

Finfluencers and their impact on the Stock Market

Jens Oosting

2656965

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Abstract

Finfluencers on YouTube are a relatively new phenomenon in the financial world that also bring new risks and concerns. They promote stocks in their videos where they are often not transparent enough about their own interests and it is therefore impossible to tell whether they are completely honest in the information they share. To investigate whether finfluencers have an impact on stock prices after posting a video in which they explicitly promote stocks, we looked at abnormal returns surrounding the posting of the video. By using historical stock prices to make a prediction of what would normally be expected to happen to a stock compared to the overall market, comparing that with what actually happens to stock prices can give a picture of the potential impact of the video. The results show that after posting the video, there are no significant abnormal returns and thus finfluencers are not able to manipulate stocks. It was also found that a video with more views does not mean that it has more impact than videos with less reach.

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Introduction

In recent years, there has been a huge increase in the number of private traders (retail investors) on the stock market. With the emergence of low cost trading apps such as RobinHood and Trading212, stock trading has become accessible to the general public. Many traders without too much knowledge therefore entered the previously quite impassable stock market. According to a study by Charles Schwab (2021), 15% of stock market investors said they began investing in 2020 and a study from Bloomberg Intelligence (2020) has shown that 19.5% of all stocks traded in the first six months of 2020 were traded by retail investors which is almost double compared to ten years earlier. As a result, these traders sought information on how to invest, what to look out for and what to buy. At a time where Covid19 required people to stay inside a lot, this information was mainly sought on social media, such as YouTube and TikTok. As is often the case, where there is demand, there is supply, so a lot of so-called finfluencers entered the financial world.

Finfluencers are financial influencers on social media such as YouTube or TikTok who provide financial advice by making, for example, videos. This can be by sharing information on how to buy stocks or what the risks are. In this study, we look at finfluencers on YouTube who talk about specific stocks and thereby directly or indirectly give advice to buy these stocks. In these videos, the finfluencers talk about often small or micro-cap stocks that they think could go up significantly in the near future. They share information about, for example, upcoming acquisitions or an insider who is buying a lot of stocks. You often also see the model of 'echo chambers' where social networks repeat the news, but this is interpreted by investors as genuinely new information.

A problem that arises here is that there is a great lack of transparency. The finfluencers are often very positive about the stocks, but do not share with the viewers whether they themselves are also invested and therefore have a self-interest or not. At the end of 2021, the Dutch Authority for the Financial Markets (AFM) published a study that revealed a number of worrying things (AFM, 2021). Finfluencers make investing easier, but the interests of the followers do not always come first. There are also too few neutral finfluencers and, as mentioned earlier, transparency is often lacking. The finfluencers also state with a disclaimer that they do not give investment advice, but it is often lurking and a licence would be required for this.

The former Securities and Exchange Commission Chairman Jay Clayton said that guidelines for investors, outside of the group of people who have asymmetric information such as insiders specific company knowledge, would be very difficult to enforce (Reinicke, 2021). This creates a grey area for the finfluencers where possible manipulation of stock prices can go unpunished. Therefore, it is important to properly inform the new investors about the risks of following advice from finfluencers. In order to properly map these risks and investigate the ability of a finfluencer to manipulate stock prices, the following research question was formulated, *to what extent are finfluencers on YouTube able to influence stock prices?*

Related literature and hypothesis

In the past, there has been little to no research into the effect of influencers on specifically YouTube on stock prices. In contrast, we see multiple studies on the manipulation of stock prices on other social media platforms, often including Twitter. In the study by Renault (2017) we see that abnormal high message activity on Twitter is associated with large price increases on the event day, which is the day the positive information is shared amongst Twitter users, followed by sharp price reversal over the next week indicating a pattern of pump and dump schemes. This is confirmed by Yang et al. (2015) who investigated the influence of financial communities on Twitter and discovered that by forming a financial community within the Twitter universe a strong sentiment can be created on the market by sharing information in the community. This is similar to what happens on YouTube given the often returning subscribed viewers who form a community, as it were, with a single leading source of information.

