

Accounting Disclosure and Stock Market Reaction. Empirical Analysis on Bucharest Stock Exchange

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Abstract

The paper provides new evidence in what concerns the stock market reaction to preliminary and final corporate accounting disclosure, with application on the Romanian capital market, Bucharest Stock Exchange (BSE). Using GARCH methodology, our results are similar with the results of the previous empirical literature that proved that the accounting information brings new and relevant information for the investors and highlight in the same time the importance of disclosure regulation for the development of stock markets.

Key words: stock market, BSE, disclosure, accounting information, Garch

J.E.L. classification: G10, G14

1. Introduction

The main body of literature that has approached the value relevance research and has empirically related the accounting information and financial statements disclosure with the dynamics of stock prices or stock returns started from the premise that rationale investors should use the information provided in the accounting statements for making informed decisions, affecting the stock prices. In other words, if accounting information proves to be useful for the investors, then a proper market reaction should appear, in accordance with the efficient market theory, underlying the economic value of a company.

Throughout the time, empirical studies have pointed out the explanatory power of accounting variables under different accounting regimes or the relevance and reliability of accounting data in capturing information that should be visible in the market value of the company. We can observe however that within literature there are less discussed econometric event studies where the focus is on the disclosure time of financial statements, the time lag influencing the market values of shares and the market reaction determined by the disclosure of the financial statements. Empirical findings on the market reaction to accounting information provided by the accounting disclosure are contradictory. The paper contributes to the previous literature by analysing the intensity of the market reaction to both preliminary and final financial statements of the fiscal year, which to our best of knowledge, has never been analysed taking into consideration the Romanian stock market.

2. Theoretical background

The majority of the empirical studies agree on the increased transparency of the companies listed on the stock exchange as an efficient way of reducing information asymmetry and consequently lowering the cost of debt and equity, increasing in the same time stock market liquidity (Diamond and Verrechia, 1991; Healy and Palepu, 2001; Botosan and Plumlee, 2002; Brunnermaier and Peterson 2009; Lang and Maffett, 2010). The negative relation found in

literature between firm disclosure and market volatility can be explained, nevertheless, by the positive effect that disclosure of financial statements brings in mitigating information asymmetry and smoothening price volatility, leading to a higher level of market efficiency. Moreover, if a company keeps sending on a regular basis new information to the market, the potential impact of that particular information tends to diminish.

Though, not all the research papers agree with this line of thinking, suggesting that an increased disclosure might lead as well to a higher volatility of the stock market (Schleifer and Vishny, 1997). Dechow (1994) points out to the rather semi-strong efficiency form of the stock market and to the credibility of financial statements, giving the time of publication of the financial statements. Alves and Santos (2008) investigate the level of informativeness of the quarterly financial reporting for a sample of Portuguese firms within 1994-2004 and reach the conclusion that not only annual reports, but also unaudited quarterly reports spur significant market reaction, in terms of prices and volumes.

