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**Romanian Stock Market under Global Pandemic:
Do Traders Care about COVID-19 News?**

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Abstract

In this paper, we examine the Romanian Stock Market response to the news related to COVID-19 pandemic. Using daily quotes of the BET Index and several other stocks representing certain business sectors, daily returns were found to be impacted by Coronavirus fake news in a negative way, but the effect is weak. Other indices showing news coverage of the virus were not found to be as relevant throughout the daily returns distribution.

Keywords: Coronavirus, Stock Market, Pandemic, News.

JEL Classification: G01, G14, G41

1. Introduction and Problem Statement

Financial markets all over the world are under dramatic impact due to the rapid spread of Coronavirus. Furthermore, the general lock-down measures affected all businesses, leading to a surge in job insecurity, and a lack of basic and essential services. The level of risk present on the financial markets is causing investors to suffer big losses in a short period of time.

The social restrictions also mean that people are now lacking the opportunities to interact and are turning more and more to social media, TV, and other news sources in order to be informed. As most of the topics today are covering Coronavirus, a market-wide sentiment appears, which is subject to “noise”, thus making the stock market investors create higher volatility due to “irrational” abrupt portfolio reconstructions (Zaremba et al. 2020).

Current literature showing how COVID-19 pandemic is affecting the financial markets is still limited and generally shows the uncertainty related to the disease: how deadly it really is, whether and when can we get a vaccine, what effects government policies will have, how people will respond (Wagner, 2020), eventually leads to stock market returns decline. Badar (2020) finds that the

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reaction to the increase in the number of deaths is weak, and that stock markets react strongly during early days of confirmed cases. Zhang (2020) also concludes that these reactions are clearly linked to the severity of outbreak in each country. To our knowledge, there is no study tackling the Romanian stock market response to the pandemic.

In this paper, our main objective is to investigate the effects of several COVID-19 news indicators on the Romanian Stock Market, more specifically the BET Index, and further extended to stocks representing different business sectors (banking, pharma, oil & energy, IT & communications, hotels & food). Data spanning from beginning of March 2020 until the middle of May 2020 was used in order to analyse if the traders are influenced by the pandemic media coverage, and notable quotes shifts in BET or any other business sector stocks can be blamed on an “emotional” trading behaviour. Simple, quantile and panel regressions were used in order to better understand the effects of the news-related variables extracted from the RavenPack analytics tool.

Our findings indicated that Coronavirus news impacts the evolution of the stock market, however it’s not a strong effect, and it can only be noticed in certain quantiles. The rest of the paper has the following structure: Section 2 presents the data and methodology, Section 3 discusses the results, and Section 4 concludes the paper.

2. Data and Methodology

2.1. Data

Daily BET Index quotes were extracted from the Bucharest Stock Exchange, and the daily return was calculated starting with March 2nd until May 15th. In total, we used 52 observations which are the most relevant as Romania was in general lockdown, and showing the strictest regulations during this period. Also, in order to investigate if some business sectors are being impacted more by the news than others, we established five business sectors and chose two of the stocks that are more liquid for each of them. These were used as panel data (Banking – TLV & BRD, Pharma – BIO & SCD, Oil & Energy – SNP & SNG, IT & Communications – DIGI & LIH, Hotels & Food – EFO & SFG). The quotes were extracted from Thomson Reuters and added in the model as daily returns ($R_{i,t} = \frac{P_{i,t}}{P_{i,t-1}} - 1$).

The Coronavirus news indicators were obtained from RavenPack, which is one of the leading data analytics platforms that monitor big data and provide valuable information for financial professionals, and are specific for Romania. The daily values were extracted from the January 2020, but they became consistent starting with March 1st, so only data from that date forward was used for accuracy and alignment purposes with BET daily quotes. The six COVID-19 news variables are explained in Table 1.

Other independent variables included in the model are the Dow Jones Index (as daily return), the UK Economic Policy Uncertainty Index (being the only

European index with daily frequency), and the Equity Market-related Economic Uncertainty Index (which is one of the US economic uncertainty indices).

All independent news variables were calculated and used as relative values, and the correlation matrix shown a strong link between the MHI and MCI due to the fact that both are calculating the percentage of news that are covering the coronavirus topic in Romania (Table 2).

