

Bloomberg-curated Twitter feed

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Contents

- 02** The challenges
- 02** The Bloomberg solution
- 03** The journalistic oversight
- 04** A case study
- 05** The solution
- 09** More empirical examples
- 23** Summary

Bloomberg-curated Twitter feed

The power of Twitter

Social media has fundamentally changed the way new information is disseminated in everyday life. Compared with conventional channels such as TV, newspapers or magazines, social media outlets truly leveled the playing field by giving all content owners equal access to a publishing service that is essentially:

- Free
- Direct
- Instant
- Uncensored
- Global reach

Created in March 2006, Twitter has, over the years, emerged as one of the most popular social networks worldwide. The company currently supports 330 million monthly active users (Q4 2017), with more than a half billion tweets published daily. Virtually every aspect of noteworthy happenings can be found in the Twitter stream. News of many breaking events even made the first public appearance in the social space, not in mainstream media.

Twitter feeds offer one of the largest and richest alternative datasets to help quantitative traders develop information-driven investment strategies. When matched against the pricing data on a post-event basis, individual tweets can be assessed by their realized market impacts. Market-moving tweets collected this way can then be studied by data scientists to train predictive NLP (Natural Language Processing) models.

The challenges

Twitter content is known to be “noisy” because of its diverse-use cases. To train models that can find needles in the Twitter haystack, it is critical to gather large amount of historical tweets and have them examined and annotated by human experts. Meanwhile, to be successful in the liquidity-taking competition, strategy implementation must be fully latency-optimized. Different components, such as name entity recognition, ticker mapping, knowledge base, etc., must be separately developed to collectively achieve this goal. All of this work requires extensive capital investment, expertise, resources and data infrastructure that only a handful of highly specialized investment firms are armed with.

Even after technical problems are solved so that short-term positions can be programmatically established in a split second, the ultimate success of the transaction depends on the possibility of a larger market waking up to the same call later on. This may happen within seconds or minutes, but can also take days or never be realized. What determines the timing is how quickly the original tweet can propagate and draw major attention from the broader community. The longer it takes, the further that price may move from the entry point and the more likely that a newer tweet can emerge to offset or even completely invalidate the original one. These factors all add up to increased portfolio risk – something that can eventually make the original trade go sour.

In general, Twitter-based strategies are a lot more difficult to engineer than those based on news headlines. News headlines are usually credible and unambiguous. If consumed via a direct machine-readable feed, the messages can even carry metatags that link the story with entities, topics, etc. As a result, we routinely see instant market reaction of less than a millisecond. In comparison, market-moving tweets nowadays take a lot longer to be fully priced in, according to our informal observations of recent data.

The Bloomberg solution

With the latest strategic partnership between Twitter and Bloomberg, the price discovery of tweets is set to accelerate quickly. While the Twitter feed has always been one of the top information sources that the Bloomberg news bureau monitors closely, the two companies most recently enhanced their partnership on many fronts. More Bloomberg journalists and analysts are assigned to break news out of the Twitter feed. On the Bloomberg Terminal®, social media-driven functions such as BSV <GO>, TREN <GO>, GT <GO> have been significantly enhanced with better analytics. Bloomberg Media launched “TicToc by Bloomberg,” a 24/7 live streaming network that combines the journalistic integrity of Bloomberg with the speed and global availability of Twitter. In Bloomberg Enterprise

Solutions, a real-time machine-readable feed was introduced that provides enterprise clients with a compact, curated, metadata-enriched Twitter stream.

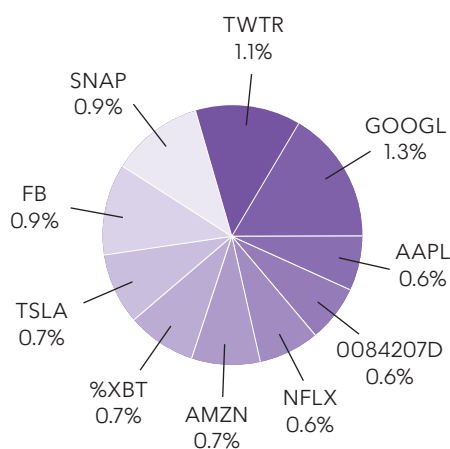
Underlying all these efforts is a complete social media analytics pipeline developed by Bloomberg scientists and engineers that instantly identifies and enriches the financially relevant tweets from the massive ingestion. The pipeline performs mission-critical tasks such as spam/profanity detection and filtering, name entity recognition/disambiguation, ticker/topic classification, newsworthy classification, etc.

As a result, Bloomberg delivers, on average, about half a million high-quality tweets every day to the financial community. This is less than 0.1% of Twitter’s original half-a-billion-tweet-per-day unfiltered firehose. Here we highlight some of the key statistics based on February 2018 data:

- 60+ different languages
- 900k+ unique Twitter handles
- 3.5k+ unique topics
- 37k+ unique global stock tickers
- 55% of the tweets are published by Twitter-verified handles
- 82% are original tweets, 18% are retweets
- 34% can be linked with one or more stock tickers

The following pie chart shows the top 10 most-mentioned tickers (measured by percentage of the total volume) in the Bloomberg-curated feed.

Top 10 most mentioned tickers (% of all tweets)



The journalistic oversight

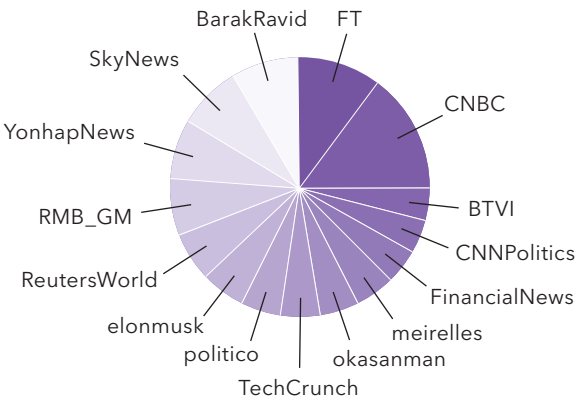
In addition to filtering, enriching and passing through original tweets, Bloomberg journalists also handpick and produce breaking news headlines by directly citing live Twitter content, typically within minutes of the original tweets making their public appearance on the social platform. Each tweet is checked with the source and mentioned facts;

the significance of the content is determined based on the domain knowledge of the particular subject.

News sources from social media, both the original content and Bloomberg-generated stories, can be accessed on the NI VELOCITY <GO> page on the Bloomberg Terminal.

Search News Display & Edit Custom Searches			Page 1	News
Bloomberg Curated Soc...			Sources	All Dates Time
			Translate to...	
1)	S. Korea's Moon Says Will Send Special Envoy to N. Korea: Yonhap		BFW	09:30
2)	Yonhap News Agency: (URGENT) Moon, Trump agree to foster inter-Korean dialog..		TWT	09:21
3)	Donald J. Trump: Our Steel and Aluminum industries (and many others) have be...		TWT	07:12
618)	*NIGERIA UNION BANK IS SAID TO WORK ON EUROBOND: REUTERS		BFW	10:01
517)	Reuters Africa: Nigeria Union Bank working with Citi on Eurobond, others to follo..		TWT	09:59
4)	Dublin Airport Says Flights to Be Suspended 3-4pm on Thursday		BFW	09:32 +
5)	S. Korea's Moon Says Will Send Special Envoy to N. Korea: Yonhap		BFW	09:30 +
6)	*CORRECT: MOON, TRUMP AGREE TO FOSTER INTER-KOREAN TALKS: YONHAP		BFW	09:23
7)	Yonhap News Agency: (URGENT) Moon, Trump agree to foster inter-Korean dialog..		TWT	09:21
8)	Yonhap News Agency: (URGENT) Moon says will soon send special envoy to N. Ko..		TWT	09:21
9)	Kroger Raises Gun Purchase Age to 21 at Fred Meyer Stores: WSJ		BFW	09:16 +
10)	CNBC: Kohl's to bring discount grocer Aldi into its stores in pilot test https://t.c...		TWT	09:10
11)	FoxNashville: BREAKING: An explosion has been reported at the Smelter Service ...		TWT	09:07
12)	Trump Is Said to Announce Tariffs at Morning Meeting: CNBC		BFW	09:03 +
13)	Glasgow Airport: Please find the latest statement from Glasgow Airport below. ht...		TWT	09:03
14)	John Kasich: The group reached unanimous agreement on important proposals th...		TWT	09:02
15)	John Kasich: In November, I called for bringing together interested people on all...		TWT	09:01
16)	Dublin Airport: @AerLingus @Ryanair We will have snow crews working today & to...		TWT	08:57

Top 15 handles watched by Bloomberg News Room



The pie chart shows the Top 15 Twitter accounts that are most frequently cited by Bloomberg on the NI VELOCITY <GO> page.