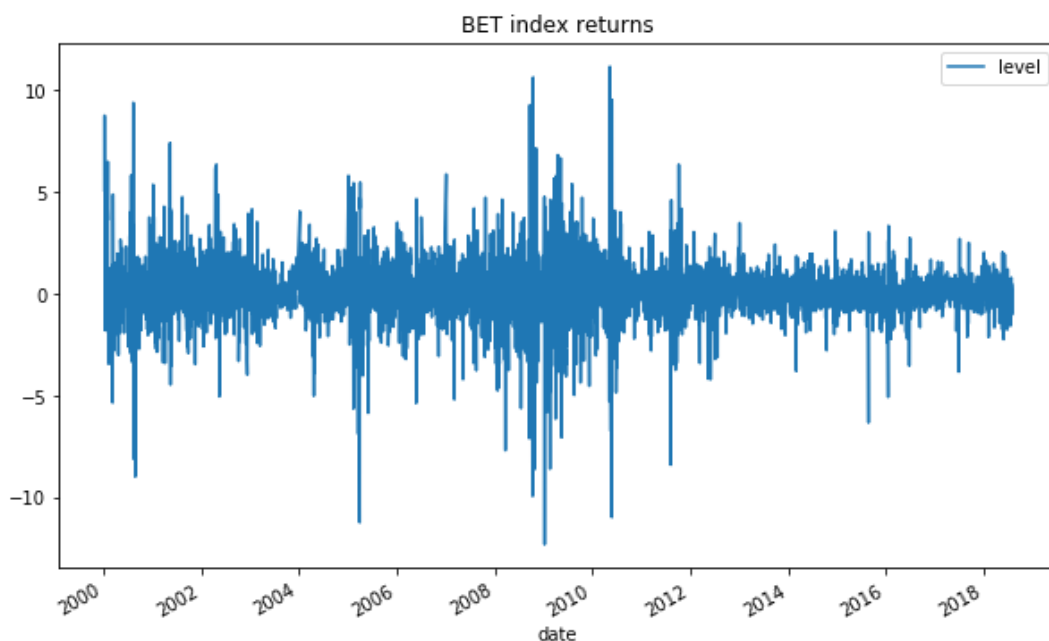
As far as concerns the studies performed on Bucharest Stock Exchange (BSE), they are mainly focusing on determining the impact of the transition to IFRS for the non-financial companies listed on BSE (Huian, 2015) or determining the causal relationship between different accounting information and stock prices or returns (Jaba et al. 2016; Jianu et al. 2014). Dima et al. (2013), analyse the influence of publicly disclosed information on the stock market values of 45 companies listed on Bucharest Stock Exchange, having Madrid Stock Exchange as benchmark and constructing a global disclosure indicator. They find empirical evidence to support the positive market reaction to disclosed information on both markets, although less clear in the Romanian case.

3. Empirical approach and results

The dataset employed in this paper covers the 2000-2018 period. The data was provided by Tradeville. Our final sample resulted into a number of 40 companies, from different fields of activity. A full description of the sample composition can be depicted in Appendix 1.

The analysis performed here is a top-down investigation. We aim to study whether there is any impact of financial statements on the Romanian stock market and if so, how does this impact is absorbed by the market. We begin by analysing BSE index BET as a proxy of the general market impact, and then proceed to analyse the effect in a set of stocks from the BSE. The dataset used for the BET index ranges from 05/01/2000 to 01/08/2018 (4700 observation points).

Figure no. 1. BET Index - Returns Plot



Source: authors' estimations.

Financial time series reveals periods of high and low volatility that are grouped together and form clusters of volatility. Heavy tails and volatility clusters are correlated as noted by Mandelbrot (1963). As perceived from the instant volatility plot of BET returns (Fig. no.1), we find a similar cluster pattern in our data. Thus, to account for these stylized fact of financial time-series, we will use the Autoregressive Conditional Heteroskedasticity (ARCH) framework model. We also proceed by modelling the mean equation that presented a meaningful autocorrelation structure. Therefore, we estimate two baseline models - GARCH(1,1) and AR(1)-GARCH(1,1). The main model results are presented below (Table 1 and Table 2).

Table no. 1. BET Index - GARCH(1,1) - Results

| Mean Equation | | |
|--------------------------------------|--------------|-------------------|
| | <i>coef.</i> | <i>Std. Error</i> |
| Mu | 0.078 (***) | 0.0146 |
| Volatility Equation | | |
| | <i>coef.</i> | <i>Std. Error</i> |
| Omega | 0.0375 (***) | 0.0139 |
| alfa(-1) | 0.1784 (***) | 0.0306 |
| beta(-1) | 0.8203 (***) | 0.0289 |
| Bayesian Information Criterion (BIC) | 15023.4 | |

Note: P-value is lesser or equal to (*) 0.1, () 0.05 and (***) 0.01.**

Source: authors' estimations.

