

Professor Constantin MITRUȚ, PhD
E-mail: mitrut.constantin@gmail.com
Professor Daniela ȘERBAN, PhD
E-mail: danielaserban2002@yahoo.com
Associate Professor Simona VASILACHE, PhD
E-mail: simona.vasilache@gmail.com
The Bucharest Academy of Economic Studies

MEDIA EXPOSURE INFLUENCE ON THE SHARE PRICES OF STOCK EXCHANGE LISTED COMPANIES

***Abstract.** As the companies are more and more in media's focus, there is a notable influence of media news on investment decisions. Our analysis relates the volume of positive or negative news in key newspapers with the evolution of the share prices of four main companies listed in the Bucharest Stock Exchange. A series of regression models helps us distinguish between the company-related variables which are influenced by its media reflection, and variables which are not. Our conclusions postulate that the higher the stock value of a company, the more elaborate the stories and the amount of articles are written about these companies in the newspaper. Also, the more visible is the change in profit, the more complex is the media coverage for the company.*

***Keywords:** BSE listed companies, banking and oil industries, linear regression model.*

JEL Classification: C35, G11

1. Introduction

Contemporary society is characterized by an overflow of information which has significant impact on the thoughts of the general public. Investment decisions, as well as buying decisions, are increasingly influenced by the possibility to gain detailed information on markets and corporations actions. The increased media coverage and information accessibility gives more power and importance to mass media, which gains a prominent role in society. Consequently, corporations become aware of the role of the media and make efforts to get positive effects from media exposure. Newspapers have become stakeholders to companies, considering the increased influence of negative news on the share prices (van Lunenburg, 2002). However, the potential media has to influence moves on the stock exchange is not constant over time and not the same in all world regions. The media power is variable, depending on the historical circumstances and the transformations affecting media, including the proliferation of new media (Couldry, 2000). Recently, media has become more and more

influential due to the broad range of channels and larger exposure onto the population (Bryant and Oliver, 2008; Fang and Peress, 2009, Tetlock, 2011). Due to increased media coverage many markets and financial instructions are given much attention and interest from the general public. Stock markets are also affected, positively, as well as negatively, by exposure to the media. (Hamilton, 2004).

Initial Public Offerings, as a way to gain more publicity, were very frequent during the dot-com era, which had peaked in the 2000s (Brau and Fawcett, 2006). Soon afterwards, they decreased, starting with 2001, due to the dot-com crash (Cooper et al., 2005). However, five years after, around 2006, the trend has reversed and the IPO activity became frequent again. The last financial crisis has modified the trend once again, and made companies think twice before going public (Hawkings, 2004).

In order to study the mass media effects on investors, we have to find out the kind of role mass media has in the investors' decision making process. Davis (2002, 2006) advocates that there is a slow decline in the importance of financial news media in the investment process (McQuail, 2000; Ruddock, 2001; Joulin et al., 2008). However, financial news still play a significant role in trading (Petlock, 2007) and can still have a very significant impact on investment patterns. This means that companies, investors, and analysts still consume the information from the business media, and react accordingly.

Our study is based on major companies listed in the Bucharest Stock Exchange, and attempts to outline the relationship between media headlines and analyses involving a company, and the evolution of its financial and operational parameters.

2. An overview of the Bucharest Stock Exchange (BSE)

In order to analyze the relationship between the media coverage and the company indicators, we have chosen a sample of companies which are representative for the Bucharest Stock Exchange. Although the index is composed of 10 companies, we have only analyzed the evolution of the four biggest companies, which set the trend, and whose situation may be extrapolated to other similar companies. We also consider these companies to be the most representative for the Romanian economy nowadays.

According to their website, BSE has a total capitalization of 87,808,439,391 RON which would be approximately 20 billion EUR (based on the exchange rate of end 2014). The BSE was founded back in 1882, but it has ceased functioning during the communist regime, and was reopened in the spring of 1995. Considering this syncopated evolution, we may consider it a still developing stock exchange, which is in the catching up phase. The BSE started its trading in November 1995, with only 9 quoted stocks and weekly trading sessions. It was mainly inactive during its first year, but trading started to increase by 1997, when the number of quoted stocks became 76, and volume and prices have grown

Media exposure influence on the share prices of stock exchange listed companies

quickly in the first half of the year. Unfortunately, this rapid growth was followed in the second half of the year by a strong bear market, explained by the contagion effect from the East Asian financial crisis corroborated with domestic problems. The newly introduced BET index fell 24% in the last three months of 1997 and then another 50% in 1998. The exchange turned, in 2001, to a bull market, experiencing strong growth in capitalization, trading volume, as well as stock prices, a tendency that lasts until today. In the next years, stock prices registered record increases. In 2002, BET index increased by 117.5% and, according to Financial Times, BSE has been a fast runner, as compared to other world stock exchanges.

