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THE JANUARY EFFECT IN THE AFTERMATH OF FINANCIAL CRISIS OF 2008

The January effect is one of the most researched seasonal anomalies on the financial market. However, very few authors have looked into the January effect after the financial crisis of 2008 and even fewer have used data of individual companies instead of indexes in doing so. This paper intends to fill this void by analyzing returns of individual micro-cap companies on the three biggest stock markets New York Stock Exchange, London Stock Exchange and Tokyo Stock Exchange for a time period January 2010 to January 2017. Analysis of each individual company using simple averages and regression analysis documented that abnormally high rates of return on micro-capitalization stocks are no longer present in the stock market in the aftermath of the financial crisis of 2008. Further confirmation of disappearance of January effect is conditional on new longer datasets as they become available.

Key words: *stock price, anomalies, January effect*

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1. INTRODUCTION

January effect is one of the most examined and publicized seasonal anomalies discussed in literature. The stylized fact that common stocks of companies usually have higher returns in January was first postulated by Wachtel (1942). Haugen and Lakonishok (1998) remarked high returns need not to occur every January, but would appear on average in longer time series. In the light of the efficient market hypothesis, the occurrence of January effect is a true anomaly as pointed out in Jones (1994) and Haugen and Lakonishok (1998). The efficient market hypothesis postulates prices of a security should quickly and fully reflect all available information, stock prices should react quickly to news, no one should be able really beat the market and stock prices should follow a random walk. In this regard, there is no clear consensus in literature regarding why January effect happens at all. It is partially explained by the tax- loss selling hypothesis in Cataldo and Savage (2000). Tax-loss selling (TLS) is the term used to describe the tendency of an investor to sell stocks that have declined in value at near year-end; investors are trying to realize capital losses in December for tax purposes, selling pushes the stock price down, and then in January it pushes it back up. A more recent explanation includes the study of January effect within behavioral framework as in Ciccone (2011), where part of the anomaly can be explained by optimistic expectations and increase in investor sentiment at the end of the year.

Many researchers suggest that the January effect is still present on the market, while some of them suggest that is only present in the emerging stock markets. We will concentrate on a particular segment of the market – the micro-cap companies – and use individual data points instead of indexes to search for the January effect in three biggest stock markets. We believe that this unconventional approach will allow us to better uncover the mechanism of the January effect but also fill a significant gap in literature which mostly utilizes aggregated data. The paper consists of four parts; firstly, we offer a brief review of literature relevant to our analysis. Third section lays out the methodology, while the fourth section presents the results and subsequent analysis. The final section concludes the article, also outlining limitations of our analysis and paves the way for further research on January effect.

2. LITERATURE REVIEW

Cataldo and Savage (2000) identify six major categories of seasonal anomalies in stock prices: we present few of them, relevant to our study. The most

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known anomaly is the *January effect* pertaining end-of-the-year and turn-of-the-year stock market trading behavior. The other effect, known as the *Month of the year*, includes an increasing three-month sequence in November, December and January which coincide with three major holidays in the USA (Thanksgiving, Christmas, and New Year's Day) and also coincides with the end of the calendar-year operations for many tax payers. The last seasonal anomaly is the *Tax payments* effect when market declines and corrections occur over a three-day sequence around tax payment event days. In this regard, the occurrence of other seasonality phenomena should also be investigated before checking for the January effect.

The literature on seasonality in stock prices is vast and here we present only the papers which represent the core of the study on January effect. Officer (1975) explored seasonality in stock prices by examining the size of stock return in a given month and size of returns in previous month. Basu (1977) shows the relationship between investment performances of equity securities and their P/E ratios, also small firms with no dividend gain higher profits, and that the publicly available information at that time in history were not automatically impounded in security prices. Keim (1983) showed the size effect: the small firm effect really begins to intensify for companies with less than 200 million in total stock outstanding. This paper is interesting for another reason; the premiums were gained in a single month, i.e. in January. Kato and Schalleim (1985) examined stock returns on the Tokyo Stock Exchange (TSE) for the presence of January and size effects. They found correlation between the size and the monthly return – the smaller the firm, the higher return in January. Gu (2003) finds that January effect diminishes and even disappears for stock markets in Canada, France, Germany, Japan and United Kingdom, Furthermore Gu and Simon (2003) confirmed declining January effect in UK stock market. Asteriou and Kavetsos (2006) tested the efficient market hypothesis in the presence of the January effect for eight transition economies in the time period from 1991 till the early months of 2003. The main results supported the existence of seasonal effects and particularly of the January effect for most of the countries in their sample.

Haug and Hirschey (2006) updated the evidence on the January effect in value-weighted returns for large-cap stocks from 1802-2004, and equally-weighted returns for small cap stocks from 1927-2004. They found a persistent January effect for small-cap stocks, even during the period following the passing of the Tax Reform Act of 1986. They also showed that both size and book factors contribute to a continuing January effect for small-cap stocks.

Easterday, Praydot and Jens (2009) find that the small firm January effect has not been arbitraged away on three major US trading exchanges over the time period 1946 to 2007.

The question remains: if January effect was known to investors, why wasn't it arbitraged away? Very few papers assess the existence of January effect in the aftermath of the financial crisis of 2008. As mentioned earlier, one line of research follows behavioral framework first laid out by Ciccone (2011). Inspiration is drawn from psychology literature, where January is a month marked by renewed optimism. Optimistic investors thus dominate in this month and bid up the prices of stocks. The optimism hypothesis is tested via dispersion of analyst earnings forecasts, where high dispersion firms outperform low dispersion firms in January. Additionally, size seems to play a key role in January effect, since firms with high dispersion are generally smaller value firms with smaller variability in price in the previous year. In a more recent effort, Patel (2016) tested for presence of the January effect in today's international stock markets; he examined the stock returns for the time period from January 1997 to December 2014 to conclude January effect is no longer present in the stock market, neither in volatility periods, bullish or bearish periods.