The effect of journalistic oversight is immediate. Validation from the Bloomberg newsroom instantly removes many uncertainties related to the authenticity, novelty and significance of a given incoming tweet. The otherwise questionable social whisper now becomes loud and clear, with the same level of credibility of any other news headline.

A case study

On Nov. 28, 2017 at 13:22:07 EST (or Nov. 28, 2017, 18:22:07 UTC), the Korean news agency Yonhap News published the following tweet via its official Twitter account (<https://twitter.com/YonhapNews/statuses/935574539852849152>):

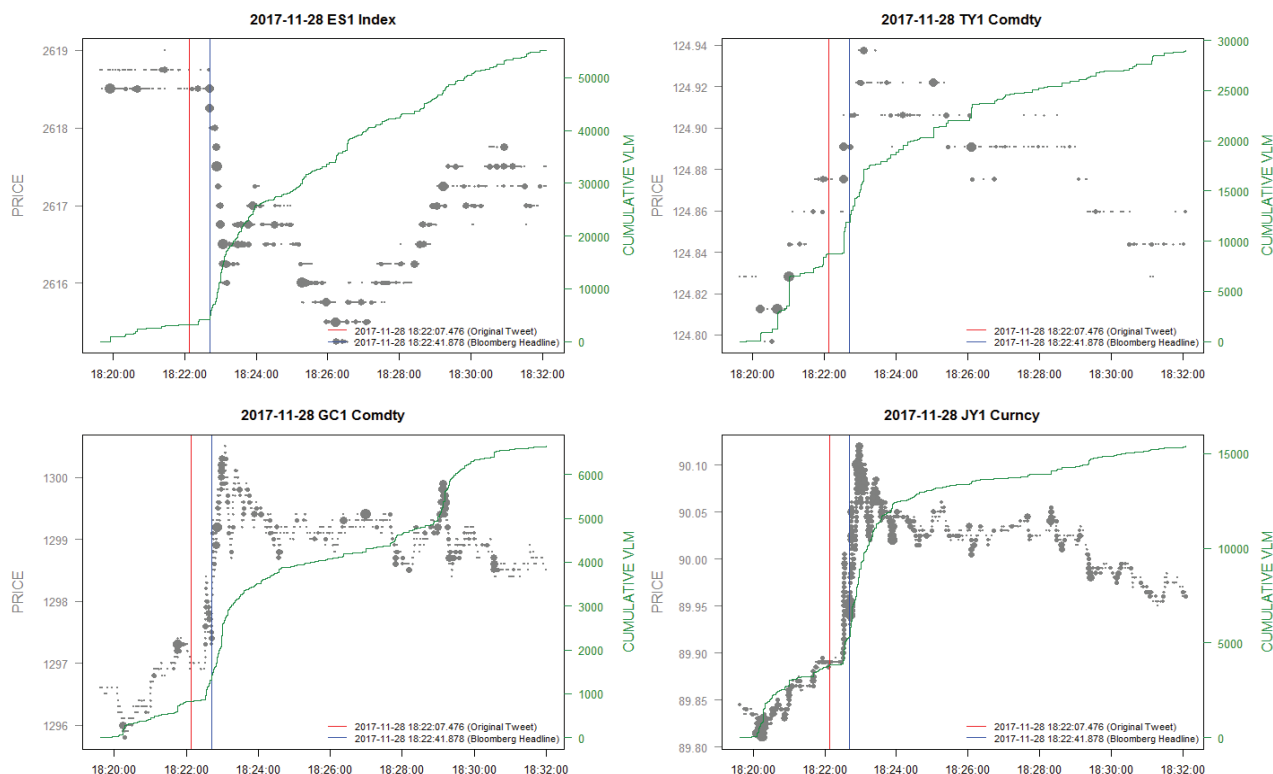


In just 34 seconds, based on this original tweet, Bloomberg published the following headline via the Bloomberg First Word (BFW) channel:

"*N. KOREA FIRES BALLISTIC MISSILE: YOUHAP CITES S. KOREA JCS"

The charts below show the intraday trading activities 12 minutes around the event using four highly liquid futures contracts as examples:

- ES1 Index (Generic 1st S&P 500 E-mini Future by CME)
- TY1 Comdty (Generic 1st 10-Year U.S. Treasury Note Future by CBOT)
- GC1 Comdty (Generic 1st Gold Future by COMEX)
- JY1 Curncy (Generic 1st JPY/USD Japanese Yen Future by CME)



The dark gray dots indicate individual trades, while the green lines indicate cumulative trading volumes. The two vertical lines show the publication time of the tweet (red) and the news headline (blue). For all the contracts studied here, the majority of the price moves came after the Bloomberg headline.

A once-in-a-decade political shock, reported by a leading Korean news agency, distributed through the world's most popular social network, yet all combined still failed to disturb the most-liquid markets on the planet for more than half a minute. This very ironic but telling example demonstrates how reluctant and uncomfortable traders are when it comes digesting unvalidated content from social media.

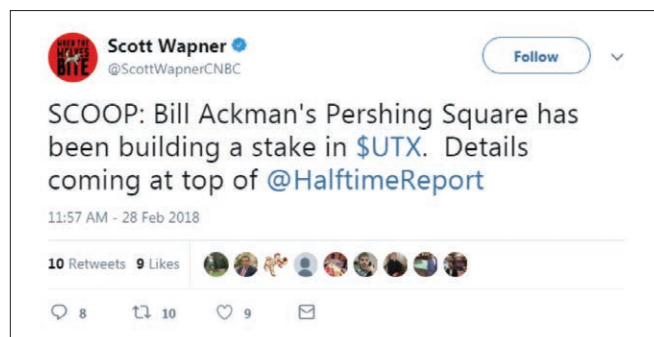
The solution

For quantitative traders, the Bloomberg-curated Twitter feed provides a unique and powerful solution for systematically ingesting the Twitter flow. Compared with other alternatives such as the randomly-sampled or query-based Twitter streams, the Bloomberg feed employs a sophisticated hybrid filtration logic that balances precision with recall. With a volume of only one-thousandth of that of the original firehose, the product provides a concise compilation of the most newsworthy and impactful social content. It supports diverse use cases ranging from low-latency trading of individual unexpected events to social trend-driven longer-term investment strategies.

The live feed can be connected via a suite of distribution options. In addition, up to ten years of historical tweets with consistent filter and tagging are also available to allow for deep research and strategy backtesting.

Since the production rollout of the Bloomberg-curated feed in Jan. 2018, we've noticed that market reaction time to influential tweets has steadily decreased. Here we use a recent example to demonstrate the difference.

On Feb. 28, 2018, at 11:57 EST (or 16:57 UTC), Scott Wapner published the following tweet via his personal Twitter account (<https://twitter.com/ScottWapnerCNBC/statuses/968892826741346305>):



As the host of CNBC’s Half Time Report, Scott Wapner can boast more than 154k Twitter followers. This tweet provided a scoop about the new stock position of Bill Ackman’s Pershing Square, one of the best-known activist hedge funds, with about \$8.77 billion under management at the end of 2017. Due to their unique investment strategy, which usually involves aggressively purchasing large numbers of stocks in the public market to push for major changes of the underlying company, changes of its stock holdings are often closely watched by all market participants. If a stake is initiated on a stock that the

fund did not already own, this becomes especially interesting and informative, because it provides the first clue of the fund’s next big investment focus.

