



The Battle of: Main Street vs Wall Street

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Agenda

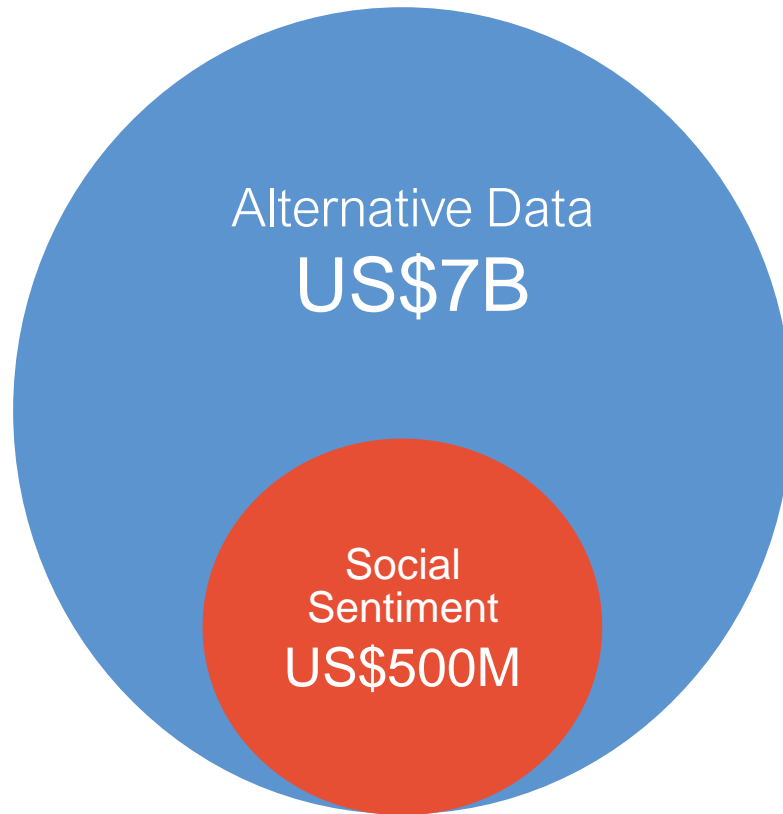
1. What is the commercial case for DigitalMR?
2. Case Study: Main Street Vs Wall Street
 - a. Can social intelligence predict stock fluctuation?
 - b. Which specific time series show better correlation/causation?
 - c. What periodic combinations between signal and predicted value work best?
 - d. What time lag should be used?
3. Other Findings
4. Closing Thoughts

Commercial Case: SITID

Social Intelligence for Trading & Investment Decisions

The Alternative Data Market

Global Market



“55% of funds spend
\$100K to \$1M per year on
alternative data”

- Lowenstein Sandler report, September 2019

Source: Opimas.com

The Problem

Signal lost in noise

&

Limited scope



Irrelevant posts

USA

US tickers



Low sentiment accuracy



English language



No topic annotation




News and Twitter

Client Use Cases:

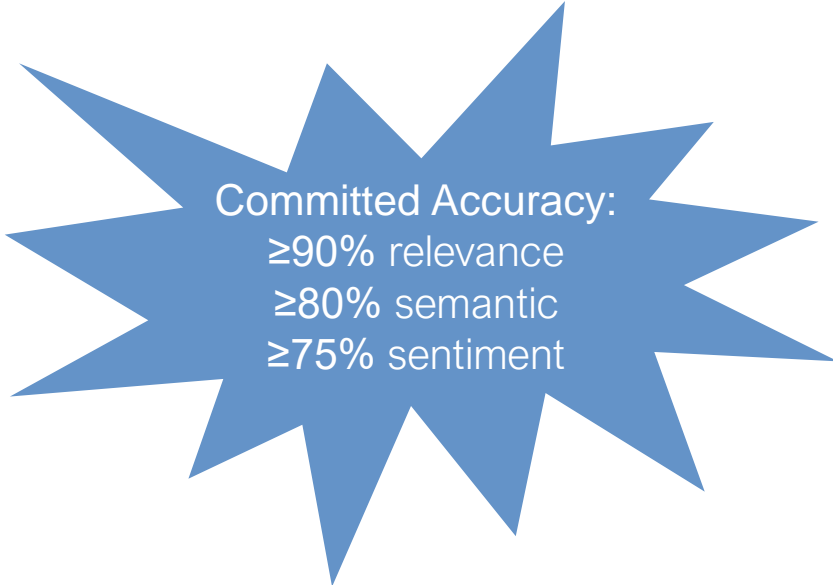
Not just about the **discovery of new alpha** but perhaps more importantly about **risk monitoring** and **deal sourcing**

The Solution



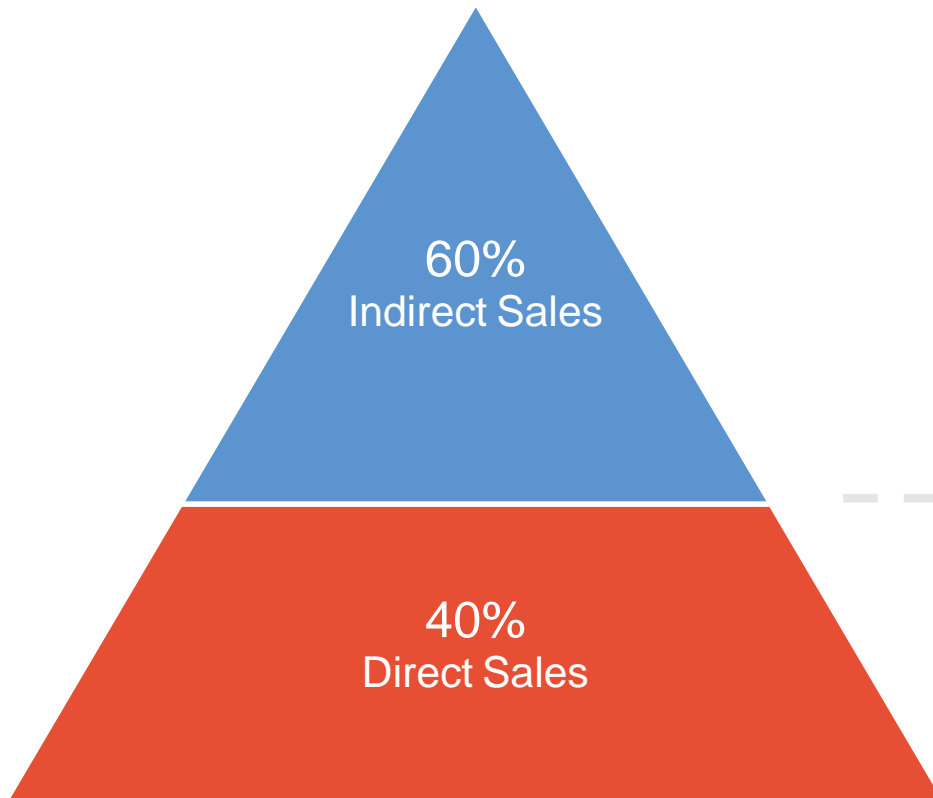
Selected
tickers from
other large
Stock
Exchanges