We therefore hypothesize the following:

H1: Seasonal Anomalies are present in the Stock Market

H2: The January effect has an impact on stock price changes

3. METHODOLOGY

3.1. Sample

Haugen and Lakonishok (1988) following research by Keim (1983) suggested that price pressures are not uniform across all securities. Contemporary evidence suggests that it is more pronounced for micro companies with common stock valued at something less than 200-300 $ million, common stocks that are currently selling at prices considerably below past levels, common stocks that do not pay dividends and lower–quality corporate bonds. Fama and French (1993) identified three factors influencing stock market returns; an overall market factor, factors related to firm size and factors related to book to market equity. As mentioned, size seems to play a significant role in occurrence of January effect. Our analysis will thus only include firms with current market cap bellow 300M and current dividend yield equal to zero. Unlike most authors who used index data to find the January effect, we will instead use data on individual companies.

We generated data from the New York Stock Exchange (NYSE), the biggest European stock exchange, the London Stock Exchange (LSE), and the biggest Asian stock market, the Tokyo Stock Exchange (TSE). Additionally, we used

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Bloomberg to filter the data, the only restriction with the market cap and dividend yield. The restriction was put in place as we do not have any information about the dividend or the market size in the past, meaning that we cannot claim that the dividend was not paid or that the market size was larger or smaller at some point in time during the observed time period. We used the time period from January 1st 2010 until January 31st 2017. We decided to use the most recent data but tried to avoid years 2008 and 2009 because of the financial crisis and its impact on the stock market. Therefore, we decided to use 2010 as the starting year since most economies started to recover by that time. We opted for a shorter sample to only include stock market data in times of recovery and expansion, since investor behavior may be different during times of recession.

Companies which did not have data for all trading days were excluded from the sample. Additionally, we excluded the dates when stock market was closed. NYSE sample contains 65 individual companies, LSE sample contains 63 companies and TSE sample contains only 14 companies which matched our criteria.

3.2. Measures and Procedures

After gathering and filtering all the data we calculated the daily returns for each company. Upon calculating daily returns we sorted days into months for every year and calculated the average monthly return for every company. Descriptive statistics (mean, median, standard deviation, minimum and maximum returns) are presented in the appendix. Afterwards, we organized the data of mean monthly returns of all companies and plotted them to visually inspect movement of monthly returns during 2010 to 2017. We compared January returns to mean monthly returns of other 11 months for each market using t-test statistics. In order to test our hypothesis more robustly, we used simple regression analysis using dummy variables for months for the three markets. The data used in our econometric analysis correspond to average monthly returns for individual companies listed on the NYSE, LSE, and TSE.

First we test for seasonal and January effects following standard regression models, as presented in Gultekin and Gultekin (1983); Jaffe and Westerfiel (1989); Asteriou and Kavestsos (2006) and Patel (2016).

We created 12 dummies for each month as explained in Applied econometrics (Asteriou and Hall, 2015):

$$\text{Dit} = \begin{cases} \textbf{1 if the return t corresponds to month i} \\ \textbf{0 otherwise} \end{cases} \tag{1}$$

From the methodological point of view, to test for seasonal effects in general corresponds to estimating the following equation:

$$R_{it} = a_1 D_{1t} + a_2 D_{2t} + \cdots + a_{12} D_{12t} + u_t \qquad (2)$$

where Rt indicates the stock market return at time t, αi is the average monthly return i of all companies for every stock market. Dit are the seasonal dummy variables representing each month of the year. Therefore, D1=1 if the monthly returns fall in January and D1=0 if monthly returns fall in any other calendar month. Similar, D2 =1 if the monthly returns fall in February and 0 if in any of other 11 months. And u_t is an iid (ideally independently distributed) error term. The null hypothesis to be tested is that the a_1 coefficients are equal.

$$R_{it} = c + a_2 D_{2t} + a_3 D_{3t} + \cdots + a_{12} D_{12t} + u_t \qquad (3)$$

were R_t again indicates stock market returns, the intercept c represents the mean return for January, and in this case the coefficient a_i represents the difference between the return of January and month i. The null hypothesis to be tested in this case is that all dummy variable coefficients are equal to zero. A negative value of a dummy coefficient would be a proof of a January effect (Asteriou and Hall, 2015).

4. RESULTS AND ANALYSIS

4.1. Statistical analysis

Calculating simple daily averages of each individual company and conjoining the results into monthly averages provided little information on the January effect; after visual inspection of individual monthly average returns we used descriptive statistics to calculate the mean monthly return of all companies for every year. The table in the appendix shows the data of descriptive statistics for all companies at the NYSE that match the criteria. As can be seen from the table there is no evidence of the January effect based on the average monthly returns for all companies. We plotted the results graphically with a gap in the graph from the end of one year and the beginning of the other, to clearly see every January. From Figure 1, we can see that the average return in January is not higher than the average returns of any other of the eleven months in the year, with the only exception being the year 2012. Interestingly enough for year 2012, even that the average monthly returns in January was higher than in other eleven months, the highest return of at least one

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of the companies neither the lowest negative return did not happen in January. So far, there is little stylized evidence of existence of January effect in the NYSE.