Upon publication, this tweet was instantly identified by Bloomberg’s algorithms as financially relevant and potentially market-moving, as a result, a machine-readable message was sent down to the curated Twitter feed along with derived metatags:

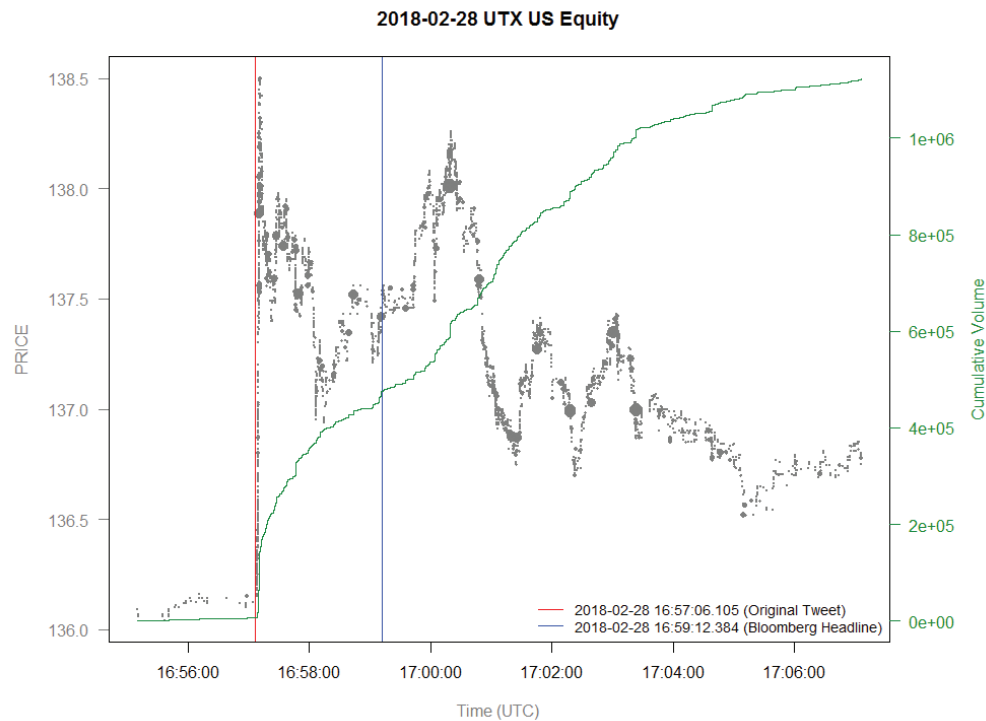
Message specifications	
Feed EID	70028
Message time	2018-02-28T16:57:06.105Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P4VDR5AIBMDW
Event type	ADD_STORY
Headline	Scott Wapner: SCOOP: Bill Ackman’s Pershing Square has been building a stake in \$UTX. Details coming at top of @HalftimeReport
Derived tickers	UTX (United Technologies Corp – U.S.) PERSQIN@KY (Pershing Square International Ltd – Hedge Fund) PSH@NA (Pershing Square Holdings Ltd/Fund – Euronext Amsterdam) 805865Z (Pershing Square Capital Management L.P.) 3845868Z (Pershing Square Gp LLC)
Selected derived topics	BBTWTLIGHT (Light Flow Twitter Content) MISC (Miscellaneous) TWTVERIFY (Twitter Verified Handles)
Derived person	1758848 (William A Ackman “Bill”)

Meanwhile, the same tweet also reached the news desk, and, after quick handle verification and fact checking, a Bloomberg-generated headline was published and sent down to the feed:

Message specifications	
Feed EID	54418
Message time	2018-02-28T16:59:12.384Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P4VDUO6JIJUP
Event type	ADD_STORY
Headline	*PERSHING SQUARE HAS BEEN BUILDING A STAKE IN \$UTX: CNBC
Derived tickers	UTX (United Technologies Corp – U.S.)
Selected derived topics	PSH@NA (Pershing Square Holdings Ltd/Fund – Euronext Amsterdam) BBPICKS (BN Curated News & Social Media) BBTWTLIGHT (Light Flow Twitter Content) BFW (Bloomberg First Word) BFWEQ (First Word Equity News) BFWFOCUS (BFW Market Focus) BFWUS (First Word U.S. News) BIZNEWS (Business, Economy, Government News) EQUITYKEY (Key Equity News) FIRSTWORD (First Word) HEADS (Headlines) MISC (Miscellaneous) RLSHEAD (Headlines on Press Releases) VELOCITY (Bloomberg-curated Social Media)
Derived person	16574891 (Bloomberg Editor)

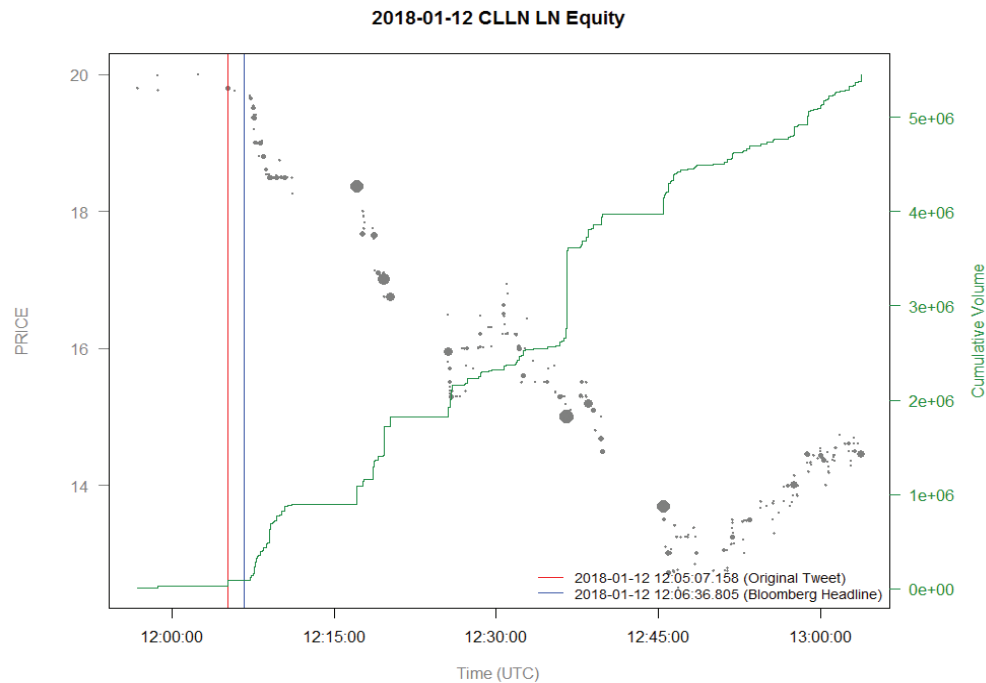
The intraday stock price reaction is quite interesting. A massive volume of buy orders flooded into the market immediately after the original tweet, gobbling up the price in a knee jerk manner. The magnitude and decisiveness of the short-term liquidity taking resemble typical reaction to exclusive breaking headlines from reputable news agencies; in this case, it was instead driven by an unverified tweet. By the time the Bloomberg headline arrived, the information had already been digested to a large extent.

The pattern of market reaction is completely different from that of the prior discussed Yonhap tweet, which had appeared a mere three months earlier. As more and more automated strategies are linked up with a direct machine-readable feed, the market is getting increasingly more efficient at quickly reacting to breaking tweets.



