# AI at Bloomberg

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Applied Machine Learning Days, AI & NLP Track
January 28, 2020

Edgar Meij, PhD
Head of AI Discovery

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# The Bloomberg Terminal

**DATA**
**ANALYTICS**
**NEWS**
**COMMUNITY**

…to facilitate financial decision-making.

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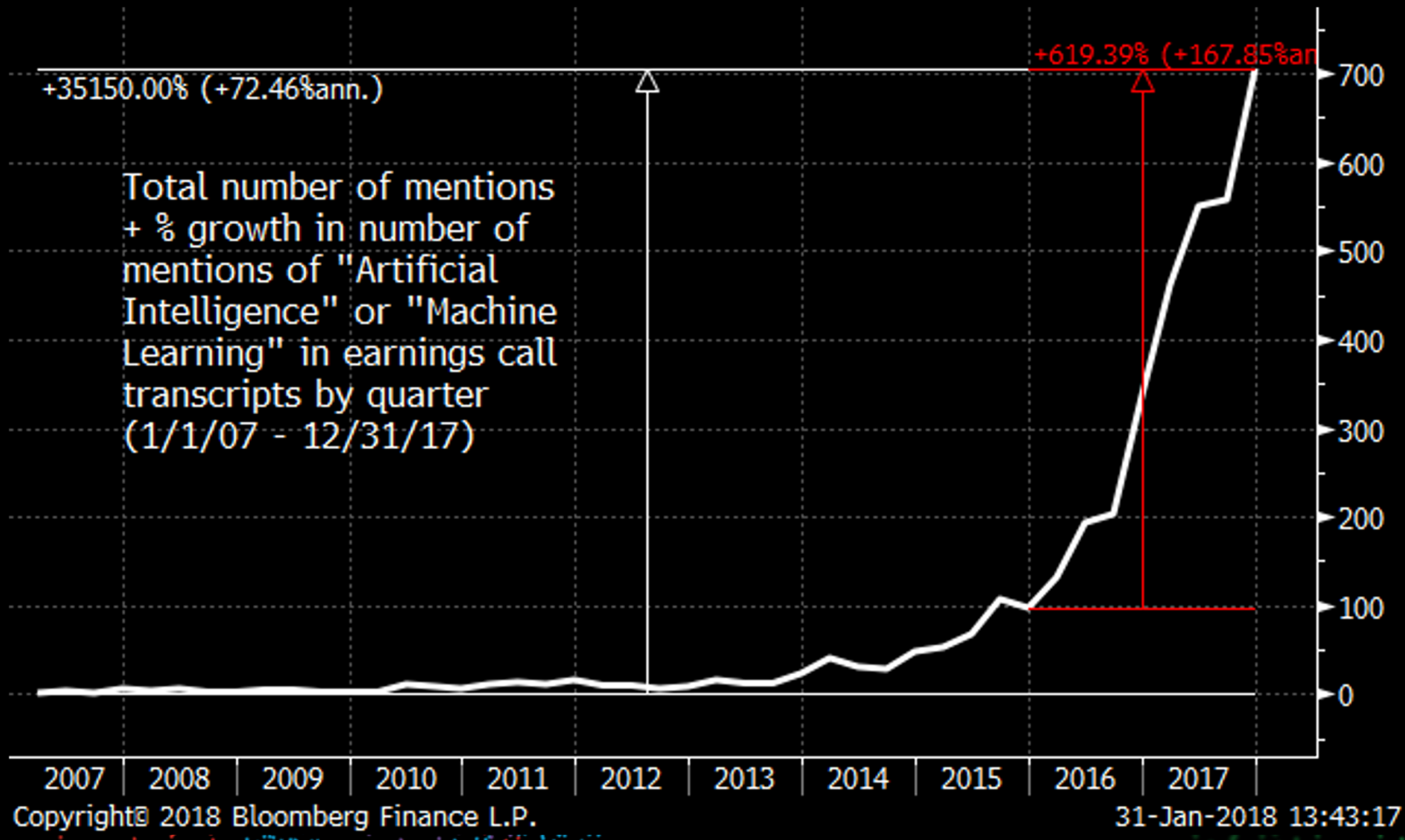
# The “AI Revolution” is changing the world

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# AI at Bloomberg

- Making Sense of News & Social Media
- Making Sense of Financial Documents
- Making Sense of Market Signals
- Making Sense of Communication Data
- Outreach

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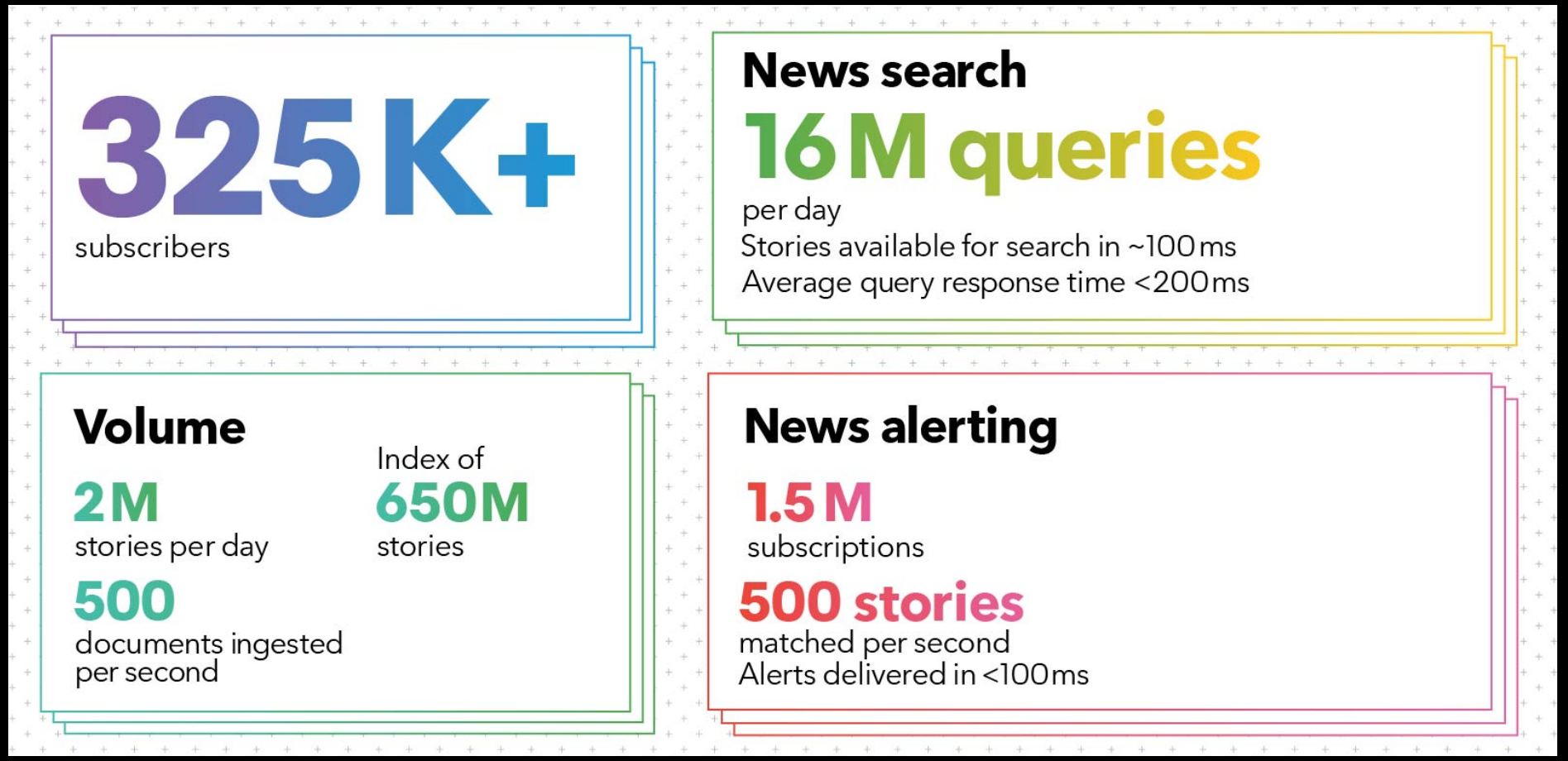
# News at Bloomberg

