# STOCK MARKET RETURNS ON NEWS: A CASE STUDY FROM HUNGARY (2017-20)

by Attila Sárkány



Submitted to Central European University Department of Economics

In the partial fulfilment of the requirements for the degree of Master of Arts in Economics

Supervisor: István Kónya

Budapest, Hungary 2020

# Abstract

This thesis examines stock price reactions to merger and acquisition (M&A) announcements in Hungary for the period of 2017 to 2020. It focusses on those stock market companies, which are closely related to Mr. Lőrinc Mészáros, namely: 4iG, Opus (Opimus), Konzum, Appeninn and CIG Pannónia. In order to examine stock market price reactions to M&A announcements, I use standard event study methodology and instead of focusing only on cumulative average abnormal returns (CAAR), I also take Forint abnormal returns into account. Due to the limited number of appropriate events, t-statistics cannot be done. Additionally, since some events have huge impact on CAAR, the aggregation can be misleading. Following this, I analyse the main events and conclude that in some cases there may be insider trading or the events could have been predicted. CAARs are positive in both targets' and bidders' cases, although in Forint abnormal return terms only targets' case is positive.

Keywords: Event Study, Mr. Lőrinc Mészáros, M&A

# Acknowledgements

I am grateful to my supervisor, Professor István Kónya, and Professor László Mátyás for their helpful and valuable comments. I wish to express my deepest gratitude to Professor Soomin Lee. I also appreciate the comments of Professors Thomas Rooney, Arieda Muço and K. Penyk.

# **Table of Contents**

Section 1: Introduction and Research Interests1
1.1 Introduction1
1.2 Research Interests
Section 2: Data and Methodology5
2.1 Data5
2.2 Methodology7
2.2.1 Cumulative average abnormal return (CAAR)
2.2.2 Dollar (Forint) Abnormal Returns
Section 3: Results and Conclusion12
3.1 Results
3.1.1 Bidders' Results
3.1.2 Targets' Results14
3.2 Conclusion
Bibliography16
Appendix17

# **Section 1: Introduction and Research Interests**

## **1.1 Introduction**

Information flow and its distribution have a huge impact on the return of financial markets (Tetlock, 2007). Corporate announcements, acquisition news, analyst forecasts or any financial news influence investors' and managers' expectations and affect the resulting equilibrium (Tetlock, 2014). Consequently, media can be a strategic tool of the company by influencing investors' attention and performance of stock companies (Bushee and Miller, 2012). Strauss (2019) studied Elon Musk's Twitter announcements by using qualitative text analysis and quantitative event study and found that social media channel, Twitter in this case, induced speculative news, which shaped the stock market price. Joanna Strycharz, Nadine Strauss and Damian Trilling (2018) examined the strategic financial communication with respect to the relevant news topics over sentiments and media attention by using VAR and automated content analyses. One of their main findings was that corporate topics positively Granger cause stock price fluctuation. Furthermore, they detected a significant relation of the quantity of coverage and emotionality with the behaviour of stock prices.

CEU eTD Collection

Most of research studies focused on a specific event, i.e. merger or quarterly earnings announcements and examined the returns around such event. Event study methodology has a long history of development. Dolley (1933) examined the impact of stock splits on stock prices. He found that in the sample of 95 observations the stock price increased in 57 of all cases. One of the most famous papers is Fama et. al's (1969) study of the behaviour of firms' stock prices around the announcement of stock splits. They concluded that companies split their stocks during "good" times<sup>1</sup>. Niederhoffer, Gibbs and Bullock (1970) examined the evolution of stock prices during elections in the U.S. The results showed that short-term price movements are connected to presidential elections, but the results did not indicate that there is a Wall Street's Republican bias. Lee, Mucklow and Ready (1993) studied the impact of publicly available earnings announcements and concluded that spread widens and depths falls in anticipation of earnings announcements. Bedő and Rappai (2006) introduced an event study methodology mixed with the theory of information entropy. They documented that the fluctuations of the cumulative abnormal returns can be explained by the announcements of profitability ratios at different entropy values. The Hungarian stock exchange was examined with event study methodology by Bedő and Rappai (2004), where the authors examined the announcements of EPS. The results suggested that this method is suitable for conducting analysis related to the Hungarian Stock Exchange and the announcements of EPS shape the market prices.

