

# EMPIRICAL EVIDENCE ON THE RELATIONSHIP BETWEEN MERGERS & ACQUISITIONS AND THE ROMANIAN STOCK MARKET

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*Based on empirical studies and theoretical evidence, the paper investigates the relationship between mergers and acquisitions in Romania and Romanian stock market, described by the BET and BET-C indexes. By using the Granger causality test for the number of mergers and acquisitions, the research results suggest that, for the market and period considered, one way and both ways relationships are present.*

*Keywords: Mergers, Acquisitions, Granger Causality, Stock Market Index*

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## **Introduction**

An important issue which regards mergers and acquisitions activities (M&A) and the stock market is whether M&A can be used as a predictor for the stock market performance or whether the stock market exerts an influence over the M&A market, and which one influences the other in a more significant manner. The practical relevance of the matter is determined by the fact that stock market performance can be used as a determinant factor for mergers and acquisitions and vice-versa. While the issue remains open for discussion, there are many previous studies that use a variety of approaches in order to determine the before mentioned relationships.

In one of the earliest relevant studies on the issue, Nelson (1959) used quarterly data to investigate the relationship between merger activity, stock market prices and industrial production over the period 1895-1956. By using simple regression analysis, he found that there was a positive and significant relationship between merger activity and stock market prices between 1895 and 1920 and 1895 and 1956.

In more recent studies, Clarke and Ioannidis (1996) investigated the relationship between merger activity and the stock market by using two measures of merger activity (number and value) in the UK, with quarterly data from January 1971 to April 1993, on one side, and the London Stock Market Index, on the other side. In their case, the Granger causality test shows that “real” stock market prices “Granger cause” both numbers and real values of mergers.

Another milestone study was developed by Sharma and Mathur (1989), in which the results of the study, based on the Granger test for causality, indicated very strong causality going from stock market prices to merger activities. They also found that increases in stock market prices lead to increases in the number of mergers being completed.

Other studies have produced contrary results to the ones previously mentioned. Geroski (1984) looked at the relationship between mergers and the stock market index and found no link between mergers and stock prices. He also found that correlations between the

variables considered were unstable. Guerard (1989) found no evidence of “Granger causality” running from stock prices or industrial production to mergers in US data during 1895-1964.

A highly relevant study regarding emerging markets made by Harvey (1995) shows that these markets are characterized by high returns and high risks. When he analyzed the predictability of emergent markets, he concluded that they are more likely than developed markets to respond to local information. The results are relevant for this paper due to the fact that the mergers and acquisitions market is a carrier for high volume of information that may be used by investors.

Based on previous empirical studies and theoretical evidence, in this paper we investigate the relationship between **mergers and acquisitions in Romania** and the **Romanian stock market described by the BET and BET-C indexes**.

## 1. Data

To prove the relationship between mergers and acquisitions and the stock market we used quarterly and semestrial data on the number of mergers and acquisitions in Romania from January 2000 to December 2009. The BET and BET-C indexes were chosen as the measure of stock market performance resulting in the usage of six indicators as follows:

MA_QUART	Quarterly Number of M&As
MA_SEM	Semestrial Number of M&As
BET_QUART	Quarterly BSE index of the most liquid 10companies
BETC_QUART	Quarterly BSE index of all listed companies
BET_SEM	Semestrial BSE index of the most liquid 10companies
BETC_SEM	Semestrial BSE index of all listed companies

Augmented Dickey-Fuller Unit Root Tests were performed for all data series in order to check the stationarity condition and the first difference was used to stationarise the number of mergers and acquisitions series both for quarterly and semestrial data.

## 2. Methodology and Results

To test whether stock market activity is a useful predictor of mergers or vice-versa, we used the Granger causality approach (Granger, 1969; Sims, 1972). The basic idea behind this is that “cause cannot come after effect” and that “correlation is not the equivalent of causality”. If in a set of two covariance stationary variables, the lagged values of variable “x” affect variable “y”, then “x” can be used to predict “y”, i.e. “x” “Granger causes” “y”. The approach to the question of whether “x” causes “y” is to see how much of the current “y” can be explained by past values of “x” and then to see whether adding lagged values of “x” can improve the explanation of “y”. “Y” is said to be Granger-caused by “x” if “x” helps in the prediction of “y” or, equivalently, if the coefficients on the lagged values of “x” are statistically significant.

For the optimum lag length, being the shortest lag for which no autocorrelation is found in either of the equations entering the VAR, we have tested all instances for which Granger causality tests will be performed using the following lag length criteria: Sequential modified LR statistic test (each test at 5% level), Final prediction error, Akaike information criterion, Schwarz information criterion and Hannah-Quinn information criterion. The following optimum lag lengths have resulted:

Series	Optimum lags
MA_QUART	1
MA_SEM	1
BET_QUART	1
BETC_QUART	1
BET_SEM	1
BETC_SEM	1

We first test for “Granger causality” between the number of mergers and acquisitions on a quarterly basis and the BET stock market index. The first results show that the hypothesis of “non-causality” from quarterly stock market returns to quarterly number of acquisitions was rejected at 5% level of significance. We were not able to reject the complementary hypothesis that acquisitions do not “Granger cause” stock market prices.