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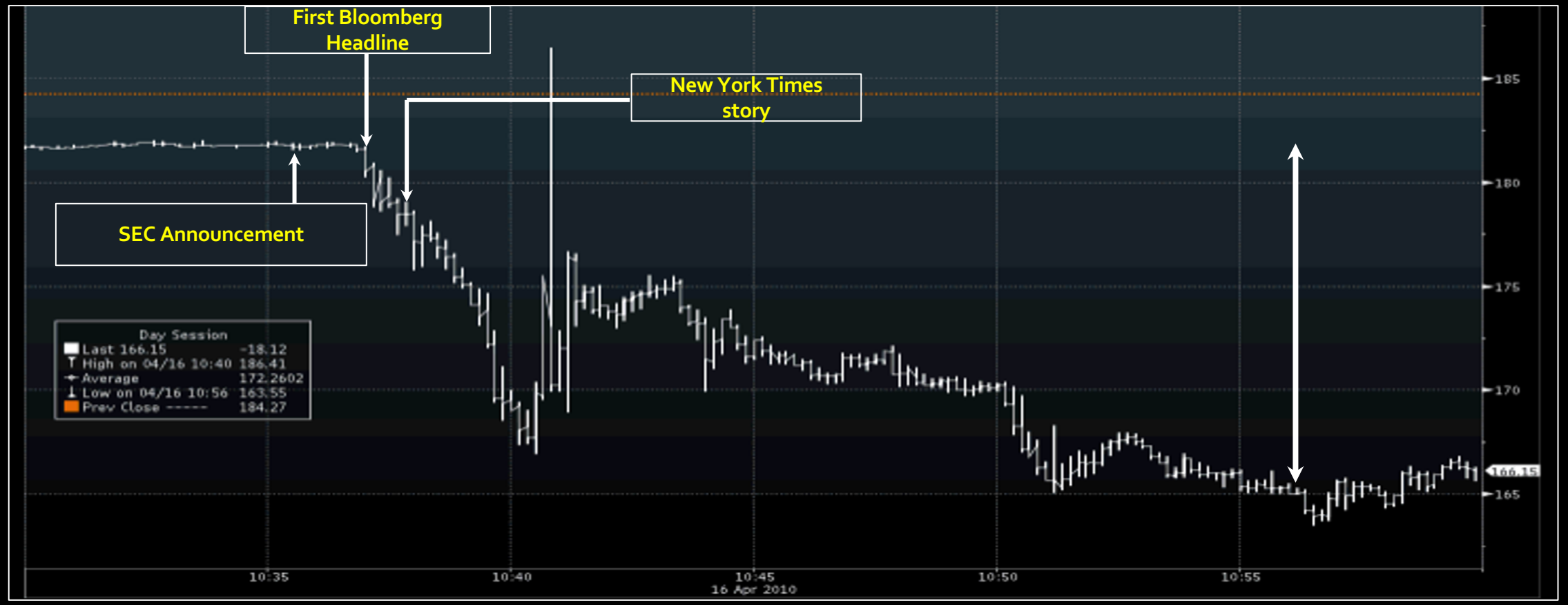
# News moves markets

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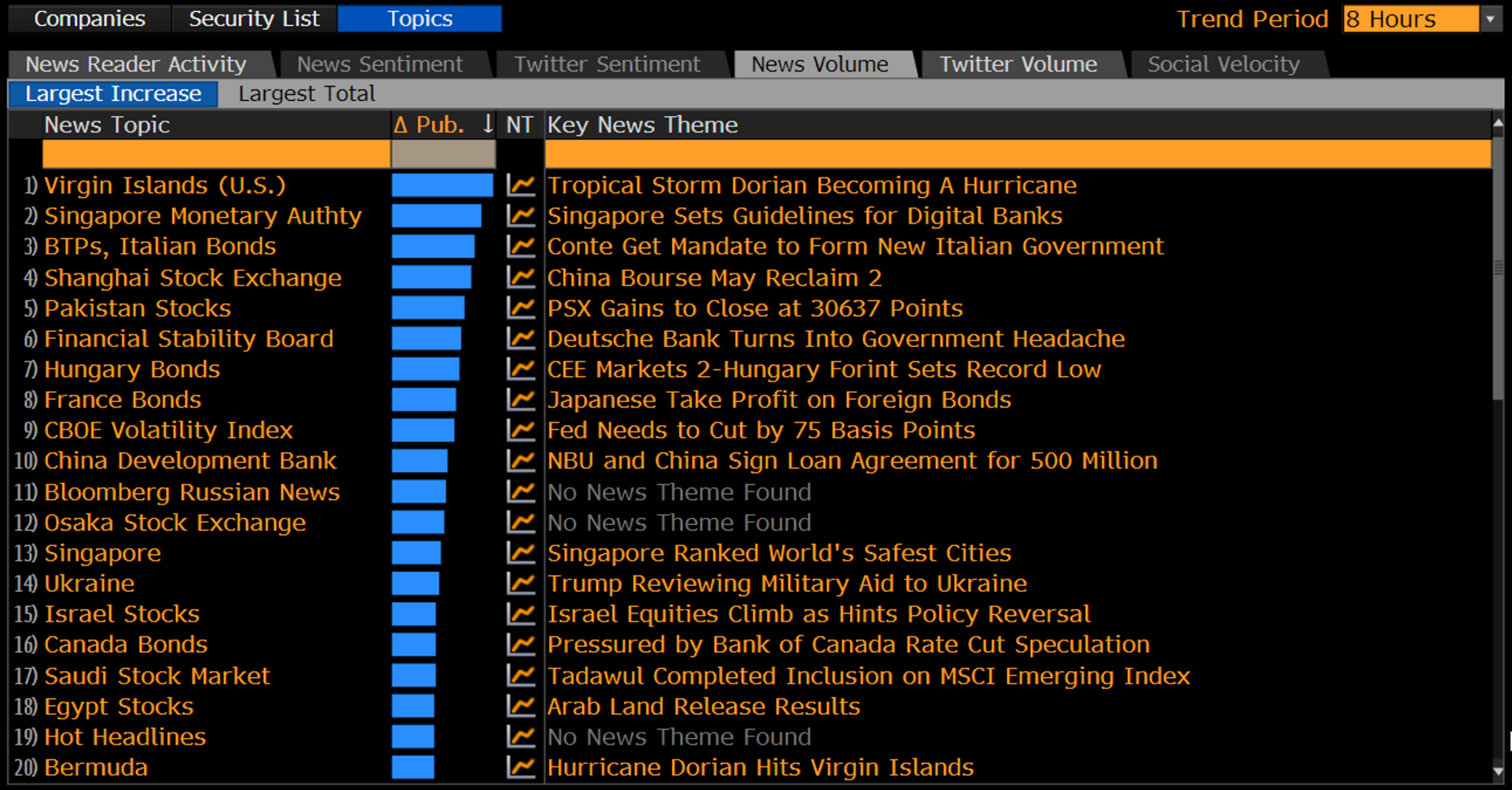
# Trending Topics




