Alternative Data: The Key to Predicting the Next Banking Crisis?

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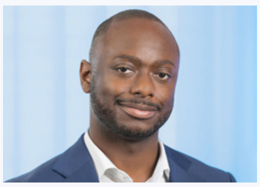
Are banking crises idiosyncratic? Advances in the collection, management and analysis of alternative datasets mean investors now have access to information simply unavailable or impossible to obtain in previous years. In essence, could alternative data be a leading indicator for banks in difficulty? And could the data predict the next dominoes to fall following a banking crisis?

Authors



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Introduction

Bear Stearns. Washington Mutual. Signature Bank. Archegos and Greensill. Banking crises always seem to be defined by their casualties. The latter two may seem relative minnows versus the others. But they were two of the banana skins Credit Suisse slipped on, losing $5.5 billion on Archegos collapsing and another $1.7 billion on Greensill, shedding light on the management problems in its investment bank, culminating in its own collapse in March 2023. Of course, March 2023 also saw the then second-biggest banking failure in US history: Silicon Valley Bank ('SVB'); followed a month later by an even bigger failure, First Republic Bank.

Each of these banks had their own factors which contributed to their demise: from exposure to mortgage-backed securities that turned into toxic assets when the underlying loans began to default for Bear Stearns, to having a large concentration of deposits from a risky private equity customer base and a large exposure to investing such deposits in long maturity bonds in the case of SVB.

But are banking crises really so idiosyncratic? Advances in the collection, management and analysis of alternative datasets mean investors now have access to information simply unavailable or impossible to obtain in previous years. In essence, could there now be a leading indicator for banks in difficulty? And could alternative data predict the next dominoes to fall following a banking crisis?

Alternative Data as a Leading Indicator for Banking Crises

Alternative Data 1: Media Attention

We first turn our attention to the external factors that affect banks; most importantly, interest rates.

In recent years, banks invested heavily in bonds and other fixed-rate investments like mortgage-backed securities. Specifically at SVB, fixed-rate securities made up nearly 60% of the bank's assets at the end of 2022. But as the Federal Reserve raised interest rates, those bonds became less valuable, contributing to SVB's demise.

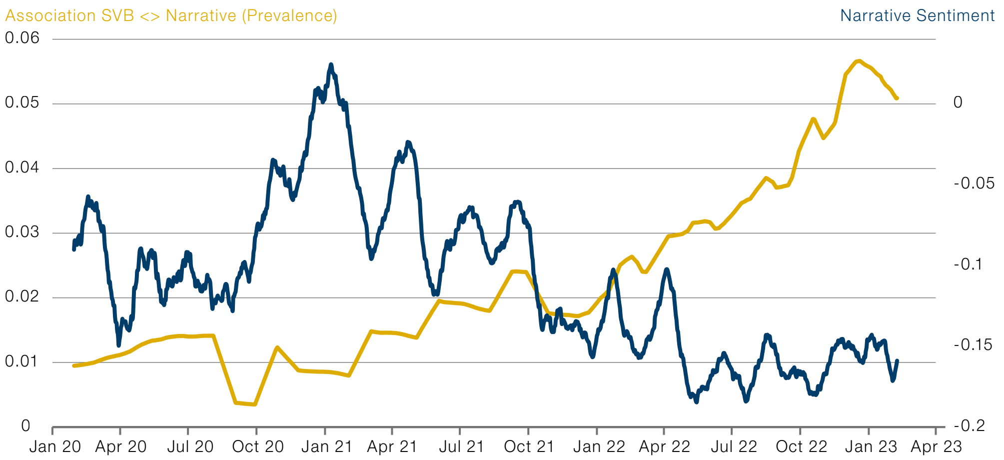
> "Could media attention on interest rates act as a crystal ball for the impending doom for some banks?"

So, in terms of alternative data, could media attention on interest rates act as a crystal ball for the impending doom for some banks?

Figure 1 shows the sentiment associated with the term 'interest rate hike' in media narratives (illustrated by the blue line) and how prevalent this sentiment was linked to SVB (yellow line). The prevalence is calculated by dividing the number of articles tagged to 'interest rate hikes' and mentioning SVB by the number of articles which mention SVB in general (giving a figure ranging between 0 and 1).

What is clear is that since the beginning of 2022, sentiment around the term 'interest rate hike' in the media turned negative, while the prevalence of this negative sentiment around SVB started increasing.

Figure 1. Media Sentiment Surrounding 'Interest Rate Hikes' and Its Prevalence With SVB



Source: MKT MediaStats; as of 8 February 2023.