Custom:
data cleaning models
sentiment annotation models
topic annotation models



Committed Accuracy:
≥90% relevance
≥80% semantic
≥75% sentiment

Go-to-Market Strategy



Leverage & Expand existing relationships

Bloomberg  **Eagle Alpha**

Discussions with New Partners

Quandl 
 **Nasdaq**

Discussions with Funds


CASDIN
CAPITAL
LIFE SCIENCE INVESTMENTS

 **LONE PINE CAPITAL**


BLUESHIFT
ASSET MANAGEMENT

New Funds

Outbound &
Inbound activity

Value Proposition



High quality signals



Sentiment + topics



Tickers across all major stock exchanges

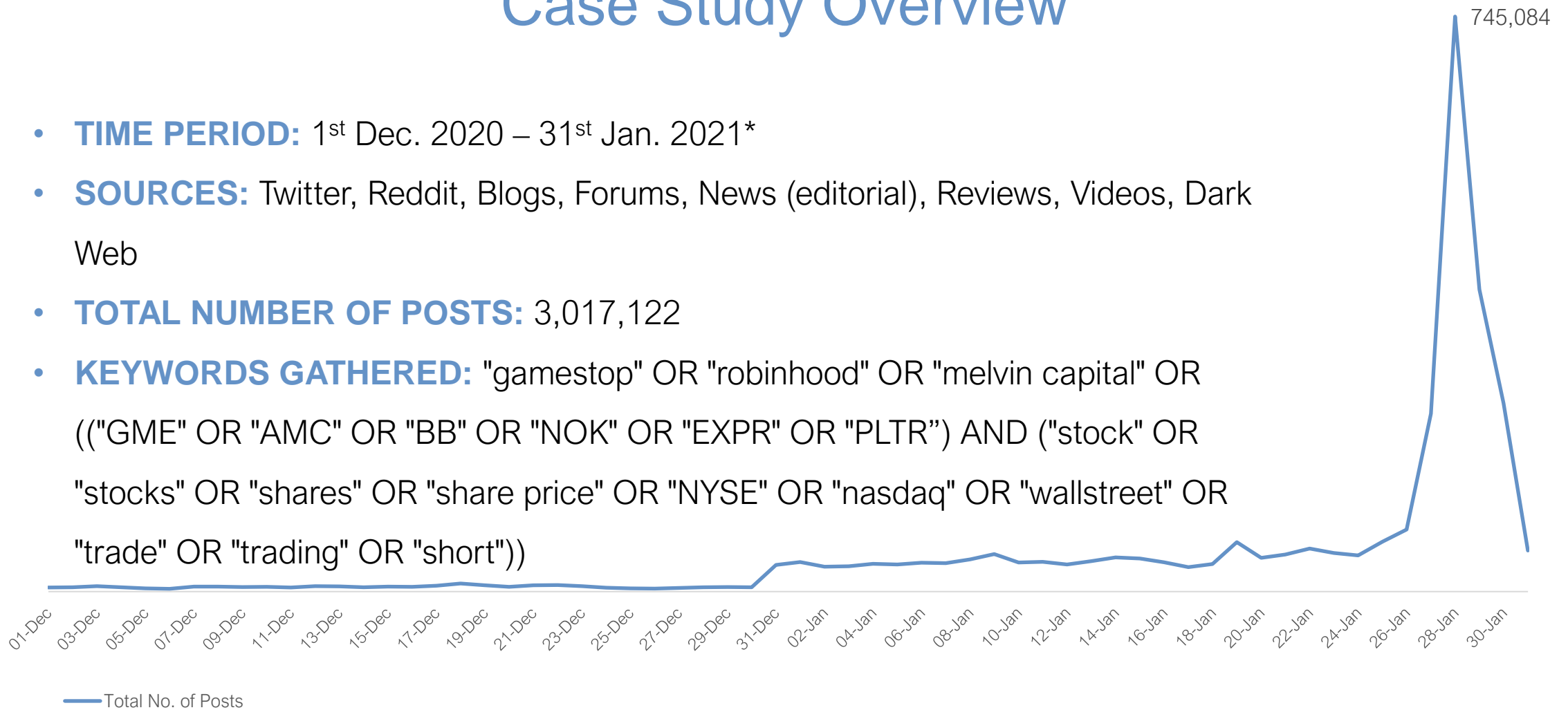


Better investment & trading decisions

Case Study: Main Street Vs Wall Street

Case Study Overview

- **TIME PERIOD:** 1st Dec. 2020 – 31st Jan. 2021*
- **SOURCES:** Twitter, Reddit, Blogs, Forums, News (editorial), Reviews, Videos, Dark Web
- **TOTAL NUMBER OF POSTS:** 3,017,122
- **KEYWORDS GATHERED:** "gamestop" OR "robinhood" OR "melvin capital" OR ("GME" OR "AMC" OR "BB" OR "NOK" OR "EXPR" OR "PLTR") AND ("stock" OR "stocks" OR "shares" OR "share price" OR "NYSE" OR "nasdaq" OR "wallstreet" OR "trade" OR "trading" OR "short")



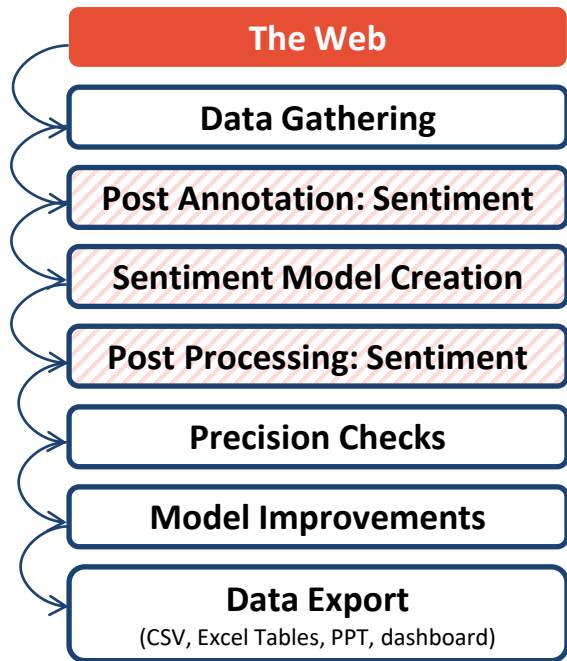
*Reddit data is available from 1st Jan. 2021 to 31st January 2021