| | News Topic | Δ Pub. ↓ | NT | Key News Theme |
|---|---|---|---|---|
| 1) | Virgin Islands (U.S.) | | | Tropical Storm Dorian Becoming A Hurricane |
| 2) | Singapore Monetary Authty | | | Singapore Sets Guidelines for Digital Banks |
| 3) | BTPs, Italian Bonds | | | Conte Get Mandate to Form New Italian Government |
| 4) | Shanghai Stock Exchange | | | China Bourse May Reclaim 2 |
| 5) | Pakistan Stocks | | | PSX Gains to Close at 30637 Points |
| 6) | Financial Stability Board | | | Deutsche Bank Turns Into Government Headache |
| 7) | Hungary Bonds | | | CEE Markets 2-Hungary Forint Sets Record Low |
| 8) | France Bonds | | | Japanese Take Profit on Foreign Bonds |
| 9) | CBOE Volatility Index | | | Fed Needs to Cut by 75 Basis Points |
| 10) | China Development Bank | | | NBU and China Sign Loan Agreement for 500 Million |
| 11) | Bloomberg Russian News | | | No News Theme Found |
| 12) | Osaka Stock Exchange | | | No News Theme Found |
| 13) | Singapore | | | Singapore Ranked World's Safest Cities |
| 14) | Ukraine | | | Trump Reviewing Military Aid to Ukraine |
| 15) | Israel Stocks | | | Israel Equities Climb as Hints Policy Reversal |
| 16) | Canada Bonds | | | Pressured by Bank of Canada Rate Cut Speculation |
| 17) | Saudi Stock Market | | | Tadawul Completed Inclusion on MSCI Emerging Index |
| 18) | Egypt Stocks | | | Arab Land Release Results |
| 19) | Hot Headlines | | | No News Theme Found |
| 20) | Bermuda | | | Hurricane Dorian Hits Virgin Islands |

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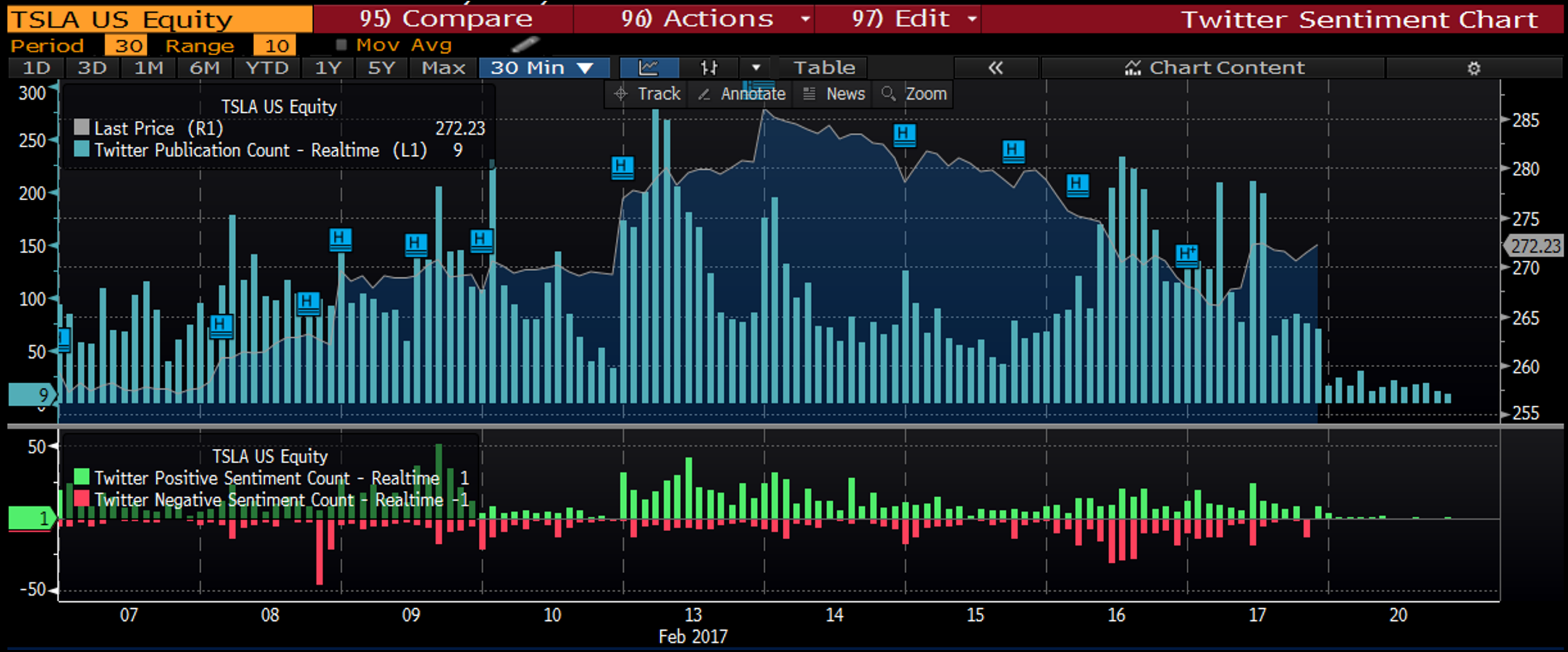
# Sentiment = Signal

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# A disaster in the White House is huge!

Over $136 billion was wiped out in minutes

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# Entities are central to ML for Finance

- What named entities are contained in news stories?
- E.g., which company, person, etc.
- Named Entity Recognition and Linking

**Defiant Johnson Meets Irish Leader for Talks: Brexit Update**

By Alex Morales and Kitty Donaldson

(Bloomberg) -- The beleaguered U.K. Prime Minister Boris Johnson is in Dublin on Monday for talks with his Irish counterpart, Leo Varadkar, as he presses ahead with his hardline plan to leave the European Union "do or die" by Oct. 31.