Social media can be used to predict stock prices. When a news media shares news about a particular stock, it predicts a decrease in volatility and turnover. In contrast, activity on social media around a stock predicts an increase in volatility and turnover (Jiao & Walther, 2016). The profile of the investors also plays a major role here. An experienced technical investor with a long holding period avoids social media sentiments and a nontechnical investor with a short holding period, which relates to the new young generation investors who recently entered the market, tends to avoid high raises in market risks (Piñeiro-Chousa et al., 2016). Also, individual investors do attention-based decision making. They are more likely to buy stocks that previously caught their attention through for example the news or social media (Barber & Odean, 2007).

In January 2021, the effect of social media on the stock market became well visible when via the Reddit forum Wallstreetbets stocks were hyped including GameStop. It went from \$20 to \$480 in 2 weeks. Research has shown that by following promising promotions in Wallstreetbets, higher returns can be achieved than the entire market (Buz & de Melo, 2021). Cahill et al's (2022) study also found that there is actually a change in abnormal returns when there are a significant number of memes or posts on the forum about a particular stock. However, simply following all of these opinions is not profitable shows the research by Chacon et al. (2022).

Looking at research around YouTube influencers in general, influencers are shown to have an effect on purchase decisions of followers and are seen as credible by their followers (Nandagiri & Philip, 2018). This is supported by the research of Sokolova and Kefi (2020), which states that credibility of an influencer shows a positive relationship to purchase intention.

Famous individuals like Elon Musk have been a part of the previous research on Twitter and financial market relations. Based on those researches, significant positive abnormal returns and trading volume following Musk's tweets on cryptocurrencies were identified (Ante, 2022). Also from a broader economic perspective, research has found that an increase in conversation intensity on social media around economic issues causes a change in daily

stock prices. There would be a significant negative effect with an increase in posts on social media about the economy, according to Reed's (2016) research.

Typically, many studies use an event study where, based on an estimation period before the event, a prediction is made of what would happen to the stock price without the event taking place. For example, Elad and Bongbee's (2017) study examines the reaction of stock prices after acquisition news. That research found that acquisition news had a significant positive impact on the stock price. An event study is a statistical research method that examines whether there is a relationship between a stock price and economic events (Dyckman et al., 1984). Event studies are a quite reliable and powerful tool with short-horizon methods (Kothari & Warner, 2004), so when using estimation periods containing months and not years which is used in this study an event study can be used properly.

Calculating abnormal returns is used to find anomalous patterns in the period before and after when influencers post their videos and to appraise an event's impact. This involves subtracting the actual daily return from the expected return based on an estimation by linear regression on the estimation period (Barber & Lyon, 1997). As described in the study by Brown and Warner (1985), calculating abnormal returns using daily returns which, in the case of this study, happens to be clear and well interpretable.

Looking at the result of Renault's (2017) study which found that fraudulent Twitter users are able to artificially manipulate stock prices, while assuming that private investors find both their advice on Twitter and on YouTube, we expect influencers to be able to manipulate stock prices. Influencers have highly dedicated viewers compared to readers of Tweets which is expected to result in following influencers' advice. Also, micro and small cap stocks are more illiquid which means they are more likely to be manipulated (Aggarwal & Wu, 2003) With this, we form the following hypothesis:

H_1 : *The event of posting a video on YouTube in which financial advice is given about buying specific stocks does positively impact stock prices.*

H_2 : *The event of posting a video on YouTube in which financial advice is given about buying specific stocks does negatively impact stock prices.*

Furthermore, videos with more views which means that they are seen by more people who could possibly decide to buy the stocks promoted therefore we expect them to be more likely to impact stock prices. So, to specify which videos will have more impact on the stock prices we also form the following hypothesis:

H_3 : *Videos with more views have a stronger impact on stock prices.*

In addition, micro cap stocks with a total value of up to 300 million are less liquid than small cap stocks with a value of 300 million to 2 billion and therefore easier to manipulate. This also makes us form the following hypothesis:

