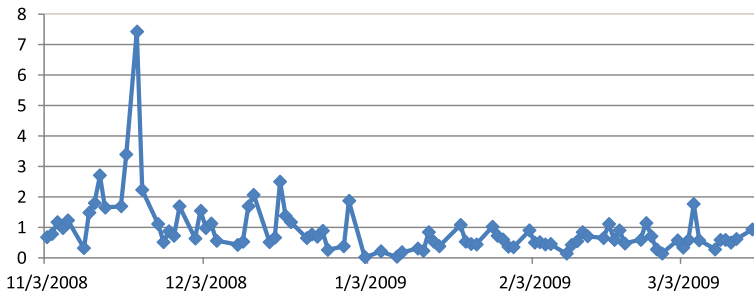


Figure 5. Average standardised volumes in 2009. Source: Created by the author.

window are not found. This suggests that corporate announcements in our sample have no impact on returns.

To find out if the volume is unusual during the event window period, the standardised average across the stocks volume is calculated. Figures 4 and 5 plot this daily volume figure in the event period (-80 to $+10$). As can be seen, there is no unusual volume in the event window.

7. Conclusions

The purpose of the study was to investigate whether there are any significant abnormal returns related to the public announcement of earnings and whether the volume is unusual during the recession period. Twenty large public earnings announcements were reported. Empirical evidence demonstrates that the Macedonian investors did not react to the companies' positive news. The null hypothesis could not be rejected in favour of the alternate hypothesis. The findings do not coincide with Salminen (2008), who found that the abnormal returns during the recession were positively slightly higher than during the boom, and Johnson (1999), who found that investors during a recessionary period of the business cycle will be more interested in assessing the information nature of earnings announcements by observing the share price movement around the public announcement of earnings.

The study intended to contribute to the existing literature on earnings announcements by analysing the information content of earnings announcements in a small Macedonian stock market during a recession period. Even though it was expected that earnings announcements during a recessionary period would result in positive price reaction, the study has indicated that the information content of earnings was beyond investors' interest.

The puzzling price pattern following a major price shock on the Macedonian stock market may be explained by behavioural principles, an issue to be addressed in further research.

Note

1. The length of the estimation period is subject to a trade-off between improved estimation accuracy and potential parameter shifts. Moreover, the estimation period is difficult to control for other confounding effects if long test periods are selected.

Disclosure statement

No potential conflict of interest was reported by the author.

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