The thesis is organized as follows. The next part provides a brief overview of the research interest and the relevant literature. In section two, I focus on the description of data and the detailed methodology. Finally, I summarize the results and the problems of the empirical tests and provide conclusion. All figures (except for figure zero) and tables can be seen in the Appendix.

### **1.2 Research Interests**

This thesis focuses on news related to mergers and acquisitions (M&A). Fuller, Netter and Stegemoller (2002) indicated that the gain of shareholders in target firms is significant and wealth is created upon announcement of takeovers. However, shareholders of the acquiring

<sup>&</sup>lt;sup>1</sup> The authors defined good times as those periods, when the stock prices jumped much more than it would be explained by the relationship between the market price beahaviour and share prices.

firms earn on average zero abnormal returns at the acquisition's announcement. Loderer and Martin (1990) found that, if the bidding price is high enough with respect to the acquiring firm's equity value, then bidder's shareholders win significantly higher returns. Moeller, Schlingemann and Stulz (2004) documented that acquisitions by small firms are profitable for the shareholders, but this gain is small in dollar terms. However, large firms by doing large acquisitions experience large dollar losses. They aggregated the results and concluded that acquisitions generally result in losses for shareholders. Humphery-Jenner (2012) showed that small private equity firms experienced higher returns than large funds by investing in companies.

To be precise, I am interested in a small group of stocks and companies, the so-called Mészáros firms. Mr. Lőrinc Mészáros allegedly has many connections with the Prime Minister of Hungary, Viktor Orbán<sup>2</sup>, and the companies related to him have been in the focus of Hungarian media. Moreover, one of his related companies (Konzum) was the best-performing stock company in 2017<sup>3</sup>. Such stocks and companies were chosen because the main motivation of the thesis is finding a possible explanation for the success of the Mészáros firms. From a broader perspective, it can help investors to make investment decisions and help the general public to understand the importance of different types of news.

In 2017, two of these companies' stocks, namely Konzum Nyrt. (Figure 3) and Opimus Nyrt., rocketed by +198% and +62% in a short period due to the release of the news mentioning that Mr. Lőrinc Mészáros (LM) acquired a large ownership in these companies. Konzum is an investment management company and Opimus is an investment and company management firm. Since 2017, the Mészáros empire has changed. Opimus changed its name to Opus (Figure 2) and bought Konzum. These companies' interests were expanding over the years: 4iG, CIG

<sup>&</sup>lt;sup>2</sup> https://444.hu/2019/12/18/meszaros-lorinc-azt-mondja-sosem-volt-uzleti-kapcsolata-a-miniszterelnokkel

<sup>&</sup>lt;sup>3</sup> https://www.bloomberg.com/news/articles/2017-07-25/what-s-boosting-the-world-s-best-performing-stock

Pannónia and Appeninn companies can be seen in the stock market, which are related to LM through Opimus and Konzum. Figure 4 and 5 show the daily returns of these stocks. It is visible that in 2017, Opus and Konzum experienced high daily returns (+10%) frequently, 4iG experienced the same from the second half of 2018. Appeninn and CIG had different patterns, they had many high returns in 2017, at the end of 2019 and the beginning of 2020, but not with the same density as for Opus and Konzum.

That being said, I investigate how the appearance of Mr. Lőrinc Mészáros and further M&A news in the above mentioned companies affected their stock prices and the targeted firms. Furthermore, I would like to test the Efficient Market Hypothesis (EMH). The hypothesis is based on the assumption of efficient markets where prices fully reflect all available information. I am also going to test how long it takes for the event to be integrated to the price: *Hypothesis: Event day*.

The thesis contributes to the event study methodology literature and it is probably the first study, which examined a possible explanation of the enormous stock market returns related to Mészáros companies.

# Section 2: Data and Methodology

### **2.1 Data**

I examine those types of events, when the companies related to Mr. Mészáros or/with this businessman himself get a (arbitrarily 6%+) shareholding in a company. The event date is considered to start, when the news about the intent of acquisition appeared in the media.

As for news resources, I used the Hungarian Stock Exchange website  $(BÉT)^4$ , where the stock prices are available, and the most famous financial website in Hungary, namely Portfolio<sup>5</sup>. Since I faced missing data problem mostly with 4iG, which can be seen in Appendix Figure 1 (b), I extended the estimation period of that event to get approximately the same observation number across events (90<obs. number<100) for OLS estimation and compared the results with the original estimation period. I got different results related to the OLS parameters. As for  $\hat{B}$  with extended estimation period, the value is -0.1104 versus original period, which is - 0.484257713. I chose the original estimation period results, because I had enough observation for OLS but around half comparing to other events' observation number. Given that missing data in the event window is not allowed, I have extended it, as if I faced this issue.