*Data from all other sources is available from 1st Dec. 2020 to 31st Jan. 2021

Text Annotation Approach

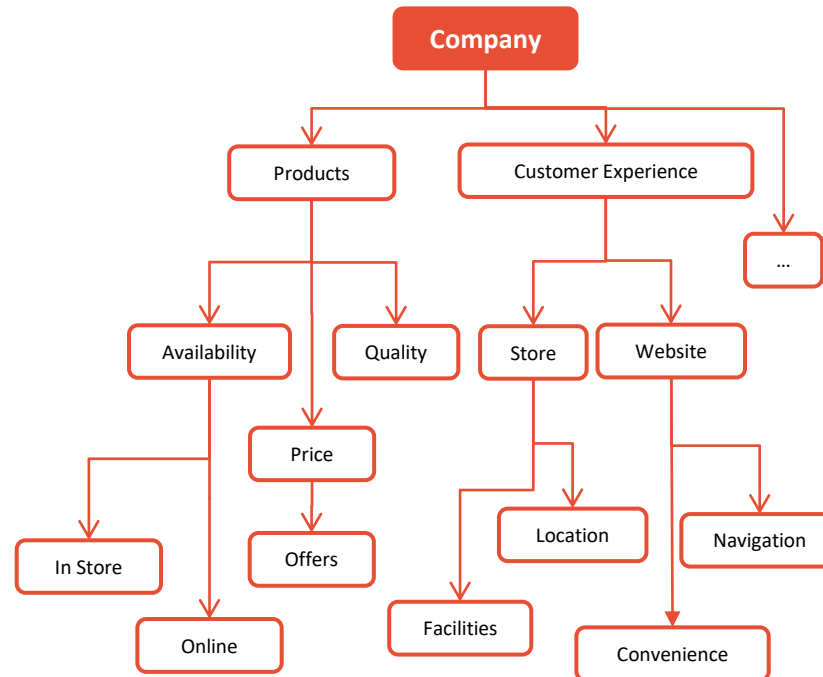
≥75% sentiment

Custom Sentiment Models



≥80% semantic

Drill-down Topics



≥90% relevance

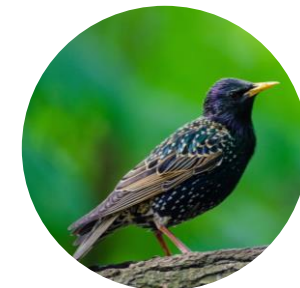
Noise Elimination

Starling Bank



NOT

Starling Bird



\$GME - Time Series & Periodic Combinations

Pearson Correlation

	close_price	close_price_1d_return	close_price_2d_return	close_price_3d_return	close_price_4d_return	close_price_5d_return
n_neutral	0.563853	0.0984603	0.451541	0.620449	0.572559	0.549248
n_positive	0.619291	0.14276	0.435759	0.636991	0.646206	0.604035
n_posts_total	0.577757	0.103951	0.435747	0.622623	0.593611	0.559792
n_posts_neutral_positive	0.581792	0.112043	0.447748	0.626777	0.596011	0.566963
n_posts_total_1d_change	-0.140247	-0.0823842	0.436884	0.247381	-0.0557894	-0.0105824
n_posts_total_2d_change	-0.111797	0.0446667	0.309733	0.49278	0.171554	-0.0368307
n_posts_total_3d_change	-0.0575283	0.129008	0.347029	0.439232	0.440289	0.195572
n_posts_total_4d_change	0.248076	0.0852148	0.394612	0.521166	0.542675	0.399922
n_posts_total_5d_change	0.475797	0.0725509	0.41402	0.601377	0.58858	0.514918
n_posts_total_6d_change	0.507856	0.0516311	0.406618	0.586657	0.563685	0.525182
n_positive_1d_change	-0.151054	-0.0333068	0.46523	0.300027	-0.00192632	0.00212652
n_positive_2d_change	-0.108679	0.0828621	0.325512	0.508486	0.230506	-0.000484699
n_positive_3d_change	-0.0244317	0.158102	0.35136	0.457337	0.480649	0.227177
n_positive_4d_change	0.275965	0.112757	0.387807	0.527725	0.583556	0.430654
n_positive_5d_change	0.515664	0.111727	0.411781	0.615573	0.644836	0.5583
n_positive_6d_change	0.545701	0.0850597	0.403634	0.596377	0.614253	0.567416
n_negative_1d_change	-0.14189	-0.103658	0.417266	0.26581	-0.0588792	-0.0309394
n_negative_2d_change	-0.115927	0.0328473	0.275492	0.485206	0.186057	-0.0424288

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\$GME - Highest Pearson Correlation Coefficient

	close_price_2d_return	close_price_3d_return	close_price_6d_return
n_negative_lag_1	0.842586	0.867157	0.880624
n_neutral_lag_1	0.828585	0.843249	0.873804
n_positive_lag_1	0.807039	0.866364	0.872423
n_posts_total_lag_1	0.828974	0.856275	0.877131
n_posts_neutral_positive_lag_1	0.823871	0.852047	0.875314
n_posts_total_5d_change_lag_1	0.817754	0.860261	0.822525
n_posts_total_6d_change_lag_1	0.823495	0.858321	0.857537
n_positive_5d_change_lag_1	0.793368	0.870888	0.8137
n_positive_6d_change_lag_1	0.802107	0.871244	0.853386
n_negative_5d_change_lag_1	0.834355	0.871212	0.837177
n_negative_6d_change_lag_1	0.839121	0.871255	0.866148
n_neutral_5d_change_lag_1	0.816361	0.84643	0.81537
n_neutral_6d_change_lag_1	0.82157	0.842923	0.851436

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\$EXPR - Time Series & Periodic Combinations