Alternative Data 2: Insider Transactions

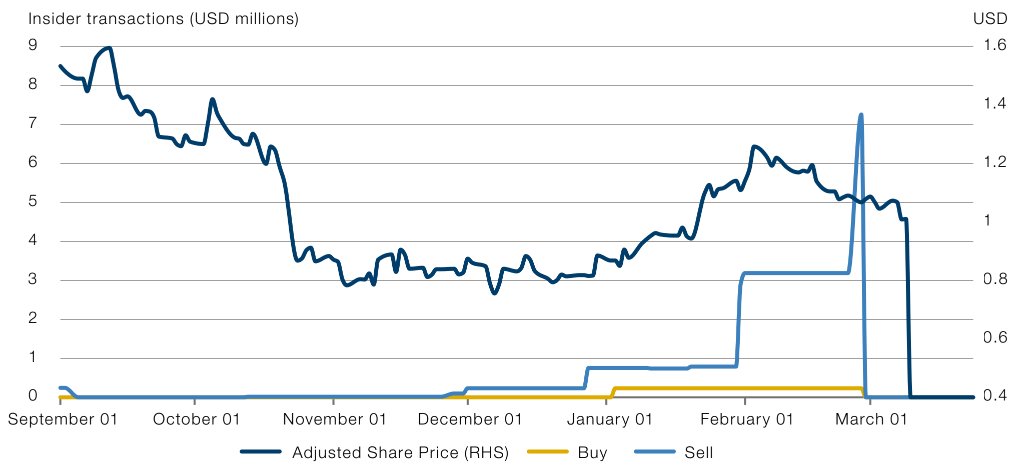
“Could insider transactions foretell angst about a bank’s future?”

Of course, the most knowledgeable about a bank’s current wellbeing are likely its own executives. As a case in point: the CEO of SVB’s parent company sold $3.6 million worth of his company’s stock two weeks before the institution went under. And regulators in Massachusetts have opened an investigation into sales of First Republic Bank stock by its executives in the weeks before the share price plunged.

So, could insider transactions foretell angst about a bank’s future?

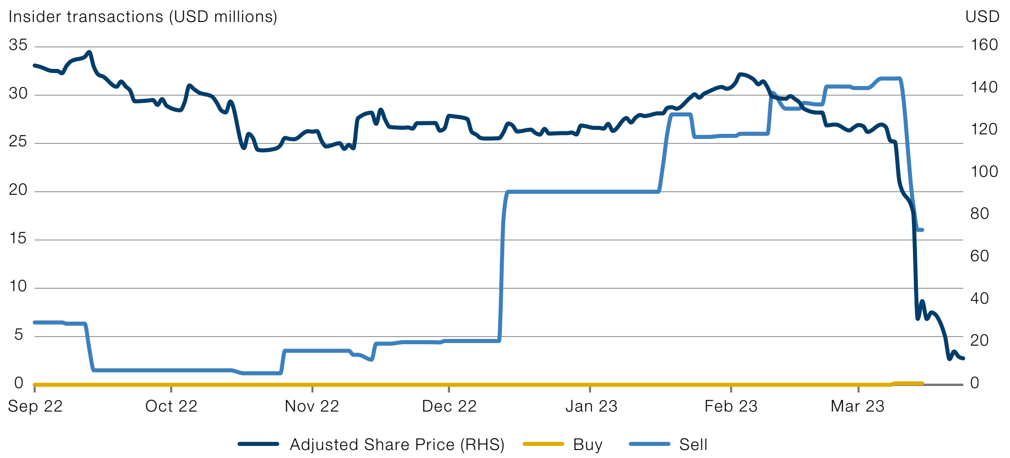
For SVB, there was a sharp uptick in the value of shares sold by insiders throughout January and February 2023, prior to the first signs of trouble in the first week of March (light blue line, Figure 2). A similar trajectory is seen for First Republic Bank (Figure 3).

Figure 2. There Was a Sharp Uptick In ‘Sell’ Insider Transactions at SVB...



Source: 2iQ Global Insider Transaction Data; as of 24 March 2023.