I also retrieved data from Yahoo finance (without missing values) and proceeded with the same analysis. The Yahoo's stock market price can be seen in Figure 1 (a). Comparing it to Figure 1 (b) (BÉT), we can see the same pattern, it is true for daily stock returns in Figure 4 and 5. However, I checked the dataset row by row and I found many remarkable differences,

<sup>&</sup>lt;sup>4</sup> https://www.bet.hu/oldalak/adatletoltes

<sup>&</sup>lt;sup>5</sup> https://www.portfolio.hu/

i.e. in 11/07/2017, stock price of 4iG in Yahoo data is 50.4 Ft but in BÉT, it is 52.1. Therefore, I decided to employ BÉT data for the purposes of this thesis, as I found it more reliable irrespective of the missing values.

The observation period is between 22-02-2017 and 01-01-2020. The starting day of the thesis's examination period is the day, when LM started to accumulate ownerships in the Hungarian stock market. Importantly, LM has many interests and the structure of his empire is complicated. Some of his related companies are not enlisted in the stock market but they are connected to it through Konzum, Opus, 4iG, Appeninn and CIG Pannónia. I am going to include their activity into the sample. Additionally, I deleted those events whose event windows were overlapping with each other and I also did not include observations announced at the same time.

To make it clear, the following points must be satisfied for the event to be subject of this thesis' analysis:

- 1. The bidder, the bidder's closely related firms or the target must be a publicly listed company;
- The acquirer obtains more than 6% ownership in the target or its closely related subsidiary;
- I count all of the events when Mr. Mészáros as a person entered the above mentioned companies;
- 4. The acquirer is one of the followings:
  - a. Opus/Opimus: Status Capital Befektetési Zrt., Status Energy, Opus Global Befektetési Alapkezelő;
  - b. Konzum Nyrt., Konzum PE Magántőkealap, Konzum Management Kft (subsidiary), Repro I. Magántőkealap (Konzum Nyrts' fund), Konzum Befektetési Alapkezelő Zrt.;

- c. Appennin or its closely related subsidiary: Appeninn BLT Kft;
- d. 4iG or its closely related subsidiary.

The collection of the events can be seen in Table 1. When Opus and Konzum invested at the same time in 4iG, I tackled this as one event and added up the cumulative abnormal returns (CAR) and abnormal returns (ARs) with respect to the above mentioned companies.

#### 2.2 Methodology

The stock price behaviour around the events is analysed with standard event study methodology. I calculate the abnormal returns in the event window for each observation and cumulate them inside the event windows to get the cumulative abnormal return (CAR) for each event (stock) "i". One stock company belongs to one event and I have only one case, when two companies together targeted another one. After this, I aggregate CARs through events and divide it with the number of events to get the cumulative average abnormal return (CAAR) for the whole sample. Furthermore, I calculate the aggregate daily abnormal returns through the events. If cumulative abnormal returns are positive, wealth is created for the shareholders. If the market is efficient, events' effects immediately get integrated into stock prices and before the announcements there should not be price movements. The precise definitions of the variables and calculations can be seen below.

Inputs of the event study are the following:

#### **Event Date/Day**

The actual day of the takeover/merger as the event day would bring misleading results, because the occasions are announced before the event itself and changes in the value of firms

should already be integrated in the stock price. Consequently, the event day is the day when the takeover/merger plans become public knowledge.

#### **Event window**

The abnormal returns  $(AR_{it})$  are calculated over the seven-day event window (-3, -2, -1, 0, 1, 2, 3). Time t=0 is the event/announcement day.