H_4 : *Micro cap stocks are easier to manipulate than small cap stocks.*

Data

Youtube data

On YouTube, there are many videos posted every day discussing stocks in many different ways. To find the data from influencers on YouTube promoting stocks, a manual process was used, searching for terms such as 'best stocks to buy', 'best penny stocks', 'stock advice', 'high return stocks' and selecting only videos in which English is spoken. Here, the period of 2021 and 2022 was searched to get a good picture of the rise of influencers in recent years and the increase in individual investors since the Covid crisis. To get a full sample of different types of influencers, we searched videos of youtubers in the three categories of small (0 to 15,000 subscribers), medium (15,000 to 100,000 subscribers) and large (100,000+ subscribers). The small category includes videos by 'The Stock Dork' (The Stock Dork, n.d.) and Rob Almasi (Rob Almasi, n.d.), among others. The middle category includes for example Brendan Guastaferrero (Brendan Guastaferrero, n.d.) and Alpha Status Stocks (Alpha Status Stocks, n.d.). And in category large Let's Talk Money! with Joseph Hogue, CFA (Let's Talk Money! With Joseph Hogue, CFA, n.d.). and Financial Education (Financial Education, n.d.). Then, we watched the videos and searched for the stocks that are explicitly promoted and are still active in the stock market at the time the research was done. Under the condition that the market capitalisation falls under small cap (\$2 billion to \$300 million) or micro cap (less than \$300 million), the stocks are added to a database in which the ticker symbol and placement date of the video are stored as key components.

Market historical data

Using the database of stocks promoted and the date associated with it, we retrieved historical stock prices. This involved using the Python open source library yFinance that allows us to automatically download data from Yahoo Finance. In doing so, historical data is downloaded from 100 trading days before the video was posted to 5 trading days after the video was posted. This data is used for the estimation period from $t-100$ to $t-10$ and the observation period from $t-5$ to $t+5$, where t is the day the video was posted.

Benchmark index data

The last part of the data collection involves choosing a representative benchmark index. This index is used to calculate the expected return. For this study, the Russell 2000 index, with ticker symbol RUT , was chosen as the benchmark index. The Russell 2000 index contains the 2000 smallest companies on the NYSE, NASDAQ and OTC Markets exchanges ('Russell 2000 Index, Index Factsheet', 2022). With this, the index approximates the stocks studied in this research as closely as possible. The index is reconstituted annually to make sure that larger stocks do not distort the performance and characteristics of the small-cap set of stocks. The historical price changes of the Russell 2000 index are also retrieved by means of the yFinance library individually per stock in the same period as the stock.

Method

The event study requires two periods, the estimation period and the observation period. The estimation period is the period in which a firm's Alpha and Beta are calculated with which a prediction of expected return can then be made in the observation period (Brown & Warner, 1985). In this study, we chose an estimation period of 90 trading days [t-100;t-10] and an observation period of 10 trading days [t-5;t+5] as also done in the study by Elad and Bongbee (2017). Figure 1 illustrates what the event study periods as a whole look like. To ensure that there is no impact in the estimation period of the event inside the observation period, it is chosen to exclude the period from 10 days before the event to 5 days before the event. An observation period of 10 trading days reflects the immediate potential impact of an event and, as YouTube videos are often viewed soon after posting due to the information in the video being relevant to making trading decisions for a short time, is therefore an appropriate period. Also, in multiple researches as for example Renault (2017) we can see most impact is covered in a 10 day window.

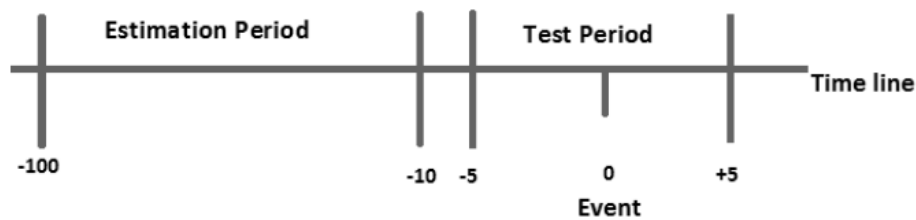


Figure 1: An Illustration of an Event Study (Elad & Bongbee, 2017).