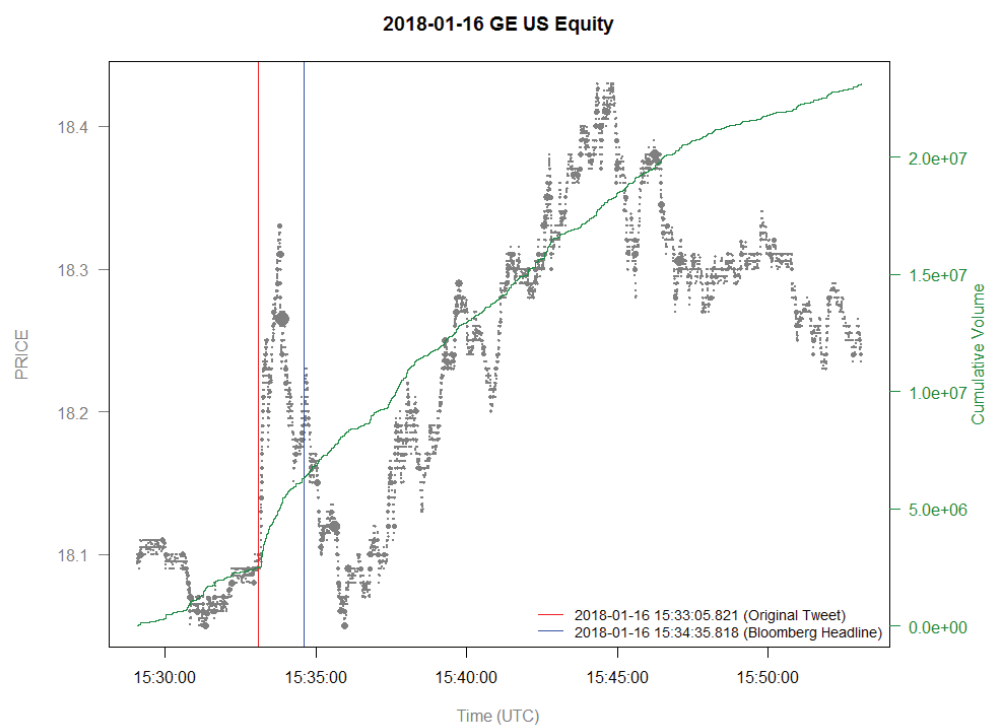
More empirical examples

Following charts document more selected examples of market-moving tweets since Jan. 1, 2018.



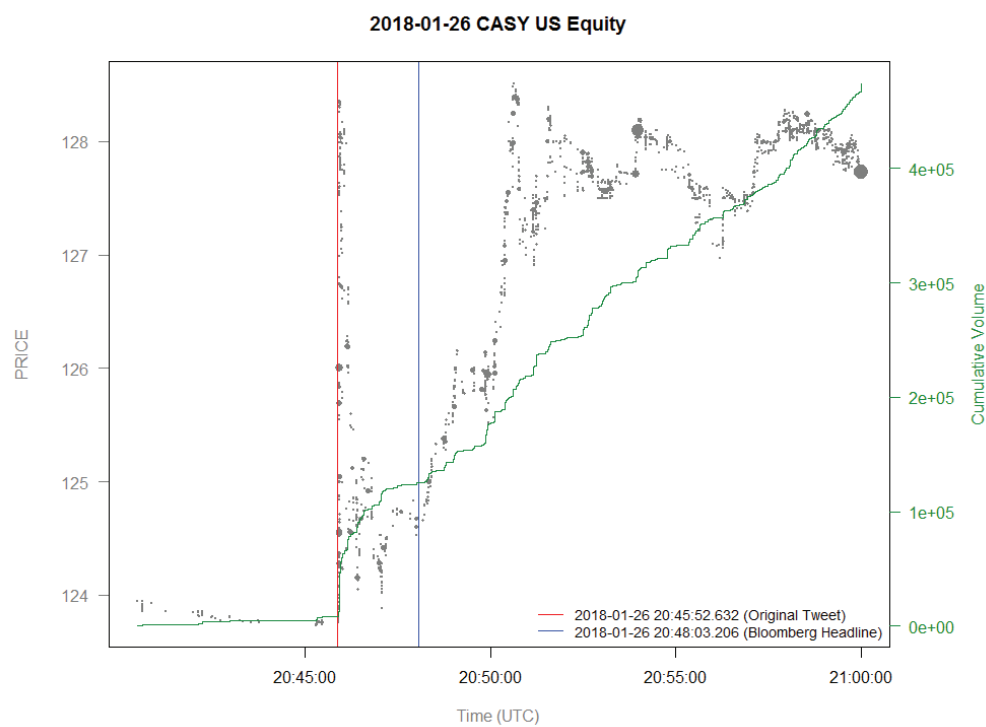
Tweet	
Feed EID	70028
Message time	2018-01-12T12:05:07.159Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P2FYWJBE5TS0
Headline	Sky News: Carillion lines up administrator in case rescue talks fail https://t.co/Vk6tf2OiOR
Ticker	CLLN@LN (CARILLION PLC)

News headline	
Feed EID	54418
Message time	2018-01-12T12:06:36.806Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P2FYZ06JIJUY
Headline	*CARILLION IS SAID TO LINE UP ADMINISTRATOR IF TALKS FAIL: SKY
Ticker	CLLN@LN (CARILLION PLC)



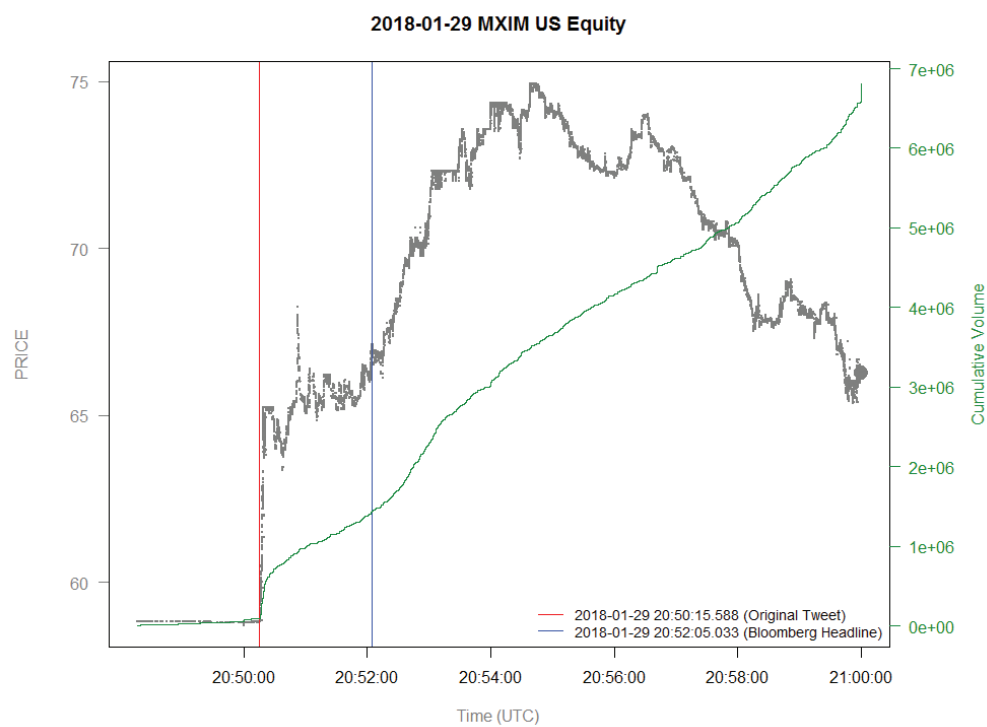
Tweet	
Feed EID	70028
Message time	2018-01-16T15:33:05.821Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P2NN75AIH8N7
Headline	David Faber: Clearly, given its CEO's comments today, \$GE has started down the road to breaking itself up and people close to...
Ticker	GE (GENERAL ELECTRIC CO)