Table no. 2. BET Index - AR(1)-GARCH(1,1) - Results

| Mean Equation | | |
|--------------------------------------|--------------|-------------------|
| | <i>coef.</i> | <i>Std. Error</i> |
| Mu | 0.078 (***) | 0.0146 |
| ar(1) | 0.1054 (***) | 0.0178 |
| Volatility Equation | | |
| | <i>coef.</i> | <i>Std. Error</i> |
| Omega | 0.0375 (***) | 0.0139 |
| alfa(1) | 0.1784 (***) | 0.0306 |
| beta(1) | 0.8203 (***) | 0.0289 |
| Bayesian Information Criterion (BIC) | 14984.6 | |

Note: P-value is lesser or equal to (*) 0.1, () 0.05 and (***) 0.01.**

Source: authors' estimations.

As the model selection criterion, we used the Bayesian Information Criterion (BIC) - and proceed by using the AR(1)-GARCH(1,1) given its lower BIC value. Having a baseline econometric model, we proceed with our investigations on the impact of financial statements in stock returns.

Every year companies in Romania have to report release their financial statements regarding the previous year. This is done in two parts: during February companies release a preview of their financial statements and have until the end of April to report the final statement. We construct a dummy variable to capture the effect on returns during the second-half of April. Thus, from the 15th to 30th of April, the variable receives the value of one and zero otherwise. Our baseline model, AR(1)-GARCH(1,1), is expanded to receive a dummy variable. We found that our dummy variable is statistically significant at 5% confidence level, presenting a negative coefficient - meaning that on average the second-half of April have a marginally negative performance when compared with the rest of the year (Table 3).

Table no. 3. BET Index - AR(1)-GARCH(1,1) with announcement dummy - Results

| Mean Equation | | |
|--------------------------------------|--------------|-------------------|
| | <i>coef.</i> | <i>Std. Error</i> |
| Mu | 0.0776 (***) | 0.01467 |
| ar(1) | 0.1043 (***) | 0.01787 |
| d1 | -0.1198 (**) | 0.0588 |
| Volatility Equation | | |
| | <i>coef.</i> | <i>Std. Error</i> |
| Omega | 0.0376 (***) | 0.0109 |
| alfa(1) | 0.1771 (***) | 0.0295 |
| beta(1) | 0.8206 (***) | 0.0276 |
| Bayesian Information Criterion (BIC) | 14989.6 | |

Note: P-value is lesser or equal to (*) 0.1, () 0.05 and (***) 0.01.**

Source: authors' estimations.

This result points towards the results obtained in the literature regarding the smoothening of the market volatility determined by the financial disclosure. We proceed by analysing on a more granular level this effect by modelling a set of stocks from the Bucharest Stock Exchange. We have compiled all the financial statement release dates of each stock from 2012-2018. Any missing data point was assumed to have a preview statement release of 15th of February and a final statement release of 27th of April (the most common preview/final release dates in our sample).

We built three dummies given specific information for each stock: the first one (pre-announcement dummy) is encoded as one for a period of 7 days prior to the preview statement release, the second is encoded as one for the period between the release of the preview and final statement (between announcements dummy) and the last is encoded as one for the period of 7 days after the final statement release date.

We aim now to verify the same negative impact found after the release of the final statement on the BET index is persistent in the stock returns dynamics. In addition, we also investigate if there is any significant impact prior to the announcement and between the release and final one.

We model each stock following the same procedure described above for the BET index - modelling the returns as an AR(k)-GARCH(p,q) and choosing the best model using the BIC. Next, we add the period dummies in the returns equation and test for statistical significance (Table no.4).

