Changes of Executives and Ownership in a Romanian Small Bank: an Event Study Approach

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Abstract: The aim of this paper is to study the impact of four different events on the evolution of stock prices of Banca Comercială Carpatica, using event study methodology. The series of events ended with a substantial change of the bank ownership. In determining the expected returns, we employ two different models: Market Model and Capital Asset Pricing Model (CAPM). Our results show that in three out of four events there is a significant impact of the event, both in the pre- and in the post-event days from the event window.

Keywords: ownership change; CEO turnover; banking; event study

1   Introduction

In this paper we study the impact of four events on the evolution of stock price of Banca Comercială Carpatica (ticker on Bucharest Stock Exchange: BCC). More precisely, the events we consider are as follows (in chronological order): (1) the appointment of a new CEO – Johan Gabriels – as revealed in an article by Mediafax press agency on 14/01/2013, being the event day (his appointment was approved by the National Bank of Romania on 19/04/2013); (2) the detention and the incrimination of Ilie Carabulea, a shareholder of BCC who founded Banca Carpatica in 1999, by the National Anti-Corruption Department (DNA) on 28/01/2014 – the event day; (3) the sale of 25% indirect stake in the bank to American investment fund JC Flowers by issuing new shares, the transaction being firstly announced by Ziarul Financiar on 03/09/2015 and (4) as the latter takeover had fallen through, we consider another one – the sale of 20% of BCC's share capital (220,274,282 shares) to Nextebank, the event day being the 04/01/2016.

The goal of this paper is to analyze the impact of some major events on shareholders' value: the change of executives and the change of company's ownership. By investigating the variation of abnormal returns through an event study we determine how the market players react. Given the Efficient Market Hypothesis (EMH) and the rationality in the marketplace, the news should immediately be incorporated into the stock price, either in a positive or in a negative way. Otherwise, the market is not efficient. Also, knowing how a security is likely to react to a specific event, we can predict how other securities are likely to react to similar or different events.

The value stock price of a company is determined by multiple factors. The agency theory states that the Chief Executive Officer's role, as the agent of the shareholders, is to maximize their wealth. Thus,

BUSINESS ADMINISTRATION

the CEO change may be considered a major event in a company's history. Moreover, the role of the executive turnover receives even more weight when we consider the banking sector.

Banca Comercială Carpatica has experienced in the recent years a series of events, four of each are being investigateg in this paper, and we consider a challenge to study how the market participants have reacted to such events, driving the stock price either upward or downward. Furthermore, BCC is one of the most transactionated stock on Bucharest Stock Exchange, which is a *sine qua non* requirement for the validity of the abnormal returns.

The rest of the paper is organized as follows. The next chapter will review the theory on the event studies and the empirical literature regarding the executives turnover and ownership change. The section 2 will present the data and methodology, while the last two sections will present the results and will draw the conclusions of this research.

2   Literature Review

The impact of the news on the stock prices has been firstly investigated by Dolley (1933), who used the event study methodology to determine the behavior of stock prices due to the stock splits. A new seminal paper investigated later on the way in which the stock prices are adjusted on the market after new information is publicly available (Fama, Fisher, Jensen, & Roll, 1969). Ball & Brown (1968) notice that the income report disclosure determines stock price changes and proposes an investigation regarding the magnitude of price change due to unexpected income change. Later on, the event study methodological approach has been used by Brown & Warner (1985), McWilliamd & Siegel (1997), MacKinley (1997) and Binder (1998) who developed and applied it in order to capture the new information disclosure effect on stock prices. The rationale under the event study approach is that the prices will quickly incorporate the news and generate abnormal returns. Armitage (1995) evaluated the different methods of determining the abnormal returns and tested their performance.

There are numerous types of information that influence the share price behavior: income announcements, change in strategy announcements, but also ownership change, merger or acquisition decision or CEO turnover.