**Key Developments:**

- Irish Finance Minister Paschal Donohoe says his country is open to Brexit extension
- Parliament set to vote again on an early general election on Monday evening, with opposition parties expected to reject the measure
- Over the weekend, Amber Rudd quit the cabinet with a furious attack on Johnson's leadership
- Chancellor of the Exchequer Sajid Javid and Foreign Secretary Dominic Raab said on Sunday that the Brexit plan is unchanged

1) Kitty Donaldson (Bloomberg LP)
2) Thomas Penny (Bloomberg LP)
3) Leo Varadkar (Republic of Ireland)
4) Theresa May (United Kingdom of Great Britain and Northern…
5) Jeremy Bernard Corbyn (United Kingdom of Great Britain an…
6) Dominic Raab (United Kingdom of Great Britain and Norther…
7) Paschal Donohoe (Republic of Ireland)
8) Amber Augusta Rudd (United Kingdom of Great Britain and …
9) Tim Ross (Bloomberg LP)
10) Sajid Javid (United Kingdom of Great Britain and Northern I…
11) Boris Johnson (United Kingdom of Great Britain and Norther…
12) Dara Doyle (Bloomberg LP)
13) Alex Morales (Bloomberg LP)

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# Named Entity Linking & Relationships

STARBUCKS CORP Equity ▾ | AID ▾ | Related Functions Menu ▾ | Message

SBUX US $ ↑57.86 +1.11 Q57.85/57.86Q 9x6

At 14:55 d Vol 6,237,626 O 56.94Q H 58.01K L 56.77Q Val 358.948M

SBUX US Equity | Save as Note | Send via MSG | Automated Insights on Demand

Data generated at 03:10 PM EDT.

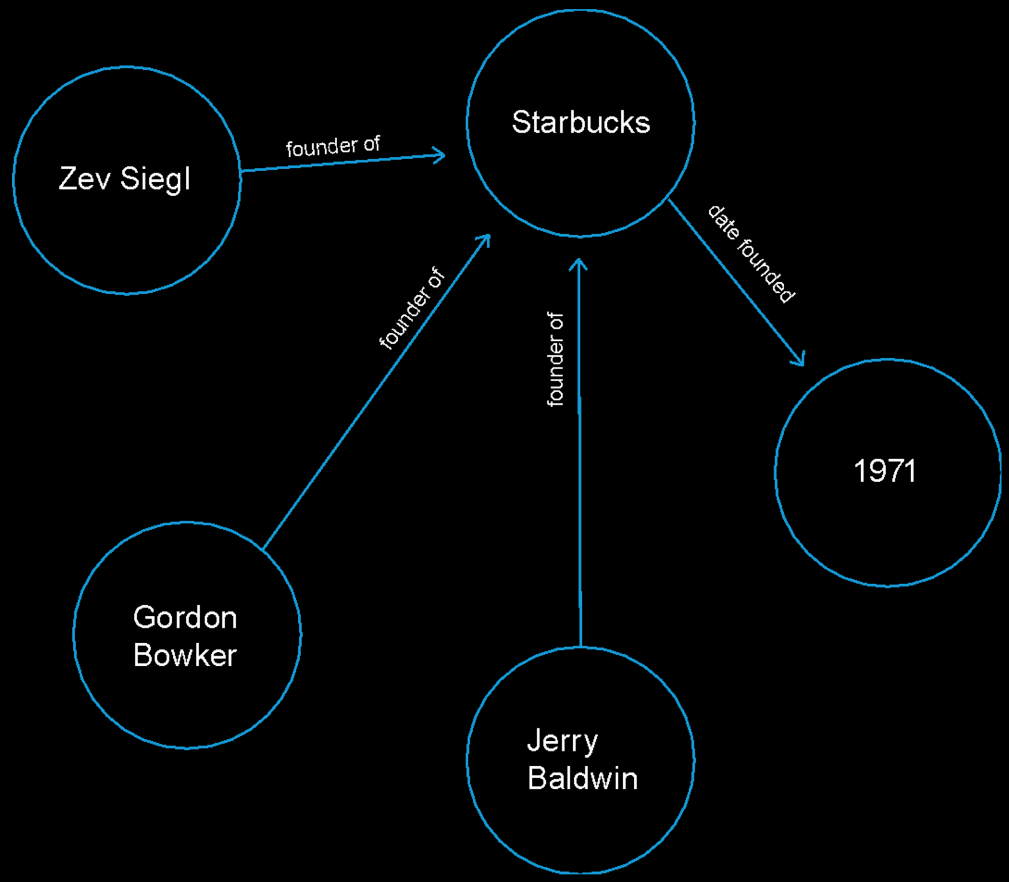
## Starbucks Jumps 2%, Outpaces S&P 500 Index Gains

Starbucks Corp. rose 2 percent as the S&P 500 Index advanced.

The shares increased to $57.86 from $56.75. Trading volume was almost the same as the 20-day average for this time of day. Starbucks's move compares with the 2 percent rise in the Russell 3000 Consumer Discretionary Index and the 1.9 percent gain in the S&P 500 Index.

In the past year, the stock had a similar or greater gain 10 times and was little changed the next day. It advanced four times for an average 1 percent and declined six times for an average 1.2 percent.

The stock rose 5.7 percent in the past month, compared with the 0.5 percent increase for the company's Bloomberg peers, the 4.8 percent loss in its industry index and the 3.5

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# Automated News

**Starbucks Shares Fall After Chain's U.S. Sales Disappoint Again**

By Leslie Patton

**DEEP ECO: Starbucks Pressured, Industry Sales Slowest in 8 Yrs**

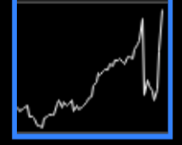
By Bloomberg Automation | Feedback?

(Bloomberg) -- Starbucks Corp.'s revenue may be pressured after a U.S. Census Bureau report showed limited-service eating places nominal retail sales fell 0.1 percent in November, the first decrease in eight years.

- The monthly report may provide an indication of the performance of companies in the industry Bloomberg classifies as limited service restaurants; Starbucks gets 89 percent of its revenue from this industry.
- Analysts estimate the company's revenue will rise 8.2 percent in the current fiscal quarter.
- This retail sales index was up 1 percent in the first two months of the company's current fiscal quarter.
- Starbucks' first quarter started on Oct. 2, 2017.
- In the past six years, Starbucks' revenue has had a 0.7 correlation with this index, according to data compiled by Bloomberg.

SBUX US Equity
Graphic Dashboard»

1M Imp Vol 3M
28.07



Top Contacts
Bijan Segha...
Nimish Patel
Joanna Fowl...
Steven Wats...
Gregg E Irel...

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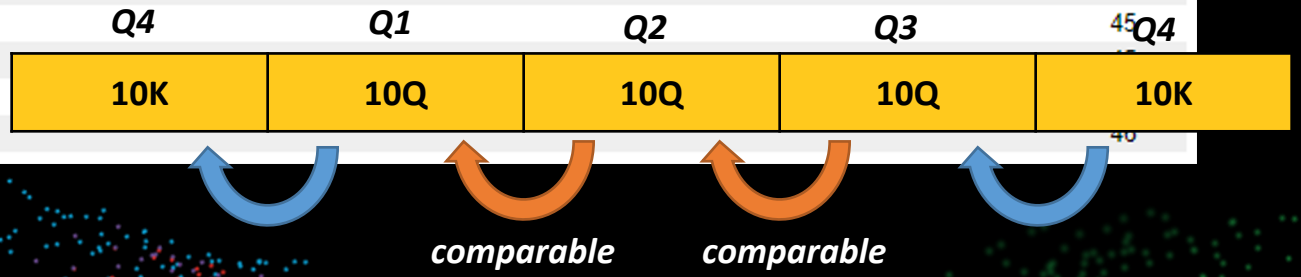
# Signal Extraction from SEC 10-K/10-Q Filings