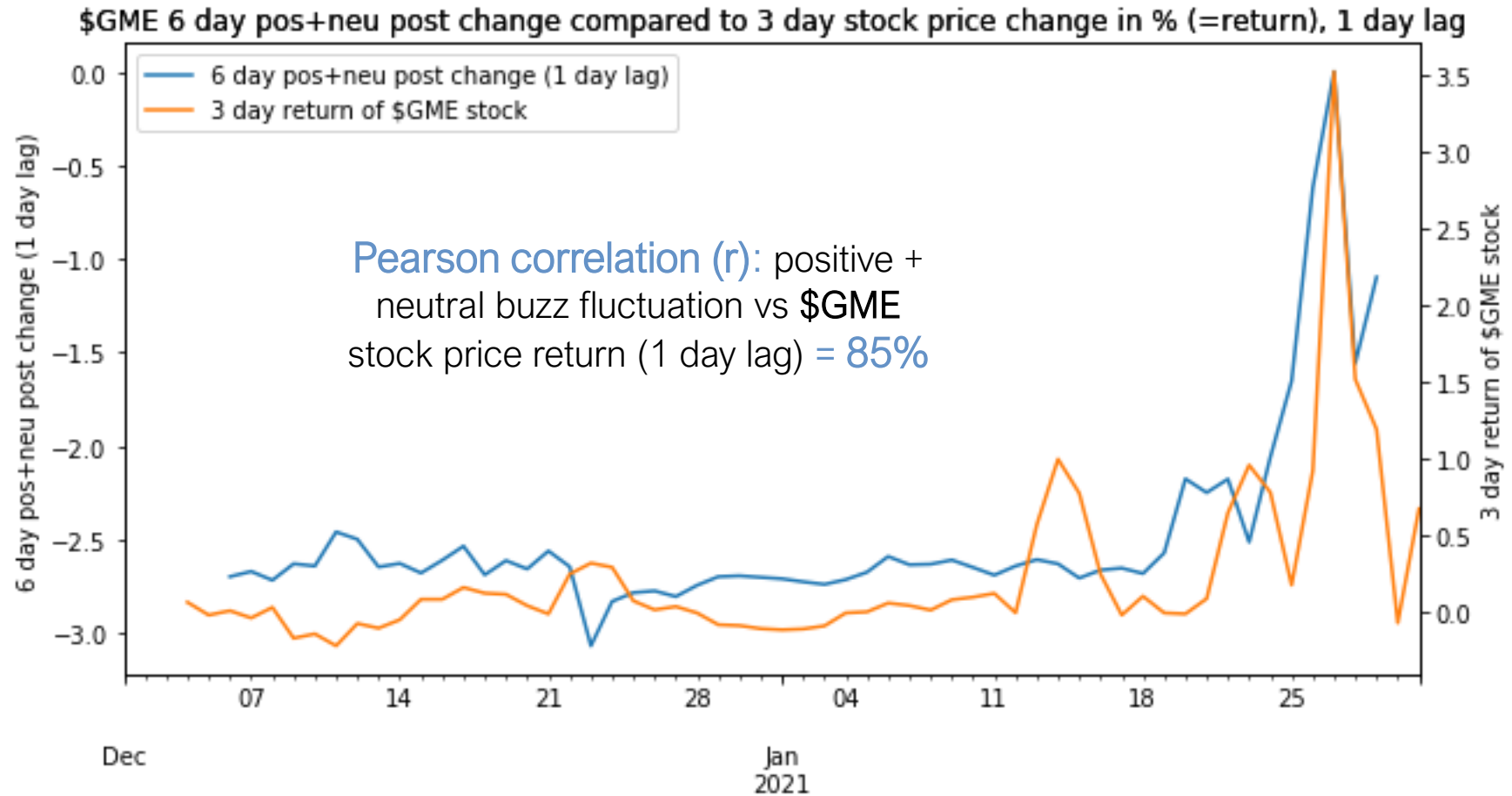
Pearson Correlation

	close_price	close_price_1d_return	close_price_2d_return	close_price_3d_return
n_negative_1d_change_lag_2	-0.458059	-0.666394	-0.290854	-0.24917
n_negative_2d_change_lag_2	-0.116811	-0.00832775	-0.149065	-0.0511399
n_negative_3d_change_lag_2	-0.0687362	-0.0558937	0.0743262	-0.129412
n_negative_4d_change_lag_2	0.227768	-0.0661096	-0.00350344	-0.0715692
n_negative_5d_change_lag_2	0.326853	-0.053814	-0.0350612	-0.0351772
n_negative_6d_change_lag_2	0.33596	-0.0635822	-0.0456455	-0.0374213

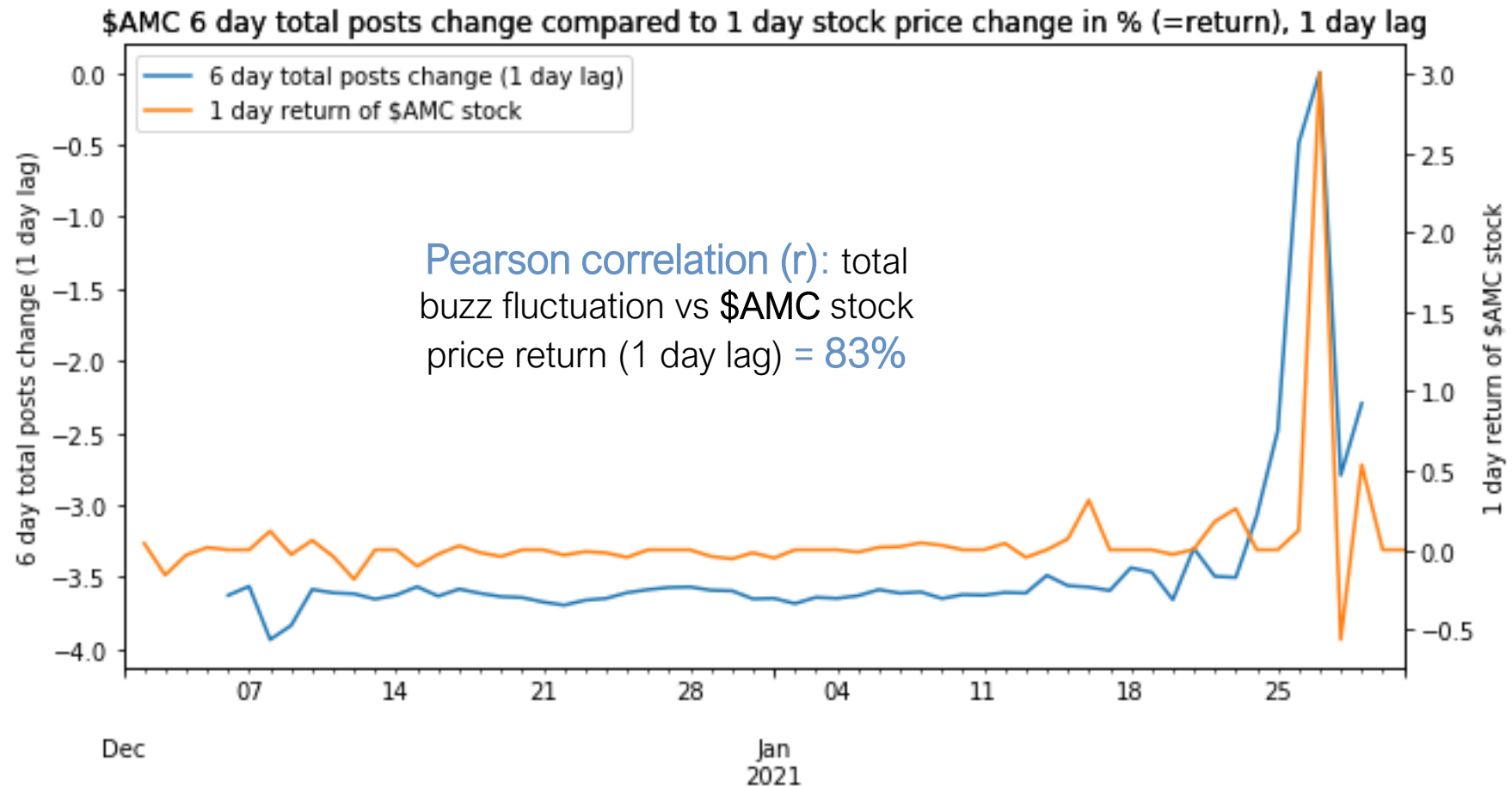
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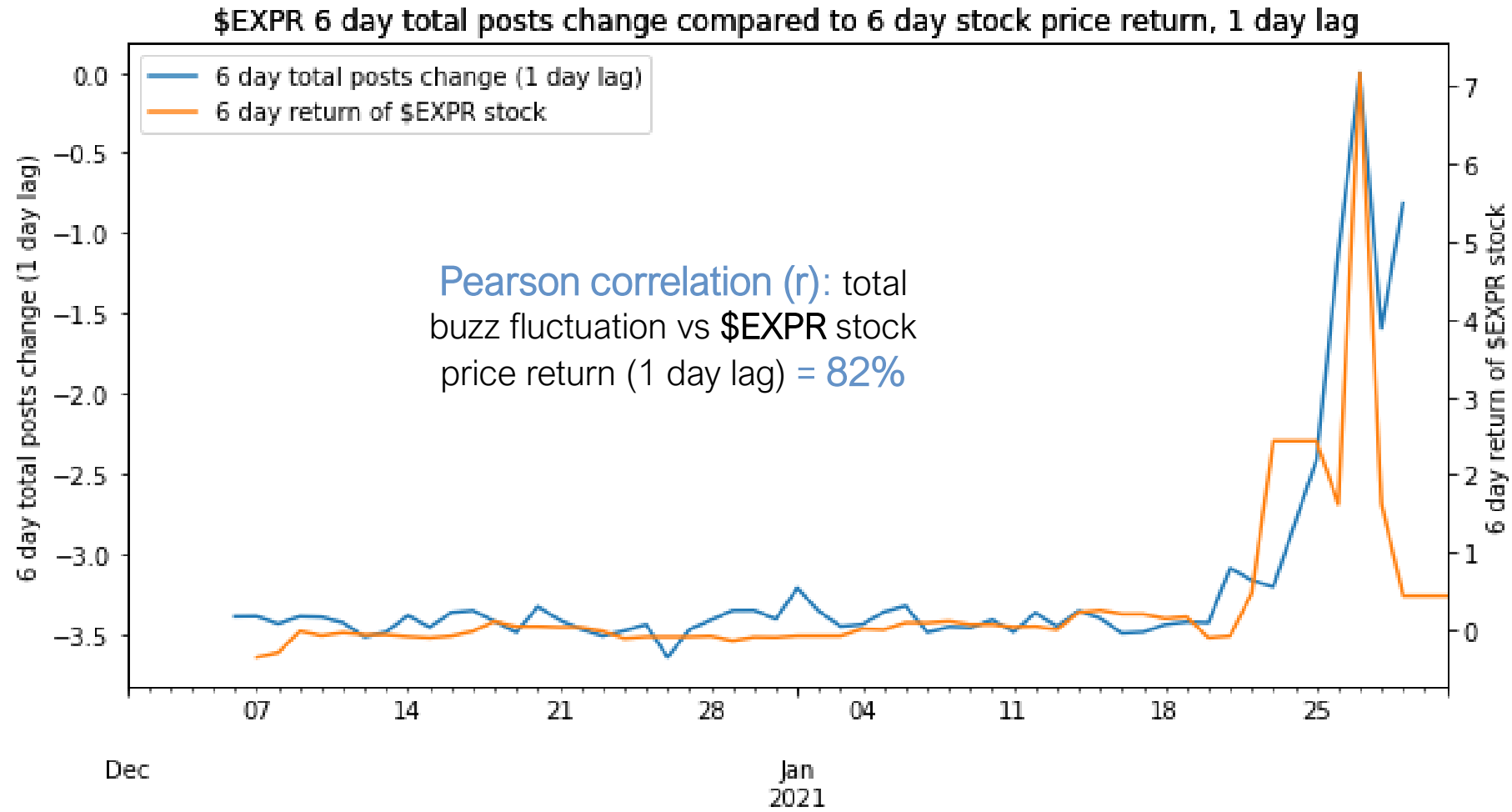
High correlation between GameStop buzz and stock price