Considering the CEO turnover, the literature distinguishes two cases of succession, namely the planned change (e.g. retirement) or the unplanned turnover (e.g. resignation, death etc.), while the effect of CEO turnover on company's performance is a function of the manager effect and succession effect (Beatty & Zajac, 1987). The magnitude of market reactions to the deaths of CEOs was significantly larger in shareholder perceptions of CEO impact towards more recent periods (Quigley, Crossland, & Campbell, 2016). In a seminal corporate governance paper, Jensen & Meckling (1976) state that the CEO will doubtable seek to maximize the shareholders' wealth. The poorly-performing executives will thus be replaced and, as a consequence, the stock price will rise, signaling the effectiveness of the board of directors (Wu & Hsu, 2015). Moreover, the forced turnover may lead to higher stock price volatility, even when controlling to multiple factors (Clayton, Hartzel, & Rosenberg, 2000). The overall effect for outside successions remains insignificant. However, in the empirical literature, the effect of CEO turnover on stock price is inconclusive. It may be followed by a

37

company value reduction (Beatty & Zajac, 1987; Suchard, Singh, & Barr, 2001) or by no average stock price reaction (Warner, Watts, & Wruck, 1988).

Another strain of the event study literature analyzes the effect of the ownership changes on the stock price movements. Among other hypothesis, Sanders & Zdanowicz (1992) studied the average abnormal returns of corporate control target firms during a period of possibly informed trading. They found out that the preannouncement date average abnormal return begins after the unpublicized initiation date of the transaction.

Ali, Durtschi, Lev, & Trombley (2004, p. 1) found out that "the change in institutional ownership of a company during a calendar quarter is positively associated with the three-day abnormal returns at the time of the subsequent announcement of the company's quarterly earnings". Another study describes the behaviour of the firm value due to the insider's ownership purchase: as insider ownership increases, the share price first increases, then decrease (McConnell, Servaes, & Lins, 2008).

3   Data and Methodology

The estimation window for which we use to determine the normal behavior of the stock market factors is 250 trading day period prior to the each event window to capture seasonality effects. A 41-day event window is employed, comprised of 20 pre-event days, the event day, and 20 post-event days, as in MacKinley (1997). The data employed is the daily closing price series of the BCC, downloaded from the DataStream database.

As we have defined the events *per se*, event days, estimation windows and the event windows, we proceed in applying the classical methodology for event studies. This involves four steps:

1.   Compute daily returns for the estimation window in continuous time, as shown below:

$$R_t = \frac{lnP_t}{lnP_{t-1}} \quad (1)$$

where P_t and P_{t-1} represent the BCC's and market portfolio's stock price at time *t* and *t-1*, respectively.

2.   Compute the daily expected returns for the event window period. This will be done using two models: Market Model and an economic model, namely the Capital Asset Pricing Model (CAPM). The Market Model has the following form:

$$E(R)_t = \propto + \beta R_{mt} + \varepsilon_t \qquad (2)$$

where R_t and R_{mt} are the period-*t* returns on BCC and the market portfolio, respectively, and ε_t is the zero mean disturbance term with $var(\varepsilon_t) = \sigma^2_t$. *α, β* and *ε* are the parameters of the market model to be estimated using Ordinary Least Square (OLS) method. The residuals will be tested for autocorrelation and heteroskedasticity using Breusch-Godfrey Serial Correlation LM Test up to five lags and ARCH LM Test up to five lags, respectively. If we detect only heteroskedasticity, we correct it using White method, and if we detect both autocorrelation and heteroskedasticity we will employ Newey-West methodology to obtain robust standard errors. As a proxy for market portfolio, we will use Dow Jones Total Market Index (DWG), a comprehensive index which represents 77 countries and covers more than 98% of the world's market capitalization. Data for the index prices is downloaded from

Bloomberg. The appropriateness of the model will depend upon the R^2 of the market regression. The larger the R^2 the greater is the variance reduction of the abnormal return, and the larger is the gain.