BET is the first index developed by BSE and also constitutes the reference index for the BSE market. BET is a free float weighted capitalization index of the most liquid 10 companies listed on the BVB regulated market. The index methodology allows BET to be a good underlying for derivatives and structured products.

Companies in the BET index represent four major industries: energy (OMV Petrom, C.N.T.E.E. Transelectrica, Dafora, Condmag and S.N.T.G.N. Transgaz), banking (Banca Transilvania and BRD – Groupe Societe Generale), chemistry (Biofarm and Azomures) and investments (S.S.I.F. Broker). The companies we have chosen represent two of the four industries, energy and banking (areas with relatively low risk – Danciu and Gruiescu, 2007), giving, as we said before, a fair approximation of the sensitiveness of the BSE listed companies in relation to the media.

3. Data and methods

The companies analyzed are OMV Petrom, Banca Transilvania, BRD – Groupe Societe Generale and Transgaz. All four companies together represent 76.31% of the total weight of the BET index. This means that the more than $\frac{3}{4}$ of the BET index's weight is accumulated by these four major companies. Therefore we could say that these four companies play the biggest role for the BET index, and also for the entire Stock Market.

A first aim of the study is find out the level of correlation between the performance of a company and the mass media information and communication actions. Mainly, the research should answer the question: *In what way do Romanian newspapers report about big Romanian enterprises and to what extent are differences in the media coverage caused by business-related variables and/or media related variable?* For this four companies that represent the biggest part of the Romanian stock market were selected. OMV Petrom is a Romanian joint venture that extracts crude petroleum and manufactures it, with the main shareholder OMV (51%). Banca Transilvania is a Romanian bank operating in the domain of financing and insurance. The company is mostly backed up with

Romania capital divided by Legal persons and Physical persons (approximately 75%). The remaining shareholding structure is split by Bank of Cyprus (9.7%) and European Bank of Reconstruction and Development (15%). BRD – Groupe Societe Generale is a Romanian bank which is a part of the French financial group Societe Generale holding approximately 59% of the company. The remaining percentage is held by various shareholders, some of them are S.I.F. Moldova and S.I.F. Transilvania who together hold less than 10% of the company shares. Transgaz is a Romanian state-owned company which is the main transporter of natural gas in Romania. The main shareholder is the Ministry of Economy and Finance of Romania with 73% of shares. Thus, the companies have similar traits, taking into account, profit margins and number of employees' turnover (with the mean 899 employees living the company in a year and a standard deviation of 394), constituting a relatively homogenous sample (Anderson, Sweeney and Williams, 2008; Newbold, Karlson and Thorne, 2010). Data on the price of the shares does not exhibit variations over the considered period, of January 2012 to June 2012.

The research objective was to find a relation between the size of a company and the media coverage. The size of the company was measured by the number of employees and the stock value. The economic impact of media news was also measured, and for economic impact the variables taken into account were profit and prices of shares.

During the research all companies published their company financial results. The rate of change in net profit and in the price of the share was computed and used in the analysis. In order to determine one period in time, we divided the total period of data collection into six equal time intervals, each one equal to one month. Data about profits, stock value and number of employees were taken from the annual reports of the companies. The share prices were taken from the BSE official website.

The media articles about the four main companies in Romania were collected from two business newspapers (*Ziarul Financiar*, *Capital*) and from one national newspaper (*Gandul*). An article mentioning one of the companies considered was selected if the name of the company was mentioned in the text. In this way we have collected more than 1800 articles discussing about the companies we have selected. If within an article there is reference on two companies it was considered two times, one time for the first company and secondly for the second company (for example, an article comparing credit procedure at several banks).