Table 1

<i>Panic Index (PI)</i>	Measures the levels of news chatter that makes reference to panic or hysteria and Coronavirus. Source: RavenPack https://coronavirus.ravenpack.com/
<i>Media Hype Index (MHI)</i>	Calculates the percentage of news talking about the novel Coronavirus. Source: RavenPack https://coronavirus.ravenpack.com/
<i>Fake News Index (FNI)</i>	Measures the level of media chatter about the novel virus that makes reference to misinformation or fake news alongside COVID-19. Source: RavenPack https://coronavirus.ravenpack.com/
<i>Country Sentiment Index (CSI)</i>	Shows the level of sentiment across all entities mentioned in the news alongside coronavirus. Source: RavenPack https://coronavirus.ravenpack.com/
<i>Infodemic Index (II)</i>	Calculates the percentage of all entities (places, companies, etc.) that are somehow linked to COVID-19. Source: RavenPack https://coronavirus.ravenpack.com/
<i>Media Coverage Index (MCI)</i>	Shows the percentage of all new sources covering the topic of the novel coronavirus. Source: RavenPack https://coronavirus.ravenpack.com/

Table 2

	PI_	MHI_	MCI_	II_	FNI_	CSI_
PI_	1					
MHI_	0.373982	1				
MCI_	0.344244	0.848424	1			
II_	-0.0752	-0.12879	-0.18352	1		
FNI_	0.201967	0.164668	0.162711	0.183668	1	
CSI_	0.160639	-0.02136	-0.10927	-0.25025	-0.003	1

2.2. Methodology

We started the econometric approach with a simple regression to see if, at a general level, the BET Index is being impacted in any way by the pandemic news appearing in Romania. The results can be seen in Table 3.

After the simple regression model, we used quantile regression to examine the effects for different intervals throughout the distribution of BET Index evolution. The quantile regression is much better for analysing these effects as it does not only focus on the mean and makes no assumptions about the distribution of the residuals. This will let us explore different effects of the independent variables on certain percentiles. The estimated coefficients for the chosen quantiles are presented in Table 4.

In the last model, we followed the econometric approach from Cepoi (2020) which used a panel quantile regression framework to investigate the stock market’s reaction to coronavirus news in the top six most affected countries by the pandemic. We applied the same logic to the business sector stocks that were chosen, and the coefficients for the selected quantiles are shown in Table 5.

3. Findings

The simple regression including the news and uncertainty indices clearly showed that the Romanian investor doesn’t take into consideration the COVID-19 news, and the only variable that is relevant is the Dow Jones Index. It can be concluded that the Romanian press cannot cause a great deal of impact on the Stock Market with regard to Coronavirus, nor can we say that DJI is impacted either by this sort of news as a recent study (Arshian Sharif et. al. 2020) found that US investors may react differently in terms of their investment decisions for example, “bad” news about the US climbing infected cases, deaths, governmental distancing guidelines as well as oil price movement shocks may be perceived differently by market traders. Bad news may induce short-term traders to sell, while long-run traders may perceive the same news as a buying opportunity with the perception that such news would lead to higher long term gains.

Table 3

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.14461	0.290542	-0.497721	0.6213
DJI_	0.494456	0.064384	7.679833	0
MHI_	-0.02064	0.02146	-0.961945	0.3416
FNI_	-0.00077	0.00054	-1.420549	0.1628
CSI_	-5.53E-05	0.001264	-0.043794	0.9653
II_	-0.00016	0.009711	-0.016304	0.9871
MCI_	0.012114	0.031937	0.379315	0.7064
EMEUI_	0.007406	0.006363	1.163813	0.2511
UKEPU_	-0.01541	0.013273	-1.160754	0.2523
R-squared	0.612266	Mean dependent var		-0.2245
Adjusted R-squared	0.538412	S.D. dependent var		2.922121
S.E. of regression	1.985297	Akaike info criterion		4.368199
Sum squared resid	165.539	Schwarz criterion		4.70911
Log likelihood	-102.389	Hannan-Quinn criter.		4.498471
F-statistic	8.290208	Durbin-Watson stat		2.141974
Prob(F-statistic)	0.000001			

The quantile regression allowed us to check for possible impact of the news indices at different intervals through the distribution of BET returns, resulting the below coefficients. The result was interesting as in higher quantiles fake news show a negative impact towards BET returns; however, it is in a decreasing manner as we advance towards higher volatility. Apart from the DJI, that is relevant across the entire distribution of returns, no other variables were found to be relevant.

Table 4

	Q10th	Q25th	Q60th	Q75th	Q90th
DJI_	0.615714***	0.437982***	0.527003***	0.450618***	0.597405***
PI	-0.008305	-0.001534	0.000754	-0.000325	-0.002452
MHI_	-0.007013	-0.020676	0.002417	-0.003891	0.001989
FNI_	0.000266	-0.00042	-0.001045***	-0.00108***	-0.001427***
CSI_	0.002125	-0.001271	-0.000399	-0.000282	0.001548
II_	0.004435	0.003923	0.00012	-0.006059	0.013894
EMEUI_	0.005306	0.008531	0.007387	0.009979	0.016497
UKEPU_	-0.041344	-0.000919	-0.009881	-0.00667	-0.001393

Table 5 shows the coefficients of the panel quantile regressions for each business sector.

