

Prediction Accuracy of YouTube Influencers Measured Against Subscriber Counts

Mete Ehliz¹

¹Dwight-Englewood High School

ABSTRACT

Social media, the worldwide phenomenon in the 21st century, has affected almost every aspect of human life; however, the true extent of social media's influence on the rational structured business world and stock market is still unknown. As social media is continuously evolving, the recent phenomenon of YouTube influencers on the stock market is still unknown. The business advice of various high-profile social media influencers on YouTube were recorded to measure the accuracy of their predictions over various time intervals: 1-week, 1-month, and 3-months. Predictions over the short term were found to be correlated with subscriber counts. As higher subscriber counts could lead to increased herd behavior, increased short term gains are more likely to occur with Youtubers with higher subscriber counts.

INTRODUCTION

In this new, post-pandemic world, social media usage is at an all-time high. Over 4 billion people around the world use social media for communication, food, information, entertainment, and more (Umaine). Furthermore, social media usage is growing annually with an average growth rate of 12.5% since 2015, which proves its ubiquitous presence in society today. Despite these seemingly incredible benefits, people have become increasingly attached to social media, as the average person spends roughly 2 hours and 24 minutes on social media daily (Umaine).

All of these statistics further show that social media has a direct influence on countless lives across the globe; however, how does social media affect the stock market, the business model driven by each company's supply and demand?

Millions of people around the world consistently use the stock market as means for investment or earning extra income; thus, understanding the true influence of social media, a recent phenomenon, on rational and logical bases economic models becomes paramount. By correctly understanding the extent to which social media affects the stock market, better predictive models can be applied towards better investment choices.

LITERATURE REVIEW

a. Personal Mood and Sentiment

- i. Despite being an abstract concept on a digital screen, social media has a profound impact on people's daily emotions (Jarred 2017). Whilst some people may be ecstatic about their Instagram post receiving an abundance of likes, others may be distraught from various cyber bullies online. Although emotions may seem of little importance to the analytical process in economic models, Andy Haldane, the Bank of England's chief economist, believed "that data sources that provide insights into mood and sentiment can help to understand decision-making behaviors", as "developments in sentiment analysis have allowed some researchers to explore ways to use Twitter content to predict trends in stock markets"

(Li et al 2019). These personal feelings directly impact an investors mood, affecting their business decisions both positively and negatively.

- ii. Li et al, (2011) attempted to explore the connection between social media users and irrational behaviors that affect the stock market. They collected data over 3 months in 2011 from Tencent Weibo and created a social influence (SI) based Tencent moods model that animated investors' unreasonable actions that had accuracy and recall numbers up to 85%. By analyzing the correlation between Chinese financial indexes and Tencent moods, they found that investors' personal moods do lead to irrational behaviors in time-sensitive environments. Saurabh and Dey (2020) examined Twitter-based data from January 1, 2010 to October 31, 2014. By using an artificial neural network, they concluded that investors' personal moods do impact the stock market. Li et al, (2014) utilized a predictive model to analyze the effect of the news on the stock market, and they used online comments, votes, and discussions to identify each user's true feelings. They concluded that individual emotions resulted in fluctuations in investor's investment behaviors.

b. Social Media Influencers

- i. In this new age, there are several people who take full advantage of social media global presence, as they rapidly gain followers and money on their social media platforms. Depending on the specific influencer, these social media stars can have over 100 million followers, listening and watching them intently. Some social media influencers are heavily involved in the business world, as they use their platform to discuss the current states of the economic world with their followers. However, "the moods of investors are often influenced by others' opinions, resulting in a "herd" effect" (Li et al 2019). In a direct parallel to the social media world, if a renowned business social media influencer begins to talk about potential positive or negative stocks, there is a high likelihood that their followers will follow. This gives immense power and influence to these social media stars, as they can use their online presence for personal monetary benefits.
- ii. Li et al (2019) collected data from October 1, 2011 to December 31, 2011 to analyze the Sheep-Flock effect, the phenomenon of investors blindly following the advice of influential leaders. They discovered that crowds tend to act in alignment with positive emotions; thus, if the investors see positive feedback on stocks, they will continue to invest in it. Scharfstein and Stein (1990) attempted to understand the driving force behind herd behavior in investment, so they created a business model that mimics investment decisions by managers and investors. They discovered that herd behavior arises from managers attempting to improve their own status in investments or the sharing-the-blame effect in fear of financial loss. Another study by Xiao (2020) analyzed YouTubers making stock recommendations online to examine its effect on the stock market. He concluded that non-professional analysts' opinions do impact investors' investment decisions in a herd behavior fashion. Moreover, he found that the top 26 non-professional analysts generate an average return of 1.47% per month.