#### Benchmark

Abnormal returns are calculated inside the event window as follows:

$$AR_{it} = R_{it} - E(R_{it} \mid X_t)$$
(1)

where the first term is the actual return and the second is the normal or benchmark return.  $X_t$  is the conditioning information for the normal return model (Mackinlay,1997). To calculate the benchmark return, I have three options suggested by Brown and Warner (1980, 1985) and Mackinlay (1997). The easiest option is the constant mean return model, where  $X_t$  is constant in equation one:

$$R_{it} = u_{i+}\epsilon_{it}$$
 with  $E(\epsilon_{it}) = 0$  var $(\epsilon_{it}) = \sigma_{\epsilon_i}^2$  and  $AR_{it} = R_{it} - \overline{R}_i$ ,

where  $\overline{R}_i$  is the average of security i's daily returns in the estimation period and daily returns are calculated as:

$$R_{it} = \frac{(P_{it} - P_{it-1})}{P_{it-1}},$$

where  $P_{it}$  is the closing price of stock 'i' at time 't'. The second option is the OLS market model approach, where  $X_t$  is the market return in equation one:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \tag{2}$$

with E ( $\epsilon_{it}$ ) = 0 and var ( $\epsilon_{it}$ ) =  $\sigma_{\epsilon_i}^2$ ,

where  $R_{mt}$  is the period-t market portfolio return, in our case it is the Bumix. Bux is the official index of blue-chip stocks listed on the Hungarian stock market and Bumix index shows the performance of listed stocks with medium and small capitalisation<sup>6</sup>. The reason for choosing Bumix instead of Bux is that Mészáros stocks are included in the Bumix index (Figure 6). That being said, this solution is far from optimal. The literature uses much more complex indexes such as S&P 500 and the stocks listed here are liquid. On the contrary, most of the stocks in Bumix had not obtained the liquid status or just years after their examined events, which leads to lower variance in Bumix. Another option would be a creation of a bunch of stocks as a benchmark. In our case it is not relevant because the Hungarian stock market does not have enough stocks with the same liquidity, market capitalization and activity.

As Mackinley (1997) suggested, the mean return model is inferior to the market model; consequently, I am going to use latter option. I will take out the share of the return that is connected to the variation in the market's return. Consequently, the abnormal return's variance will be lower, and I can improve the ability to detect the event's effect. The higher the  $R^2$  of the OLS regression the bigger is the variance reduction of the abnormal return, and, thus, I will get a better estimation (Mackinley, 1997). By using the market model to calculate the benchmark (normal) return, the variable of interest inside the event window is formulated by the following equation:

$$A_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt} \tag{3}$$

The benchmark parameters ( $\alpha_i$  and  $\beta_i$ ) are calculated in the estimation period by regressing equation two over the events.

<sup>&</sup>lt;sup>6</sup> https://bse.hu/Products-and-Services/Indices/BUMIX

https://bse.hu/Products-and-Services/Indices/BUX

Other statistical models can be used for calculating the benchmark return. The most famous model is the factor model. The benefit of this model is that it is based on reducing the variance of the abnormal return by adding more variables, which, however, is heavily based on data availability. Additionally, economic models can be used i.e. CAPM or Arbitrage Pricing Theory.

#### **Estimation period**

The estimation period differs from studies to studies. Here, I am going to use (-110, -10), where t=0 is the event day.



Figure 0.: Summary of the event study methodology

#### 2.2.1 Cumulative average abnormal return (CAAR)

The cumulative abnormal returns in the event window are formulated as  $CAR_i = \sum_{t=-3}^{t=3} AR_{it}$ . The interpretation of the acquirer firms' returns is complex. The returns may reflect not only the takeover itself, but the company or information related to the company. Moreover, anticipated M&A can result in smaller announcement effect than the real economic effect (Rademakers, 2011).

CAAR is the average of the CARs of the bidders or targets over time.

 $CAAR = \frac{1}{N} \sum_{i=1}^{N} CAR_i$ , where N is the number of events.

The t-statistics and its inputs are calculated as follows:

$$t_{CAAR} = \sqrt{N} * \frac{CAAR}{S_{CAAR}},$$

where the denominator is the standard deviation of the cumulative abnormal returns over the sample.

$$S_{CAAR}^{2} = \frac{1}{N-1} \sum_{i=1}^{N} (CAR_{i} - CAAR)^{2}$$
$$H_{o} = CAAR = 0$$

As for the daily aggregated abnormal returns, I aggregated the abnormal returns by days through all of the events.

#### 2.2.2 Dollar (Forint) Abnormal Returns

CAAR gives the same weights to firms with different market capitalizations. However, this can be misleading, because an abnormal return has much more economic impact in absolute terms if experienced by large firms (Rademakers, 2011). Following Malatesta (1983), dollar (Forint) abnormal returns are calculated by multiplying CARs with acquirers' market capitalization. Additionally, I am doing this calculation with targeted companies.