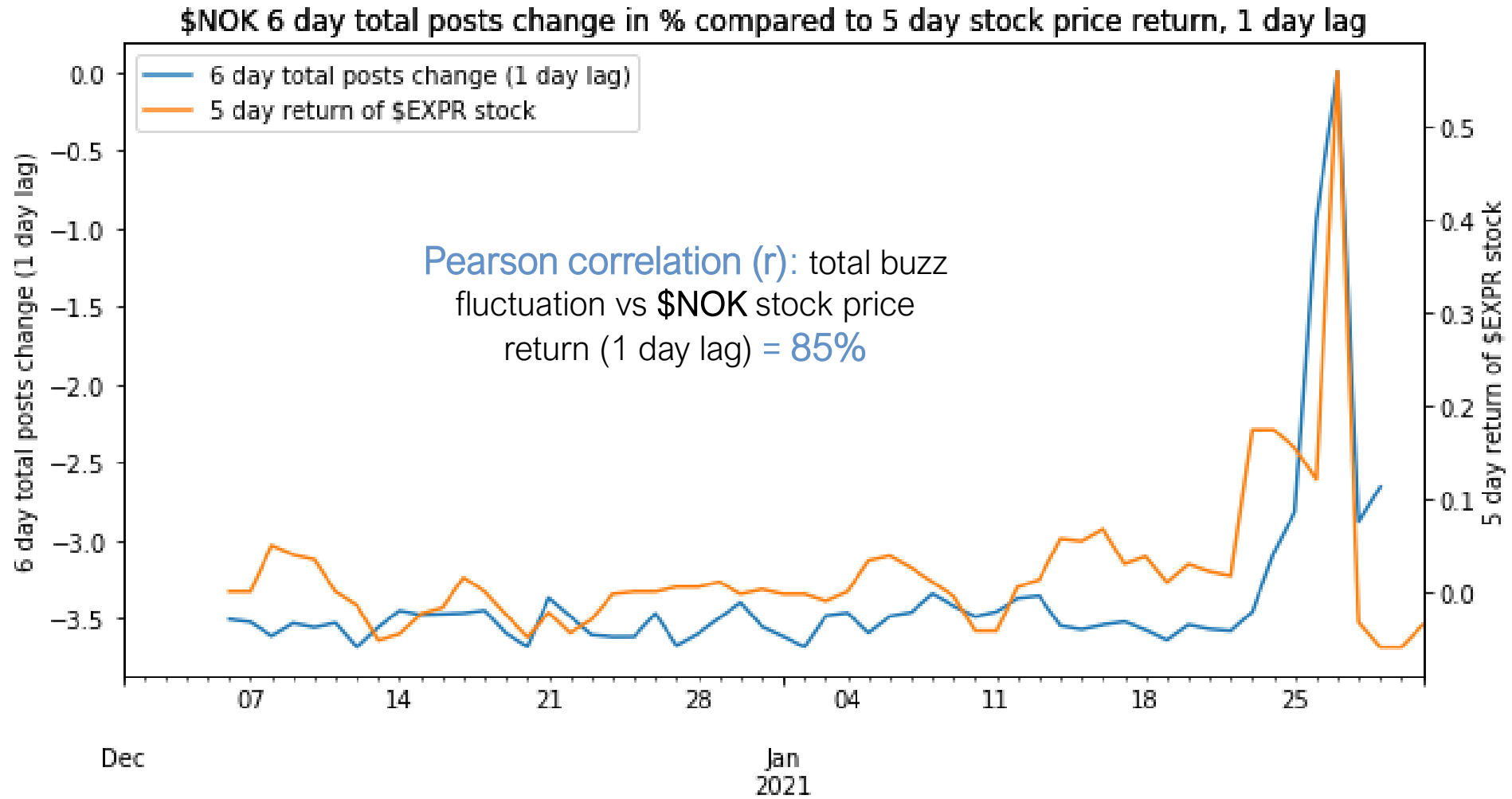
High correlation between AMC buzz and stock price