The second model, CAPM, is an extension of the market model:

$$E(R)_t = r_f + \beta[E(R_{mt}) - r_f] + \varepsilon_t \qquad (3)$$

where:

$E(R_i)$ – expected return on BCC;

$E(R_m)$ – expected return on the market portfolio;

β – market (systematic) risk, computed as a ratio between the covariance on the BCC return and market portfolio return and the variance of the market portfolio return;

r_f – risk-free asset return;

ε_i – standard error for BCC share.

For the risk-free rate, 10-years Romanian bond yields will be used, from Datastream database. Unlike the market model, CAPM imposes additional restriction. One of them is that the intercept equals the risk-free rate and hence the variance of the error term will be larger than in the market model. Another one is that it is based on a series of hypotheses (Berk & DeMarzo, 2014, pp. 379–380; Hillier, Grinblatt, & Titman, 2012, p. 140), as follows:

a.   All the investors have a Markowitz behavior, considering only the variance and mean return of the portfolios.

b.   There are no transaction costs or other spending for buying and selling financial assets (*frictionless markets*).

c.   All the investors have homogenous beliefs, that is, estimate identical distributions for the future returns. There is a perfect competition between the investors and they will not try to beat the market by an active administration of the portfolios.

d.   The stock markets are in equilibrium. The financial assets are correctly evaluated.

e.   The time horizon of the investments is identical for all investors.

However, it is still widely used in financial research and literature to determining expected returns of assets.

3.   Compute daily abnormal returns of the BCC, as the returns in excess of its expected returns after compensating for risk:
$$AR_t = R_t - E(R_t) \qquad (4)$$
To prove the significance of the abnormal returns for each day in the event window period, testing is performing with t-statistic calculated for each average abnormal return (AR) at time *t* using the following formula:
$$t_{AR} = \frac{AR_t}{SE\ of\ regression} \qquad (5)$$

4.   Finally, we sum the average abnormal returns over the *T* days for any interval in the event window to get the Cumulative Abnormal Return (CAR):

$$CAR_T(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_t \qquad (6)$$

4   Empirical Results

Table no. 1 reports the descriptive statistics for the abnormal returns on event windows for each event in particular, from both Market Model and CAPM (41 trading days). An examination of the characteristics displayed above, shows that for the first event - the appointment of a new CEO – with the event window lasting from 17/12/2012 to 11/02/2013, the mean abnormal returns were the highest, using market model, but also more volatile (riskier) in comparison with the other three events, as measured by the standard deviation: the detention and the incrimination of Ilie Carabulea (event window – from 31/12/2013 to 25/02/2014), the sale of 25% indirect stake in the BCC to American investment fund JC Flowers (event window – from 06/08/2015 to 01/10/2015) and the sale of 20% of BCC's share capital to Nextebank (event window – from 07/12/2015 to 01/02/2016). The less risky abnormal returns appear to be for the second event – it could be a sign that the investors have not perceived the event in such a bad manner, even though the ARs were negative. Table no. 1 also exhibits the skewness and excess kurtosis for the series of each event. With the exception of the fourth event, the positive value of the skewness show that the distribution of abnormal returns has a long right tail. Furthermore, for the first and third event, the value of kurtosis in greater than 3, meaning that the distribution is peaked (leptokurtic) relative to the normal; for the second and fourth event, the value of kurtosis is closer to 3, which means that the distribution of ARs is close to the normal. This is also revealed by the Jarque-Bera test, for which we fail to reject the null hypothesis for the second and fourth event and conclude that the distributions of these abnormal returns is normal.