c. Reddit WallStreetBets

- i. Long et al (2021) analyzed the Gamestop short squeeze by analyzing the tone of Reddit's WallStreetBets forum comments on gamestop and Gamestop's returns 1 minute after the comments, and found a positive relationship between the comments and intraday returns. According to Di Muzio (2021), the self proclaimed decentralized hedge fund known as

Reddit's subforum WallStreetBets is a perfect example of the global connectivity of investors in the modern era. Another study by Wang and Luo (2021) found that using VADER analysis, a popular general sentiment system, sentiment generally predicted price movements. It is clear that stock sentiment, especially when coupled with an organized group of individuals, can apply major influence on stock price movements.

d. Previous attempts at reading predictions

- i. Chen et al (2014) focused on commentary from Seeking Alpha articles by analyzing the fraction of negative words that were used in both the article as well as the comments section below the article. They found that a higher negative fraction of comments in either the article or the comments section negatively predicted the immediate stock prices of the mentioned company in various time windows after the article was published: 1 month, 3 months, 6 months, and 1 year. At the time of their publication, Seeking Alpha articles were a primary source of information for investors. Luo et al (2013) attempted to consider multiple sources of information in determining social media effects on stock prices. They aggregated web blog reviews, consumer reviews on products, and web search intensity to measure which factors influence stock prices most. They found that consumer ratings have the greatest predictive ability and that social media in general has a faster effect on stock market prices in comparison to conventional behavioral metrics.

In summary, as the literature indicates, the personal moods of investors can have significant effects on the behavior of investors. Social media exhibits a strong influence on investor mood, which has a corresponding effect on their behavior. Social media influencers have an outsized effect, creating herd-behavior like decisions among their followers. With the rise of social media forums like Reddit and WallStreetBets, the evidence is made clear how social herd-behavior can affect investor sentiment.

HYPOTHESIS

As a summary of these findings, we hypothesize that YouTube influencers with higher view counts who make stock predictions will have a greater positive/negative return on stock prices than YouTube influencers with smaller channels. We expect this to present itself over the short term rather than the medium or long term.

Our Null hypothesis is that YouTube influencers have similar returns on stock prices.

Our Alternative hypothesis is that YouTube influencers have different returns on stock prices.

DATA/METHODOLOGY

Data of company stock prices were recorded through online Google Searches. Famous YouTubers and YouTube videos were found through YouTube searches. After finding the desired YouTube video, the upload date was recorded. Then, the stock price of any recommended stock was recorded on the respective videos upload date. Following this, the stock prices of the company 1 week, 1 month, and 3 months after the video upload date were recorded. For each stock, the % increase or decrease in each recorded time period in respect to its initial price was calculated. Finally, for each YouTube video, the 1 week, 1 month, and 3 month percent increase/decrease averages were calculated.

RESULTS

RICKY GUTIERREZ

1. Average Data
 - a. 1 Week
 - i. 0.81% Decrease
 - b. 1 Month
 - i. 3.52% Decrease
 - c. 3 Months
 - i. 4.40% Increase
2. Summary of Findings
 - a. The data from Ricky Gutierrez's videos provides very interesting results. Across all 3 videos, Gutierrez actually negatively affected his recommended stocks in the short-term. In the 1 week period following the video upload, his recommended stocks decreased by an average of 0.81%. Furthermore, in the 1 month period after his video, his stocks showed an even greater decrease of 3.52%. However, despite these short-term struggles, his recommended stocks rebounded incredibly, as 3 months after the video upload, his stocks saw an average of a 4.40% increase.

Ticker	March 4th, 2022	March 11th	April 4th	June 3rd
BNO	32.77	31.13 (5.00% Decrease)	30.71 (6.29 Decrease)	35.42 (8.09% Decrease)
USO	79.46	74.40 (6.37% Decrease)	76.86 (3.27% Decrease)	89.47 (12.6% Increase)
USL	39.11	37.64 (3.76% Dec)	38.65 (1.18% Dec)	44.02 (12.6% Inc)
WTI	5.78	5.03 (12.98% Dec)	4.51 (21.97% Dec)	7.86 (35.99% Inc)
MRO	23.81	23.17 (2.69% Dec)	25.68 (7.85% Inc)	31.68 (33.05% Inc)
UCO	44.35	39.88 (10.08% Dec)	41.49 (6.44% Dec)	52.07 (17.41% Inc)
CVX	158.65	170.90 (7.72% Inc)	164.37 (3.60% Inc)	177.60 (12.0% Inc)
SQQQ	44.11	48.54 (10.04% Inc)	31.71 (28.11% Dec)	47.96 (8.73% Inc)
SPXS	20.82	22.41 (7.64% Inc)	17.03 (18.20% Dec)	21.69 (4.18% Inc)
SDOW	31.65	33.31 (5.24% Inc)	27.67 (12.58% Dec)	31.14 (1.61% Dec)

