Social Media Followers & Stock Price

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Motivation

- A better understanding of how the social media advertising and promotions based on their following rate influence stock markets growth and scalability
- A model that takes in stock name and appropriate social media channels and returns a graph that maps the stock prices against the social media follower growth over time.

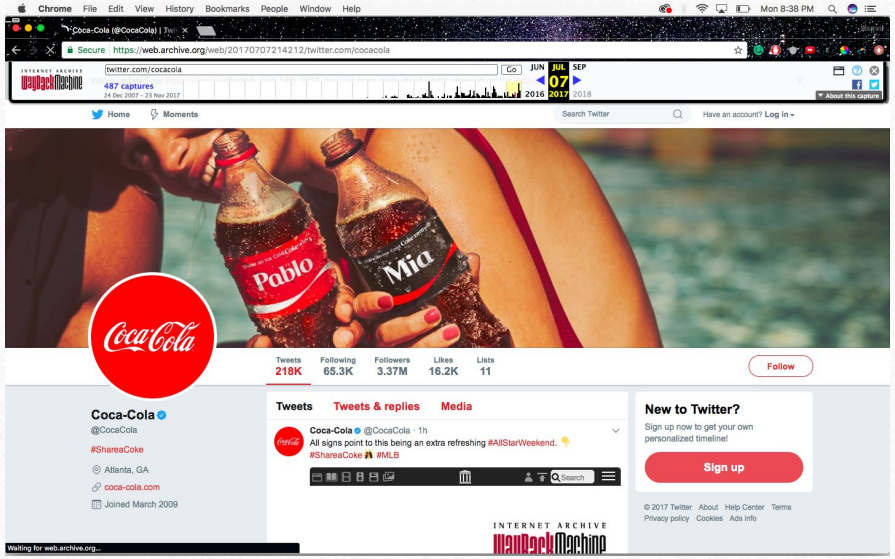
Datasets

4 Datasets:

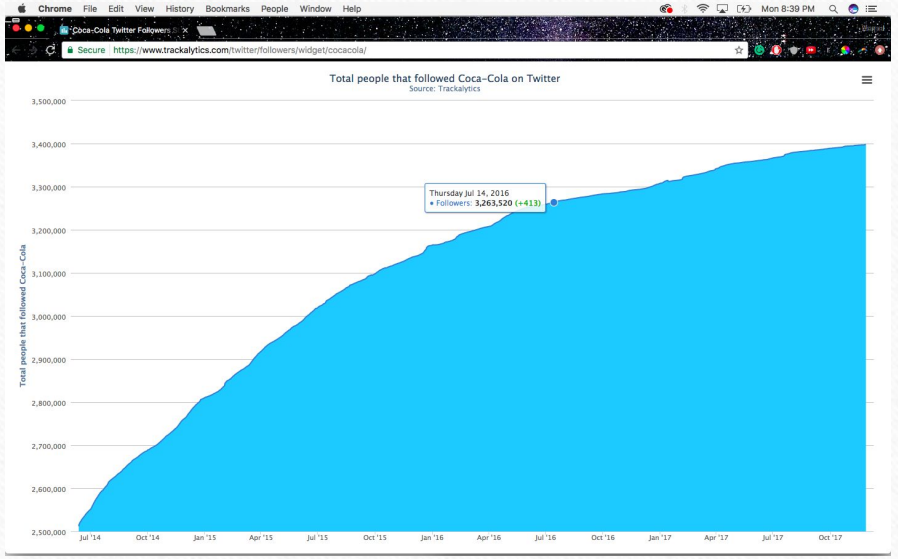
- Coca Cola Instagram Follower Data from 2008-2017
- Coca Cola Twitter Follower Data from 2008-2017
- Coca Cola Youtube Follower Data from 2008-2017
- Coca Cola Stock Price Data

Follower Data Collection

WayBackMachine



Trackalytics



WayBackMachine vs. Trackalytics

Why:

- Trackalytics had data for each day since July 2014 while
- WayBackMachine had scattered data since 2011
  - Stock largest jump was before July 2014, and in order to capture a more accurate growth pattern across the two different medians we chose WayBackMachine

Data Cleaning

1. Manually enter data points form WayBackMachine into excel sheet
2. Import data into datahub
3. For each missing point in the months, we used a linear regression model to predict the appropriate follower count. (we assumed that the growth was linear since social media followers rarely decreases dramatically).
4. Then, we average the data points in each month to create our workable data.

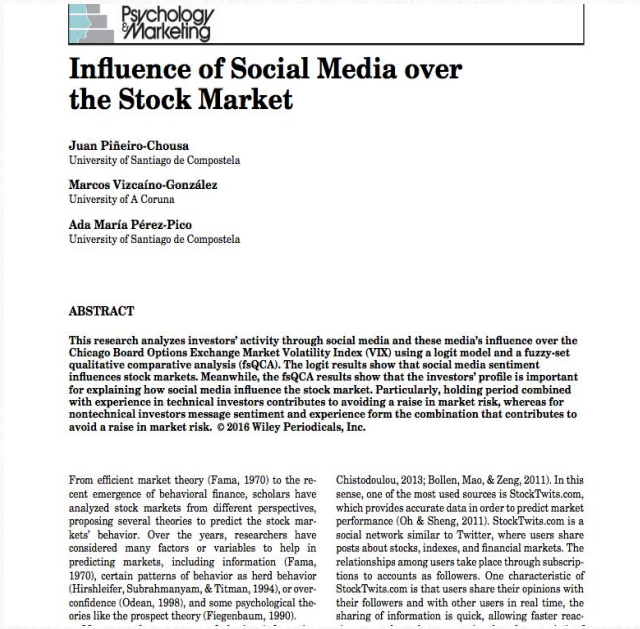
Stock Value Dataset

We used Yahoo Finance API to import the data corresponding to the stock value at the end of each month that matched the follower data

Related Work
Influence of Social Media over Stock Market
- Juan Pinerio Chousa

ABSTRACT

This research analyzes investors' activity through social media and these media's influence over the Chicago Board Options Exchange Market Volatility Index (VIX) using a logit model and a fuzzy-set qualitative comparative analysis (fsQCA). The logit results show that social media sentiment influences stock markets. Meanwhile, the fsQCA results show that the investors' profile is important for explaining how social media influence the stock market. Particularly, holding period combined with experience in technical investors contributes to avoiding a raise in market risk, whereas for nontechnical investors message sentiment and experience form the combination that contributes to avoid a raise in market risk.