Figure 1

AVERAGE MONTHLY RETURN OF ALL COMPANIES ON THE NYSE
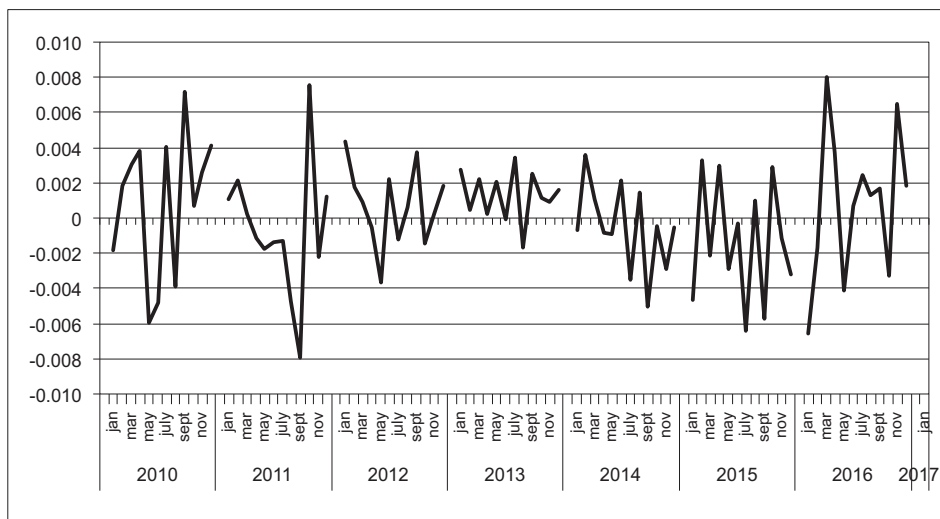
Source: Made by the author

The same procedure was repeated for LSE. Table in the appendix shows January mean monthly return was higher than mean monthly return for every other 11 months in 2011, 2012 and 2013.The results were plotted Figure 2.2. Since in the half of the observed years January returns were higher, research should be broadened by adding more companies to the sample.

Figure 2

AVERAGE MONTHLY RETURN OF ALL COMPANIES ON THE LSE
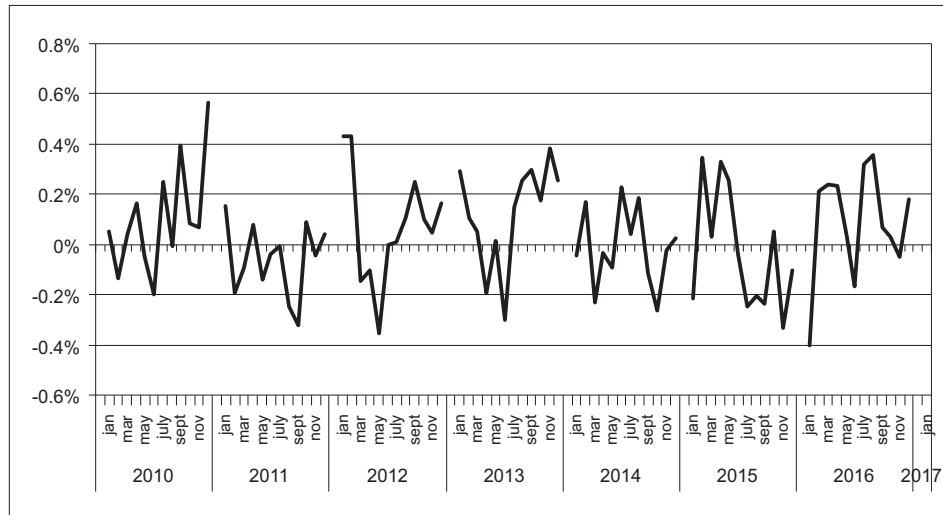
Source: Made by the author

After analyzing the biggest European and American stock markets we did the same for the biggest Asian stock market the TSE. The descriptive statistics table is presented in the appendix, the result from the analyses are plotted on the Figure 3. and as we can see from it in neither of the observed time period the January return was not higher than the other 11 months.

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Figure 3

AVERAGE MONTHLY RETURN OF ALL COMPANIES ON THE TSE
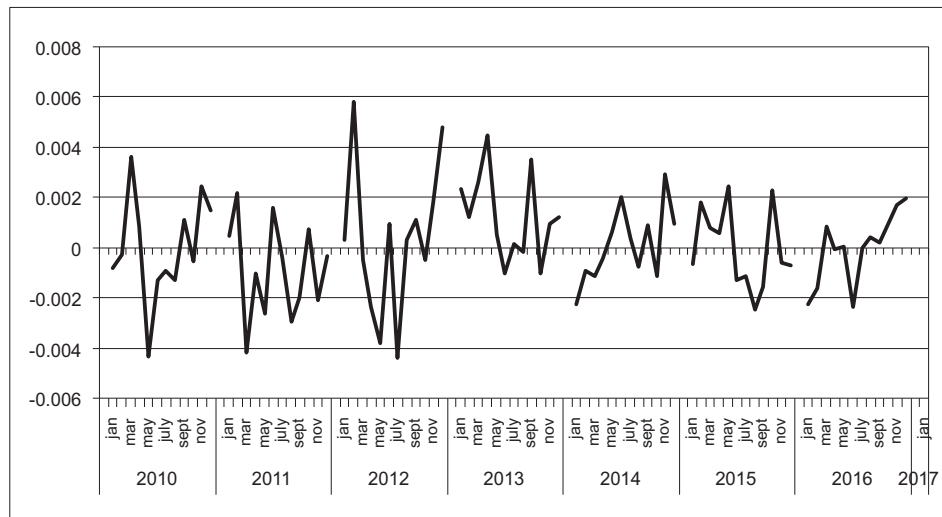
Source: Made by the author

It is interesting to notice that in 2012 in NYSE and LSE the highest average returns occurred in January and on TSE the highest monthly average return for 2012 occurred one month later, in February, presented in Figure 3. We couldn't find the correlation between the LSE, NYSE and TSE and the answer what happened in January and February 2012.

In order to test for difference in means of two populations, we utilized the t-test. We observed six January periods and 66 non-January periods for the time period 2010-2017. We compared January mean monthly returns versus the other eleven months mean returns which is presented in the table 1.

Table 1

JANUARY VS NON-JANUARY MEAN MONTHLY RETURNS

Market	January	Non-January	Mean diff.	t Stat	t Critical two-tail
NYSE	-0.00081	0.000263678	-0.001071648	-0.69008	1.993943
LSE	0.000391	0.000416687	-2.54029E-05	-0.02182	1.993943
TSE	-0.00061	0.000276477	-0.000883466	-0.84388	1.993943

Source: Made by the author

Note: January month has 6 observations and non-January months have 66 observations.