Ticker	Dec 31st, 2021	Jan 7th	Jan 31st	March 31st
LSI	153.18	139.11 (9.19% Decrease)	134.95 (11.9% Dec)	140.43 (8.32% Dec)
F	20.77	24.44 (17.67% Inc)	20.30 (2.26% Dec)	16.91 (18.58% Dec)
COST	567.70	536.18 (5.55% Dec)	505.13 (11.02% Dec)	575.85 (1.44% Inc)
AAPL	177.57	172.17 (3.04% Dec)	174.78 (1.57% Dec)	174.61 (1.67% Dec)
TQQ	83.17	72.04 (13.38% Dec)	61.83 (25.67% Dec)	58.18 (30.05% Dec)

Ticker	Jan 8th, 2021	Jan 15th (21)	Feb 12th (21)	April 9th (21)
KO	51.08	48.70 (4.66% Dec)	50.69 (0.76% Dec)	53.18 (4.11% Inc)
SQ	241.45	227.75 (5.67% Dec)	272.75 (12.96% Inc)	261.65 (8.37% Inc)
FDX	244.96	252.56 (3.10% Inc)	263.00 (7.36% Inc)	286.58 (16.99% Inc)
TTD	79.58	78.54 (1.30% Dec)	86.40 (8.57% Inc)	69.26 (12.97% Dec)
FVRR	230.00	267.13 (16.14% Inc)	323.10 (40.48% Inc)	226.65 (1.46% Dec)

Charlie Chang

1. Average Data

- a. 1 Week
 - i. 5.43% Decrease
- b. 1 Month
 - i. 0.50% Increase
- c. 3 Months
 - i. 5.65% Decrease

2. Paragraph

- a. Despite having over 700,000 subscribers, Charlie Chang's video showed disappointing results. In the immediate week after posting his videos, his stocks saw a huge average drop of 5.43%. His recommended stocks did recover in the following month, as they saw an average increase in value of 0.50%. Nevertheless, in the 3 months after the initial uploads, his stocks dropped again in value by 5.65%. Ultimately, despite offering valid reasoning for his decisions, Chang was simply unsuccessful in predicting the market and reaching out to his avid fans.

Ticker	July 23rd, 2021	July 30th	August 20th	October 20th
CRM	248.25	241.93 (2.55% Dec)	256.13 (3.17% Inc)	290.09 (16.85% Inc)
GOOG	133.01	134.73 (1.29% Inc)	137.43 (3.23% Inc)	142.42 (7.07% Inc)
MSFT	289.67	284.91 (1.64% Dec)	304.36 (5.07% Inc)	329.68 (13.81% Inc)
JNJ	171.79	172.20 (0.24% Inc)	179.44 (4.45% Inc)	163.78 (4.66% Dec)
BRK - B	278.49	278.29 (0.07% Dec)	285.27 (2.43% Inc)	287.49 (3.23% Inc)
AAPL	148.56	145.86 (1.81% Dec)	148.19 (0.25% Dec)	149.26 (0.47% Inc)

Ticker	May 2nd, 2022	May 9th	June 2nd	Aug 2nd
TWTR	49.14	47.96 (2.40% Dec)	39.91 (18.78% Dec)	40.98 (16.60% Dec)
MSFT	284.47	264.58 (6.99 Dec)	274.58 (3.485 Dec)	274.82 (3.39% Dec)
T	19.12	19.55 (2.25% Inc)	21.19 (10.83% Inc)	18.306 (3.97% Dec)
WDC	53.92	56.53 (4.84% Inc)	61.93 (14.86% Inc)	48.47 (10.11% Dec)
MCD	246.64	247.49 (0.34% Inc)	250.38 (1.52% Inc)	261.05 (5.84% Inc)
RTX	94.22	91.75 (2.62% Dec)	96.24 (2.14% Inc)	93.75 (0.50% Dec)
VTI	208.44	198.65 (4.70% Dec)	209.18 (0.36% Inc)	204.66 (1.81% Dec)