Psychology & Marketing

Influence of Social Media over the Stock Market

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This research analyzes investors' activity through social media and these media's influence over the Chicago Board Options Exchange Market Volatility Index (VIX) using a logit model and a fuzzy-set qualitative comparative analysis (fsQCA). The logit results show that social media sentiment influences stock markets. Meanwhile, the fsQCA results show that the investors' profile is important for explaining how social media influence the stock market. Particularly, holding period combined with experience in technical investors contributes to avoiding a raise in market risk, whereas for nontechnical investors message sentiment and experience form the combination that contributes to avoid a raise in market risk. © 2016 Wiley Periodicals, Inc.

From efficient market theory (Fama, 1970) to the recent emergence of behavioral finance, scholars have analyzed stock markets from different perspectives, proposing several theories to predict the stock markets' behavior. Over the years, researchers have considered many factors or variables to help in predicting markets, including information (Fama, 1970), certain patterns of behavior as herd behavior (Hirshleifer, Subrahmanyam, & Titman, 1994), or overconfidence (Odean, 1998), and some psychological theories like the prospect theory (Fiegenbaum, 1990). Chistodoulou, 2013; Bollen, Mao, & Zeng, 2011). In this sense, one of the most used sources is StockTwits.com, which provides accurate data in order to predict market performance (Oh & Sheng, 2011). StockTwits.com is a social network similar to Twitter, where users share posts about stocks, indexes, and financial markets. The relationships among users take place through subscriptions to accounts as followers. One characteristic of StockTwits.com is that users share their opinions with their followers and with other users in real time, the sharing of information is quick, allowing faster reac-

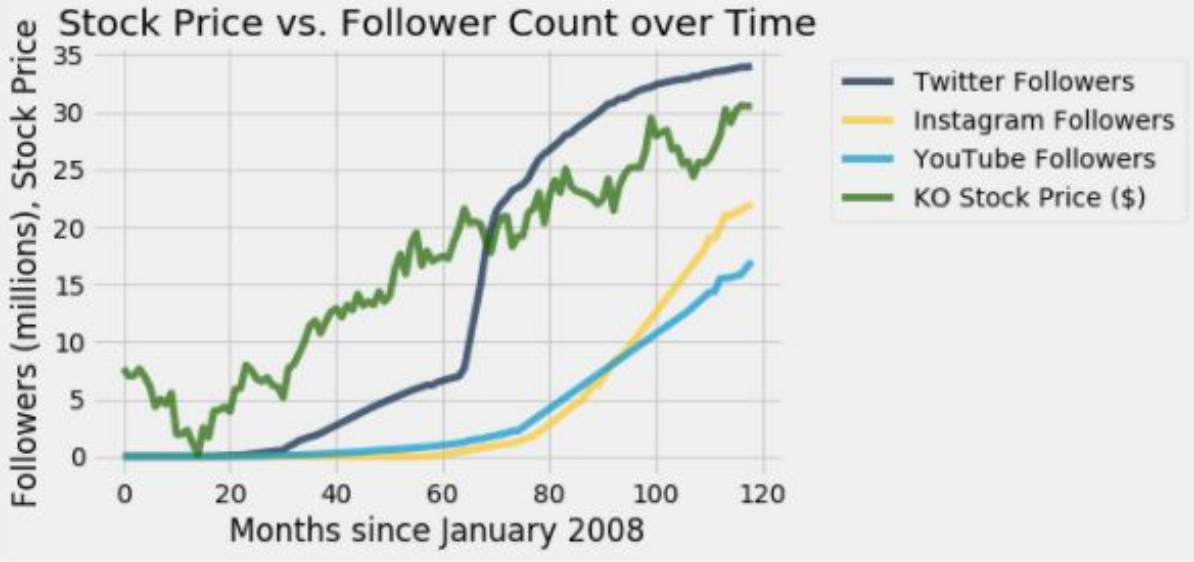
Description of the system, future work

- APIs not useful
- Twitter, Instagram, and YouTube WayBackMachine to find the number of followers over time from 2009 to 2017 (at the start of 2009, social media became more prominent and more accessible to everyone)
- Yahoo Finance to acquire a data set for Coca Cola stock prices over time
- Python to clean the data and map increases in followers against increases in stock prices from 2009 to 2016; plotted graphs
- Future project could be a model that takes in stock name and appropriate social media channels and returns a graph that maps the stock prices against the marketing money spent based on social media followings over time

DEMO

Conclusion


KO
Adjusted Price
40
30
20
2002
2004
2006
2008
2010
2012
2014
2016
Date


Stock Price vs. Follower Count over Time
Followers (millions), Stock Price
35
30
25
20
15
10
5
0
0
20
40
60
80
100
120
Months since January 2008
Twitter Followers
Instagram Followers
YouTube Followers
KO Stock Price ($)

Problems/Things We Learned

- APIs don't tell us everything
- Be creative
- Lots of manual tasks
- How do we automate this?

https://github.com/srujayk/wdv-project