Table no. 4. Mean Equation Results - Stock Models

| | <i>Const</i> | <i>AR(1)</i> | <i>d0</i> | <i>d1</i> | <i>d2</i> |
|-------------|--------------|---------------|--------------|---------------|---------------|
| ALT | -0.0024 | -0.2805 (***) | 0.1904 | -0.2465 (*) | 0.1066 |
| AMO | 0.2446 | -0.5564 (***) | -0.7173 | 1.008 (***) | -1.1201 |
| ART | 0.4623 (***) | -0.2146 (***) | -0.7881 | -0.8278 (***) | -2.0071 (***) |
| BRD | 0.0328 | 0.0575 (**) | -0.2494 | -0.0673 | -0.4435 (*) |
| BRK | -2.3085e-03 | -0.0975 (**) | 0.1866 | -0.2527 (*) | -0.4733 (***) |
| CMP | 0.0863 (*) | -0.1528 (***) | 0.3965 | -0.2132 (*) | 0.0188 |
| COMI | 0.0262 | -0.5158 (***) | -0.2117 | -0.4031 (*) | -0.7002 |
| COTE | 0.1972 (***) | -0.2026 (***) | 0.0387 | -0.2756 | -1.0537 (**) |
| DAFR | -0.1317 | -- | 0.4395 | -0.3685 (**) | -0.2474 |
| ELMA | 0.0980 (*) | -0.2053 (***) | -0.2477 | -0.1975 (*) | -0.7486 (*) |
| EPT | -0.1938 | -0.2021 (***) | 1.1802 | -0.6193 (*) | 0.1886 |
| OIL | 0.0155 | -0.2510 (***) | 0.1454 | -0.2299 (**) | -0.3536 |
| SIF5 | 0.1032 (***) | -- | -0.2519 (**) | -0.2121 (***) | -0.0851 |
| TLV | -0.0303 | -- | 0.0669 | 0.3077 (***) | 0.1737 |
| VNC | 0.1006 (**) | -0.2632 (***) | 0.2440 | -0.1930 (**) | -0.8524 (*) |

Note: P-value is lesser or equal to (*) 0.1, (**) 0.05 and (***) 0.01.

Source: authors' estimations.

4. Conclusions

The results obtained when analysing BET index show on average that the second-half of April exhibits a marginally negative performance when compared with the rest of the year. We also found that there are significant negative effects for a set of stocks between the announcements and the period after the release of the final statement (*d1* and *d2* variables, respectively) - corroborating with our previous findings for the BET index. For pre-announcement periods, we only found a negative impact for SIF5 (at 5% confidence level) - but since it also has a "between announcements" significant impact, we argue that the pre-announcement significance in this stock is a statistical noise due to our simplification assumptions adopted when handling missing announcement dates and should be interpreted as a "between announcements" effect instead. The TLV stock is an interesting case where it presents a significant positive impact between the two announcements. Banca Transilvania SA (TLV) is one of the biggest banks in Romania, and considered a safe investment. We reason that it may function as a "safe island", after the release of statements investors become more risk-averse (this may be due to overconfidence bias correction, proceeding to sell other (riskier) companies and buying a safer one (TLV)). This requires more investigations and remains an open question. Another finding is that for some stocks (i.e. ART, BRK, COTE) the post-announcement effect is also significant and more intense than the effect between periods. For example, ART presents a post-announcement coefficient of -2 and a between announcements coefficient of -0.82. We reason that this may be due to big corrections from the preview in the final statement, but also needs further investigation.

The obtained results are generally consistent with some results obtained in the literature regarding the smoothening of the market volatility determined by the financial disclosure.

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Appendix 1. Sample composition

| Field of activity | Number of companies | Companies |
|------------------------------|---------------------|--------------------------------------|
| Consumer goods | 3 | VNC, SPCU, BRM |
| Pharmaceutical sector | 4 | ATB, BIO, SCD, RMAH |
| Banking & financial services | 4 | TLV, BRD, BRK, SIF5 |
| Chemical industry | 1 | AMO |
| Industrial equipments | 5 | ARTE, ARS, ELMA, CMF, ROCE |
| Metallurgy | 2 | ART, ALR |
| Petroleum and gas | 7 | SNP, RRC, DAFR, OIL, PTR, COTE, COMI |
| Transport and logistics | 3 | SNO, EPT, SOCP |
| Real estate & constructions | 4 | IMP, CEON, ALU, COTR |
| Tourism | 2 | EFO, TUFE |
| Utilities | 2 | TGN, TEL |
| Auto accessories | 3 | UAM, CMP, ALT |
| TOTAL | 40 | |