Ticker	Feb 28th, 2022	March 7th	March 28th	May 27th
INTC	47.70	47.68 (0.04% Dec)	51.51 (7.79% Inc)	44.55 (6.60% Dec)
EXPE	196.11	157.01 (19.94% Dec)	193.19 (1.49% Dec)	130.97 (33.22% Dec)
V	216.12	190.70 (11.76% Dec)	220.77 (2.15% Inc)	212.88 (1.50% Dec)
ULTA	374.50	350.84 (6.32% Dec)	395.48 (5.60% Inc)	425.08 (13.51% Inc)
VOOG	264.08	248.72 (5.82% Dec)	278.88 (5.60% Inc)	238.83 (9.56% Dec)
UPST	157.99	112.50 (28.79% Dec)	108.16 (31.54% Dec)	50.33 (68.14% Dec)
ALK	56.14	43.69 (22.18% Dec)	57.19 (1.87% Inc)	48.43 (13.73% Dec)

Andrei Jikh

1. Average Data
 - a. 1 Week
 - i. 6.53% Increase
 - b. 1 Month
 - i. 6.15% Increase
 - c. 3 Months
 - i. 15.45% Increase
2. Paragraph
 - a. Between all 3 YouTubers, Andrei Jikh easily showed the most promise and knowledge of the stock market. In all 3 recorded time periods, his stocks showed an incredible growth in value. In the 1 week and 1 month time period after upload, his recommended stocks all saw an average of 6.53% and 6.15% respectively. Despite those numbers already being incredibly impressive, Andrei's stocks in the long-term truly shine. His stocks saw an average growth of 15.45%, which is simply unheard of in the business world. In fact, Jikh's recorded growth values of 6.53%, 6.15%, and 15.45% were the 3 highest recorded stock growth across all 3 YouTubers and recorded time periods, which further proves Jikh's incredible success.

Ticker	May 29th, 2020	June 5th	July 2nd	September 4th
Hormel	48.83	48.00 (1.70% Dec)	48.08 (1.54% Dec)	51.08 (4.61% Inc)
Johnson and Johnson	148.75	147.30 (0.97% Dec)	140.97 (5.23% Dec)	148.59 (0.11% Dec)
Union Pacific	169.86	184.83 (8.81% Inc)	169.08 (0.46% Dec)	191.14 (12.5% Inc)
Linde PLC	202.34	221.28 (9.36% Inc)	221.26 (9.35% Inc)	247.70 (22.4% Inc)
WW Grainger	309.62	322.83 (4.27% Inc)	317.51 (2.55% Inc)	358.08 (15.7% Inc)
NSC	178.29	194.25 (8.95% Inc)	174.51 (2.12% Dec)	209.10 (17.3% Inc)
AAPL	74.49	82.88 (11.3% Inc)	91.03 (22.2% Inc)	120.96 (62.4% Inc)

Ticker	Aug 13th, 2021	Aug 20th	Sept 13th	Nov 12th
AMZN	164.70	160.00 (2.85% Dec)	172.86 (4.95% Inc)	176.26 (7.02% Inc)
JNJ	176.25	179.44 (1.81% Inc)	165.80 (5.93% Dec)	165.01 (6.38% Dec)
Tesla	717.17	680.26 (5.15% Dec)	743.00 (3.60% Inc)	1,033.42 (44.10% Inc)
Disney	181.08	175.12 (3.29% Dec)	184.98 (2.15% Inc)	159.63 (11.85% Dec)
Google	137.73	137.43 (0.22% Dec)	142.33 (3.34% Inc)	148.68 (7.95% Inc)
Facebook	363.18	359.37 (1.05% Dec)	376.51 (3.67% Inc)	340.89 (6.14% Dec)
Coca-Cola	57.23	56.64 (1.03% Dec)	56.07 (2.03% Dec)	56.61 (1.08% Dec)
Apple	149.10	148.19 (0.61% Dec)	149.55 (0.30% Inc)	149.99 (0.60% Inc)
VOO	409.96	407.61 (0.57% Dec)	410.54 (0.14% Inc)	429.57 (4.78% Inc)
VTI	230.15	228.11 (0.89% Dec)	230.60 (0.20% Inc)	241.75 (5.04% Inc)