News headline	
Feed EID	54418
Message time	2018-01-16T15:34:35.818Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P2NN9N6S9733
Headline	*GE BREAKUP ANNCT. POSSIBLE AS SOON AS SPRING: CNBC CITES SOURCES
Ticker	GE (GENERAL ELECTRIC CO)



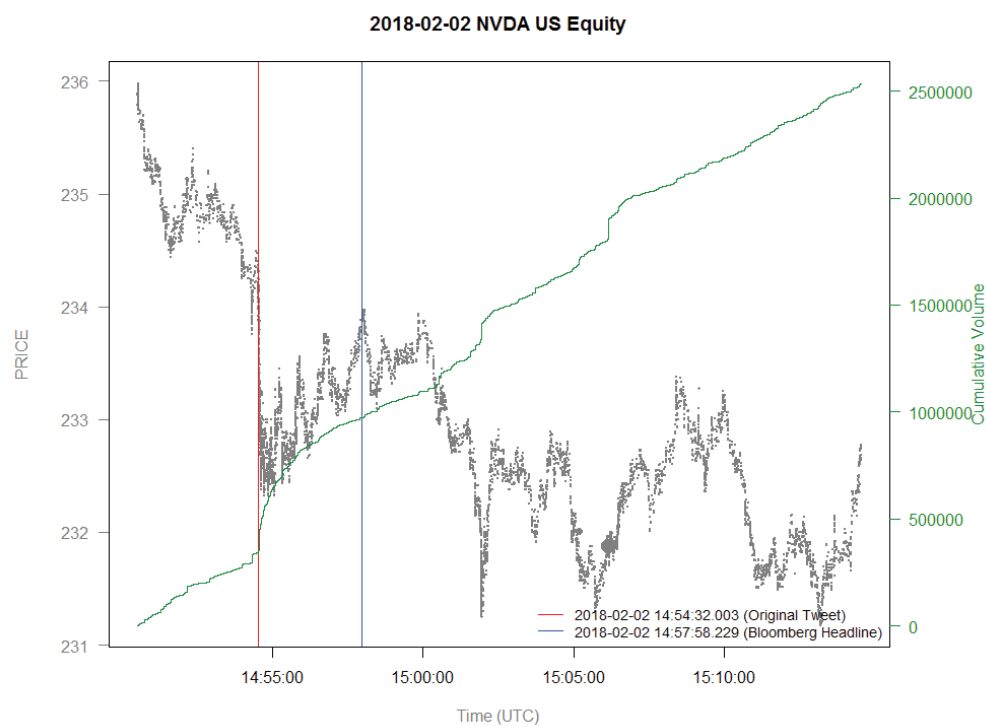
Tweet	
Feed EID	70028
Message time	2018-01-26T20:45:52.633Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P36KCGBE5TS0
Headline	CNBC: BREAKING: Casey's General Stores, under pressure from activist investor JCP, has submitted an initial bid for Kroger...
Ticker	CASY (CASEY'S GENERAL STORES INC)

News headline	
Feed EID	54418
Message time	2018-01-26T20:48:03.206Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P36KG36JTSE8
Headline	*CASEY'S GENERAL IS SAID TO EYE KROGER'S CONVENIENCE UNIT
Ticker	CASY (CASEY'S GENERAL STORES INC)



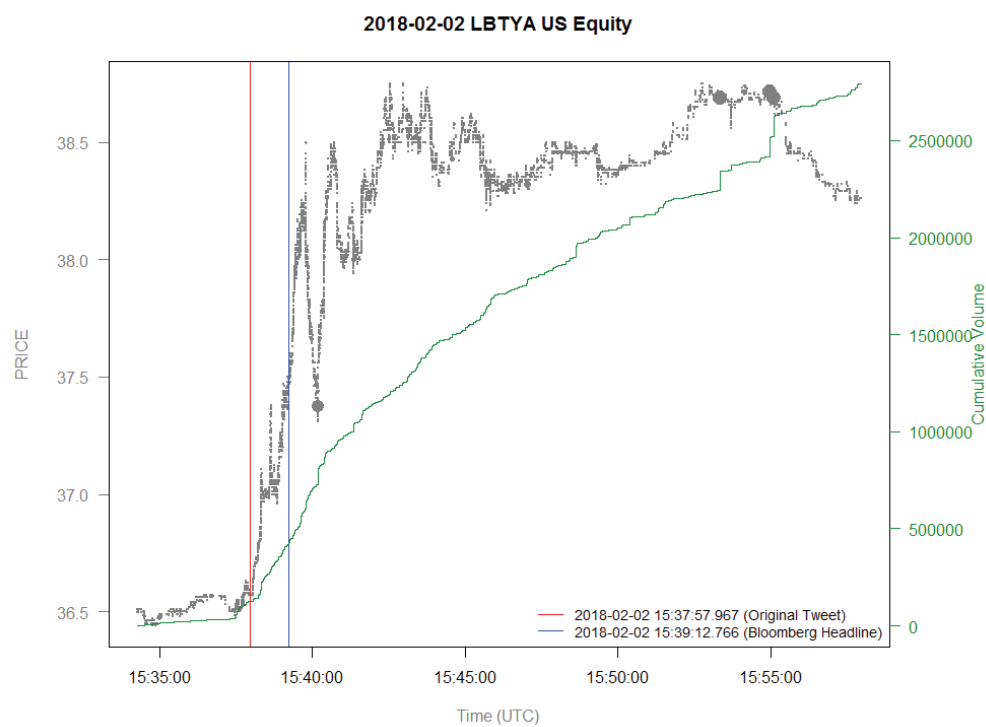
Tweet	
Feed EID	70028
Message time	2018-01-29T20:50:15.588Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P3C4JPAIBMDF
Headline	CNBC Now: BREAKING: Japanese semiconductor company Renesas Electronics is in talks to acquire U.S. chipmaker Maxim
Ticker	MXIM (MAXIM INTEGRATED PRODUCTS)

News headline	
Feed EID	54418
Message time	2018-01-29T20:52:05.034Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P3C4MS6JTSEA
Headline	*RENESAS ELECTRONICS IS SAID TO BE IN TALKS TO BUY MAXIM: CNBC
Ticker	MXIM (MAXIM INTEGRATED PRODUCTS)



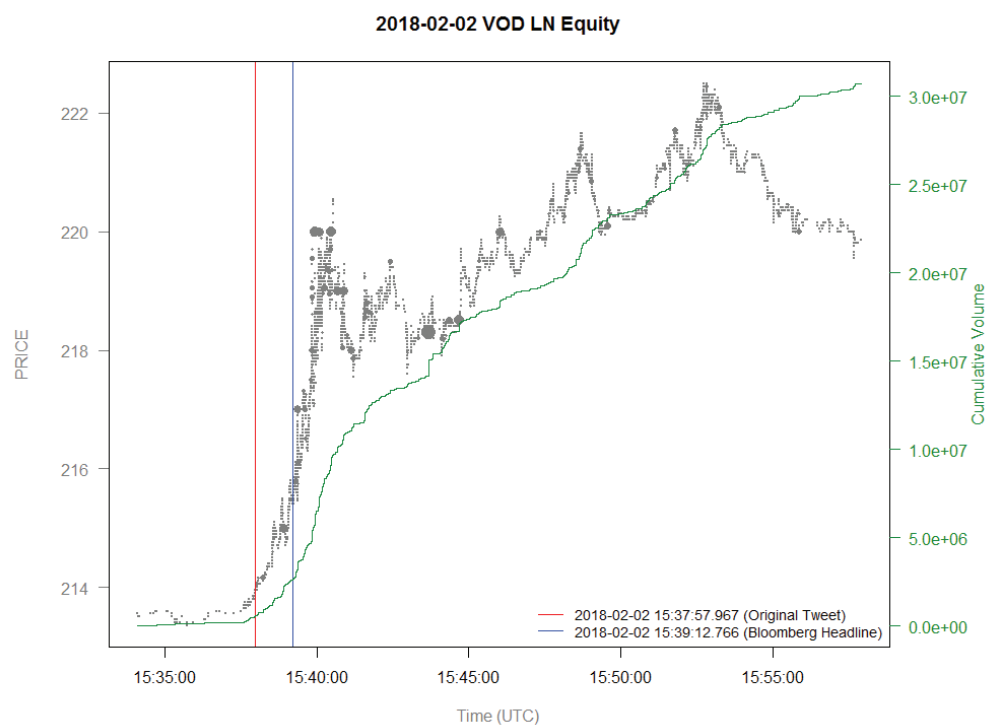
Tweet	
Feed EID	70028
Message time	2018-02-02T14:54:32.003Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P3J2QVBE07IC
Headline	Citron Research: \$nvda shareholders can expect to see \$200. Since Jan 1 \$nvda has added over \$30 bil in mkt cap (more than 2...
Ticker	NVDA (NVIDIA CORP)