The retrieved data from yFinance are trading prices, but to calculate expected returns, we first converted the prices to daily returns. These were then used in the calculation through the market model. The market model uses a company's CAPM risk by multiplying the market return by the company's Beta (MacKinlay, 1997). The market model is as follows:

$$E(R_{i,t}) = \alpha_{i,t} + \beta_{i,t} R_{m,t}$$

Here, the expected return $E(R_{i,t})$ for stock i on day t is given by the parameters of the linear regression α and β and the daily return for the benchmark index $R_{m,t}$, the Russell 2000 in this study ('Russell 2000 Index, Index Factsheet', 2022). The Alpha and Beta values are calculated through a linear regression in the estimation period with an equilibrium model on the daily returns in that period. The Alpha and Beta values then relate to the stocks reaction relative to overall market index changes.

Subsequently the impact of the advice given in the YouTube video can be assessed through measuring the abnormal return. The abnormal return is calculated during the observation period [t-5;t+5]. The formula for abnormal return is as follows:

$$AR_{i,t} = R_{i,t} - E(R_{i,t})$$

Here, the abnormal return $AR_{i,t}$ is equal to the actual return of the stock $R_{i,t}$ minus the expected return $E(R_{i,t})$. The abnormal return is calculated for each stock i on each day t in the observation period.

Next, the average abnormal return AAR_t is calculated to get an average that includes all observations of stock promotions by influencers. The formula is as follows:

$$AAR_t = \frac{1}{N} * \sum_{i=1}^N AR_{i,t}$$

Here, N is amount of stock observations and $AR_{i,t}$ the abnormal return for stock i on day t .

To statistically test the hypothesis we use a cross-sectional test to calculate the t-values for each of the days in the observation period. The t-value is calculated as follows:

$$t_{AAR_t} = \sqrt{N} \frac{AAR_t}{S_{AAR}}$$

Here the t-value t_{AAR_t} for each day in the observation period is given by the amount of stock observations N , the average abnormal return AAR_t and the standard deviation S_{AAR} of the AAR_t . The standard deviation of the sample of events S_{AAR} is given by:

$$S_{CAAR}^2 = \frac{1}{N-1} \sum_{i=1}^N (AR_{i,t} - AAR_t)^2$$

Results

The average abnormal return during the test period gives the following results. Here, 78 stocks were observed which, in a one-sided t test with 95% confidence level, gives a critical value 1.664 when looking at positive impact and -1.664 when looking at negative impact.

Test Period	Average Abnormal Return (%)	t-Value
t-5	2.308714103	1.746199336
t-4	2.750947436	2.255804129
t-3	2.693871795	2.205808083
t-2	1.793121795	1.016212342
t-1	9.457248718	1.842851785
t	2.598669231	0.952139508
t+1	-0.126947436	-0.097985462
t+2	-1.110580769	-0.980584049
t+3	2.475167949	1.340606298
t+4	-2.620561538	-1.793481338
t+5	--1.523034615	-1.503152386

Table 1: Average Abnormal Return in percentages and the t-values in which t is the day the video is posted.

In Table 1 above, we can see that 5, 4, 3 and 1 day(s) before posting the video is a significant positive average abnormal return. But, no positive significant average abnormal return is seen after posting the video. However, a significant negative impact can be seen 4 days after posting the video. There, the results show a significant negative average abnormal return.

With an average t-value of 1.8133 during t-5 to t-1, it can be said that there is a significantly positive average abnormal return before the videos are posted. In contrast, there is an average t-value of -0.3471 from the day the video is posted to 5 days after the video is posted. This means that there is no significant positive impact on stock prices after the videos are posted but also neither a significant negative impact.

To get a better idea of what happens around posting a video, look at Figure 2 below. Here it can be seen that before posting the video, each day has a positive average abnormal return and with the standout day being 1 day before posting the video. Here, average abnormal returns of consecutive 2.30%, 2.75%, 2.69%, 1.79% and 9.46% can be seen, indicating that even before posting the video, something is happening in the market that is not in line with expectations.