Table 1. Descriptive statistics for the abnormal returns

	Event 1		Event 2		Event 3		Event 4	
	MM	**CAPM**	**MM**	**CAPM**	**MM**	**CAPM**	**MM**	**CAPM**
Mean	0.0095	-0.0228	-0.0031	-0.0387	0.0017	-0.0072	0.0005	0.0490
Median	0.0027	-0.0290	-0.0022	-0.0377	0.0011	-0.0077	0.0030	0.0524
Maximum	0.1425	0.1117	0.0434	0.0073	0.1019	0.0931	0.0575	0.1056
Minimum	-0.0527	-0.0834	-0.0426	-0.0776	-0.0305	-0.0395	-0.0847	-0.0347
Std. Dev.	0.0365	0.0368	0.0175	0.0174	0.0217	0.0217	0.0326	0.0324
Skewness	2.1243	2.1803	0.5786	0.5628	2.3290	2.3240	-0.4713	-0.4706
Kurtosis	8.2244	8.3093	4.0371	3.9866	12.5758	12.5840	3.0411	3.0552
Jarque-Bera test	77.4635	80.6387	4.1252	3.8274	193.7125	193.8193	1.5206	1.5184
Prob. J.-B.	0.0000	0.0000	0.1271	0.1475	0.0000	0.0000	0.4675	0.4680

- First event – the appointment of a new CEO

The results from the regression in applying the Market Model are the following:

BUSINESS ADMINISTRATION

Table 2. Summary statistics from the OLS regression (1st event)

	Coefficient	Std. Error	t-Statistic	Prob.
α	0.33196*	0.011375	2.918412	0.0038
β	0.50825*	0.165005	3.080247	0.0023
R^2	0.036992			
S.E. of regression	0.020695			

*Significant at 1% level.

The R^2 from this regression is very low (3.69%) meaning that only 3.69% of the variation of the BCC returns is explained by the variation of the market index returns. Thus, the appropriateness of the Market Model in estimating abnormal returns may be doubtful. However, using other proxies for market portfolio (S&P 500 and BET indices) exhibits even lower results. The *β* corresponds to systematic risk and will be also used in computing expected returns with the economic model.

The results from both market model and CAPM show that there was indeed a positive impact on the BCC's stock prices when the Mediafax firstly revealed the appointment of a new CEO, the abnormal returns being non-negative and statistically significant at 1% on 14/01/2013. This means that the actual returns were larger than the expected returns. Moreover, on the day -4 and -3 the abnormal returns were even higher and statistically significant which may be a sign that the market was expecting such a change, although it has been initially denied by the main shareholder. In the following days, however, the market adjusted its positive reaction, being reported significant negative ARs (MM – day +5; CAPM – days +2, +4, +5, +9, +13, +17 and +19).
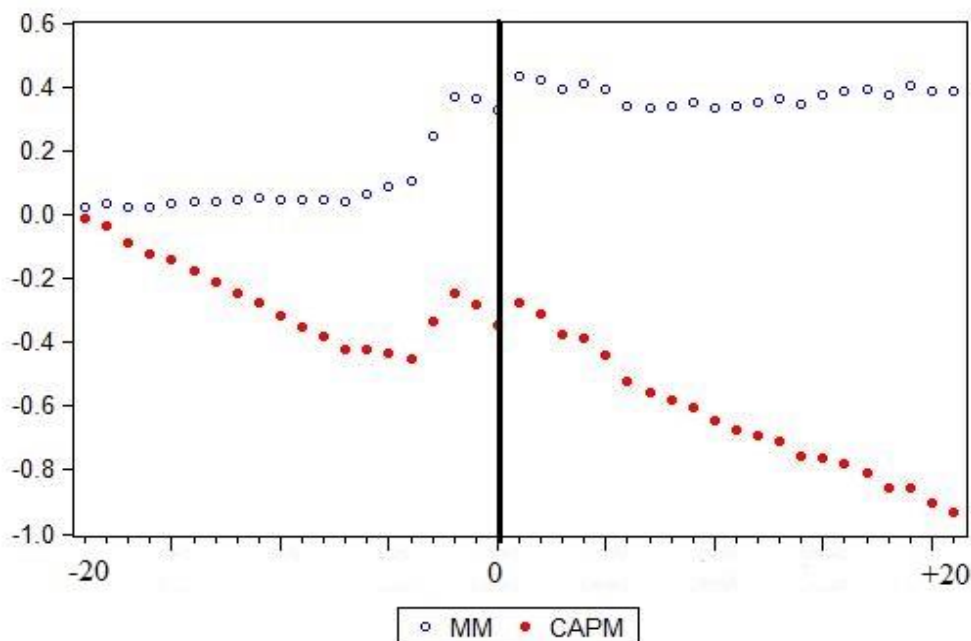