News headline	
Feed EID	54418
Message time	2018-02-02T14:57:58.229Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P3J2WM6JIJUO
Headline	*CITRON RESEARCH SEES NVIDIA SHARES AT \$200
Ticker	NVDA (NVIDIA CORP)



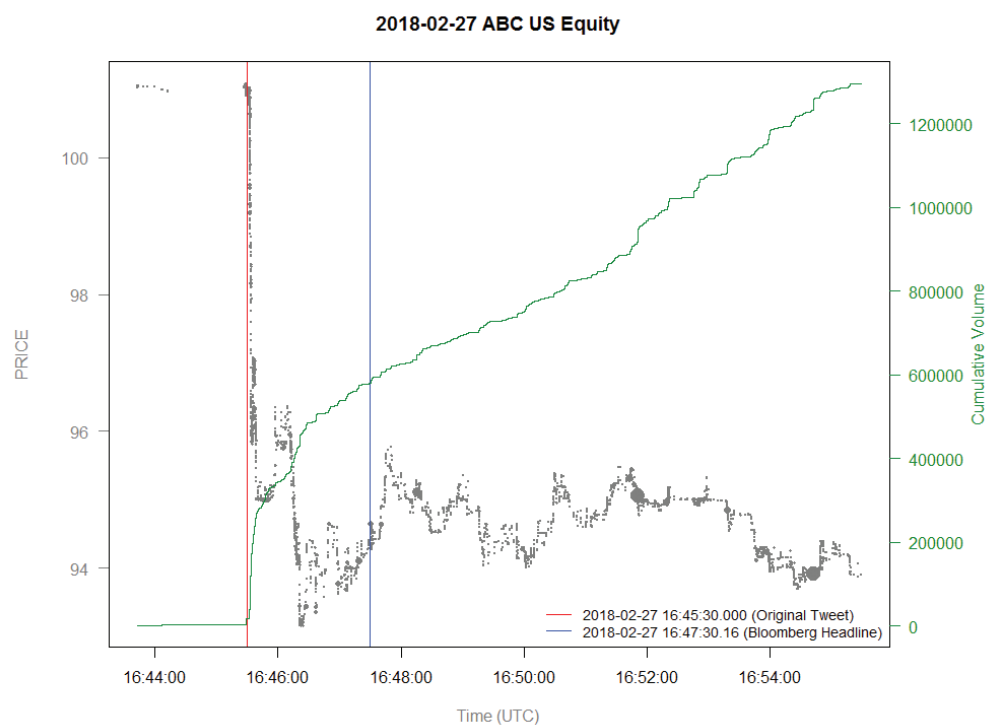
Tweet	
Feed EID	70028
Message time	2018-02-02T15:37:57.968Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P3J4R9AIH8N6
Headline	Financial Times: Vodafone, Liberty Global in talks over asset swap https://t.co/MVcSKhfSiz
Ticker	LBTYA (LIBERTY GLOBAL PLC-A)

News headline	
Feed EID	54418
Message time	2018-02-02T15:39:12.767Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P3J4TC6TTDS9
Headline	*VODAFONE, LIBERTY GLOBAL ARE SAID IN TALKS OVER ASSET SWAP: FT
Ticker	LBTYA (LIBERTY GLOBAL PLC-A)



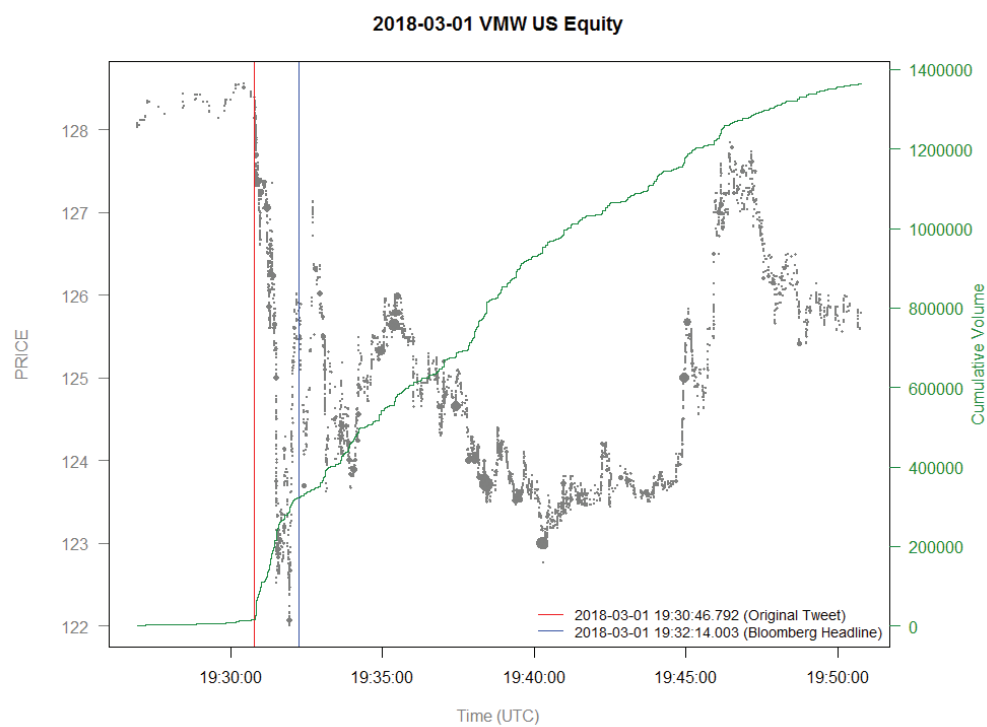
Tweet	
Feed EID	70028
Message time	2018-02-02T15:37:57.968Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P3J4R9AIH8N6
Headline	Financial Times: Vodafone, Liberty Global in talks over asset swap https://t.co/MVcSKhfSiz
Ticker	VOD@LN (VODAFONE GROUP PLC)

News headline	
Feed EID	54418
Message time	2018-02-02T15:39:12.767Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P3J4TC6TTDS9
Headline	*VODAFONE, LIBERTY GLOBAL ARE SAID IN TALKS OVER ASSET SWAP: FT
Ticker	VOD@LN (VODAFONE GROUP PLC)