The indicators used for media coverage were the volume and judgment. The volume of one single article was quantified by estimating an *importance indicator* measuring how important does the newspaper think an event related to a company is. Components of this indicator are the length of the article, position in newspaper, size of heading, position on page, illustration or not. We have selected the *length of the article* (expressed as the total number of paragraphs) and *position of the article in the journal* (ranked from 1 to 3). The highest score (3) was given to first cover articles that have in their title the name of the company. The second

Media exposure influence on the share prices of stock exchange listed companies

score (2) was given to the articles published elsewhere that have the name of the company in the title. The articles with lowest score (1) were articles published elsewhere in the journal in which the company's name was mentioned only in the main body of the article. If the name of the company was mentioned several times in the article, the highest ranking was chosen. Therefore, the importance indicator was calculated as number of paragraphs multiplied by the position of article.

To define the volume, the average score of the importance indicator was taken and multiplied with the number of articles analyzed in that period, so that volume equals number of articles multiplied by the average importance indicator.

Judgment was divided into three categories. The first category is called *implicit evaluation*: the event itself can be negative (a loss in profit) or positive (more profit than expected), the second and third ones representing *explicit evaluations* (*second category* is the way in which the journalist evaluates and reports about the event, in a negative, neutral or positive way). The third category is referring to the way in which a third party is quoted in the article

Implicit evaluations are necessary when we want to know whether there is an effect of media coverage on the public or not. Each sentence in which a company was mentioned we looked whether this sentence was negative, positive or neutral. Therefore, the conclusion was drawn that the judgment score can be calculated as the difference between the number of positive sentences and the negative ones, difference related by division to the total number of coded sentences (positive, negative and neutral). In this way a score for judgment was assigned to each article.

4. Results

Using all the previously mentioned tools the research aims to test several hypotheses. The first set of assumptions is about the general media coverage volume, considering that the more employees a company has and bigger profits, the more volume in media coverage that company gets. Also the high volume in media coverage is associated directly with the stock value and the high media coverage appears more in business newspapers than in general ones. The second category is about the price of shares, assuming that the more positive change in a company's share price, the more positive their media coverage is. The third set of assumptions is comparing groups of companies. For instance the set of energy and chemistry companies which will have higher volume in newspapers than companies in the financial sector. This last category will be covered more positively in newspapers than other companies Last category of hypothesis is based on the theory that environmental issues have more impact on society and will therefore have a higher chance becoming news than other activities.

Table 1 is listing the diversity among the media coverage of the companies. One can read the average judgment score, the average importance

indicator, the total number of articles and total volume of each company. For example OMV Petrom has an average judgment score of 0.072502 and an average importance indicator of 8.797714 over 736 articles. The total volume in news of OMV Petrom is therefore 736 multiplied by 8.797714 is approximately 6475, which is shown in the column on the right.

Generally spoken, newspapers' judgment seems to be neutral (0.035354) but the range range between the lowest and the highest score is rather high (OMV Petrom 0.0725; BRD 0.0134). We may say the same about the range of importance indicator (Transgaz 10.029; BRD 8.246). Whereas OMV Petrom and BRD show high numbers of articles, we see that Transgaz was mentioned only 182 times during the period of 6 months. Although Transgaz was mentioned only 182 times it has the biggest average importance indicator.

Table 1. Descriptives

<i>Company</i>	<i>Average judgment score</i>	<i>Average importance indicator</i>	<i>Total number of articles</i>	<i>Total Volume</i>
<i>OMV Petrom</i>	0.072502	8.797714	736	6475
<i>Banca Transilvania</i>	0.035706	8.64005	440	3801
<i>Transgaz</i>	0.019777	10.02927	182	1825
<i>BRD</i>	0.01343	8.245813	509	4197
<i>Total</i>	0.035354	8.9282	1867	16298

The first set of hypothesis deal with the expected effect on volume. In a linear regression model we tested the following hypotheses.

➤ **H1.** The Hypothesis 1 is testing if there is a direct correlation between the number of employees and volume of the company in newspapers. After running the regression analysis (See Table 2) we have concluded that for the sample data 76% (R square) of volume amount is explained by the number of employees the company has. We can't really comment on the results accurately because the p-value (0.172) is greater than "alpha" (set previously as 0.05).

Table 2. First hypothesis testing.