As can be seen from Table 1 the January returns are lower than those of average return of other 11 months. Also we can notice that only on the LSE the mean January return is positive and that the mean difference between the January and non-January returns is lowest, confirming earlier findings. We can also see from the t-test, the significance test, that there is no statistical difference between the January returns and the average returns of the other eleven months.

4.2. Econometric analysis

Table 2 reports the econometric results using all seasonal dummies together as the model in equation (2). From the table we can see that the H1 can be accepted, since statistically significant seasonal effects exist on the NYSE and TSE at the statistical significance of 5%. The evidence of seasonality is reflected in the evidence that the mean returns in every month are different. LSE has less pronounced seasonality which is mirrored in lower statistical significance. Mean monthly returns of each company were used for construction of econometric model with dummies. January effect usually appears when there is also statistically significant evidence of the seasonality. Patel (2016) didn't find evidence of the January effect, but he found an evidence of seasonality. The January effect might thus be cofounded with the size effect, since most research was done on indices that track performance of largest companies. In aforementioned case, the sample used was from Rusell 3000 Index which measures the performance of 3000 largest publicly held companies in the USA. Our analysis, on the other hand, takes into account the size effect by focusing only on individual companies with micro market cap.

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Table 2

REGRESSION ANALYSIS FOR SEASONALITY

	NYSE		LSE		TSE	
	Coefficients	**t Stat**	**Coefficients**	**t Stat**	**Coefficients**	**t Stat**
jan	**-0,00081***	**-2,31309***	0,000391	0,888516	-0,00061	-1,28495
feb	**0,00164***	**4,693663***	**0,001339***	**3,040831***	**0,001168***	**2,472293***
mar	**0,001923***	**5,504219***	-0,00014	-0,32841	0,00068	1,439777
apr	**0,001187***	**3,399207***	0,000687	1,559437	0,000371	0,785298
may	**-0,00248***	**-7,0874***	-0,00048	-1,07866	**-0,00108***	**-2,27759***
june	-0,00021	-0,60266	-0,00075	-1,69314	-0,0001	-0,21171
july	-0,00037	-1,06658	0,000736	1,67095	-0,00094	-1,98856
aug	**-0,00085***	**-2,43734***	0,000628	1,426299	**-0,00163***	**-3,45458***
sept	-0,00052	-1,47478	0,000499	1,134217	**0,000994***	**2,103475***
oct	**0,001018***	**2,914456***	0,000379	0,859898	0,000488	1,032232
nov	0,000576	1,648177	6,9E-05	0,156743	**0,001091***	**2,309084***
dec	**0,000982***	**2,812565***	**0,001612***	**3,660031***	**0,001997***	**4,228389***

Source: Made by the author *statistically significant at 5%

For the seasonality we can also plot the results and we can clearly see that there is a presence of seasonality in these three markets. Also what can be seen from the chart 4 is that the mean monthly returns of all six years in these markets had the same path. What is more interesting if we plot the data starting with December we could actually see that on average during these six years there was a significant drop in returns from December to January, giving us another evidence of the non-existence of the January effect on these three markets.

Figure 4

SEASONALITY IN MEAN MONTHLY RETURNS
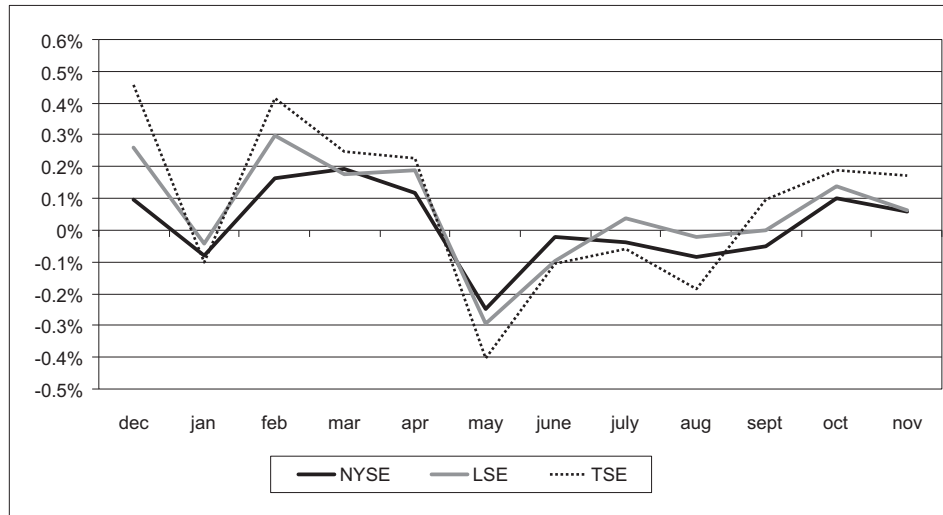
Source: Made by the author

Regression results from equation (3) are shown in Table 3. The bolded returns are significant at 5% level. Yet again, we find no evidence of January effect. At NYSE, only 2 months have lower returns than January returns but for only 1 month that change is significant. Conversely, the existence of the January effect requires all the dummy coefficients to be negative. Furthermore, we could say that the January returns performed poorly as compared to other months of the year.

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Table 3

TEST FOR THE JANUARY EFFECT

	NYSE		LSE		TSE	
	Coefficients	**t Stat**	**Coefficients**	**t Stat**	**Coefficients**	**t Stat**
c	-0,00081	-2,31309	0,000391	0,888516	-0,00061	-128,495
feb	**0,002447***	**4,954521***	0,000948	1,521917	**0,001775***	**2,656775***
mar	**0,002731***	**5,52767***	-0,00054	-0,86049	0,001287	1,926676
apr	**0,001995***	**4,039202***	0,000295	0,474413	0,000978	1,463889
may	**-0,00167***	**-3,37595***	-0,00087	-1,391	-0,00047	-0,7019
june	0,000597	1,209457	-0,00114	-1,82551	0,000507	0,758896
july	0,000435	0,881412	0,000345	0,553264	-0,00033	-0,49753
aug	-4,3E-05	-0,08786	0,000237	0,38027	-0,00102	-1,53416
sept	0,000293	0,592775	0,000108	0,173737	**0,001601***	**2,395981***
oct	**0,001826***	**3,696432***	-1,3E-05	-0,02024	0,001095	1,638498
nov	**0,001384***	**2,801037***	-0,00032	-0,51744	**0,001698***	**2,541369***
dec	**0,00179***	**3,624384***	0,001221	1,959757	**0,002604***	**3,898523***

Source: Made by the author *statistically significant at 5%

For LSE only 5 months have lower returns than January returns but they are not statistically significant. Upon visually inspecting the data, LSE had higher January returns in three years in our sample, but the statistical analysis of average returns of all observations leads to a conclusion no January effect was present in the entire sample.