# **Section 3: Results and Conclusion**

### **3.1 Results**

#### 3.1.1 Bidders' Results

Bidders' results can be seen in Tables 2, 3 and Figure 7(a). In Table 2 second column, CARs are varying from -0.0634 to 1.274. The highest values are connected to Konzum, when it bought shares in Opimus, MKB and FHB. The optimal observation number, with respect to standard deviation and average CARs, is 33 in the bidder's case and 27 for targeted firms. Since I do not have that much of data, this is one of the reasons why I cannot perform t-statistics. The result of Shapiro-Wilk test for normality in Table 2 shows that CARs are probably not normally distributed, which is an additional problem. Furthermore, 8 observations out of 14 are connected to Konzum, so any statistics and aggregate interpretation show rather a company specific effect.

For this reason, I examine a couple of events from bidders' point of view. The highest (half of the sum of CARs) CAR was observed in the first event, when Konzum and LM invested in Opimus. Konzum experienced an enormous 1.274 value. It is difficult to interpret this high number because the daily returns were high and positive before the announcement in the event window (Table 3 column 2), which can be the result of the lagged "Mészáros" effect (LM invested in Konzum just nine days before the event of Konzum's investment into Opimus), which could lead the so called overreaction. Any analysis of this event is difficult mainly because in a short period two important events occurred. The second highest value is connected to MKB, which is a bank. In Table 3 column 5, Konzum's AR rocketed with around 16 % (after

this -4% decline occurred) before the announcement, which can be a sign for insider trading<sup>7</sup>. Insider trading is supported by Figure 7 (a), where the aggregated daily AR is quite high two days before the announcement. However, as described earlier, aggregation results can be misleading. Konzum's investments in Opimus (AR: 20%), MKB (AR: 16%) and Appeninn (AR: 4,5%) resulted in high daily ARs, two days before the event day, relative to other events. Another two specific events, which are similar since they were not completed, the exact transaction numbers were not publicly known and one of them was anticipated by rumours: interest of Konzum towards Telenor and 4iG's intention to buy the T-system. The CAR related to the T-system transaction is positive, but just 3,6%. However, I expected higher value because the targeted company has been among the market leaders in Hungary. A possible explanation is that investors anticipated this acquisition and the announcement was built into the price some time before the event, which is supported by rumours from the internet.<sup>8</sup> A similar thing happened with Konzum when it targeted Telenor. This acquisition was not completed, and it was rather indicative, which means official announcement regarding the acquisition was not necessary. This uncertain event resulted in 7,3% CAR overall, which can be seen in Table 3 column 9 and it is like the event, when Konzum obtained a huge share in Appeninn (column 6). When I multiplied the CARs with market capitalizations (Table 2 column 4) and aggregated them, I got negative number, which means in Forint terms, overall shareholders experienced a loss. This happened because of the companies with negative CARs had enormous market capitalizations relative to the positive events.

 <sup>&</sup>lt;sup>7</sup> https://www.portfolio.hu/uzlet/20170608/bennfentes-kereskedelem-meszarosek-egyik-cegenel-252917
 <sup>8</sup> https://www.portfolio.hu/uzlet/20190627/amikor-a-kishal-megeszi-a-nagyhalat-hamarosan-felvasarolhatjak-a-t-systemset-329223

#### 3.1.2 Targets' Results

As for the targeted firms, the results are summarized in Table 4, Table 2 last and third column and Figure 7 (b). Mr. Mészáros' appearance in Konzum, Opimus, Appeninn, CIG, 4iG and MTelekom resulted in 0.221883661, 0.500088322, -0.058446013, 0.33732853, -0.156797981 and 0.032543101 CARs changes, which is 14,6% on average and 12% for the whole sample. Figure 7 (b) shows the plotted aggregate ARs per day. In day minus three the value is high due to Konzum's investments in Opimus (AR: 0.1074) and Appeninn (AR: 0.07378). At day zero, there is a peak and after that a huge fall. Forint CARs value in average is positive (Table 2 column 5). Three observations out of seven have enormous positive CAR: 0.22 (Konzum), 0.5 (Opimus), 0.34 (CIG) and I had one with relatively big negative value (-0.157). We do not have the sufficient number of samples for t-statistics, but the Shapiro-Wilk test shows that probably the sample is normally distributed.