Figure 1. CARs from MM and CAPM (1st event)

As it may be noticed in the above graph, in the interval [-20,-7] the market reacted normally and just few days before the announcement it has seen the news as a good one and has incorporated the

information into the stock price (the MM line). The trend continued in the day +1 but having a slightly constant path thereafter. On the other hand, CAPM shows opposite results, CAR decreasing constantly and increasing just before the news had been released, to follow the same trend in the post-event days. Thus, the market overreacted to the news considering it rather negative than positive in the post-event days.

- Second event – the detention and incrimination of Ilie Carabulea, the founder and main stockholder of BCC

The results from regression equation (2) are shown in the below table:

Table 3. Summary statistics from the OLS regression (2nd event)

	Coefficient	Std. Error	t-Statistic	Prob.
α	0.000452	0.001029	0.439015	0.6610
β	0.368081**	0.150828	2.440401	0.0154
R²	0.014994			
S.E. of regression	0.015931			

** Significant at 5% level.

Note: As the residuals suffer from heteroskedasticity, the standard errors and covariance are White heteroskedasticity-consistent.

Again, the R^2 is very low (1.49%), suggesting that the results in applying the market model for computing expected returns and further abnormal returns may not be consistent. The systematic risk, or β is 0.368, meaning that Banca Carpatica has had a lower risk in the estimation window than the market index, which is assumed to have a beta of 1.

Employing the market model, it may be noticed that in the day when Ilie Carabulea has been arrested the abnormal return was negative (-1.93%), but statistically insignificant. It was negative and statistically significant at 10% level in the day -3 and +1 (5% level) and followed an alternate trend. CAPM exhibits divergent results. It shows that the market has anticipated the event, having negative and statistically significant abnormal returns for almost all the days from the pre-event and post-event day. The AR in the event day was -5.45% and significant at 1% level.

In the plot of the cumulative abnormal returns obtained with both models the market has perceived the news as a bad one with CAPM, having a decreasing trend all over the event window period. Moreover, it has anticipated it. As when it comes to the market model, it seems that the market has not anticipated the news, having a slightly negative reaction in the post event days, especially in the interval [0, +4].
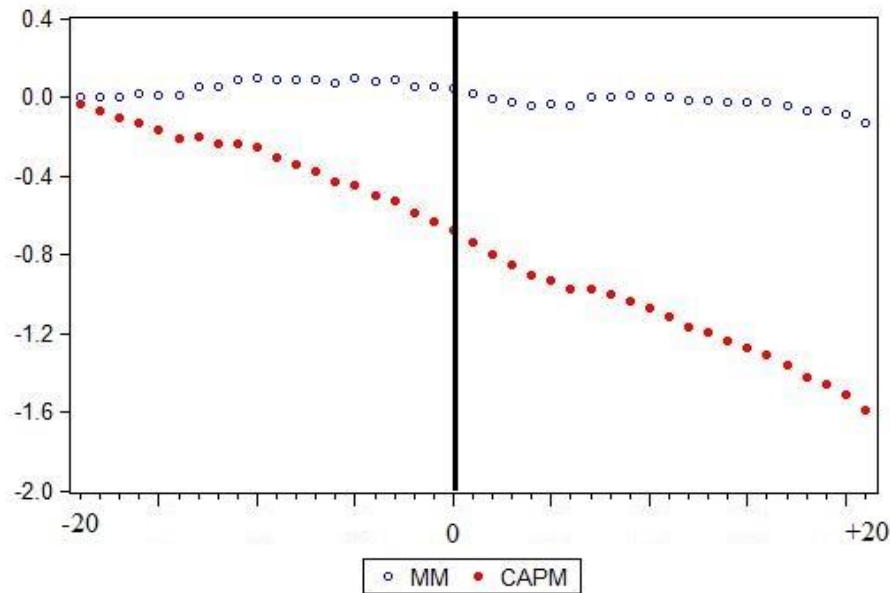
Figure 2. CARs from MM and CAPM (2nd event)