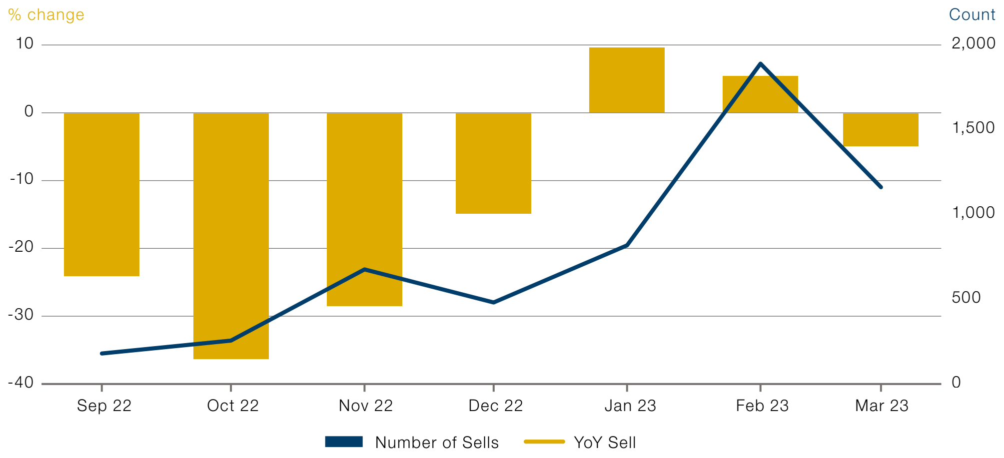
Figure 3. ...And at First Republic Bank



Source: 2iQ Global Insider Transaction Data; as of 24 March 2023.

Indeed, aggregating the total number of ‘sell’ insider transactions for the US banking sector as a whole showed a general upward trend in January and February 2023 (Figure 4). The good news is that this number appears to be declining, perhaps suggesting that the US banking crisis is near an end?

Figure 4. Number of Insider 'Sell' Transactions at US Banks



Source: 2iQ Global Insider Transaction Data; as of March 2023.

Alternative Data 3: Social Media

Social media forums proved especially useful to track investor sentiment for meme stocks, such as Gamestop in January 2021. Could the **natural language processing** models adapted to monitor social networks be applied to banking runs?

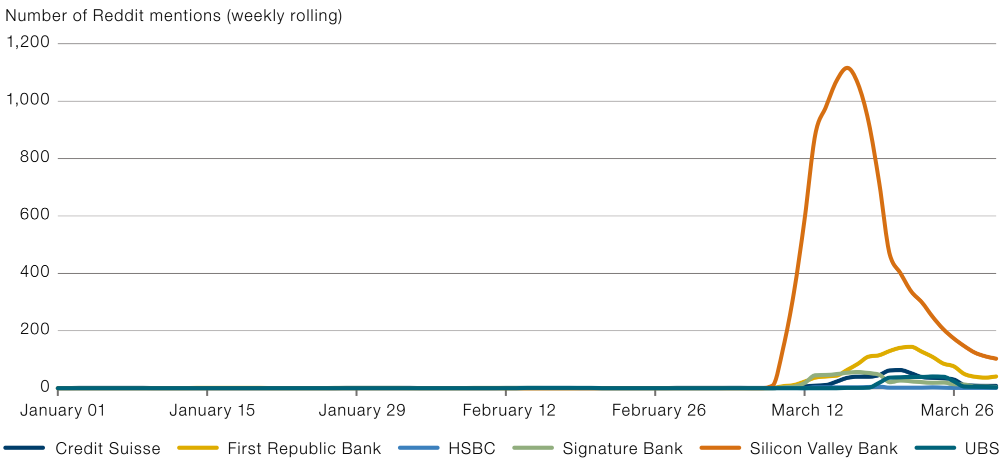
We ran an analysis on the words "withdrawal", "deposits" and "failure" in posts and comments for a selection of bank stocks on three subreddits: stocks, UKInvesting and WallStreetBets (Figure 5) over the first quarter of this year.

> "Subreddit mentions don't appear to be a leading indicator for runs on the banking sector."

Unfortunately, subreddit mentions don't appear to be a leading indicator for runs on the banking sector.

Admittedly, we have run an analysis on just three terms, and just three subreddits. Expanding the parameters of this analysis could yield much different results – maybe an idea for a future article! Either way, we hope this provides readers with a flavour of what can be done with social media data.

Figure 5. Weekly Rolling Number of Reddit Mentions With Keywords "Withdrawal", "Deposits" and "Failure"



Source: Reddit; as of 30 March 2023.