The Panic Index is showing increasing relevance towards the high quantiles of the IT & C sector with an increasing coefficient as well. The lack of relevance towards the other sectors is a good thing, meaning that investors are not reacting to coronavirus hysteria related news. The Fake News Index has a general negative effect on all sectors, however this effect is very weak and it is not present in the low quantile. The IT & C sector again seems to react to fake news starting with the 60th quantile onwards. The effect is weak, but it exists. The Country Sentiment Index shows an effect only in the 10th quantile with a negative coefficient in the banking sector and a positive coefficient in the hotels & food industry, however, again the impact is very weak. In the higher quantiles, the Infodemic Index is proving to be relevant as the market is reacting to news about companies and places being affected by the coronavirus.

Table 5

	PI_	MHI_	FNI_	CSI_	II_	MCI_
Q10th						
Banking	0.00482	-0.04705	-0.00012	-0.00455	-0.01190	-0.02633
Pharma	0.00360	-0.06702	-0.00108	-0.00064	-0.00501	0.03812
O&E	-0.00521	0.05404	-0.00043	-0.00259	0.02691	-0.03179
IT&C	-0.00322	-0.01936	0.00062	-0.00212	0.00615	0.01491
H&F	0.00075	0.04857	-0.00047	0.00419	0.02763	-0.02107
Q25th						
Banking	0.00356	0.06221	-0.00147	-0.00171	0.00791	-0.06484
Pharma	0.00201	0.01976	0.00006	-0.00175	-0.00243	-0.04624
O&E	-0.00246	0.00322	-0.00115	-0.00119	0.00534	0.00022
IT&C	0.00004	-0.04277	-0.00003	-0.00127	-0.00993	0.04260
H&F	0.00160	0.00472	-0.00107	0.00053	0.01834	0.03386
Q60th						
Banking	-0.00185	-0.00372	-0.00118	0.00066	0.00996	0.01887
Pharma	0.00086	-0.00850	-0.00002	-0.00151	-0.01385	-0.01020
O&E	-0.00040	0.00289	-0.00054	0.00055	0.00307	-0.00938
IT&C	0.00293	-0.04025	-0.00074	0.00090	0.01261	0.04202
H&F	0.00177	0.01945	-0.00072	-0.00075	-0.00373	-0.02115

	PI_	MHI_	FNI_	CSI_	II_	MCI_
Q75th						
Banking	0.00424	0.01359	-0.00132	-0.00008	-0.00246	-0.06074
Pharma	0.00246	-0.02227	-0.00042	-0.00051	-0.00193	0.00071
O&E	0.00020	0.00816	-0.00065	0.00041	-0.00595	-0.03537
IT&C	0.01390	-0.03047	-0.00129	0.00084	0.01868	-0.00299
H&F	-0.00143	-0.00317	-0.00081	0.00039	-0.01351	-0.03705
Q90th						
Banking	0.00709	0.00626	0.00081	-0.00105	-0.02370	-0.07712
Pharma	0.00723	-0.05104	-0.00025	0.00035	-0.00502	0.03480
O&E	0.00117	0.04428	-0.00093	0.00119	-0.00249	-0.08555
IT&C	0.02004	-0.04271	-0.00181	0.00155	0.02206	-0.00463
H&F	-0.00574	0.02694	0.00052	0.00126	-0.03214	-0.06408

4. Conclusions

This paper shows to what extent the COVID-19 news are impacting the daily returns on the Romanian Stock Market. Effects are present in certain quantiles, yet they are very weak. Fake news is proving to impact returns in a negative way as investors are responding to all uncertainty the virus shows.

Due to the sample size, we advise that our findings should be taken with caution, and we encourage further researches using a larger data sample to study the long-term effects of the pandemic on the financial market by also taking into consideration monetary policy and other macroeconomic factors.

References

- [1] Badar, N. A. (2020). Stock markets' reaction to COVID-19: Cases or fatalities? *Elsevier Research in International Business and Finance*.
- [2] Broadstock, D. C., Zhang, D. (2019). Social-media and intraday stock returns: The pricing power of sentiment. *Elsevier Finance Research Letters*.
- [3] Cepoi, C.-O. (2020). Asymmetric dependence between stock market returns and news during COVID-19 financial turmoil. *Elsevier Finance Research Letters*.
- [4] Sharif, A., Aloui, C., Yarovaya, L. (2020). COVID-19 pandemic, oil prices, stock market, geopolitical risk and policy uncertainty nexus in the US economy: Fresh evidence from the wavelet based approach. *Elsevier International Review of Financial Analysis*.
- [5] Wagner, A. F. (2020). What the stock market tells us about the post-COVID-19 world. *Nature Human Behaviour Journal*.
- [6] Zaremba, A., Kizys, R., Aharon, D. Y., Demir, E. (2020). Infected Markets: Novel Coronavirus, Government Interventions, and Stock Return Volatility around the Globe. *Elsevier Finance Research Letters*.
- [7] Zhang, D., Hu, M., Ji, Q. (2020). Financial markets under the global pandemic of COVID-19. *Elsevier Finance Research Letters*.