- Third event - the sale of 25% indirect stake in the BCC to American investment fund JC Flowers

Table 4. Summary statistics from the OLS regression (3rd event)

	Coefficient	Std. Error	t-Statistic	Prob.
α	-0.001627	0.001591	-1.022698	0.3075
β	0.806292*	0.256473	3.143776	0.0019
R²	0.038474			
S.E. of regression	0.025104			

*Significant at 1% level.

Table 4 displays the results from the OLS regression in applying the market model for the third event under investigation. The R^2 variable is only 3.84%, but greater when we use as a proxy for market portfolios other indices, such as S&P 500 or BET.

On 03/09/2015 when the news of takeover was released by Ziarul Financiar, the market has reacted positively and has perceived the news as a good one, incorporating the information into the stock price. Both MM and CAPM show a positive and statistically significant abnormal return in the event day (10.19%, 1% level of significance and 9.31%, significant at 1% level, respectively). However, ARs are negative, but not statistically significant in the majority of the days from the event window.
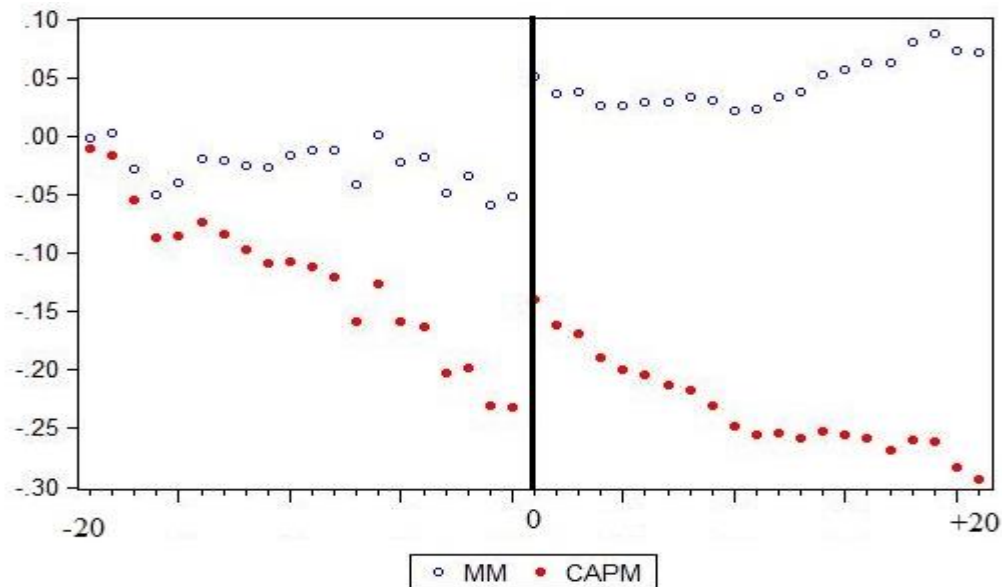
Figure 3. CARs from MM and CAPM (3rd event)

As regarding to CARs, it may be noticed that in case of MM model the market has reacted positively even after the announcement of the event, with increasing cumulative abnormal returns especially for [+13, +20] interval. Using CAPM, on the other hand, shows that before the news being released the market hasn't reacted whatsoever; it was only the announcement day when the CAR had increased significantly just to start to decrease thereafter. One explanation may be that, as the deal had fallen through, that the market has anticipated this. However, involving MM, the market does not seem to anticipate this.