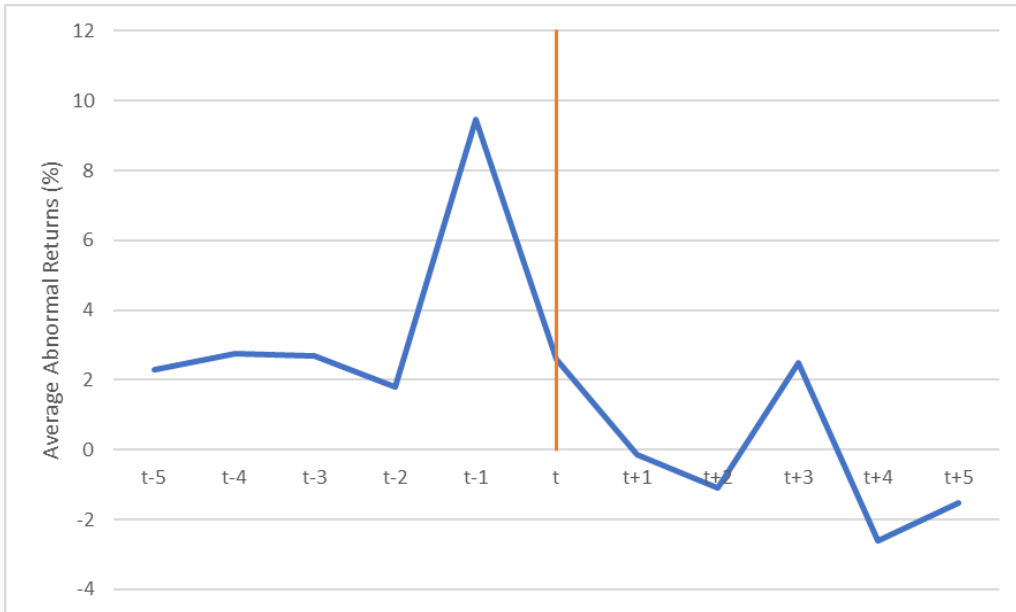


Figure 2: Average Abnormal Returns during the test period [t-5;t+5].

To find out which kind of videos have more or less impact on stock prices, we looked at the number of views. Figure 3 down below shows what happens to abnormal returns for each class of up to 5,000 views, 5,000 to 25,000 views and more than 25,000 views in the test period compared to each other.

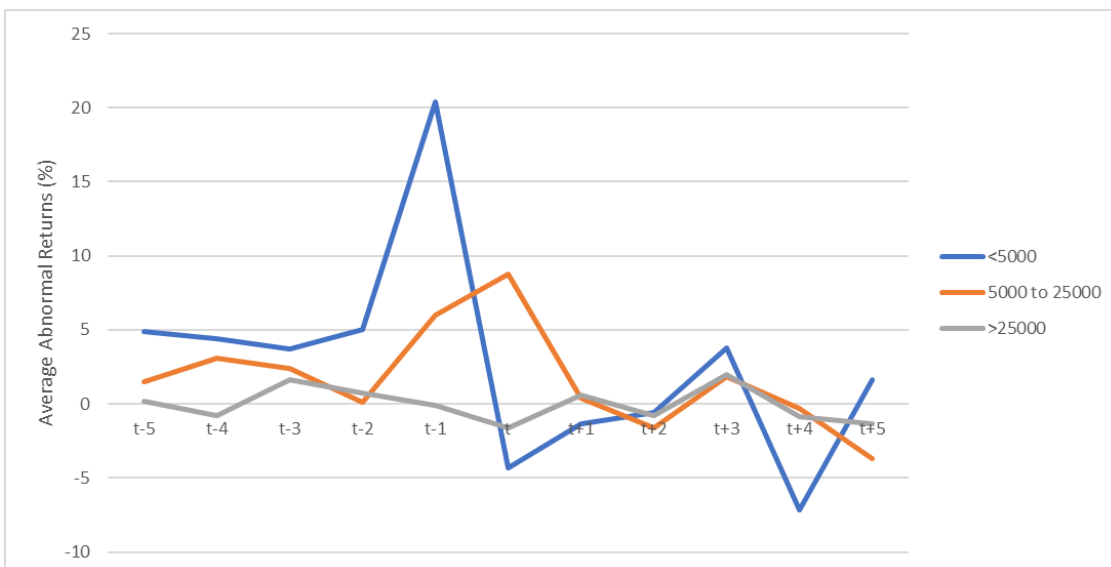


Figure 3: Average Abnormal Returns during the test period [t-5;t+5] for each number of views class.