Lastly, we extend our analysis to the biggest Asian stock exchange – the Tokio Stock Exchange. For the TSE we had smaller sample as in previous presented results but in a regression analysis we had to exclude all the companies that didn't have average monthly returns for all months in the observed time period. After excluding those companies, we were left with only 8 companies that we could use in the regression models. As we can see from the statistical analyses there is no evidence of the existence of the January effect. Additional analysis would be welcome when larger datasets become available.

After analyzing all three markets statistically and graphically we conclude there is no evidence of the existence of the January effect from the time period January 2010 to January 2017 in the New York Stock Exchange, London Stock Exchange and the Tokyo Stock Exchange. Our research follows the earlier examination and reexamination of the non-presence of the January effect at for the NYSE,

LSE and TSE on the stock markets. Easterday, Praydot and Jens (2009) found the evidence of the existence of the January effect from 1946-2007 for small firms on NYSE and AMEX. Patel (2016) found that the January returns compared with that of mean returns of other eleven months for time period 1997 to 2007 where higher but after and during the financial crisis that was no longer a case, which is consistent with our findings. We can thus accept the first hypothesis; *H1: Seasonal Anomalies are present on the Stock Market* and reject the second hypothesis for the observed time period on NYSE, LSE and TSE; *H2: The January effect has an impact on stock price changes*.

5. CONCLUSION AND DISCUSSION

The aim of this paper was to analyze if the January effect is still present in the stock market in the aftermath of the financial crisis. Previous research suggests that the January effect also has a size effect present in all markets. Haugen and Lakonishok (1988) suggested that price pressures are not uniform across all securities. Contemporary evidence suggests that is more pronounced for micro companies with common stock valued at something less than 200-300 $ million, common stocks that are currently selling at prices considerably below past levels, common stocks that do not pay dividends, and lower-quality corporate bonds. Recent research on the January effect (from 2003 to 2016) done for different markets and different securities found that the January effect was declining in most markets but was still present. We analyzed micro-cap companies on the New York Stock Exchange, London Stock Exchange and Tokyo Stock Exchange and we couldn't find evidence of the presence of the January effect in those markets from January 2010 to January 2017. However, we did find that in both NYSE and LSE in 2012 the average return in January was higher than in other 11 months and that the same happened in TSE but one month later – the average return in February was higher than the average returns in other 11 months. Literature suggests 2012 was a very good year in stock and other markets, one of the best after the financial crisis in 2008, but we couldn't find the explanation why the returns in January/ February were higher than average returns for other eleven months. Also we found that for the LSE the January returns were higher than other 11 month returns not only in 2012, but also in 2011 and 2013. We couldn't find the explanation for the higher January return in those years, which leaves room for further research. We used regression analysis with dummy variables to see if there are seasonality's in the stock markets and if there is a presence of the January effect. Results suggest there is seasonality in micro-cap average monthly returns but we didn't find any evidence of the presence of the January effect. The strongest possibility of Janu-

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ary effect was the London Stock Exchange for years 2011, 2012 and 2013 where January returns were higher than in other 11 months. We have already mentioned different studies that were dealing with the January effect, but most of those studies were calculating the January effect based on stock indexes. In our analyses we examined the company's stock returns which we believe better capture behavior of investors than aggregate indexes. The conclusion of this article is in line with existing research on January effect in the aftermath of financial crisis: January effect does not prevail when market conditions are bullish or bearish or during high volatile periods. Our research is not without limitations: to further confirm the absence of January effect, longer time series should be used as they become available, together with a broader set of companies to be included in the analysis. As far as current research goes, the January effect is no longer present on the stock market, at least for micro-cap companies.