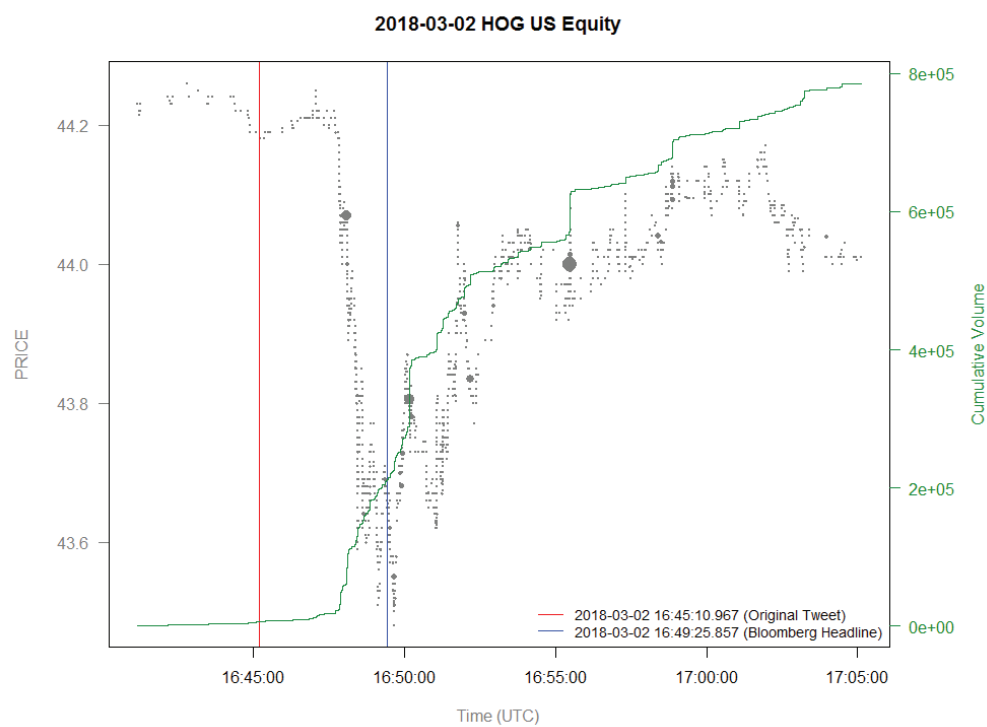
Tweet	
Feed EID	70028
Message time	2018-02-27T16:45:30.001Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P4TIJTAIBMDX
Headline	CNBC Now: BREAKING: Talks between Walgreens & AmerisourceBergen about an acquisition of the wholesale drug distributor
Ticker	ABC (AMERISOURCEBERGEN CORP)

News headline	
Feed EID	54418
Message time	2018-02-27T16:47:30.160Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P4TIN66KLVRG
Headline	*WALGREENS, AMERISOURCEBERGEN TALKS ARE SAID TO HAVE COOLED: CNBC
Ticker	ABC (AMERISOURCEBERGEN CORP)



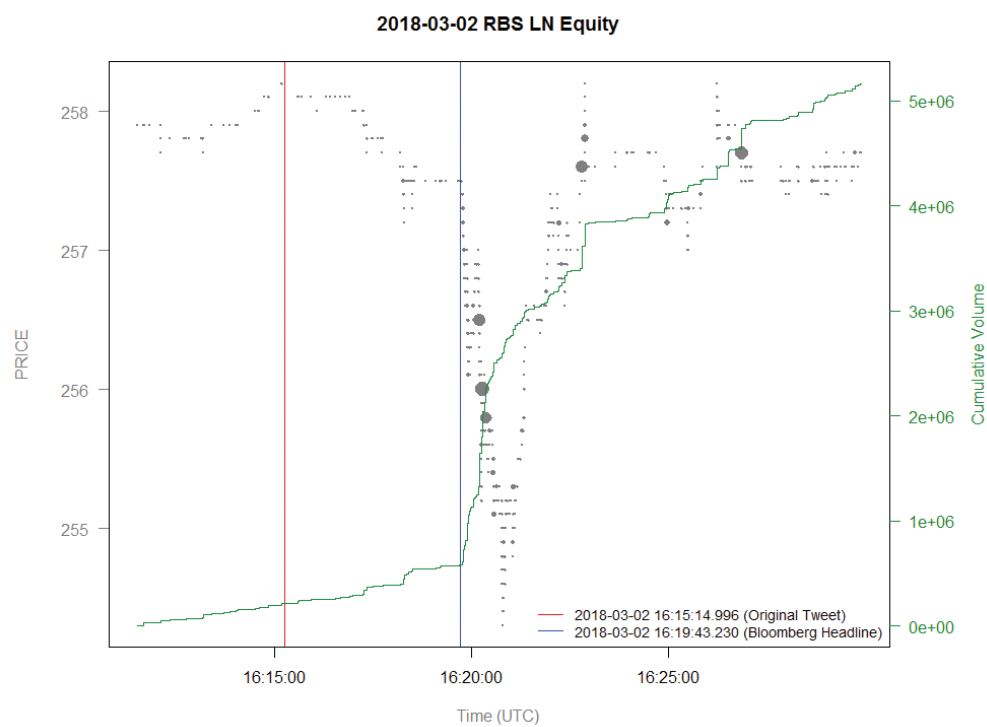
Tweet	
Feed EID	70028
Message time	2018-03-01T19:30:46.793Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P4XFJAAIBMDN
Headline	CNBC: NEW: Michael Dell is working on the details of a reverse-merger with VMware, and here's what it will probably look...
Ticker	VMW (VMWARE INC-CLASS A)

News headline	
Feed EID	54418
Message time	2018-03-01T19:32:14.003Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P4XFLP6S972F
Headline	*MICHAEL DELL IS SAID HOMING IN ON VMWARE MERGER DETAILS: CNBC
Ticker	VMW (VMWARE INC-CLASS A)



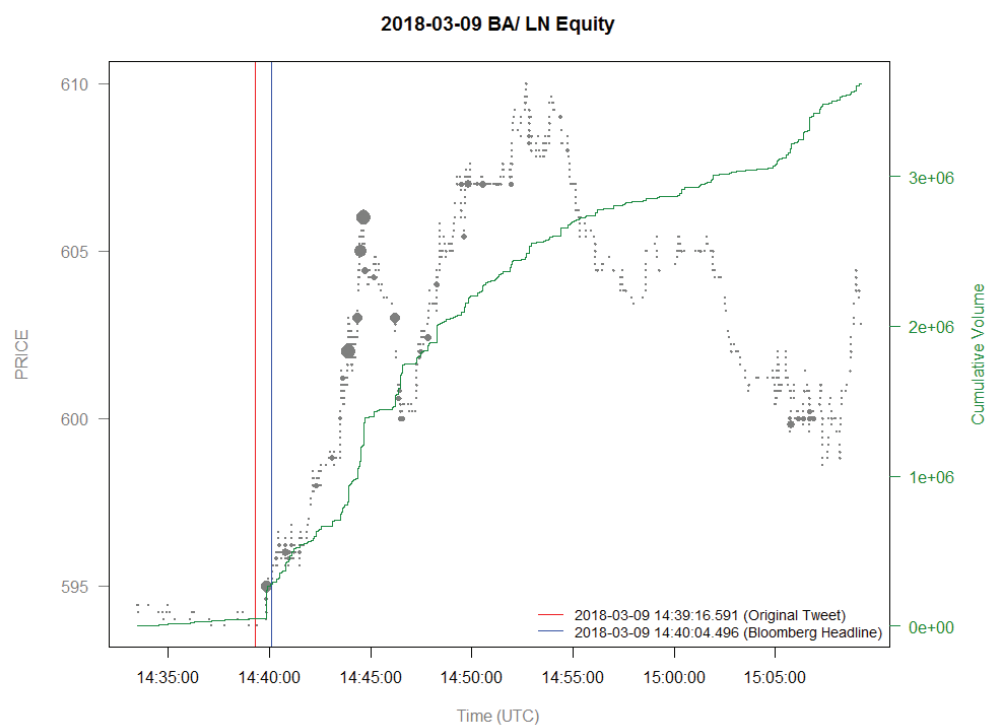
Tweet	
Feed EID	70028
Message time	2018-03-02T16:45:10.967Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P4Z2JAAIBMEB
Headline	William Mauldin: Breaking: EU's Juncker says the bloc will react to the proposed U.S. steel action with tariffs on motorcycles
Ticker	HOG (HARLEY-DAVIDSON INC)