Ticker	April 3, 2020	April 9th	May 1st	July 2nd
AAPL	60.35	67.00 (11.02% Increase)	72.27 (19.75% Increase)	91.03 (50.84% Increase)
AT&T	20.72	23.19 (11.92% Increase)	22.57 (8.93% Increase)	22.70 (9.56% Increase)
MCD	160.33	183.70 (14.58% Increase)	182.66 (13.93% Increase)	183.52 (14.46% Increase)
ABBV	73.37	79.75 (8.70% Increase)	82.84 (12.91% Increase)	98.88 (34.77% Increase)
PPL	21.77	26.70 (22.65% Increase)	24.87 (14.24% Increase)	26.18 (20.26% Increase)
DUK	76.02	90.31 (18.80% Increase)	82.64 (8.71% Increase)	81.84 (7.62% Increase)
ACN	152.15	177.92 (16.94% Increase)	180.09 (18.36% Increase)	215.72 (41.78% Increase)

LIN	162.13	189.48 (16.87% Increase)	180.33 (11.23% Increase)	221.26 (36.47% Increase)
GD	125.68	141.01 (12.20% Increase)	127.80 (1.69% Increase)	147.30 (17.20% Increase)
CVX	75.11	84.31 (12.25% Increase)	89.44 (19.08% Increase)	88.31 (17.57% Increase)
EXXON	39.21	43.13 (10.00% Increase)	43.14 (10.02% Increase)	44.08 (12.42% Increase)
PEP	124.59	133.63 (7.26% Increase)	130.14 (4.45% Increase)	132.85 (6.63% Increase)

Results Summary

By using a one-way ANOVA test for significance, we find that the percentage increases and decreases during a 1-week time span for all three influencers is statistically significant at a p value of .000036. This shows that they have varying prediction abilities, which is confirmed by the varied values across their various time scales. The null hypothesis is rejected, which gives support for our alternative hypothesis.

Youtuber	Approximate Subscriber Count	1 Week	1 Month	3 Months
Charlie Chang	730,000	5.43% Decrease	0.50% Increase	5.65% Decrease
Ricky Gutierrez	1,000,000	0.81% Decrease	3.52% Decrease	4.40% Increase
Andrei Jikh	2,100,000	6.53% Increase	6.15% Increase	15.45% Increase

As hypothesized, within the short term 1 week time-frame, it is clear that Andrei Jikh, with the highest subscriber count performed best on stock predictions. Charlie Chang, with the lowest subscriber has the worst returns over a 1-week time interval. The differences are not linear, but our initial data shows some correlation.

Discussion

Between all 3 YouTuber stars, Charlie Chang has the least amount of subscribers with 730,000. Coincidentally, Chang also had the worst results, as he showed significant decreases in the 1 week and 3 month time period, along with minimal gain in the 1 month time period. Furthermore, Ricky Gutierrez had the 2nd most number of subscribers with 1,000,000, and he displayed slightly better results than Chang. Despite having negative results in the 1 week and 1 month time period, Gutierrez showed incredible improvement, as his stocks increased by 4.40% in the 3 month time period. Lastly, Andrei Jikh has the most subscribers with over 2,000,000, and he clearly showed the best results. Jikh showed outstanding results in all 3 recorded time periods, as his recommended stocks always grew in value.

2. Discussions & Limitations

a. Discussions

- i. Despite not being able to make any clear conclusions from this study, there is definitely some interesting information present. Firstly, it seems the fame of each YouTuber had a direct correlation with their success. Charlie Chang was the least famous with 730,000 subscribers, who coincidentally displayed the worst results. Ricky Gutierrez has 1,000,000 subscribers and showed mixed results with exciting positives but scary negatives. Finally, Andrei Jikh has over 2,000,000 and showed positive results in the stock market. These results illustrate that the larger YouTubers are trusted more and are able to influence watchers further.

b. Limitations

- i. One major limitation in this study could be the effect of external factors that are also affecting the stock prices. During the recorded time periods, there could be a wide variety of other issues like changes in management, scandals, and deaths. These infinite and untestable factors could have definitely resulted in an individual stock price increasing or decreasing regardless of the YouTuber's advice or video.

3. Conclusion

- a. Social media's ubiquitous presence is an undeniable fact in today's society. From personal relationships to advertisements, social media can be seen everywhere. Despite its presence on the global stage, the true effects of social media on the stock market are still unknown after this study. The YouTubers effect on the stock market across 1 week, 1 month, and 3 months is still unclear, as YouTubers like Charlie Chang demonstrated an immense negative impact, but Andrei Jikh showcased an incredibly positive effect on his recommended stocks, thus showing the unpredictability of social media's effect on the stock market. With more data and time, the true effect of social media on the stock market may be seen and result in more precise results.

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