- Federal securities law requires publicly-traded companies to disclose information on an ongoing basis
- For example, domestic issuers must submit annual reports on Form 10-K, quarterly reports on Form 10-Q.

| | | Page |
|---|---|---|
| | **Part I** | |
| Item 1. | Financial Statements | 1 |
| Item 2. | Management's Discussion and Analysis of Financial Condition and Results of Operations | 25 |
| Item 3. | Quantitative and Qualitative Disclosures About Market Risk | 34 |
| Item 4. | Controls and Procedures | 34 |
| | **Part II** | |
| Item 1. | Legal Proceedings | 35 |
| Item 1A. | Risk Factors | 35 |
| Item 2. | Unregistered Sales of Equity Securities and Use of Proceeds | 45 |
| Item 3. | Defaults Upon Senior Securities | 45 |
| Item 4. | Mine Safety Disclosures | |
| Item 5. | Other Information | |
| Item 6. | Exhibits | |



# Signal Extraction from SEC 10-K/10-Q Filings

**Item 1A. Risk Factors**

The following description of risk factors includes any material changes to, and supersedes the description of, risk factors associated with the Company's business previously disclosed in Part I, Item 1A of the 2018 Form 10-K and in Part II, Item 1A of the Form 10-Q for the quarter ended December 29, 2018, in each case under the heading "Risk Factors." The business, financial condition and operating results of the Company can be affected by a number of factors, whether currently known or unknown, including but not limited to those described below, any one or more of which could, directly or indirectly, cause the Company's actual financial condition and operating results to vary materially from past, or from anticipated future, financial condition and operating results. Any of these factors, in whole or in part, could materially and adversely affect the Company's business, financial condition, operating results and stock price.

The following discussion of risk factors contains forward-looking statements. These risk factors may be important to understanding other statements in this Form 10-Q. The following information should be read in conjunction with the condensed consolidated financial statements and related notes in Part I, Item 1, "Financial Statements" and Part I, Item 2, "Management's Discussion and Analysis of Financial Condition and Results of Operations" of this Form 10-Q.

Because of the following factors, as well as othe be a reliable indicator of future performance, and investors sho

***Global and regional economic conditions coul***

The Company has international operations with hain, and its manufacturing and assembly activities, are locate ons.

Adverse macroeconomic conditions, including inflation, slower growth or recession, new or increased tariffs, changes to fiscal and monetary policy, tighter credit, higher interest rates, high unemployment and currency fluctuations could materially adversely affect demand for the Company's products and services. In addition, consumer confidence and spending could be adversely affected in response to financial market volatility, negative financial news, conditions in the real estate and mortgage markets, declines in income or asset values, changes to fuel and other energy costs, labor and healthcare costs and other economic factors.

In addition to an adverse impact on demand for the Company's products, uncertainty about, or a decline in, global or regional economic conditions could have a significant impact on the Company's suppliers, contract manufacturers, logistics providers, distributors, cellular network carriers and other channel partners. Potential effects include financial instability; inability to obtain credit to finance operations and purchases of the Company's products; and insolvency.

A downturn in the economic environment could also lead to increased credit and collectibility risk on the Company's trade receivables; the failure of derivative counterparties and other financial institutions; limitations on the Company's ability to issue new debt; reduced liquidity; and declines in the fair value of the Company's financial instruments. These and other economic factors could materially adversely affect the Company's business, results of operations, financial condition and growth.

**Very long risk factor section, but actually nothing changed from the previous quarter!**

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# Signal Extraction from SEC 10-K/10-Q Filings

**ITEM 1A.** ***Risk Factors***

Except as set forth below, there have been no material changes to the risk factors previously discussed in Item 1A—Risk Factors in the Company's 2017 Form 10-K.

***Risks and uncertainties related to the adoption and implementation of regulations restricting oil and gas development in Colorado.***

The Company has substantial undeveloped reserves and unproved acreage in the North Park Basin area of Jackson County, Colorado. Recently, various initiatives have been promoted by interest groups in Colorado to increase regulations restricting oil and gas development. For example, on November 6, 2018, Coloradans considered Proposition 112, a ballot initiative that would have established a new statewide minimum distance requirement for new oil and gas development far in excess of existing Colorado Oil and Gas Conservation Commission ("COGCC") setback regulations. Although Coloradans did not approve Proposition 112, future similar initiatives, if implemented, could pose operational challenges, substantially limit our development activity and require higher levels of capital expenditures than we currently anticipate, and therefore have a significant adverse effect on our ability to develop proved undeveloped reserves in the North Park Basin. Even if we are able to develop these assets, delayed development of our reserves or increases in costs to drill and develop such reserves will reduce

**Short risk factor section with updates only!**

**Item 1A. Risk Factors.**

In addition to the other information set forth in this report, you should carefully consider the factors discussed in Part I, "Item 1A. Risk Factors" in our Annual Report on Form 10-K for the year ended November 27, 2011 and Quarterly Report on Form 10-Q for the quarterly period ended May 27, 2012, which could materially affect our business, financial condition or future results. The risks described herein and in our Annual Report on Form 10-K and Quarterly Report on Form 10-Q are not the only risks facing our Company. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and/or operating results.



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# Extraction from financial documents

PART I — FINANCIAL INFORMATION

**Item 1. Financial Statements**

STARBUCKS CORPORATION

CONDENSED CONSOLIDATED STATEMENTS OF EARNINGS

*(in millions, except per share data)*

*(unaudited)*

| | Quarter Ended | | Three Quarters Ended | |
|---|---|---|---|---|
| | Jul 1, | Jul 2, | Jul 1, | Jul 2, |
| Net revenues: | | | | |
| Company-operated stores | $ 5,060.4 | $ 4,509.0 | $ 14,630.3 | $ 13,173.7 |
| Licensed stores | 660.6 | 588.3 | 1,968.6 | 1,737.4 |
| CPG, foodservice and other | 589.3 | 564.2 | 1,817.0 | |
| Total net revenues | 6,310.3 | 5,661.5 | 18,415.9 | 16,688.5 |
| Cost of sales including occupancy costs | 2,554.9 | 2,249.1 | 7,573.7 | |
| Store operating expenses | 1,825.0 | 1,628.9 | 5,351.6 | 4,853.5 |
| Other operating expenses | 148.0 | 142.5 | 424.0 | 422.7 |
| Depreciation and amortization expenses | 330.0 | 252.6 | 920.4 | 756.0 |
| General and administrative expenses | 468.7 | 325.0 | 1,253.6 | 1,008.2 |
| Restructuring and impairments | 16.9 | 120.2 | 179.2 | 120.2 |
| Total operating expenses | 5,343.5 | 4,718.3 | 15,702.5 | 13,845.9 |
| Income from equity investees | 71.4 | 101.0 | 213.5 | 269.5 |
| Operating income | 1,038.2 | 1,044.2 | 2,926.9 | 3,112.1 |
| Gain resulting from acquisition of joint venture | 2.5 | — | 1,376.4 | — |
| Net gain resulting from divestiture of certain operations | — | — | 496.3 | 9.6 |
| Interest income and other, net | 31.5 | 31.7 | 155.2 | 114.1 |
| Interest expense | (45.4) | (23.5) | (106.4) | (70.2) |
| Earnings before income taxes | 1,026.8 | 1,052.4 | 4,848.4 | 3,165.6 |
| Income tax expense | 174.8 | 361.1 | 1,086.5 | 1,070.1 |
| Net earnings including noncontrolling interests | 852.0 | 691.3 | 3,761.9 | 2,095.5 |
| Net loss attributable to noncontrolling interests | (0.5) | (0.3) | (0.9) | (0.6) |
| Net earnings attributable to Starbucks | $ 852.5 | $ 691.6 | $ 3,762.8 | $ 2,096.1 |
| Earnings per share - basic | $ 0.62 | $ 0.48 | $ 2.69 | $ 1.44 |
| Earnings per share - diluted | $ 0.61 | $ 0.47 | $ 2.67 | $ 1.43 |
| Weighted average shares outstanding: | | | | |
| Basic | 1,377.1 | 1,447.7 | 1,397.7 | 1,452.8 |
| Diluted | 1,388.5 | 1,459.4 | 1,409.9 | 1,464.9 |
| Cash dividends declared per share | $ 0.36 | $ 0.25 | $ 0.96 | $ 0.75 |