News headline	
Feed EID	54418
Message time	2018-03-02T16:49:25.857Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P4Z2QD6TTDSL
Headline	*HARLEY-DAVIDSON DOWN AS MUCH AS 3.4% AFTER WSJ STORY ON TARIFFS
Ticker	HOG (HARLEY-DAVIDSON INC)



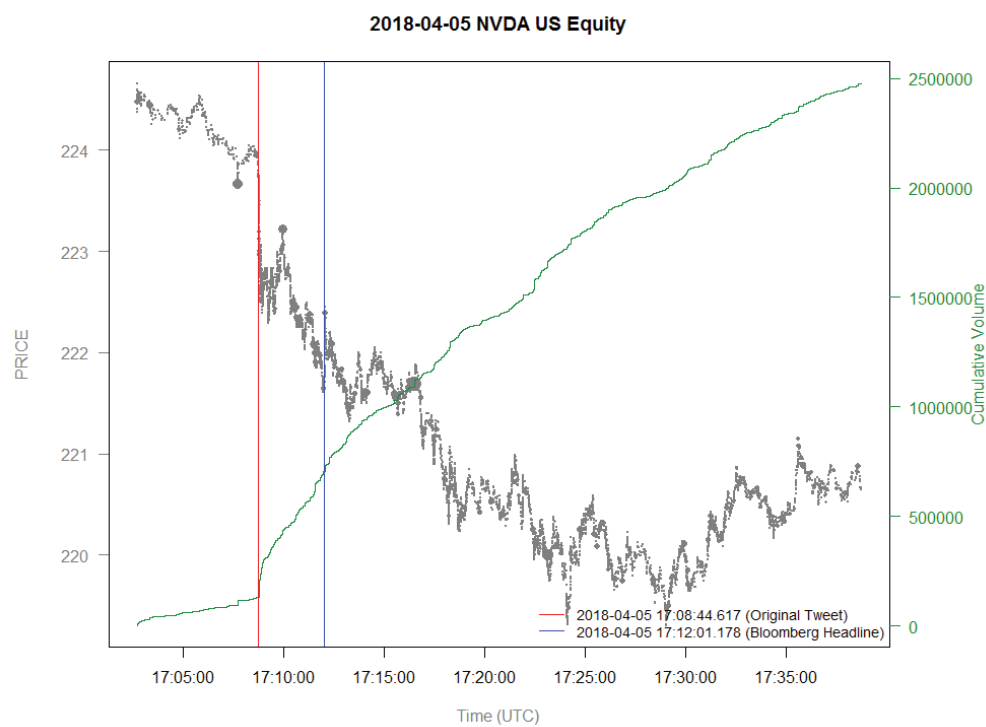
Tweet	
Feed EID	70028
Message time	2018-03-02T16:15:14.996Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P4Z15EAIBMDF
Headline	Sky News: RBS "within weeks" of huge U.S. mortgage mis-selling fine https://t.co/WQQISXDeGH
Ticker	RBS@LN (ROYAL BANK OF SCOTLAND GROUP)

News headline	
Feed EID	54418
Message time	2018-03-02T16:19:43.231Z
Wire ID	25
Wire name	BN (Bloomberg News)
SUID	P4Z1CV6JIJUO
Headline	*RBS IS SAID TO FACE POSSIBLE U.S. FINE EXCEEDING PROVISION: SKY
Ticker	RBS@LN (ROYAL BANK OF SCOTLAND GROUP)



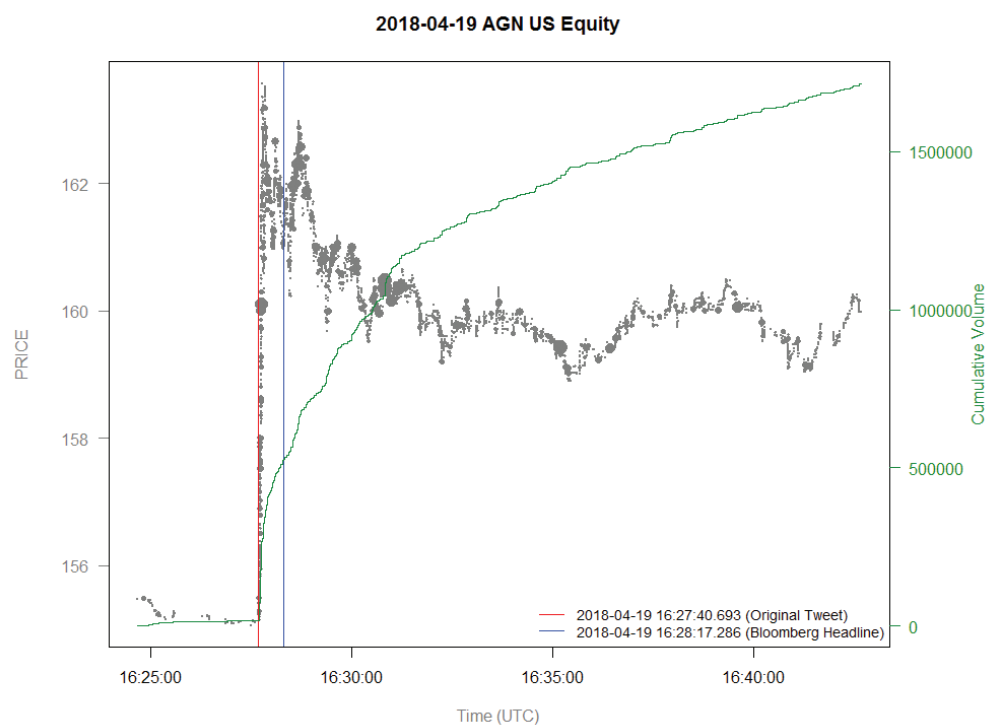
Tweet	
Feed EID	70028
Message time	2018-03-09T14:39:16.591Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P5BVDG6KLVR6
Headline	Sky News Newsdesk: Sky Sources: Saudi Arabia is expected to confirm it will sign a defence deal to buy 48 Typhoon fighter jets
Ticker	BA/@LN (BAE SYSTEMS PLC)

News headline	
Feed EID	54418
Message time	2018-03-09T14:40:04.497Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P5BVES6S9729
Headline	*SAUDI EXPECTED TO BUY 48 TYPHOON FIGHTER JETS FROM THE UK: SKY
Ticker	BA/@LN (BAE SYSTEMS PLC)



Tweet	
Feed EID	70028
Message time	2018-04-05T17:08:44.617Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P6Q2AKAIBMDP
Headline	Citron Research: Citron pressing \$NVDA short expect sub \$200 soon. Mkt starting to realize that ML/DL is narrowing and hyper...
Ticker	NVDA (NVIDIA CORP)

News headline	
Feed EID	54418
Message time	2018-04-05T17:12:01.179Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P6Q2G16KLVR5
Headline	*CITRON SAYS 'PRESSING' NVIDIA SHORT; 'EXPECT SUB \$200 SOON'
Ticker	NVDA (NVIDIA CORP)



Tweet	
Feed EID	70028
Message time	2018-04-19T16:27:40.693Z
Wire ID	2318
Wire name	TWT (Twitter)
SUID	P7FXQ4AIBMDW
Headline	CNBC Now: BREAKING: Allergan will not bid for Shire, sources tell CNBC's @DavidFaber. https://t.co/6Qqli6dq2r
Ticker	AGN (ALLERGAN PLC)

News headline	
Feed EID	54418
Message time	2018-04-19T16:28:17.286Z
Wire ID	2345
Wire name	BFW (Bloomberg First Word)
SUID	P7FXR56K5OXU
Headline	*ALLERGAN IS SAID WILL NOT BID FOR SHIRE: CNBC
Ticker	AGN (ALLERGAN PLC)

Summary

Twitter continues to play a significant role in valuing securities and shaping the financial markets. Bloomberg and Twitter have partnered to provide financial professionals with a curated, metadata-enriched low-latency feed product that identifies the most newsworthy and impactful social content. Recent examples suggest an increased presence of Twitter-driven algorithmic strategies and improved market efficiency.

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