Short term overreaction, underreaction and efficient reaction on the Bucharest Stock Exchange during Coronavirus Pandemic

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Types of reactions to shocks on the financial markets

- **Positive** shocks, when stock prices **increase** sharply.
- **Negative** shocks, when stock prices **decrease** sharply.

- overreactions;
- underreactions;
- efficient reactions.

Overreactions

- A positive shock is followed by a descendant evolution of the stock prices.
- A negative shock is followed by an ascendant evolution of the stock prices.

Underreactions

- A positive shock is followed by an ascendant evolution of the stock prices.
- A negative shock is followed by a descendant evolution of the stock prices.

Efficient reactions

- Positive or negative shocks are followed by relative horizontal evolutions.

Exploiting reactions to shocks

- The knowledge about overreactions or underreactions could be used in building two types of investment strategies:

- **contrarian** strategies: when past loser stocks are bought and past winner stocks are sold;
- **momentum** strategies: when past loser stocks are sold and past winner stocks are bought.

- The success of such strategies is used as an argument against the Efficient Market Hypothesis.

Reactions to the shocks in a turbulent context

- The increase of market's volatility could affect investors' behavior.
- During the Coronavirus Pandemic, Bucharest Stock Exchange (BSE), as other financial markets, experienced periods with substantial volatility. This paper approaches the stock prices reactions in this context.

Data

- The daily closing values of three indexes from BSE: BET, BET-FI and BET-XT
- The sample of data covers the period of March 2020 – August 2021.

Two sub-samples:

- March – August 2020, a period of decline;
- September 2020 - August 2021, a period of relative recovery.

Identifying shocks (1)

- $r_{i,t}$ – the simple return of the index i on the day t;
- int =[t-10; t-60] – a time interval that starts 60 trading days before the day t and ends 10 trading days before the day t.
- $AVG_{i,t,int}$ - the average of simple returns for the time interval [t-10; t-60];
- $STDEV_{i,t,int}$ – the standard deviation of simple returns for the time interval [t-10; t-60].

Identifying shocks (2)

- A positive shock for the index i occurrs in a day t if:

  $r_{i,t} > AVG_{i,t,int} + 2* STDEV_{i,t,int}$.

- A negative shock for the index i occurrs in a day t if:

  $r_{i,t} < AVG_{i,t,int} - 2* STDEV_{i,t,int}$.

Characterizing reactions to shocks

- Study of returns on the trading days that follow a positive or negative shock

- t-tests used for comparisons with the returns for other days.

Empirical results

- The first sub-sample: overreactions were quite frequent.
- The second sub-sample: efficient reactions and underreactions were more frequent than overreactions.

Conclusions

- For the period from March to August 2020, in the context of BSE decline, investors used to overreact to news (most of the shocks on Romanian capital market were preceded by shocks on the stock markets from USA).

- For the period from September 2020 to August 2021, the recovery of BSE calmed the spirits of investors.

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