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APPENDIX

NYSE DESCRIPTIVE STATISTICS

2010	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	-0.19%	0.18%	0.31%	0.38%	-0.60%	-0.48%	0.40%	-0.39%	0.72%	0.07%	0.26%	0.41%
Median	-0.22%	0.07%	0.32%	0.31%	-0.49%	-0.33%	0.43%	-0.38%	0.79%	0.11%	0.23%	0.33%
Standard Deviation	0.00675	0.006	0.005278	0.006025	0.006369	0.005519	0.005635	0.005684	0.005411	0.006309	0.007321	0.005222
Minimum	-2.72%	-0.79%	-0.93%	-1.08%	-2.30%	-1.94%	-0.67%	-1.83%	-0.38%	-1.69%	-1.68%	-1.08%
Maximum	2.35%	2.20%	1.68%	2.64%	1.11%	0.56%	2.19%	1.57%	2.01%	2.37%	2.69%	1.87%
2011	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	0.11%	0.22%	0.03%	-0.11%	-0.18%	-0.14%	-0.13%	-0.47%	-0.79%	0.75%	-0.22%	0.13%
Median	0.04%	0.19%	0.00%	-0.14%	-0.15%	-0.16%	-0.13%	-0.40%	-0.69%	0.87%	-0.19%	0.02%
Standard Deviation	0.006	0.007	0.004929	0.005648	0.004865	0.00554	0.004525	0.006525	0.007878	0.007669	0.006007	0.008332
Minimum	-1.46%	-1.97%	-1.04%	-2.84%	-1.65%	-1.44%	-1.10%	-2.20%	-3.14%	-1.45%	-1.80%	-1.17%
Maximum	1.25%	2.41%	1.41%	1.21%	1.41%	1.71%	0.81%	2.64%	1.39%	2.49%	1.21%	4.39%
2012	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	0.43%	0.18%	0.09%	-0.05%	-0.37%	0.22%	-0.12%	0.06%	0.37%	-0.14%	0.02%	0.18%
Median	0.36%	0.06%	0.10%	-0.10%	-0.39%	0.20%	-0.04%	0.04%	0.30%	-0.20%	0.02%	0.14%
Standard Deviation	0.00902	0.007	0.005324	0.007144	0.006958	0.004586	0.008567	0.004853	0.008335	0.00584	0.007687	0.005358
Minimum	-1.35%	-2.01%	-1.36%	-1.50%	-1.96%	-0.96%	-3.59%	-1.31%	-1.73%	-2.01%	-1.92%	-0.63%
Maximum	3.64%	2.32%	1.70%	3.11%	2.96%	1.78%	3.21%	1.58%	3.83%	1.34%	2.64%	3.16%
2013	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	0.27%	0.05%	0.22%	0.02%	0.20%	-0.01%	0.34%	-0.17%	0.25%	0.11%	0.09%	0.16%
Median	0.23%	-0.01%	0.22%	-0.05%	0.18%	-0.08%	0.26%	-0.17%	0.25%	0.18%	0.04%	0.07%
Standard Deviation	0.006	0.005	0.00656	0.006129	0.005576	0.004613	0.006596	0.006575	0.005725	0.00478	0.005489	0.005805
Minimum	-1.84%	-1.42%	-2.12%	-1.05%	-1.48%	-0.75%	-0.95%	-2.88%	-1.09%	-0.92%	-1.28%	-1.26%
Maximum	1.97%	1.11%	2.02%	2.68%	1.37%	1.25%	3.64%	1.31%	2.40%	1.37%	1.68%	1.75%
2014	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	-0.07%	0.36%	0.11%	-0.08%	-0.09%	0.21%	-0.35%	0.15%	-0.50%	-0.04%	-0.29%	-0.06%
Median	-0.12%	0.26%	0.07%	-0.13%	-0.07%	0.17%	-0.30%	0.10%	-0.44%	0.09%	-0.23%	0.01%
Standard Deviation	0.0054	0.007	0.005603	0.005317	0.005161	0.003999	0.003793	0.004993	0.006317	0.006717	0.007208	0.005709
Minimum	-0.92%	-0.94%	-1.56%	-1.16%	-1.53%	-0.75%	-1.24%	-0.95%	-2.71%	-1.85%	-1.95%	-1.13%
Maximum	1.58%	2.90%	1.31%	1.57%	1.23%	1.28%	0.85%	1.98%	0.82%	1.23%	2.12%	1.75%
2015	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	-0.47%	0.33%	-0.22%	0.30%	-0.29%	-0.03%	-0.64%	0.10%	-0.58%	0.29%	-0.11%	-0.32%
Median	-0.43%	0.31%	-0.09%	0.21%	-0.17%	-0.02%	-0.39%	-0.03%	-0.41%	0.21%	-0.07%	-0.25%
Standard Deviation	0.00701	0.006	0.006729	0.006798	0.006797	0.00635	0.007959	0.012733	0.00789	0.008667	0.011313	0.007112
Minimum	-2.54%	-1.12%	-2.81%	-1.30%	-2.24%	-1.57%	-3.77%	-2.27%	-2.53%	-1.81%	-3.64%	-2.15%
Maximum	1.09%	2.05%	1.74%	2.08%	1.65%	2.85%	0.72%	6.34%	2.07%	2.84%	3.26%	1.38%
2016	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	-0.66%	-0.16%	0.80%	0.38%	-0.41%	0.07%	0.24%	0.13%	0.17%	-0.33%	0.65%	0.18%
Median	-0.64%	-0.12%	0.57%	0.23%	-0.27%	0.00%	0.20%	0.17%	0.11%	-0.36%	0.41%	0.05%
Standard Deviation	0.00874	0.01	0.01207	0.007766	0.007738	0.008587	0.007354	0.007623	0.006286	0.007308	0.008602	0.007985
Minimum	-3.23%	-3.43%	-1.32%	-1.33%	-2.97%	-2.58%	-1.78%	-1.45%	-1.52%	-2.48%	-1.19%	-1.12%
Maximum	1.33%	2.32%	4.70%	2.32%	0.98%	2.98%	2.76%	3.04%	1.60%	1.32%	2.77%	2.65%

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2010	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	0.00054	-0.00133	0.000431	0.001655	-0.00051	-0.00197	0.002512	-7.7E-05	0.003964	0.000858	0.000678	0.005651
Median	0.000321	-0.00165	0.000624	-0.00051	-0.00308	-0.00116	0.002523	-0.00075	0.00215	0	-4.2E-07	0.003548
Standard Dev	0.006011	0.006544	0.005647	0.008451	0.01837	0.00815	0.00702	0.005243	0.009331	0.007853	0.007398	0.00932
Minimum	-0.01644	-0.016	-0.01508	-0.01494	-0.02264	-0.02262	-0.02665	-0.01522	-0.01675	-0.01516	-0.01963	-0.01862
Maximum	0.013899	0.021794	0.015006	0.049015	0.128338	0.018701	0.023346	0.014439	0.043559	0.022383	0.032845	0.037171

2011	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	0.001548	-0.00193	-0.00093	0.000769	-0.00142	-0.00041	-7.2E-05	-0.00248	-0.00321	0.000881	-0.00046	0.00043
Median	0.000919	-0.00192	-0.00097	0.000314	-0.00066	-0.00165	-0.00091	-0.00257	-0.0025	0.000488	-0.00206	-0.00022
Standard Dev	0.009098	0.006443	0.007982	0.006411	0.007689	0.006582	0.006984	0.008715	0.007298	0.009012	0.016746	0.008024
Minimum	-0.04127	-0.01978	-0.01912	-0.02253	-0.028	-0.02037	-0.01392	-0.02613	-0.02225	-0.03059	-0.02934	-0.02031
Maximum	0.029173	0.01305	0.032628	0.018632	0.02891	0.02518	0.027743	0.046861	0.01275	0.021738	0.114325	0.03176