Alternative Data 4: Online Searches

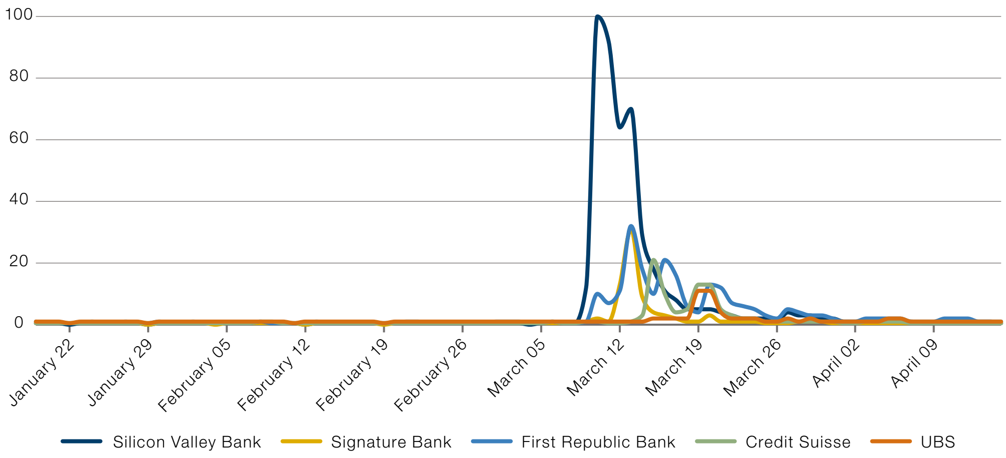
Just as social media forums proved useful with meme stocks, we have previously discussed how Google Trends data not only acted as a leading indicator for Covid symptoms, but also how it was used to track the real-time behaviour of the general public. (Case in point: you must have, at some point, googled where to buy toilet rolls during the depths of the coronacrisis!)

> "Google Trends doesn't appear to be a leading indicator for runs on the banking sector."

But does Google Trends have the same predictive power for bank runs?

Figure 6 shows how search interest for several banks changed in the weeks before and after SVB collapsed. In contrast to Covid, Google Trends doesn't appear to be a leading indicator for runs on the banking sector. However, it can still be used to detect potential events and how hype changes over time.

Figure 6. US Weekly Search Interest for Specific Banks



Source: Google Trends; as of 15 April 2023.

Alternative Data as a Leading Indicator for the Fallout Following a Banking Crises

Thus far, we have looked at whether alternative data could be a leading indicator for banks in difficulty. Could it also predict the next dominoes to fall following a banking crisis?

Alternative Data 5: Network Analysis

"You will be judged by the company you keep."[1]

This statement is as true for corporates as it is for humans.

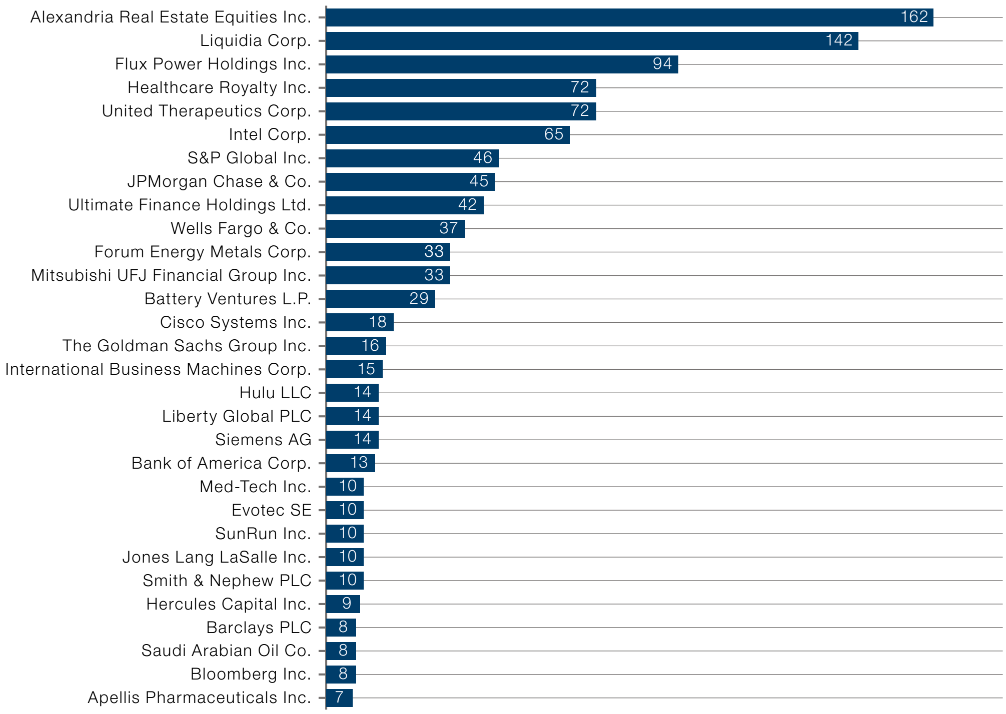
As the fallout from the banking crisis began to spread, we looked at whether a network analysis could be used to forecast which companies and/or sectors could be impacted. Our network analysis predominantly used two alternative data sources: news analytics and unemployment statistics.