Model summary

ANOVA	Unstandardized Coefficients		Standardized Coefficients	T	SIG.	95% CONFIDENCE INTERVAL	
	B	Std. error	Beta			Lower bound	Upper bound
1 (Constant)	2258.437	1081.997		2.087285		-2397.02	6913.898
Nempl	0.167408	0.06600	0.136	2.536157	0.1266	-0.1166	0.451419

^aPredictors: (constant), number of employees

Media exposure influence on the share prices of stock exchange listed companies

Coefficients

MODEL	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
1 Regression	11838608.89	1	11838609	6.43209	0.12660
Residual	3681105.867	2	1840553		
Total	15519714.76	3			

^aDependent variable: company coverage in newspapers

Although the volume of in media coverage might be higher in companies such as OMV Petrom (30398 employees) but we can't really say the same for the entire population using the 95% probability interval, because the significance F is 0.127 which is greater than accepted 0.05. For the conclusion, for the sample the number of employees might have a significant role on the media coverage, but we can't say the same thing for the overall population with the 95% probability interval.

➤ **H2.** The second hypothesis should test if the stock value of a company affects the volume of media coverage. We have tested this hypothesis (see Table 3) and found out that there is relationship between the two variables.

Table 3. Second hypothesis testing. Model summary

ANOVA	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
1 Regression	18413.24	1	18413.24	24.97369	0.001
Residual	16220.72	22	737.3055		
Total	34633.96	23			

^aPredictors: (constant), stock value

MODEL	R	R SQUARE	ADJUSTED R SQUARE	STD. ERROR OF THE ESTIMATE
1	0.729	0.531	0.510	27.153

It seems that the newspapers write more about a company if the stock value is higher in a certain moment in time. 53% of the volume is explained with this stock value variable and with a significance F close to 0 (below the accepted 5%) we could draw the same conclusion for the entire population.

➤ **H3.** The third hypothesis (see **Table 4**) is testing the impact if a company's profit differs from 0 it should have more media coverage. The changes in profit didn't show a significant effect on the importance indicator. This means that even if the profits change drastically the newspapers might not write a big story about

this case, but just mention the company's performance in general in a couple of paragraphs.

Table 4. Third hypothesis testing. Model summary

ANOVA	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
Regression	7819.58	1	7819.58	6.41562	0.018
Residual	26814.37	22	1218.83		
Total	34633.96	23			

^aPredictors: (constant), profit

If we look at the volume the profit difference makes, we could say that there is a significant role. This is explained with the number of articles mentioned in the newspapers when the difference in profit is different from 0. We can say that with a confidence level of 95% the more a company's profit differs from 0 the more volume the company gets in the media.

Referring to the share price change, we may say that that there was no significant effect on the way in which journalist write about a company. Companies that see their share prices increase very fast do not get more positive media attention than companies with lower increases or even decreases. We may also conclude that profit, share price and industry don't necessary mean a predictable judgment score from the journalists.

5. Conclusions

Companies differ from each other in the way they are covered by newspapers. The higher the stock value of a company, the more elaborate the stories and the amount of articles are written about these companies in the newspaper. Also if a company has a bigger change in profit this would increase the volume of the media coverage.

The media likes drastic changes in profit; it might be a significant increase or even a dramatic decrease in profit, this will increase the total volume of the company mentioned. The business newspapers write more articles about the companies, which make perfect sense, while the general newspaper usually write general articles with no deep coverage. Company's performance is seen much more in business news than in general ones.

On the other hand, we have seen that the number of employees doesn't necessary mean an increase of volume. The company's industry also doesn't necessary mean more media coverage. It seems that there is a big influence on the importance of the company. What we mean is for instance in Romania the biggest companies are oil manufacturers and banks. This is the main reason why two

Media exposure influence on the share prices of stock exchange listed companies

completely different industries (manufacturing and banking) are covered more than others.

Regarding the judgment score hypotheses none of them proved to have significant impact. It seems that the increase in profit or share doesn't necessary mean a larger increase in judgment. Another important conclusion is that industry doesn't necessary mean a predicted judgment score for the company (which means that banks should be evaluated more positive than oil manufacturers).

These conclusions have several differences compared, for instance, to the Dutch market (Davis, 2006). The Dutch market is a developed market which has a richer financial history than Romanian stock exchange market, which roughly works for 15years (not taking into consideration the pre-WWII period).