2012	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	0.004337	0.004292	-0.00143	-0.00101	-0.00352	4.23E-06	7.88E-05	0.001051	0.002522	0.000986	0.00048	0.001624
Median	0.002815	0.002801	0	-0.00091	-0.00383	0	2.58E-06	0.001786	0	0	0.000575
Standard Dev	0.006729	0.007911	0.007294	0.006895	0.00692	0.007432	0.006728	0.009259	0.008927	0.011223	0.010712	0.00605
Minimum	-0.00968	-0.01302	-0.02524	-0.02307	-0.01658	-0.02131	-0.01649	-0.03008	-0.02325	-0.06695	-0.01208	-0.00818
Maximum	0.021946	0.038212	0.017375	0.028672	0.017035	0.025812	0.019993	0.034474	0.040193	0.0261	0.076617	0.037433

2013	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	0.002912	0.001061	0.000544	-0.00192	0.000155	-0.00301	0.001496	0.002544	0.002991	0.001755	0.003843	0.002532
Median	0.002136	0.000705	-0.00013	-0.00157	0.00018	-0.00207	0.000866	0.000705	0.000866	0.000388	2.39E-05	0.000777
Standard Dev	0.008844	0.00833	0.007447	0.006287	0.008488	0.006442	0.004439	0.008533	0.00857	0.009417	0.034814	0.008956
Minimum	-0.02582	-0.01776	-0.01689	-0.01976	-0.04198	-0.01978	-0.00904	-0.02943	-0.01386	-0.02	-0.01608	-0.01662
Maximum	0.04534	0.026842	0.032783	0.022016	0.015918	0.013812	0.013482	0.043769	0.042548	0.04601	0.269841	0.056261

2014	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	-0.00044	0.001708	-0.00233	-0.00031	-0.00091	0.002261	0.000398	0.001835	-0.00112	-0.00266	-0.00021	0.000241
Median	-0.00053	0.000945	-0.00112	-0.0007	-0.00064	0.000343	0.000064	0	-0.00152	-0.00098	0	9.56E-05
Standard Dev	0.00736	0.007476	0.007786	0.006532	0.005572	0.012044	0.009823	0.007466	0.010022	0.006395	0.007609	0.006171
Minimum	-0.01846	-0.01361	-0.03248	-0.01411	-0.02501	-0.0184	-0.01655	-0.01273	-0.02578	-0.0236	-0.02802	-0.02305
Maximum	0.016639	0.031343	0.013623	0.029961	0.012851	0.077875	0.064361	0.040296	0.060813	0.00763	0.01717	0.013203

2015	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	-0.00213	0.003462	0.000312	0.003304	0.00253	-0.00041	-0.00247	-0.00203	-0.00235	0.000522	-0.00335	-0.001
Median	-0.00128	0.002194	-0.00114	0.001423	0.001442	-0.00062	-0.00197	-0.00215	-0.00099	-0.00058	-0.00145	-0.00071
Standard Dev	0.008089	0.007173	0.008156	0.012037	0.005725	0.005501	0.006819	0.005274	0.006819	0.01037	0.008033	0.008322
Minimum	-0.02642	-0.01324	-0.02121	-0.00735	-0.00623	-0.01443	-0.03092	-0.01603	-0.03273	-0.0203	-0.03732	-0.03402
Maximum	0.034707	0.02902	0.024978	0.089522	0.027215	0.017557	0.00984	0.009594	0.022748	0.050423	0.013538	0.025534

2016	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	-0.00403	0.002108	0.002391	0.002324	0.000351	-0.00169	0.003208	0.003553	0.000692	0.000307	-0.0005	0.001809
Median	-0.00245	-0.00019	0.000651	0.000809	-0.00014	-0.00123	0.001327	0.001556	6.6E-05	-0.00049	-0.00059	0.001137
Standard Dev	0.010048	0.012095	0.011074	0.008574	0.00553	0.006031	0.006799	0.007778	0.008167	0.007287	0.006486	0.005878
Minimum	-0.04201	-0.02669	-0.03134	-0.01746	-0.01026	-0.01326	-0.00793	-0.01058	-0.02157	-0.02261	-0.01762	-0.00964
Maximum	0.020124	0.049366	0.056336	0.027083	0.017575	0.013345	0.021639	0.03644	0.032326	0.034441	0.02685	0.026333

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2010	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	-0.00088	-0.00055	0.004207	0.000654	-0.00613	-0.0013	-0.00061	-0.00161	0.001012	-0.00022	0.0022	0.001915
Median	-0.00045	-0.00171	0.003853	-0.00052	-0.00691	-0.00199	4.85E-05	-0.00216	0.00237	0	0.001743	0.002509
Standard Dev	0.001976	0.002125	0.003137	0.002733	0.002992	0.002144	0.002047	0.002115	0.003029	0.001655	0.001492	0.00137
Minimum	-0.00347	-0.00266	0.000925	-0.00181	-0.01017	-0.00356	-0.00341	-0.00365	-0.00375	-0.00228	0.000252	5.27E-05
Maximum	0.002206	0.003001	0.008682	0.004771	-0.00154	0.002061	0.001564	0.001271	0.004	0.003064	0.004248	0.003618