## **3.2 Conclusion**

Due to the small number of samples, the resulting non-normality and rather the onecompany specific sample, t-statistics could not be calculated in bidders' case. Furthermore, companies were not in the same industries, market capitalizations were diverse, acquisitions were differing in the obtained shares (6%-100%) and conducting clustering because of the small sample was not relevant. These hurdles made it difficult to calculate any relevant aggregated statistics. The high aggregated CAR was due to some specific events. In Forint terms, the aggregated acquisitions resulted in negative returns for the acquirers' shareholders. I had three outliers out of fourteen with 1.27, 0,53 and 0.33 CAR. I could not conduct t-statistics, and, therefore, I did not provide statistical explanation for EMH. I observed that in targeted firms' case a declining period before the event was followed by a huge peak on the announcement day and after three days, I also had a high aggregated daily AR, which cannot happen under EMH. Bidders' case was different, the aggregated abnormal returns per day across the sample were fluctuating, and I could not observe a huge peak at day zero but at day zero plus and minus two - yes, which did not support EMH. I have two plausible explanations for the bidders' case: (1) some events were predicted, or (2) insider trading happened.

Value was created for the examined targeted firms' shareholders in Forint terms and in aggregated CAR. Similarly, I could not calculate t-statistics in this case as well. Out of seven events, I had three observations with enormous positive CAR and one with very low negative value.

All in all, M&A news and the appearance of Mr. Lőrinc Mészáros were influencing stock prices. Targeted firms, as the literature suggested, overall experienced wealth gains and contradictory bidders as well, but importantly, not in Forint terms. To conduct a better analysis without more events or intraday data, which were not available, was difficult. A more complex vector autoregression model by using variables related to sentimental analysis, corporate topics and other variables to explain stock market returns regarding the Mészáros stocks would be a fascinating topic for further research. Event study would also be one of the best ways to examine stock market returns and a kind of political premiums related to political events in Hungary. Another interesting future article idea is the measurement of returns of stocks related to public procurements, which were won many times by, for example, 4iG and Opus.<sup>9</sup>

<sup>&</sup>lt;sup>9</sup> https://www.portfolio.hu/uzlet/20200203/ujabb-nagyerteku-kozbeszerzest-nyert-a-4ig-414505 https://www.portfolio.hu/uzlet/20200423/kozbeszerzeseket-nyert-az-opus-egyik-cege-427958

# **Bibliography**

- Bedő, Z., & Rappai, G. (2004): The application of event study methodology to shares listed on the Budapest Stock Exchange: Is news, influencing stock prices, valuable or not? *Szigma*. Vol. 35. No. 3–4. p. 113–127.
- Bedő, Z., & Rappai, G. (2006). Is there causal relationship between the value of the news and stock returns? *Hungarian Statistical Review*, 84, 81-99.
- Brown, S. J., & Warner, J. B. (1980). Measuring security price performance. Journal of Financial Economics, 8(3), 205-258.
- Brown, S. J., & Warner, J. B. (1985). Using daily stock returns: The case of event studies. Journal of Financial Economics, 14(1), 3-31.
- **Bushee, B. J., & Miller, G. S**. (2012). Investor relations, firm visibility, and investor following. *The Accounting Review*, 87(3), 867-897.
- **Dolley, J. C. (1933).** Characteristics and procedure of common stock split-ups. *Harvard Business Review, 11(3),* 316-326.
- Fama, E. F., Fisher, L., Jensen, M. C., & Roll, R. (1969). The adjustment of stock prices to new information. *International Economic Review*, 10(1), 1-21.
- Fuller, K., Netter, J., & Stegemoller, M. (2002). What do returns to acquiring firms tell us? Evidence from firms that make many acquisitions. *The Journal of Finance*, 57(4), 1763-1793.
- Humphery-Jenner, M. (2012). Private equity fund size, investment size, and value creation. *Review of Finance*, *16*(3), 799-835.
- Lee, C. M., Mucklow, B., & Ready, M. J. (1993). Spreads, depths, and the impact of earnings information: An intraday analysis. *The Review of Financial Studies*, 6(2), 345-374.
- Loderer, C., & Martin, K. (1990). Corporate acquisitions by listed firms: The experience of a comprehensive sample. *Financial Management*, 17-33.
- MacKinlay, A. C. (1997). Event studies in economics and finance. *Journal of Economic Literature*, 35(1), 13-39.
- Malatesta, P. H. (1983). The wealth effect of merger activity and the objective functions of merging firms. *Journal of Financial Economics*, *11*(1-4), 155-181.
- Moeller, S. B., Schlingemann, F. P., & Stulz, R. M. (2004). Firm size and the gains from acquisitions. *Journal of Financial Economics*, 73(2), 201-228.
- Niederhoffer, V., Gibbs, S., & Bullock, J. (1970). Presidential elections and the stock market. *Financial Analysts Journal*, 111-113.
- Rademakers, A. H. C. (2011). Mergers and Acquisitions, "The bigger they are, the harder they fall". Tilburg University.
- Strauss, N., & Smith, C. H. (2019). Buying on rumors: how financial news flows affect the share price of Tesla. *Corporate Communications: An International Journal*.
- Strycharz, J., Strauss, N., & Trilling, D. (2018). The role of media coverage in explaining stock market fluctuations: Insights for strategic financial communication. *International Journal of Strategic Communication*, 12(1), 67-85.
- Tetlock, P. C. (2007). Giving content to investor sentiment: The role of media in the stock market. *The Journal of Finance*, 62(3), 1139-1168.
- **Tetlock, P. C.** (2014). Information transmission in finance. *Annu. Rev. Financ. Econ.*, 6(1), 365-384.