*Table 1:  
Causality between the quarterly number of mergers and acquisitions and BET stock market index from January 2000 until December 2009*

Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Probability
MA_QUART_D1 does not Granger Cause BET_QUART	38	0.24538	0.62345
BET_QUART does not Granger Cause MA_QUART_D1		6.16241	0.01799

The same conclusion is drawn when examining the causality relationship between the number of acquisitions and BET-C stock market index. For the considered lags, the hypothesis of “non-causality” from stock market performance to mergers and acquisitions was rejected at 5% level of significance. We were not able to reject the complementary hypothesis that acquisitions do not “Granger cause” stock market prices.

*Table 2:  
Causality between the quarterly number of mergers and acquisitions and BET-C stock market index from January 2000 until December 2009*

Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Probability
MA_QUART_D1 does not Granger Cause BETC_QUART	38	0.00048	0.98264
BETC_QUART does not Granger Cause MA_QUART_D1		5.28758	0.02756

As a sum up, we can clearly state that, for the considered time period, market and data frequency evidence of one way causality between the stock market and acquisitions was discovered. This means that a growing market represents a sufficient incentive to attract companies to make acquisitions on the considered market. The same cannot be said vice-versa, meaning that the volume of mergers and acquisitions does not exercise influence on the stock market.

*Table 3:  
Causality between the number of mergers and acquisitions and BET stock market index from  
January 2000 until December 2009 on a semestrial basis*

Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Probability
MA_SEM_D1 does not Granger Cause BET_SEM	18	8.02696	0.01259
BET_SEM does not Granger Cause MA_SEM_D1		3.45516	0.08279

The findings presented Table 3 show that, for a 10% level of significance, the hypothesis for non causality can be rejected in the case of the stock market index “does not Granger cause” the number of acquisitions. In contradiction with the observed results, in the case of quarterly data, the number of mergers and acquisitions on a semestrial basis “Granger causes” the BET index.

*Table 4:  
Causality between the number of acquisitions and BET-C stock market index from January 2000  
until December 2009*

Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Probability
MA_SEM_D1 does not Granger Cause BETC_SEM	18	3.72740	0.07265
BETC_SEM does not Granger Cause MA_SEM_D1		3.96562	0.06497

The conclusion resulting when examining the causality relationship between the number of acquisitions and BET-C market index in a semestrial frequency is that, for the considered lags, the hypothesis of “non-causality” from stock market returns to acquisitions was not rejected at 10% level of significance. We were also able to reject the complementary hypothesis that acquisitions do not “Granger cause” the BET-C stock market index.

Bellow we provide a sum up of the results regarding the causality findings between the number of mergers and acquisitions and the Romanian stock market:

*Table 5:  
Sum up of the Granger causality tests*

<b>Instance</b>	<b>Significance</b>	<b>Lags</b>
<b>Number of M&amp;As “Granger cause” the:</b>		
Quarterly BET index	Not significant	1
Quarterly BET-C index	Not significant	1
Semestrial BET index	Significant at 5%	1
Semestrial BET-C index	Significant at 10%	1
<b>Number of M&amp;As is “Granger caused” by the:</b>		
Quarterly BET index	Significant at 5%	1
Quarterly BET-C index	Significant at 5%	1
Semestrial BET index	Significant at 10%	1
Semestrial BET-C index	Significant at 10%	1

### 3. Conclusions

The results found in this paper are consistent with the findings of Clarke and Ioannidis (1996) and Sharma and Mathur (1989), in the way that stock market prices “Granger cause” acquisitions.

The first results show that the number mergers and acquisitions are “Granger caused” by stock market prices represented by the BET and BET-C indexes, adding to the theory that CEOs’ decisions to merge with or acquire companies are strongly influenced by the respective stock market evolution, driven by the perspective of high future market capitalisation.

In the case of semestrial data regarding the causality relation between the number of mergers and acquisitions, two way causality was found for the BET index and BET-C index. Even though the semestrial frequency data results have less statistical significance than in the case of quarterly frequency data results, proof is still found that the stock market “Granger causes” acquisitions and strong proof is found that the volume of mergers and acquisitions “Granger causes” stock market prices.

Overall results indicate that a solid or unstable stock market does indeed encourage or, respectively, discourage CEOs to initiate costly merger and acquisition transactions. Even though the market may act as a safety net in case of failed mergers and acquisitions, the success of such actions cannot be fully ensured by a growing market, thus a high volume of mergers and acquisitions fail even during favourable market periods. The results of this paper also indicate that informational content provided by M&A activity can be used as a predictor for the stock market performance.

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