Ranking Financial Tweets

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ABSTRACT

Recently Twitter has complemented traditional newswire as a source of valuable Financial information. Although there is a rich body of published research dealing with the task of ranking tweets, there has been little published research dealing with ranking tweets within a Financial context. Here we consider whether popularity factors within Twitter can be used as a signal for popularity within the domain of financial experts. Our results suggest that what interests Finance is not the same as what interests the users of Twitter.

1. INTRODUCTION

Financial market participants constantly need new information when decision making, with news being an important signal. Financially-relevant news is traditionally divided into a number of broad topics such as securities (equities, foreign exchange, fixed income, commodities, derivatives), mergers and acquisitions, regulation and compliance. News can concern broad macro-level events (for example, a central bank raising interest rates or the UK leaving the EU) as well as staples of traditional news, such as natural disasters.

Relatively recently Twitter has gained importance within Finance. In part this is due to the US Securities and Exchange Commission allowing companies to use Social Media to communicate company announcements,[1] along with a growing awareness that it is becoming a source of breaking news [4]. Rumour and speculation on Twitter can be informative as this can reflect investor mood and outlook. Given the massive volume of tweets published each day (upwards of 500 Million posts), how can we effectively rank Financially relevant tweets so that Markets can react to them?

2. RANKING TWEETS

The Bloomberg Terminal allows a user to browse/search

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[1] http://www.bloomberg.com/news/articles/2013-04-02/sec-approves-social-media-use-for-companies-material-disclosure

tweets that are relevant for Financial professionals. Users can perform simple topic search (e.g., "find me tweets about Oil") and get a mix of tweets and news articles, as well as more traditional search. In both scenarios *ranked lists* of results are produced. Bloomberg has signed a long-term data agreement with Twitter and ingests more than one million newswire articles per day.[2][3]

Tweets typically are ingested as a stream and ranking needs to take into account factors such as novelty and relevance. Here we focus on relevance and how it relates to *popularity* within Twitter. Ranking microblog posts is a well studied problem [2, 5], with a dedicated TREC track that started in 2011 [3]. Usually in social media popularity is seen as being correlated with relevance and many learning to rank retrieval models are trained using, *inter alia*, social signals such as the number of followers or the number of retweets [1]. Does author popularity (when measured using the number of followers) or community popularity (when measured using the number of times a given post was reported or *retweeted*) have any bearing on ranking within a Financial setting?

3. SOCIAL AND FINANCIAL IMPORTANCE

We carried-out a small scale experiment in order to explore our question: for each tweet that we made available to Bloomberg users for 25 days in 2016 we recorded the number of recorded *user views* (a user view is a client reading a post in Bloomberg) together with post statistics such the number of author followers and the number of times a post was retweeted.[4] We collected the top 100 tweets ranked by the number of views. Our assumption here is that the number of user views made by Financial professionals is a good proxy of relevance within Finance as a whole.

For each of these tweets we considered the extent to which retweeting rates and author followers are correlated with the number of views. We computed the correlation coefficient ρ for these variables. We found a good correlation between retweets and followers ($\rho = .76$, statistically significant) but a very low correlation between views and retweets, and views and followers (resp. $\rho = .12$, $\rho = .14$). This suggests that the number of retweets and followers are not direct proxies for relevance in the financial setting.

Given that news covers a broad range of topics, we considered whether perhaps certain types of news better corre-

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[2] https://blog.twitter.com/2015/bloomberg-twitter-data

[3] https://youtu.be/oMOV7DB4gnA?t=271

[4] We recorded the number of retweets for each post after the census period.

lated with external popularity. For example, news about a major company might be popular both within Twitter and also within the Financial community. We manually categorized the top tweets into five categories: *news about a company* (40 tweets), *governance* (12 tweets), *news about pharma industry* (14 tweets), *merging and acquisitions* (24 tweets) *miscellanea* (10 tweets). We computed the ρ for the news categories obtaining ρ values similar to the previous: for example on companies we measured $\rho = .79$ between views and retweets, while $\rho = .19$ for views and retweets and $\rho = .18$ for views and followers. This suggests that external popularity does not carry over to individual Financial categories.

4. EXAMPLES OF POPULAR TWEETS

We selected the mostly highly viewed tweets and analysed why they were popular. Topics included (numbers after each post indicate the number of times the corresponding tweet was retweeted):

1. An unauthorised comment on advertising spending declining (15).

2. Notification of a company defaulting (91).

3. News of an ongoing bribery scandal affecting a hedge fund (4).

4. News about a biotech company having a potential buyer (37).

5. Speculation on the valuation of a company (1).

Three of these stories appeared in first place on Twitter and were posted on the Terminal minutes before news about the same facts produced by more traditional news sources. We also note that rumours are favoured. As expected, within Finance, core financial stories are highly viewed. Twitter complements traditional news in that we see speculation (Example 5) as well as off-the-cuff reporting (Example 1). We see that important Financial tweets are not necessarily highly retweeted (Examples 5 and 3). None of these stories used hashtags (though two used cashtags[5]). None mentioned other Twitter users and only two posts had an image in them. Not within these examples, we also observed that the authors of highly viewed tweets need not always have many Twitter followers. One story was written by an account with less than one hundred followers.

5. WHAT ABOUT UNPOPULAR TWEETS?

We also randomly sampled 50 tweets that received only one view during the same period and analysed them in the same way. We noticed that some tweets that were not relevant for the Financial professionals exhibit a large number of retweets (> 100). In particular we found:

1. A story about a probable terrorist attack in Paris (410).

2. A rumour about a large acquisition of a company (190).

3. A story about governance, not in English (192).

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[5]A *cashtag* is a hashtag-like symbol for a traded company.

4. A story about a major phishing attack, posted by a major news company with more than 10 million followers (42).

We were surprised by the fact that Example 2 was not considered relevant in our financial context. On closer inspection, there were other newswire stories about that company that we made available two minutes before –probably at that point the Twitter story was no longer temporally relevant for the users. This again suggests that novelty is a major characteristic of relevant news: in this case the story was on-topic for Finance, but the fact that a similar, non-Twitter story was published and surfaced two minutes prior made the otherwise topical Twitter story no longer interesting.

6. COMMENTS

Ranking tweets for the Financial Community is different to standard ranking for micro-blogs. Initial evidence suggests that novelty is important and that what counts as being popular within Finance is not necessarily the same as popularity within Twitter. Crucially, 'novelty' is with respect to the totality of *all* news and not just news as found in Twitter. Successfully ranking tweets for Finance must also take account of temporally relevant newswire stories. It does not suffice to rank tweets in isolation. For Finance, speculation, capture of fleeting information and core financial topics are all important and complement more traditional news content.

7. REFERENCES

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