*See Notes to Condensed Consolidated Financial Statements.*

Table of Contents

STARBUCKS CORP Equity | FA | Related Functions Menu | Message

SBUX US $ 57.80 +1.05 Q57.80 /57.81Z 15 x11

At 14:57 d Vol 6,263,151 O 56.94Q H 58.01K L 56.77Q Val 360.424M

SBUX US Equity | 96) Actions | 97) Export | 98) Settings | Financial Analysis

Starbucks Corp | BQL Periodicity Annuals | Cur FRC (USD)

1) Key Stats | 2) I/S | 3) B/S | 4) C/F | 5) Ratios | 6) Segments | 7) Addl | 8) ESG | 9) Custom | 10) Shared

11) Adj Highlights | 12) GAAP Highlights | 13) Earnings | 14) Enterprise Value | 15) Multiples | 16) Per Share | 17) Stock Value

| In Millions of USD<br>12 Months Ending | 2014 Y<br>09/28/2014 | 2015 Y<br>09/27/2015 | 2016 Y<br>10/02/2016 | 2017 Y<br>10/01/2017 | Current/LTM<br>07/01/2018 | 2018 Y Est<br>09/30/2018 | 2019 Y Est<br>09/30/2019 |
|---|---|---|---|---|---|---|---|
| Market Capitalization | 56,343.7 | 86,120.9 | 79,071.5 | 76,891.2 | 78,005.0 | | |
| - Cash & Equivalents | 1,843.8 | 1,611.4 | 2,263.2 | 2,690.9 | 1,976.6 | | |
| + Preferred & Other | 1.7 | 1.8 | 6.7 | 6.9 | 6.0 | | |
| + Total Debt | 2,048.3 | 2,347.5 | 3,585.2 | 3,932.6 | 6,798.9 | | |
| Enterprise Value | 56,549.9 | 86,858.8 | 80,400.2 | 78,139.8 | 82,833.3 | | |
| Revenue, Adj | 16,447.8 | 19,162.7 | 21,315.9 | 22,386.8 | 24,114.1 | 24,694.9 | 26,124.5 |
| Growth %, YoY | 10.6 | 16.5 | 11.2 | | 7.7 | 10.3 | 5.8 |
| Gross Profit, Adj | 4,950.8 | 5,964.1 | 6,740.5 | 6,855.3 | 7,196.0 | 14,551.4 | 15,661.6 |
| Margin % | 30.1 | 31.1 | 31.6 | 30.6 | 29.8 | 58.9 | 60.0 |
| EBITDA, Adj | 3,809.3 | 4,589.4 | 5,259.4 | 5,418.3 | 5,626.0 | 5,500.2 | 5,914.3 |
| Margin % | 23.2 | 23.9 | 24.7 | 24.2 | 23.3 | 22.3 | 22.6 |
| Net Income, Adj | 1,985.9 | 2,578.7 | 2,855.0 | 3,055.9 | 3,527.6 | 3,345.8 | 3,421.3 |
| Margin % | 12.1 | 13.5 | 13.4 | 13.7 | 14.6 | 13.5 | 13.1 |
| EPS, Adj | 1.30 | 1.70 | 1.93 | 2.09 | 2.48 | 2.41 | 2.64 |
| Growth %, YoY | 17.8 | 31.3 | 13.1 | 8.4 | 30.4 | 15.3 | 9.7 |
| Cash from Operations | 607.8 | 3,749.1 | 4,575.1 | 4,174.3 | 4,589.1 | | |
| Capital Expenditures | -1,160.9 | -1,303.7 | -1,440.3 | -1,519.4 | -1,901.9 | -2,012.9 | -1,926.4 |
| Free Cash Flow | -553.1 | 2,445.4 | 3,134.8 | 2,654.9 | 2,687.2 | 2,686.7 | 3,164.0 |

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3-BLOOMBERG

CANCE | HELP | SEARC | NEWS | QUOTE | QUOTE | MSG | MENU | PRINT | PG BA( | PG FW | INSP

AAPL 2.2 09/11/2029 Corp | HL | Related Functions Menu | Message

<Pg Dn> for More Results, <Back> to Return

chinese companies that had dividend yield over 5% last

Page 1/3 Search Bloomberg: Results

Results helpful?

1) Top Results

General

| | | |
|---|---|---|
| 2) | Companies | 0 |
| 3) | Functions | 2 |
| 4) | People | 0 |
| 5) | FAQs | 5 |
| 6) | Definitions | 0 |
| 7) | Reference | 5 |
| 8) | Excel Library | 0 |
| 9) | Data Fields | 0 |
| 10) | News | |
| 11) | Intelligence | 0 |
| 12) | Law | |

Securities

| | | |
|---|---|---|
| 13) | Equities | 0 |
| 14) | Funds | 0 |
| 15) | Fixed Income | 0 |
| 16) | Currencies | 0 |
| 17) | Mtge Issuers | 0 |
| 18) | Muni Issuers | 0 |
| 19) | Commodities | 0 |
| 20) | Index/Stats | 0 |

Contributors

| | | |
|---|---|---|
| 21) | Pricing | 0 |
| 22) | Research | 0 |

Equities | EQS »

| | Name | Dvd Yld:Y-1↓ | Mkt Cap | 1D % Chg | 1Yr EPS Gr | P/E |
|---|---|---|---|---|---|---|
| 42) | EVERGREEN INTERNATIONAL HOLD | 27.84 | 389.02M | 2.50% | 19.18% | -- |
| 43) | HEBEI CONSTRUCTION GROUP C-H | 25.65 | 9.25B | 4.17% | -19.57% | 7.54 |
| 44) | CHINA DISTANCE EDUCATION-ADR | 20.77 | 282.82M | -5.43% | 76.67% | 12.47 |