High correlation between Express buzz and stock price

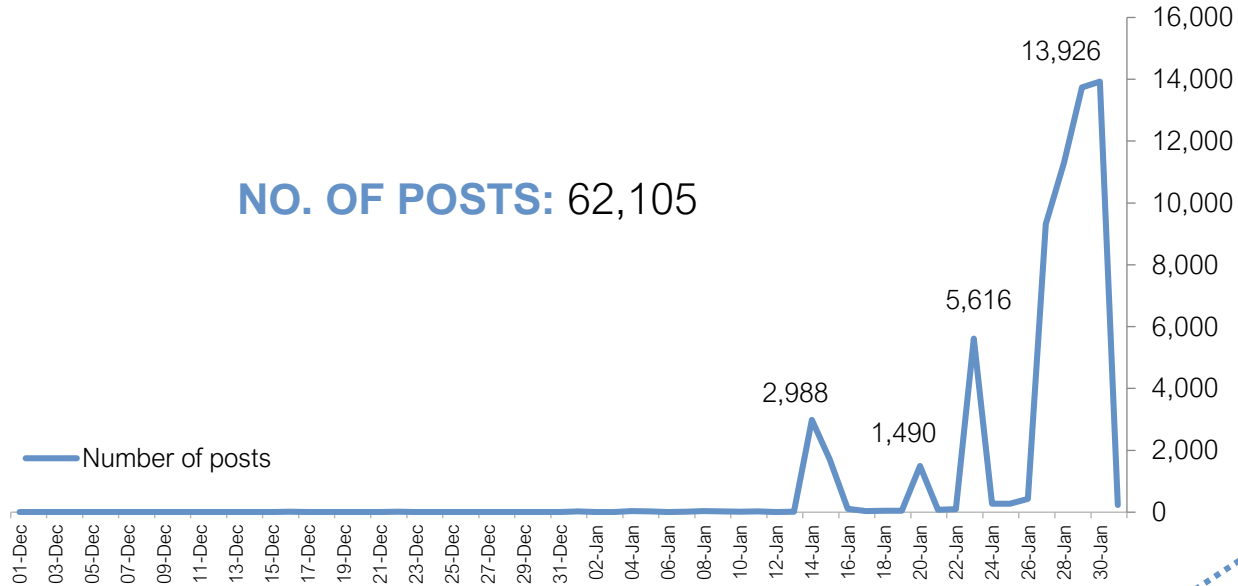


High correlation between Nokia buzz and stock price



Other Findings

1. The “YOLO” attitude



“@wallstreetbets if we could YOLO some BB tomorrow that would be great” (Twitter)

“I bought GME at the top. Don't care about making a profit, fuck it. YOLO” (Forums)

“At the moment, if I had a spare \$50k cash to yolo on something, I'd throw it in GME shares or PLTR shares. PLTR for the long term, GME for the short term. Maybe split \$20k GME / \$30k PLTR, and once GME hits \$150 or higher take my gains and dump them into more PLTR.” (Forums)

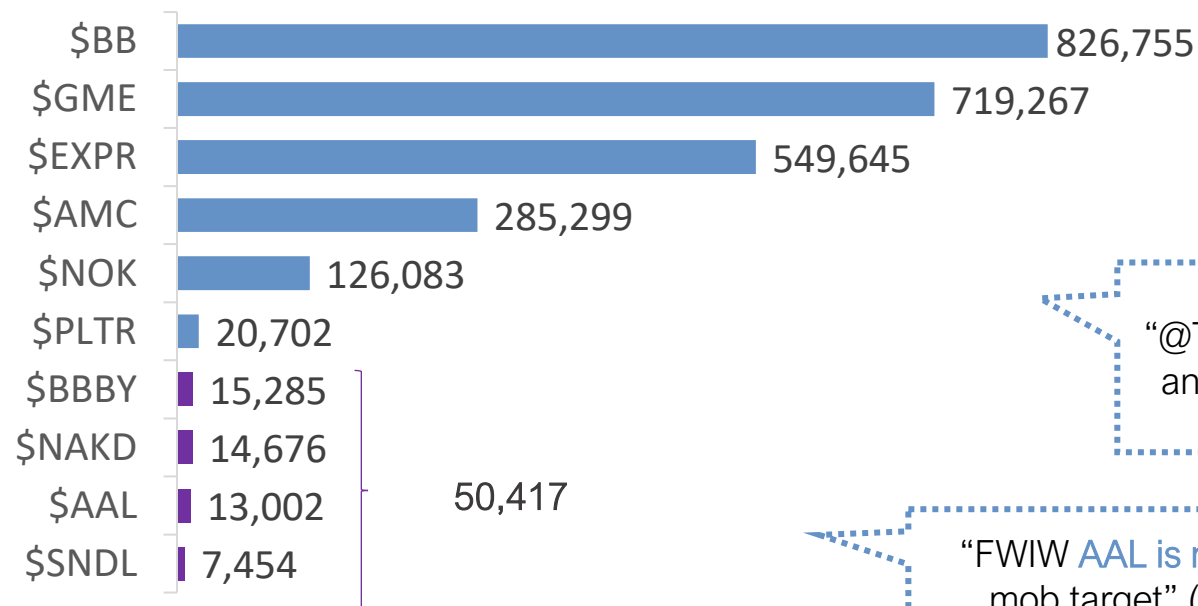
“I just cleared my debts, i have \$500, I want to go YOLO, do i buy GME at the price that its at?” (Reddit)

“BRB gonna yolo everything into GME! It can only go up!” (Twitter)

“YOLO into AMC tomorrow? or nah?” (Forums)

“HOLD THE LINE. YOLO THIS SHIT. AMC. GAMESTOP. NOKIA. LETS DO IT!” (Videos)

2. Other companies come up without searching for them



“Check out this hot penny stock Naked (NAKD) and Express (EXPR)! (...)” (Videos)

“@TreJames_ I saw amc bed bath and beyond tanger outlet and some others that are gonna be targeted next” (Twitter)

“FWIW AAL is next reddit mob target” (Forums)

“Gogo nakd gme and amc are all high in short interest this will be interesting. AAI is going up too and thats great! I have little amount but i like it.” (Forums)

“my next bet is bed bath and beyond new management team and its also being shorted. its actually somewhat similar to GME restructuring. Just lmao.” (Forums)

“AAL all in baby” (Reddit)

“I am in with NOK, AMC, SNDL ...” (Reddit)

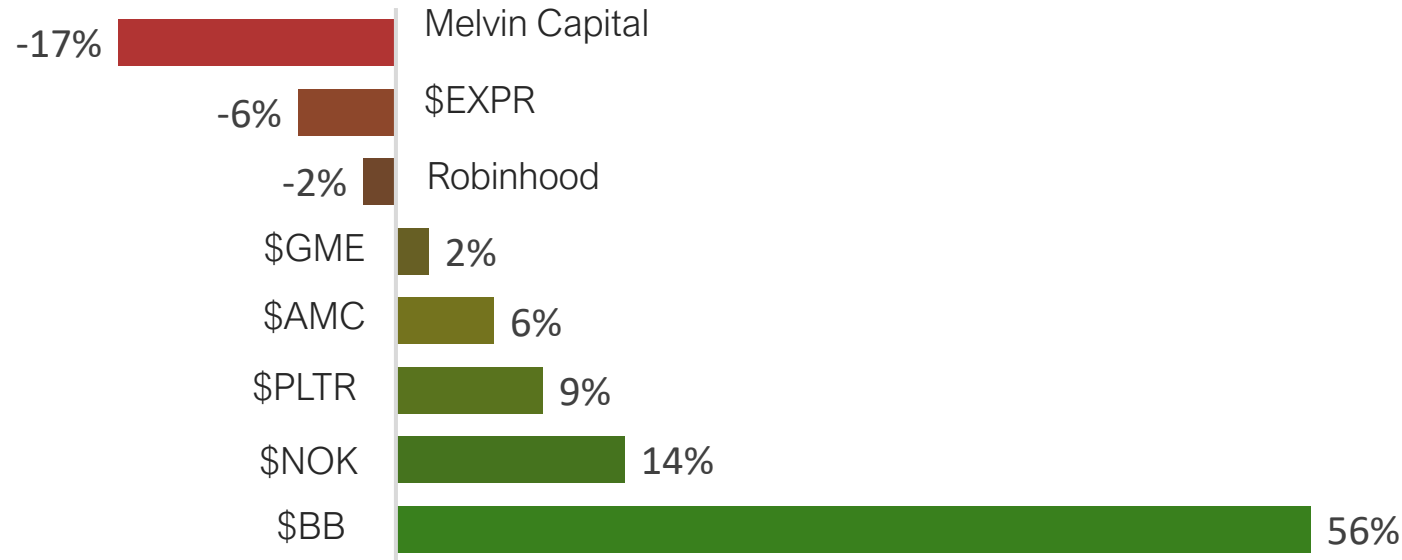
“AMC, BB, BBBY madness” (Twitter)