- Fourth event - the sale of 20% of BCC's share capital to Nextebank

Table 5 Summary statistics from the OLS regression (4th event)

	Coefficient	Std. Error	t-Statistic	Prob.
α	0.001692	0.004956	0.341428	0.3075
β	2.281534*	0.640936	3.559690	0.0019
R²	0.048611			
S.E. of regression	0.078361			

* **Significant at 1% level.**

It is worth noting that for this estimation window, the beta of BCC is much larger than in other analyzed periods. This means that the market risk of Banca Carpatica was two times larger than of DJW.

BUSINESS ADMINISTRATION

For this event, our results show that there was indeed a positive abnormal return in the event day, but statistically insignificant. Furthermore, for the entire event window, ARs are statistically insignificant.
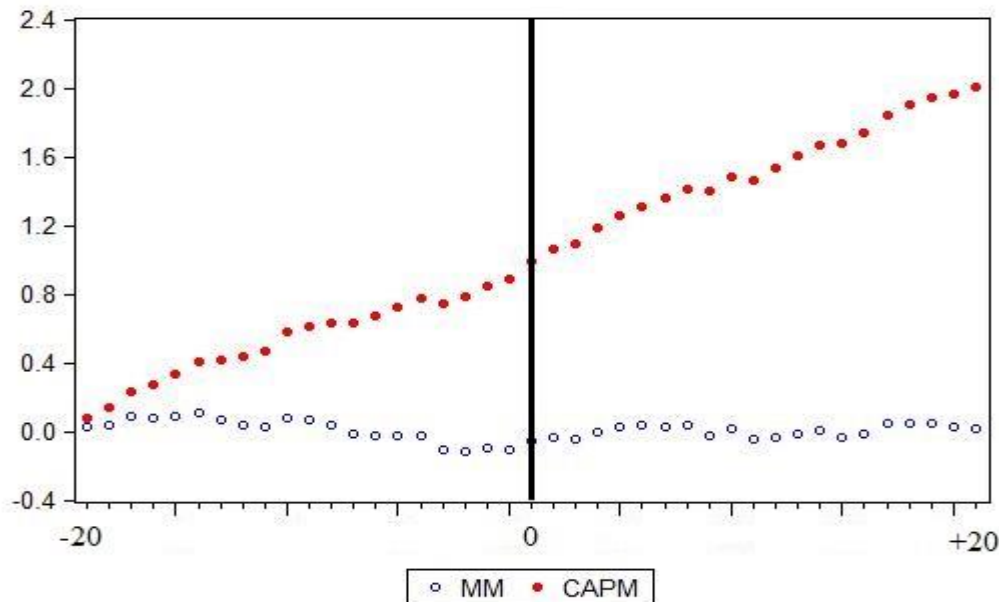

Figure 4. CARs from MM and CAPM (4th event)

Figure 4 exhibits positive CARs when using CAPM in determining expected returns. The cumulative abnormal returns are increasing constantly over the event window but, as it has been mentioned before, the ARs are not statistically significant. One explanation for this could be the fact that as the previous takeover bid had come to nothing, the market was not confident on the realization degree of this sale offer and has reacted accordingly.

5   Conclusions

In this paper we study the impact of four events on the evolution of stock price of Banca Comercială Carpatica, that conclude with an ownership change. The announcement regarding the new CEO appointment produced an overreaction of the market to the news, considering it rather negative than positive in the post-event days. The detention and incrimination of the founder and main stockholder of BCC was not anticipated by the market but the reaction was slightly negative in the post event days. The sale of 25% indirect stake in the BCC to American investment fund JC Flowers determined a significant increase of the abnormal returns only during the announcement day, just to start to decrease thereafter. One explanation may be that, as the deal had fallen through, that the market has anticipated this. On the other hand, the sale of 20% of BCC's share capital to Nextebank determined a positive abnormal return in the event day, but statistically insignificant. Cumulative abnormal returns increased constantly over the event window but the ARs were not statistically significant. An explanation for this could be the fact that as the previous takeover bid had come to nothing, the market was not confident on the realization degree of this sale offer and has reacted accordingly.

BUSINESS ADMINISTRATION

6. Acknowledgement

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