Bonds | SRCH »

| | R | Issuer Name | Ticker | Coupon | Maturity Date | Currency | Amt Out |
|---|---|---|---|---|---|---|---|
| 52) | | Lenovo Perpetual Securitie... | LENOVO | 5.375 | Perpetual | USD | 1MMM |
| 53) | | Huishang Bank Corp Ltd | HSBANK | 5.500 | Perpetual | USD | 888MM |
| 54) | | Tewoo Group NO 5 Ltd | TEWOOG | 5.800 | Perpetual | USD | 136.38MM |
| 55) | | Bank of Chongqing Co Ltd | BOCHON | 5.400 | Perpetual | USD | 750MM |
| 56) | | Bank of Qingdao Co Ltd | QDBANK | 5.500 | Perpetual | USD | 1.2MMM |
| 57) | | Bank of Jinzhou Co Ltd | JZCITY | 5.500 | Perpetual | USD | 1.5MMM |

Do Japanese companies announce estimated dividends? FAQ

Yes. Dividend amounts for Japanese companies displayed on the Dividend/Split Summary (DVD) fu

Suggested Functions

**CRVF** Browse & chart fixed income curves

**PORT** Analyze portfolio performance & risk

3-BLOOMBERG

CANCE | HELP | SEARC | NEWS | QUOTE | QUOTE | MSG | MENU | PRINT | PG BA( | PG FW | INSP

AAPL 2.2 09/11/2029 Corp | HL | Related Functions Menu | Message

<Pg Dn> for More Results, <Back> to Return

fb vs google revenue

Page 1/2 Search Bloomberg: Results

Results helpful?

1) Top Results

General

2) Companies 0
3) Functions 0
4) People 0
5) FAQs 0
6) Definitions 0
7) Reference 0
8) Excel Library 0
9) Data Fields 0
10) News
11) Intelligence 0
12) Law

Securities

13) Equities 0
14) Funds 0
15) Fixed Income 0
16) Currencies 0
17) Mtge Issuers 0
18) Muni Issuers 0
19) Commodities 0
20) Index/Stats 0

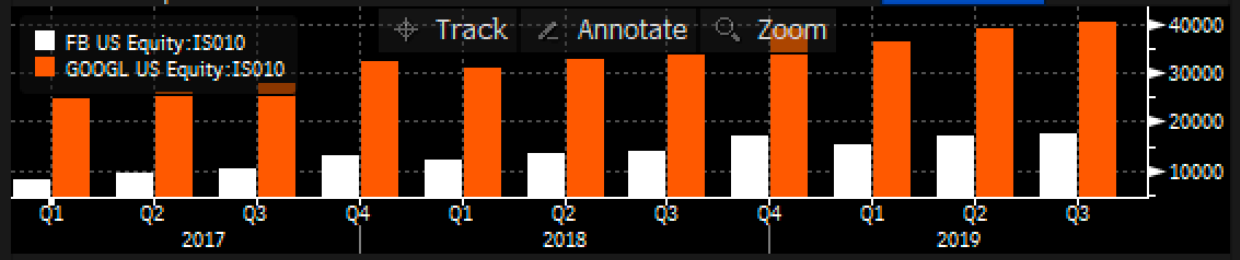
Contributors

21) Pricing 0
22) Research 0

## Comparing Revenue of FACEBOOK INC-A vs ALPHABET INC-A »

View Chart | GF »

Actual Valu... | Relative Valu...




| Ticker | Revenue | EPS | Diluted EPS | P/E | EBITDA |
|---|---|---|---|---|---|
| FB US Equity | $17.65B | $2.13 | $2.12 | 21.24 | $8.90B |
| GOOGL US Equity | $40.50B | $10.20 | $10.12 | 28.27 | $12.57B |

Spread Analysis | HS »

Graph Fundamentals | GF »

Suggested Functions

**CRVF** Browse & chart fixed income curves

**PORT** Analyze portfolio performance & risk

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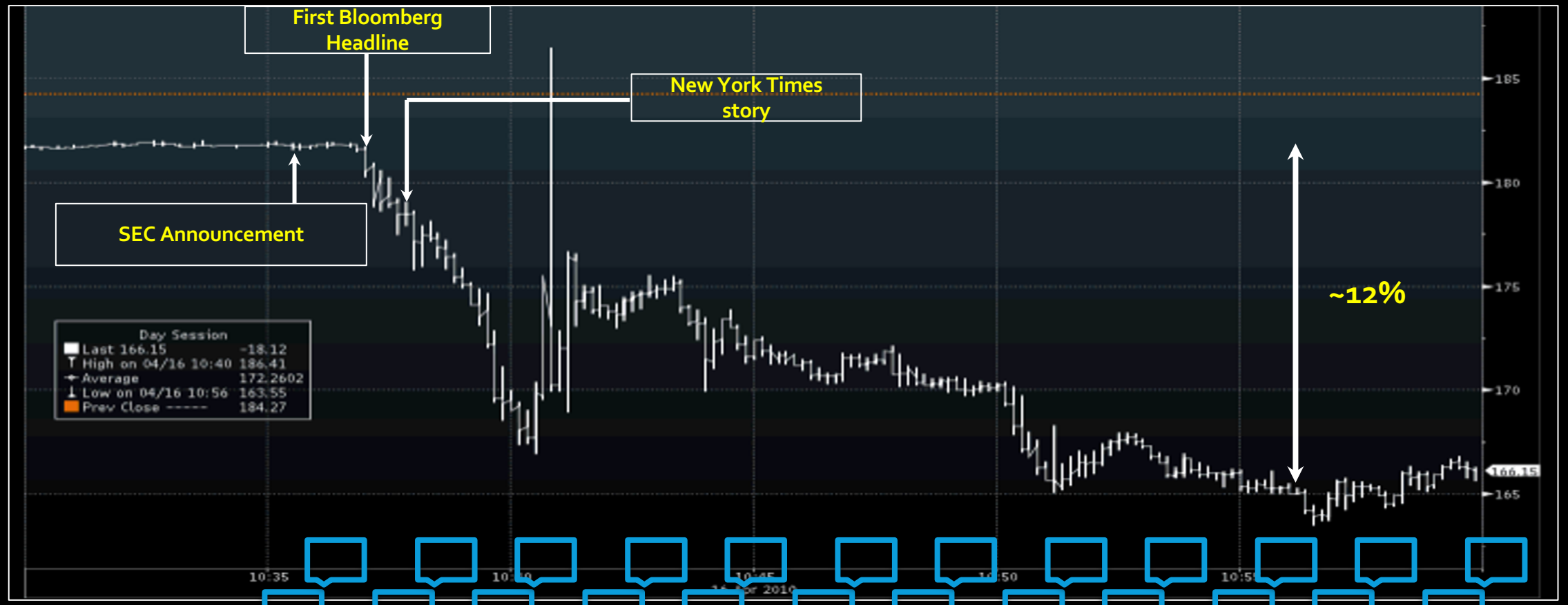
# News moves markets