“@elonmusk LETS BUY \$AMC \$NOK \$GME \$NAKD TRAP THE SUITS” (Twitter)

“Hold amc but also buy sndl” (Twitter)

“#SNDL isn't blocked yet, get it sent to the moon 🚀” (Twitter)

3. Net Sentiment Score™



“(…) HOLD THE FUCKING STONKS!!
👉💎👉💎 MELVIN CAPITAL BURN TO
THE GROUND incoming tendies!!” (Reddit)

“Looks like my math so off by \$500
mil lol. Melvin Capital is fucked. That
also assuming GME is the only
company they are shorting.” (Forums)

“I’m extremely happy that Melvin
Capital got caught on their bullshit
here. (…)” (Twitter)

“All my homies hate Melvin capital” (Reddit)

“Melvin capital can eat shit. (…)” (Forums)

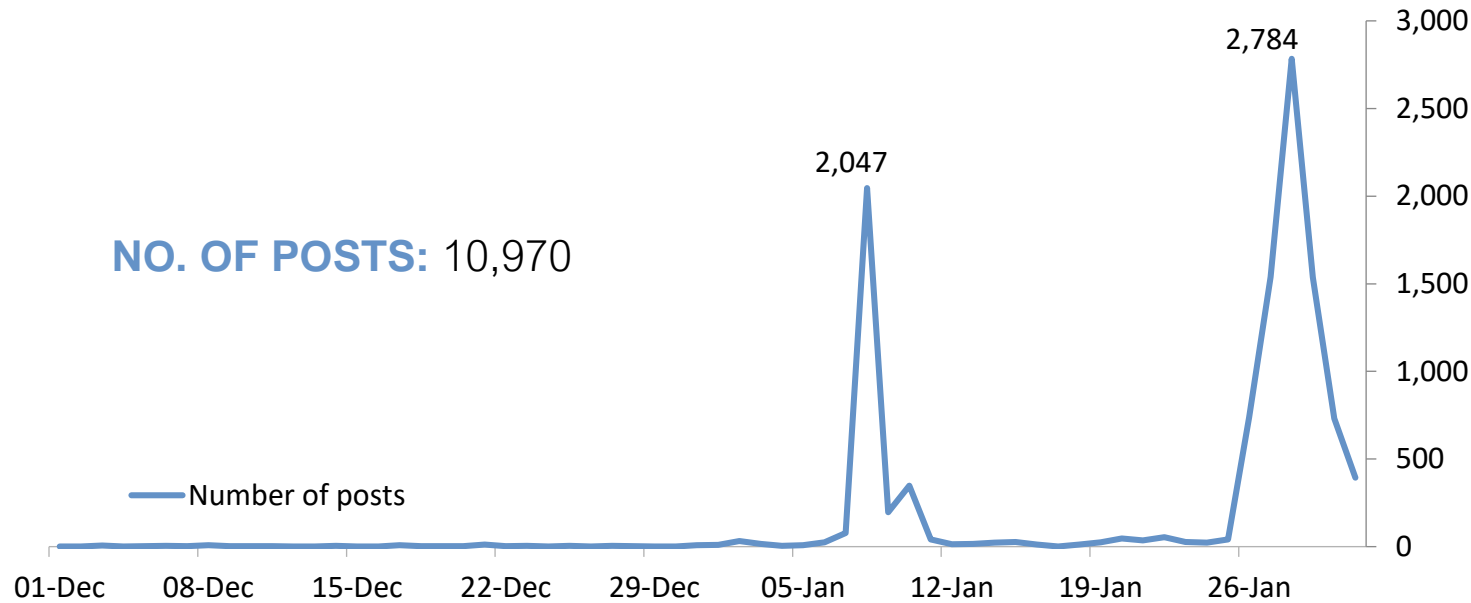
“Maybe Melvin Capital doesn't have the leverage for that? Elon
Musk went against them and he has decent connections.
Perhaps they are really about to go down.” (Videos)

“I'd say they bankrupted themselves by playing the game the
way they were. The only thing that happened is that the
market pivoted and reacted differently..” (Forums)

“Or buy high and push higher to fuk bears & Melvin Capital” (Reddit)

“That’s why I don’t care if I lose my few shares. I’m not
selling until Melvin capital is out of business.” (Reddit)

4. Some believe Elon Musk is involved, as payback to Melvin C.



“@Reuters Elon tweeted Gamestonk yesterday with a link and was in the reddit forum about Melvin hes buying a bunch of Game Stop apparently because Melvin was shorting Tesla for a while and this is payback.” (Twitter)

“All I got is the people getting screwed the most (thus far) are the types of people who own multiple boats. And Melvin Capital tried to short Tesla multiple times Elon never forgot and now he seems to be the captain of the SS TAKE DOWN HEDGE FUNDERS” (Twitter)

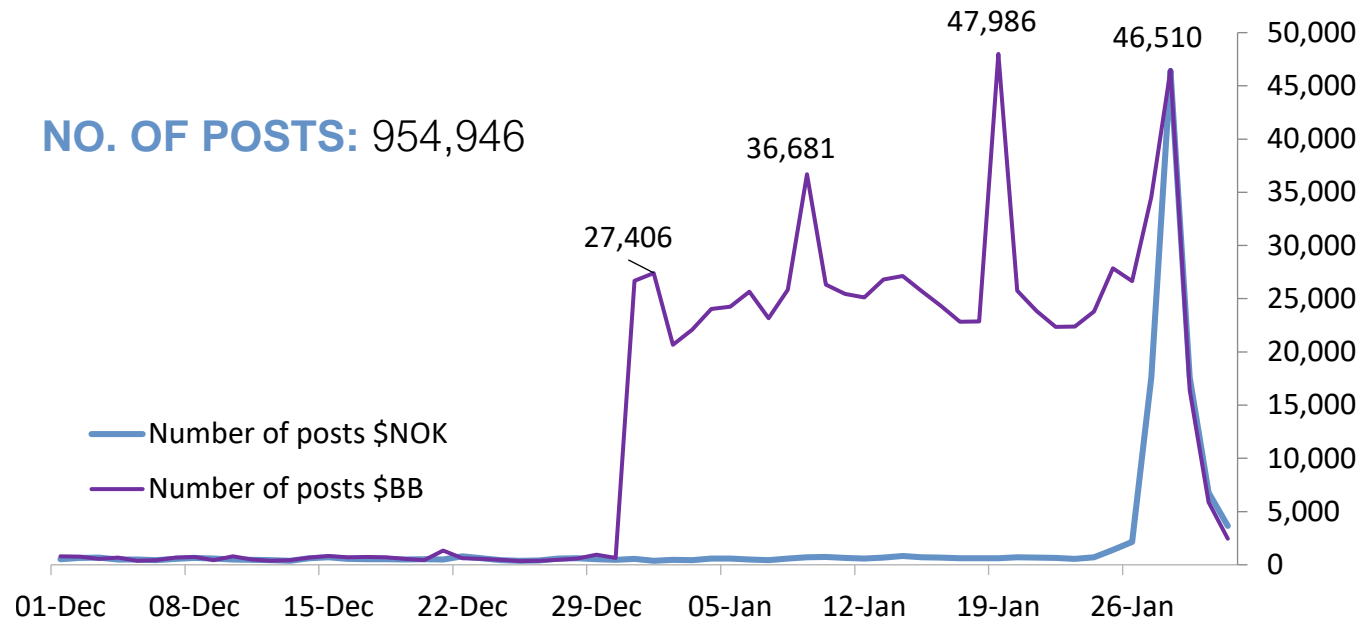
“@wrestlingskum @N3rdC3ntral @People4Bernie Its also worth noting that Elon Musk is shilling Gamestop stock specifically because its Melvin Capital who repeatedly shorted Tesla for years eating the cost.” (Twitter)