# Appendix



Figure 1: Mészáros stock prices with Yahoo and BÉT data

Figure 2: The structure of Opus GLOBAL Nyrt. (10/2017)



Source: https://g7.hu/kozelet/20171109/17erge-megertettuk-a-csodalatos-meszaros-reszvenyek-titkat/



# Figure 3: The structure of Konzum Nyrt.(10/2017)

Source: https://g7.hu/kozelet/20171109/18erge-megertettuk-a-csodalatos-meszaros-reszvenyek-titkat/



## Figure 4: Daily stock returns by using Yahoo finance data







#### Figure 6: Yearly Bumix index (2017-2020)

Figure 7: Daily Aggregated Abnormal returns



Note: Own calculation by using Python and Excel

Event Date	Bidder(s)	Target
22-02-2017	LM (19.57 %), Konzum PE Magántőkealap (22.5 %)	Konzum Nyrt.
03-03-2017	LM (16.95 %), Konzum Management Kft (14%)	Opimus Nyrt.
21-04-2017	Konzum: KZF Vagyonkezelő Kft (6%)	FHB
18-05-2017	Konzum Nyrt. (11%)	KPRIA Magyarország Zrt.
01-06-2017	Konzum: Konzum Befektetési Alapkezelő Zrt. (45%)	MKB Bank Zrt.
25-08-2017	Konzum (24,51 %), Konzum PE Magántőkealap (24,51%)	Appeninn Nyrt.
06-12-2017	Opus	Diófa alapkezelő
12-12-2017	Konzum Nyrt. (25%)	Cig Pannónia Nyrt.
31-01-2018	Konzum Nyrt.	Telenor
06-06-2018	Opus Global (10,21%), Konzum PE Magántőkealap (23,57 %)	4iG Nyrt.
26-07-2018	Appeninn Nyrt: Appeninn BLT Kft. (74,99%)	PRO-MOT Hungária Ingatlanfejlesztő Kft.
18-10-2018	Opus Nyrt. (Merge)	Konzum Nyrt.
09-07-2019	4ig Nyrt.	T-systems
16-07-2019	Opus Global Befektetési Alapkezelő (49,57%)	Tigáz Zrt.
10-09-2019	4ig Nyrt. (100%)	Veritas Consulting Kft.

Table 1: Events identification

Date of Event	<b>Bidders' CAR</b>	Targets' CAR	Ft CAR: Biddors	Ft CAR: Target
22-02-2017	LM: there is no	0.221883661	-	254567123
03-03-2017	1.274420849	0.5000883	3163545851	7899154113
21-04-2017	0.326725	No data	1015508431	-
18-05-2017	-0.0061	-	-27846444.72	-
01-06-2017	0.531605375	-	3925607992	-
25-08-2017	0.073099	-0.0584460	3263158306	-802522203
06-12-2017	-0.0634465	-	-13883789241	-
12-12-2017	0.016629995	0.337329	1228032001	10076962916
31-01-2018	0.073426	-	4847693453	-
06-06-2018	-0.0276866 0.019109886= -0.00857676	-0.1568	-2616054740	-1137851592
26-07-2018	0.047554368	-	1329103544	-
18-10-2018	-0.0082583	-0.048271	-1348572318	-3922646972
09-07-2019	0.036097	0.032543	3732396715	14405015064
16-07-2019	-0.0158284	-	-4997680524	
10-09-2019	-0.0243	-	-2082968619	-
Sum	2.253050673	0.828328931	-2451865592	26772678450
Average	0.160930533	0.118332704	-175133256	3824668350
Std. deviation	0.358474	0.24	-	-
optimal obs. number	33	27	-	-
Shapiro-Wilk Test	3.9763261e-05	0.92905461	-	-