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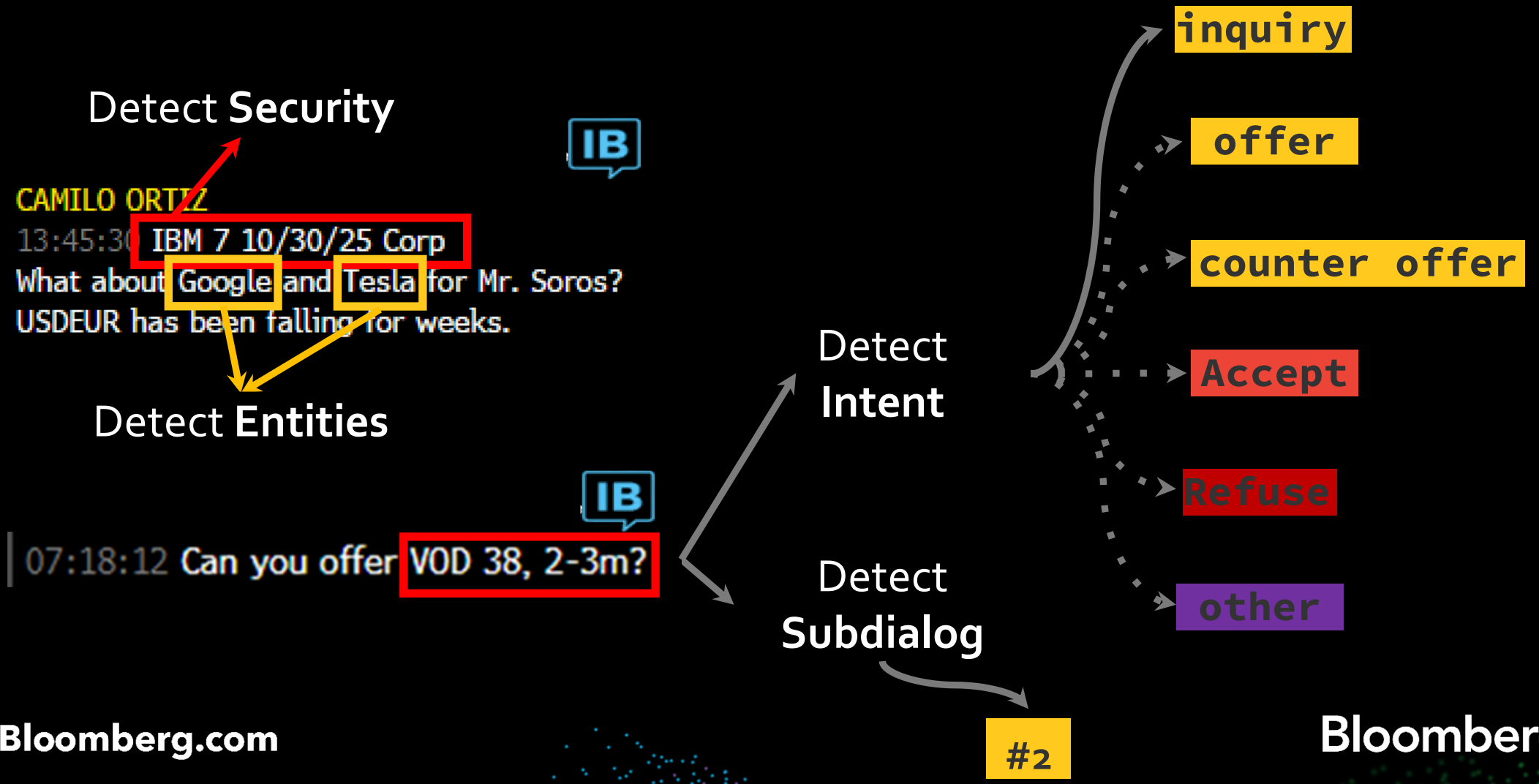
# Structuring Communication Data



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# Thank you!

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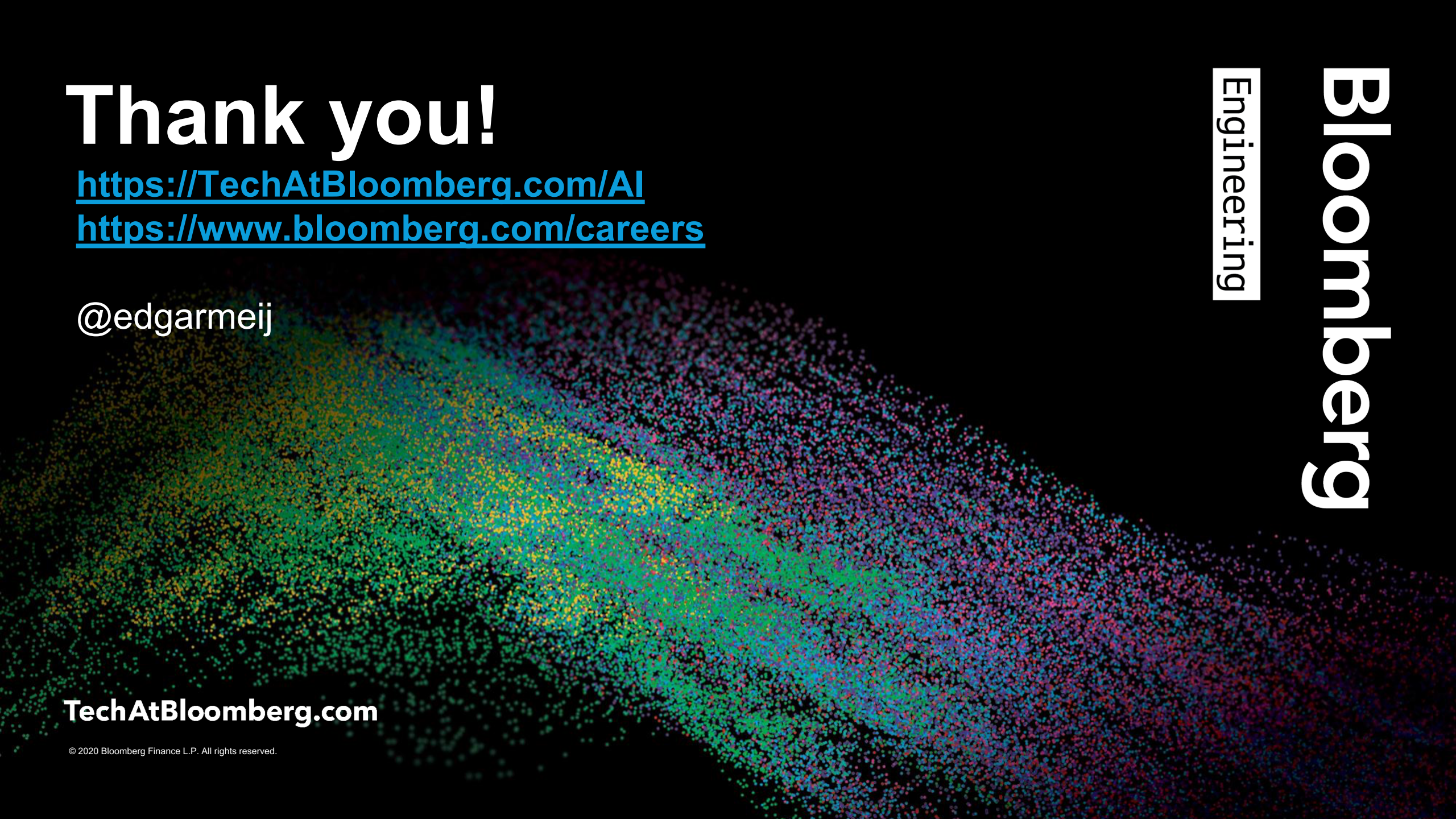

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