“quote: Reddit Investors @redditinvestors Elon Musk is shilling GameStop because Melvin Capital shorted Tesla a long time ago and bragged about it.” (Forums)

“@AmiFFXIV After reading up on this it seems that one hedge fund in particular is the target here.. Melvin. They had a large short position on Gamestop which means they are losing billions now it is going up. This hedge fund shorted Tesla previously and Elon has been tweeting about it..” (Twitter)

5. \$NOK and \$BB are stocks to keep an eye on

NO. OF POSTS: 954,946



“Ladies **buy BB** when the market opens while its still low, it will go up” (Forums)

“Let’s not lose this fight, **buy all the shares you can and hold** your shares with diamond hands , let’s goooo \$GME \$AMC **\$BB \$NOK**” (Forums)

“**BUY BB HOLD BB** TOMORROW 🚀🚀🚀🚀” (Reddit)

“@business **BUY \$NOK \$BB \$AMC** lets get this done!!!” (Twitter)

“🚀🚀 **NOKIA (NOK) STOCK | MASSIVE POTENTIAL | ARE YOU BUYING?**” (Videos)

“**BUY AND HOLD AMC** THIS DUDE IS TRYING TO SWAY US OFF THE SHIP, BUY GME, BUY AMC, **BUY BB, BUY NOK AND FUCKING HOLD**” (Reddit)

“**Buy BB shares** Monday before lift off 🚀🚀🚀🚀🚀🚀🚀🚀🚀🚀🚀🚀🚀” (Videos)

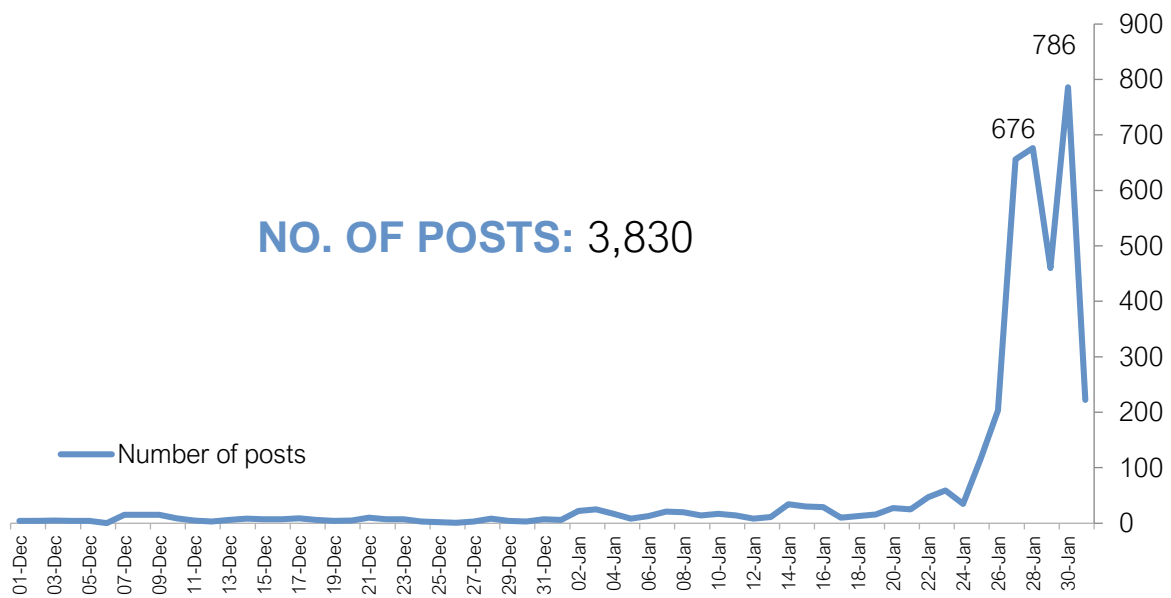
“@redditrading **Buy \$NOK please and hold!**” (Twitter)

“@GerberKawasaki **BUY NOK!!**” (Twitter)

“LETS GOO GUYS!! **BUY NOK BB & AMC**, KEEP THEM BUSY” (Reddit)

“@blackopium **HOLD THE LINE #AMC #GME #NOK #BB BUY THE DIPS. DO NOT SELL**” (Twitter)

6. "FOMO" is one of the reasons to buy



“Market is insane on \$GME, everyone is FOMO. Germany market propped it up 310 a share. Melvin Capital is dead in the water.” (Forums)

“@uhWizard i sold amc and now i have fomo still in nok” (Twitter)

“@breakneck_tv I think I hopped into AMC a bit late, but fomo after staring at GameStop the last couple days made it so I couldn't sit out anymore” (Twitter)

“Am I the only one with FOMO buying GME today? I bought one share yesterday and am getting five when the market opens today...not the biggest loss if it goes badly I guess.” (Forums)

“I will feel sad if anyone go broke because they FOMO GME” (Reddit)

“Well I FOMOed into BB this morning.” (Forums)

“I believe there is definitely a strong element of FOMO with this stock, especially with what we've seen in stocks like GME and AMC.” (Forums)

“the fear of missing out has surpassed the fear of losing money” - some dude” (Reddit)

“YOLO IM BUYING TOMORROW. FOMO IS TOO REAL. TO THE MOON 🚀👁️” (Reddit)

7. A taste of the Dark Web

NO. OF POSTS: 6,462

“@If you missed **gamestop**.. Buy **Blackberry** and **Nokia** and Silver. (...)”

“**Melvin Capital** lost about 53% in January on **GameStop** Corp. after the firm found itself on the receiving end of a short squeeze started by retail investors motivated on Reddit. (...)”

“Guys I'm speaking literally , retail exchanges are removing the ability to buy **AMC**, **GME** and **BB**”

“I've heard it's about to spike like **GameStop** did”

“Billionaires can remain solvent longer than you can remain irrational. **Melvin Capital** has a very real chance of going insolvent. (...)”

“We'll list every single #stock that **@RobinhoodApp** delists as a tokenized stock. Blockc ain is the real way **we democratize the financial system together**. Trade **\$GME**, **\$BB**, **\$SLV**, **\$NOK**, **\$AMC** and other tokenized stocks on Bittrex Global now.”

“**Melvin Capital** lost about 53% in January on **GameStop** Corp.”

“buy **gamestop** stock and hold the line soldier”

“**Robinhood** is automatically selling **GME** shares without user consent now.”

“ (...) it's important to realize that the eventual winners of this scenario aren't going to be the Redditors holding on to **\$GME** shares, but the wealthy short-sellers who manage to either predict the pop or simply have enough assets to hold on long enough for it to happen. (...)”

Closing Thoughts

1. Accuracy of annotation
2. The most important DS skillset
3. Sales
4. YOLO meets FOMO



Question Time!

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or apply for an internship at DigitalMR

<https://www.digital-mr.com/careers/data-science-assistant>

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