Here it can be seen that for videos with less than 5,000 views, a high average abnormal return can be found 1 day before posting the videos and a negative average abnormal return on the day of posting the video. For videos with more than 25,000 views, it is noticeable that compared to the other classes, the average abnormal return stays around 0% and thus seems to show little reaction to the events around the test period.

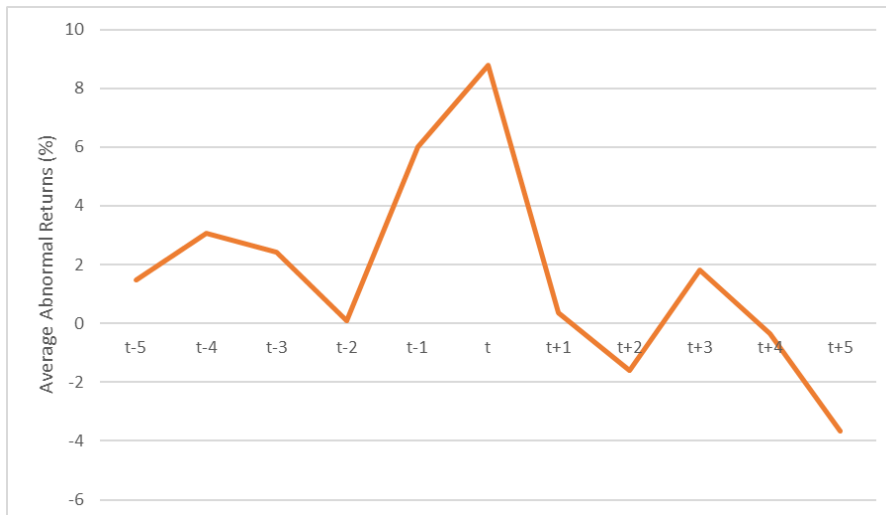


Figure 4: Average Abnormal Returns for videos with 5,000 to 25,000 views.

For videos with 5,000 to 25,000 views, it is notable that a positive average abnormal return is seen on 1 day before and on the very day of posting the video, which is different compared to the other classes. Indeed, on the day of posting the video, something actually does happen here that could have been caused by the video. However, on the day of the posting there is a t-value of 1.6682 and when using a 95% confidence level and a corresponding critical value of 1.684, these results are not significant enough, so it can not be said that this effect is caused by the videos.

These results are not in line with the hypothesis regarding the effect of the number of views. Videos with 5,000 to 25,000 views would have the most impact on stock prices based on these results. Videos with less than 5,000 views seem to repeat news that has already been brought out and to which the market has already reacted. Videos with more than 25,000 views seem to have little impact on stock prices.

Looking at the difference between micro cap and small cap stocks, we can see in Figure 5 that especially 1 trading day before posting for the video micro cap stocks show more reaction based on something unexpected happening in the market. In addition, for both micro and small cap stocks, there is no significant average abnormal return after posting the video. However, micro cap stocks do have a significant average abnormal return before posting the video, which is not the case for small cap stocks. Also, in the data we collected there were 14 small cap stocks and 63 micro cap stocks observed.