Because of this period, the Romanian stock market is still considered developing and there are a lot of needed improvements on the market, in order to catch up with the Western rivals.

The differences (comparing the hypotheses) are for example in the impact of total employees.

On the Dutch market companies with a bigger number of employees are mentioned more often in the newspapers. The same conclusion can be drawn regarding the judgment score of an industry. It seems that on the Dutch market manufacturing industries (for example oil and gas, food industries etc) are more criticized than publishing companies and financial institutions. It seems that the banks don't have the same impact on society in case of bad decisions or product failures. On the Romanian market it is quite different, because the banks, compared to other industries, are one of the biggest companies in Romania; therefore they have a bigger impact on the society, mostly because of the jobs offered.

At the moment, all companies should seriously consider their behavior towards the press. As the press seems to be less critical than people might think and does not differ that much in content, this kind of publicity could be a very useful tool for image building.

Companies can be far more active in presenting their successes, as they know that success is the best guarantee for positive publicity and greater attention. And the profit of a positive press will probably be far more than the loss of money on advertising, unless the media wake up and try to be as different as they say they are.

Acknowledgement: *This work was co-financed from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/159/1.5/S/134197 „Performance and excellence in doctoral and postdoctoral research in Romanian economics science domain”.*

REFERENCES

- [1] **Anderson, D. R., Sweeney, D.J., Williams, T.A., (2008), *Statistics for Business and Economics*; Thomson Higher Education, pp. 274-276, U.S.;**
- [2] **Brau, J.C, Fawcett, S.E. (2006), *Initial Public Offerings: An Analysis of Theory and Practice*, *The Journal of Finance*, 61 (1), pp. 399-436;**
- [3] **Bryant, J., Oliver, M. B. (2008) *Media Effects: Advances in Theory and Research*; 3rd Edition, *Routledge*, U.S.;**
- [4] **Cooper, M.J., Khorana, A., Osobov, I., Patel,A., Rau, P.R. (2005), *Managerial Actions in Response to a Market Downturn: Valuation Effects of Name Changes in the dot.com decline*; *Journal of Corporate Finance*, 11 (1), pp.319-335;**
- [5] **Couldry, N. (2000), *Does ‘the Media’ have a future?*, *European Journal of Communication*, 24. 436-447;**
- [6] **Danciu, A. R., Gruiescu, M. (2007), *The Political Risk Assessment Based on the Country Risk Index in Romania and Bulgaria*; *Economic Computation and Economic Cybernetics Studies and Research*, 41 (1-2), pp. 189-196;**
- [7] **Davis, A. (2002), *Public Relations Democracy: Public Relations, Political Communications and the Mass Media in Britain*; *Manchester University Press*, Manchester;**
- [8] **Davis, A. (2006), *The Role of the Mass Media in Investor Relations*; *Journal of Communication Management*, 10 (1), pp. 7-17;**
- [9] **Fang, L. H., Peress, J. (2009), *Media Coverage and the Cross-section of Stock Returns*, *Journal of Finance*, 64, pp. 2023-2052;**
- [10] **Hawkins, R. (2004), *Looking Beyond the Dot Com Bubble: Exploring the Form and Function of Business Models in the Electronic Marketplace*. In: B. Preisel, H. Bouwman and C. Steinfeld (Eds.) *E-Life After The Dot Com Bust*. *Heidelberg: Physica-Varlag*;**
- [11] **Joulin, A., Lefevre, A., Grunberg, D., Bouchaud, J.-P. (2008), *Stock Price Jumps: News and Volume Play a Minor Role*; *Wilmott Magazine*;**
- [12] **McQuail, D. (2000), *Mass Communications Theory, 4th ed.*, *Sage*; Thousand Oaks, CA.;**
- [13] **Newbold, P., Karlson, L.W., Thorne, B. (2010), *Statistics for Business and Economics*, 7th ed., *Pearson Global Edition*, Columbia, U.S.;**
- [14] **Ruddock, A. (2001), *Understanding Audiences: Theories and Methods*. *London: Sage*;**
- [15] **Tetlock, P. C. (2011), *All the News that’s Fit to Reprint: Do Investors React to Stale Information?* *Review of Financial Studies* 24, pp. 1481-1512.**