2011	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	0.0009	0.002163	-0.00512	-0.00158	-0.00346	0.001785	-0.00031	-0.0039	-0.00189	0.000241	-0.00267	0.000662
Median	0.001087	0.002153	-0.00288	-0.00168	-0.00268	0.001124	0.000518	-0.0058	-0.00206	-0.00117	-0.00256	-5.4E-05
Standard Dev	0.001474	0.000795	0.005872	0.002292	0.003893	0.003125	0.002802	0.003676	0.001862	0.004033	0.002147	0.002115
Minimum	-0.00073	0.000919	-0.01328	-0.00444	-0.00941	-0.00222	-0.00449	-0.0077	-0.0041	-0.00449	-0.00551	-0.00122
Maximum	0.003253	0.003031	0.003141	0.001631	0.001078	0.006928	0.003428	0.001209	0.000796	0.006564	8.53E-05	0.00399

2012	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	0.000592	0.00633	0.000612	-0.00303	-0.00491	0.0007	-0.00522	0.000272	0.002832	-0.00033	0.001937	0.006358
Median	0.000878	0.004983	0.000868	-0.0036	-0.00478	0.000395	-0.00359	-0.00056	0.002612	2.96E-05	0.001113	0.005649
Standard Dev	0.001603	0.00306	0.000715	0.001993	0.001246	0.003007	0.00481	0.001911	0.001732	0.001854	0.002653	0.00301
Minimum	-0.00176	0.003467	-0.00059	-0.00518	-0.00698	-0.00306	-0.01366	-0.00153	0.000454	-0.00315	-0.00025	0.00251
Maximum	0.002105	0.012488	0.001487	0.000331	-0.00305	0.004809	0	0.00308	0.005434	0.002767	0.006058	0.009914

2013	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	0.004201	0.002021	0.003546	0.006617	0.000652	-0.00086	0.000278	-0.00021	0.005781	-0.00122	0.001339	0.001695
Median	0.00397	0.00163	0.003388	0.006872	0.002291	-0.00068	0.000475	-0.00034	0.005622	-0.00119	0.001161	0.001647
Standard Dev	0.004097	0.002085	0.004302	0.003903	0.004031	0.001982	0.001065	0.003253	0.001987	0.000787	0.001731	0.001158
Minimum	-0.0006	3.58E-05	-0.00126	7.68E-05	-0.00841	-0.00451	-0.00132	-0.00424	0.002987	-0.0021	-0.0012	0.000101
Maximum	0.012131	0.005957	0.009815	0.011364	0.003527	0.00154	0.001801	0.003552	0.010113	0.000135	0.003575	0.003275

2014	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	-0.00349	-0.00097	-0.00219	-7.6E-05	0.001256	0.003118	0.000627	-0.0012	0.001008	-0.00152	0.003621	0.000908
Median	-0.00328	-0.00169	-0.0022	-0.00138	0.001172	0.002317	0.000222	-0.00132	0.000719	-0.0027	0.003241	0.001032
Standard Dev	0.001966	0.002628	0.002303	0.003313	0.002233	0.002132	0.001135	0.000549	0.001752	0.003339	0.00336	0.001397
Minimum	-0.00749	-0.00454	-0.00521	-0.00367	-0.00105	0.00047	-0.0006	-0.0021	-0.00223	-0.00568	-0.00066	-0.00197
Maximum	-0.0003	0.002452	0.00146	0.005771	0.004146	0.006067	0.00236	-0.00046	0.003273	0.004169	0.009114	0.003149

2015	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	-0.00116	0.002552	0.00126	0.000848	0.004178	-0.0013	-0.00109	-0.00464	-0.00313	0.004977	-0.0012	-0.00101
Median	-0.00198	0.003705	0.001231	0.000834	0.003776	-0.00126	-0.00111	-0.00353	-0.00322	0.00468	-0.0003	-0.00021
Standard Dev	0.002141	0.002748	0.001236	0.00212	0.003134	0.001771	0.005268	0.00259	0.000951	0.001889	0.002526	0.00171
Minimum	-0.00283	-0.00169	-0.00066	-0.00174	0.001088	-0.00351	-0.00727	-0.00831	-0.00441	0.002801	-0.00465	-0.00453
Maximum	0.002393	0.005661	0.003202	0.004289	0.008077	0.001536	0.006542	-0.00148	-0.002	0.007103	0.001952	0.000605

2016	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Mean	-0.0044	-0.00337	0.002451	-0.00084	0.000872	-0.00284	-0.00025	-0.00013	0.00134	0.00149	0.002409	0.003452
Median	-0.00304	-0.00251	0.003243	-0.00177	0.000815	-0.0024	-0.00041	0	0.002374	0.000667	0.002658	0.003792
Standard Dev	0.00293	0.003537	0.002466	0.003098	0.00374	0.001442	0.00086	0.001359	0.002082	0.002171	0.001731	0.00223
Minimum	-0.00843	-0.01139	-0.00124	-0.00401	-0.00341	-0.00543	-0.00107	-0.00227	-0.00169	0	-0.00067	0.000548
Maximum	-0.00079	-0.00023	0.005557	0.004034	0.005092	-0.00136	0.00152	0.001674	0.003324	0.005962	0.00412	0.006382

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A. TKALČEVIĆ, I. KALODERA-SCHMIEDECKE: The January effect in the aftermath of financial crisis of 2008
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SIJEČANJSKI EFEKT NAKON FINANCIJSKE KRIZE 2008. GODINE

Sažetak

Siječanjski efekt jedan je od najistraživanijih sezonalnih anomalija na financijskim tržištima. Međutim, tek je malen broj autora promatrao siječanjski efekt poslije financijske krize 2008.godine i još manji broj autora je to napravio koristeći podatke individualnih kompanija umjesto indeksa. Svrha je ovog rada popuniti tu prazninu analizirajuću prinose poduzeća s mikro-kapitalizacijom na tri najveće svjetske burze; New York Stock Exchange, London Stock Exchange i Tokyo Stock u periodu od siječnja 2010 godine do siječnja 2017. godine. Statistička i regresijska analiza povrata individualnih kompanija potvrdila je da abnormalno visoki prinosi u siječnju više ne postoje u okolnostima nakon financijske krize 2008. godine. Daljnje potvrde nestanka siječanjskog efekta ovise o novim, dužim vremenskim serijama kako postaju dostupne.