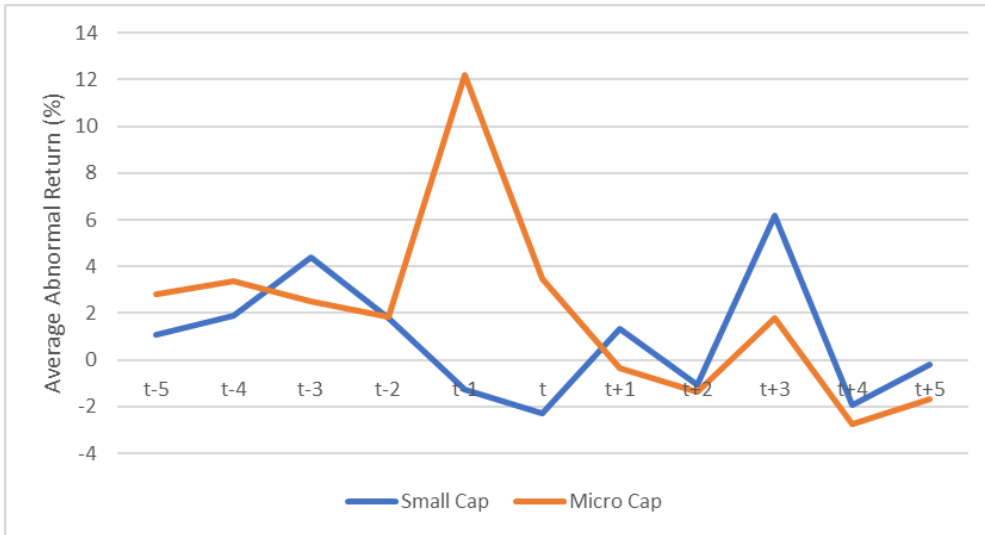


Figure 5: Average Abnormal Returns for Small Cap and Micro Cap stocks.

If we look more specifically at the stocks and group them based on the sectors they fall under, we get the result shown in Figure 6, looking only at sectors that include at least 7 stocks in the dataset. What is noticeable here is that 4 sectors do not show extreme average abnormal returns and thus do not show a significant result. In addition, in the industrials sector, it is notable that it shows a different pattern 1 day before and on the very day of posting the video than the other 4 sectors. However, due to the size of the dataset, it is not certain enough to say that this applies to all stocks in this sector. The extreme average abnormal returns seen there are also not significant.

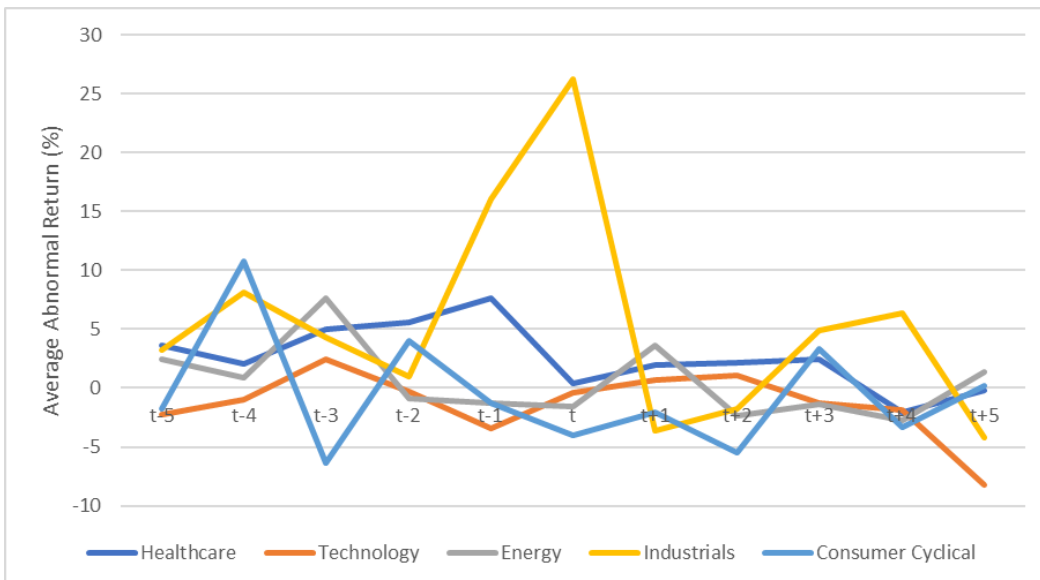


Figure 6: Average Abnormal Returns for the 5 biggest sectors in the dataset.