Figure 7 shows the companies that were most closely associated with SVB over the first two months of the year using a pool of more than 31,000 news sources from general blogs and journals to news websites. The companies identified ranged from peers and competitors to suppliers.

For example, the company most closely associated with SVB in the news – Alexandria Real Estate Equities – held $108.3 million of security deposits from commercial tenants who had letters of credit from SVB. In addition, it managed $1 billion of venture capital investments in life science and technology companies, which, in turn, were exposed to SVB. Since the close on 9 March, Alexandria Real Estate Equities has declined by about 14%.[2]

1. Usually attributed to Leonard Cole. **2.** As of 2 May.

Figure 7. SVB Co-Mentions in the News (Top 30 Companies)



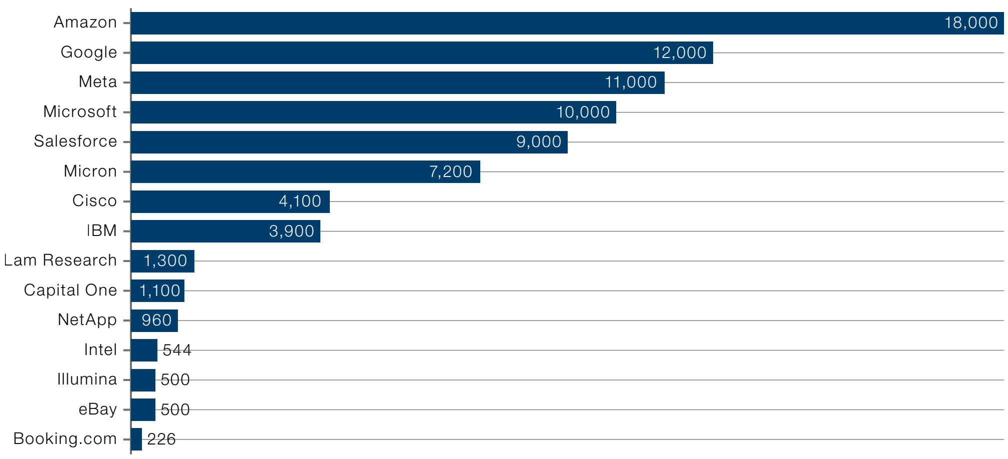
Source: RavenPack; January-February 2023.

> Combining several alternative data sources should allow investors to build a network of company relationships and determine how each constituent is performing during a crisis.

And in late 2022, it became clear that SVB's ecosystem – its customers, partners and competitors – was highly exposed to technology companies during a period when these names were under considerable pressure. Cisco and IBM, for example, each laid off about 4,000 employees between November 2022 and February 2023 (Figure 8). Cisco was a customer of SVB, while IBM provided fraud protection services for the bank's account holders.

Combining several alternative data sources – such as news analytics and unemployment – in this way should allow investors to build a network of company relationships and determine how each constituent is performing during a crisis.

Figure 8. Technology Company Layoffs



Source: https://layoffs.fyi/; Between November 2022 and February 2023.

If We Had More Time…

Of course, there are so many other alternative data sources that investors could analyse.

For example, it's been reported that SVB tapped home loans prior to the bond selloff. Analysis on granular bank loans data could determine whether this would be a good leading indicator for a potential bank run.

In the same vein, we've previously spoken about how the **US commercial real estate** ('CRE') sector could be the next domino to fall as the banking crisis comes off a boil. Our reasoning behind this is that small- and medium-sized banks – that make up the bulk of US lenders – account for 70% of all commercial real estate loans. A look at which CRE firms have the most exposure to loans from small- and medium-sized banks could forecast which firms could face potential difficulties.

Conclusion

The banking crisis has thrown markets into disarray. But instead of flying blindly on instinct, some alternative data allows portfolio managers to cut through the noise to see what consumers are actually thinking and doing.

Using alternative data – such as media sentiment, insider transactions and network analysis – could give portfolio managers the ability to enhance their investment process, more accurately predicting performance of not only banking stocks, but also forecasting the wider fall-out from banking crises.

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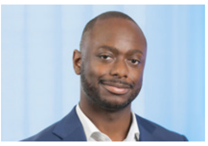

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