Table 2: CARs by Bidders and Targets

**CEU eTD Collection** 

Table 3.: Summary of Bidders' results: Abnormal returns in the event window

'm_daily	0.189216436	<mark>).398638315</mark>	<mark>).238052867</mark>	<mark>).356296689</mark>	<mark>).348608249</mark>	0.471336619	<mark>).250878287</mark>	2.253027462
<sup>5</sup> Veritas Su	0.010011248	0.014109631	0.009858294	0.004654656	0.00445875	0.015150344	0.015692027	0.024324084
us_Tigáz 4i	-0.026090676	0.009876216	0.000198212	0.014125208	-0.018529426	-0.002164515	0.006756549	-0.015828432
g_T-system op	0.002181299	-0.008822787	0.024020321	0.047420381	-0.05276242	0.028522007	-0.004462121	0.03609668
ous_merge 4i	-0.010608587	-0.022833048	0.029660498	-0.018820479	-0.002976945	0.004597736	0.01272255	-0.008258275
eninn_pro-mot o	0.000519381	0.005933757	0.018613557	0.010056655	0.026428993	0.004751172	-0.018749147	0.047554368
m_invest_4ig_app	0.002769207	-0.013978025	-0.001396131	0.008682094	-0.004942489	-0.007365358	0.007653941	-0.008576761
nzum_telenor su	-0.003156387	0.007380184	0.010010452	0.087539419	-0.01869898	0.00273248	-0.012381632	0.073425537
onzum_CIG kg	0.030043146	0.023058698	0.015784843	0.04286165	0.025975022	-0.03107158	0.006502054	0.016629995
us_Diófa k	0.00135184	-0.011836933	-0.004927528 -	-0.005355231	-0.019035058 -	-0.003623366	-0.020020202	-0.063446478
nzum_appeninn op	-0.010754969	0.044766655	0.050125244	-0.008051984	-0.02060226	0.043204906	-0.025588822	0.073098769
onzum_mkb ko	0.007515023	0.162891161	-0.044154811	0.118336322	0.131909615	0.085424673	0.069683393	0.531605375
conzum_KPRIA k	0.00390764	0.025278981	0.017015427	-0.037515371	0.026272105	-0.012401692	-0.028652618	-0.006095528
conzum_FHB k	0.001949046	-0.009680288	-0.035686595	0.053088741	0.114392019	0.162646494	0.04001603	0.326725447
nzum_opimus	0.199601722	0.200713374	0.200217359	0.039274627	0.208669368	0.211234006	0.214710393	1.274420849
8 V	'n	-2	<u>1</u>	0	7	2	œ	
Days								CAR

Table 4.: Summary of Targets' results: Abnormal returns in the event window

Days		Mérszáros_konzum	Konzum_opimus	Konzum_appeninn	Konzum_CIG	invest_4iG	Merge_konzum	4iG_T-system	Sum_daily
	Ϋ́	-0.013618642	0.107443553	0.073783237	0.002890444	-0.00659429	-0.002571743	-0.002795143	0.15853741
	-2	0.019233056	-0.03307829	-0.050782911	0.015604687	-0.014151086	-0.003065153	0.000157945	-0.06608175
	Ļ	-0.029832698	-0.013717034	-0.13802478	0.07956228	-0.002408864	-0.011402959	-0.012960532	-0.12878458
	0	0.017761425	0.196906143	0.089739965	0.113553921	-0.012155226	-0.018722586	0.021761852	0.408845493
	1	-0.001176436	0.078313687	-0.044957343	0.139429735	0.010757887	-0.03053973	0.002454414	0.15428221
	2	0.02900627	0.084486121	-0.001539083	-0.011208275	-0.096153875	-0.025629372	0.028095081	0.00705686
	ε	0.200510686	0.079734142	0.013334902	-0.002504261	-0.036092528	0.043660856	-0.004170518	0.294473279
CAR		0.221883661	0.500088322	-0.058446013	0.33732853	-0.156797981	-0.048270687	0.032543101	0.82832893