Conclusion

In this study, we look at the extent to which influencers on YouTube are able to influence stock prices. To answer this question, we collected data from abnormal returns around time of video posting. This involved using historical stock price data up to 100 days before the video was posted that allowed us to estimate what was expected to happen. This gave us a good idea of whether unusual or unexpected things happen around the time of video posting. First, we found that there is no significant positive impact when looking at average abnormal returns after the videos are posted, so hypothesis 1 is rejected. There is a significant negative average abnormal return 4 days after the videos are posted. However, the average t-value after posting the video is not significant which therefore means we also reject hypothesis 2. So, it can be concluded that, in general, influencers are not able to positively or negatively influence or manipulate stock prices by promoting stocks in YouTube videos. For influencers themselves, it is good to know that this research shows that they cannot make an impact on the stock market with the size of reach they currently have. Therefore, we can recommend them not to be tempted to spread misinformation for their own gain.

The research shows that videos with 5,000 to 25,000 views show the most impact after the video is posted. No significant positive abnormal return was found with this category, but compared to the other 2 categories, impact is most visible with this category. This does contradict the hypothesis where it is expected that the category with more than 25,000 views would have the most impact, which therefore also means that we reject hypothesis 3. Influencers with many views and thus a lot of reach show little impact on stock prices. So with that taken into account, we can conclude that more views do not necessarily have more impact on stock prices.

Regarding the difference in effect between micro and small cap stocks being promoted, we can conclude that there is no major difference in the effect after posting the video and therefore we reject hypothesis 4. However, we can say that before posting the video, micro cap stocks are more reactive to, for example, news that has already been put out.

Between the different sectors covered by the stocks being promoted, there is little difference in the impact they show. So it can be concluded that influencers have no advantage in promoting a specific sector.

So this research shows influencers on YouTube have too little influence to say they are capable of manipulating stock prices. What is important to take into account is that there is still no regulation regarding influencers. Many influencers provide information on how to invest or how to behave in the stock market during a recession. This does not require a licence. However, there are also many influencers who actually give financial advice that would require a licence in the professional world. Therefore, it is important to pay attention to this when listening to advice from this category of influencers. Also, it is still crucial to do one's own research when investing so that when outdated information does get shared one does not suffer. Promoting stocks on social media like YouTube is unregulated, so it remains important to stay alert and aware of risks.

Discussion

When looking at the results we do see remarkably significant positive average abnormal returns before posting the video. In particular, 1 day before posting the video, the market reacts strongly and shows high abnormal returns. An explanation for this could be that like the echo chambers model mentioned earlier, news is repeated in the videos that has already been brought out before, but is presented and considered by viewers as new information. The market is already reacting to certain news before the video is posted which is evident 1 day before the video is posted. After that, the finfluencer repeats the news in his video after which little impact can be seen from the news.

One reason for finfluencers' inability to influence stock prices after posting the video could be that a large proportion of viewers are new to the market and often do not yet invest with large amounts of money. As a result, purchases made by followers of finfluencers do not have enough impact on stock prices. Hedge funds and other investment institutions, on the other hand, have much larger funds with which to invest and thus have more resources to have an impact on stock prices. Therefore, especially impact could be seen before posting the video when sometimes the news has already reached the funds and they have already acted on it.

More views do not increase the impact on the promoted stocks but smaller finfluencers with fewer views do seem to follow the pattern of repeating already published news more often. Content-wise, it is notable that in these videos stocks are promoted more moderately and expectations of the stock price are positive, but less extreme. In the videos of smaller finfluencers with fewer views, they try to attract new viewers and followers by mentioning extreme returns like, for example, 1000% returns. This is less necessary with the more established finfluencers, allowing them to give more realistic expectations, which sounds less attractive to viewers. This could be a reason that with finfluencers with more reach, there are fewer high and low abnormal returns seen with the stocks they promote.

Going forward, to make the research in this area more complete, research should be conducted on the personal decision reasons of individual investors looking at on what basis they make a choice to invest to find out if finfluencers play a major role in this. Research should also be done on the number of videos that cover stocks for which news has already come out and the timing of these videos. This can be used to check whether finfluencers are actually repeating news.

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