Sentiment Rebounds While Regional Banks Tip Their Hand
A Textual Review of the Q4'22 U.S. Earnings Call Season

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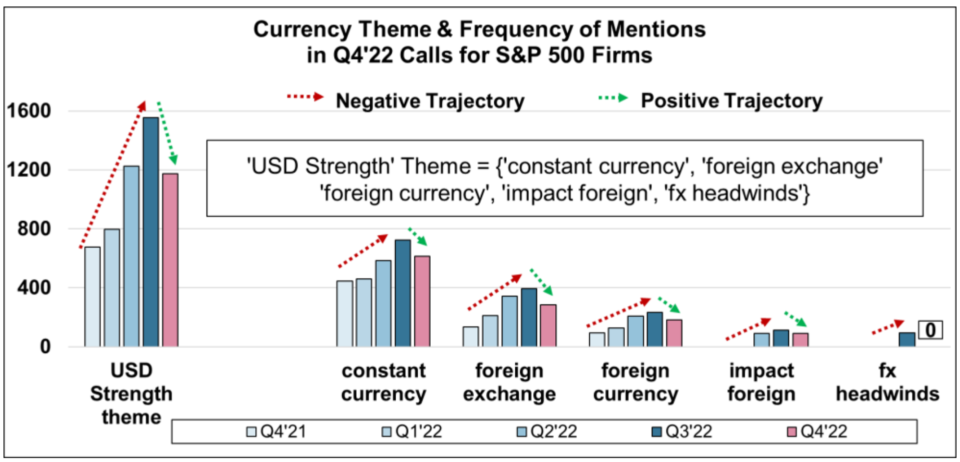
For the first time, natural language processing algorithms get to tell the earnings call story. This recurring series reviews an earnings season exclusively using texts from call transcripts.[1]

The sentiment from S&P 500 firms' latest earnings calls rebounded for the first time in 2022. Earnings continued its recovery after hitting a trough two quarters ago. The headwind surrounding the strong dollar started to recede. Defensive sectors led the way while the cyclicals continued their struggle. The recent implosions of SVB Financial Group and Signature Bank have intensified this divergence. Other regional banks appear susceptible as the sentiment from their latest calls has turned negative, a rare historical occurrence that preceded the demise of the two, now FDIC seized, banks.



Source: S&P Global Market Intelligence Quantamental Research. Data as of February 24, 2023.

This recurring series demonstrates the richness and intuitiveness of insights that could be surfaced algorithmically from textual data. Takeaways for Q4'22 season are:

Sentiment Rebounded as Earnings Continued to Recover: The overall sentiment rebounded as the breadth of S&P 500 firms citing earnings growth continued its recovery to recapture its 15-year historical average (Exhibit A.1).

Consumer Staples & Financials Are 'A Tale of Two Sectors': Consumer Staples had the largest year-over-year sentiment improvement as executives see margin recovery and strong demand for 2023 and beyond. Financials had the largest sentiment deterioration from a year ago as loan originations dried up and the cost of their deposit base exploded (Exhibit 2).

Rare Negative Call Sentiment Before the Bank Implosions: Executives' sentiment on recent earnings calls for SVB Financial Group and Signature Bank were negative **prior to** their implosion. Other regional banks appear susceptible, as the sentiment of their latest calls has turned negative, a rare event that has only occurred in 6% of the calls since Q4'07.

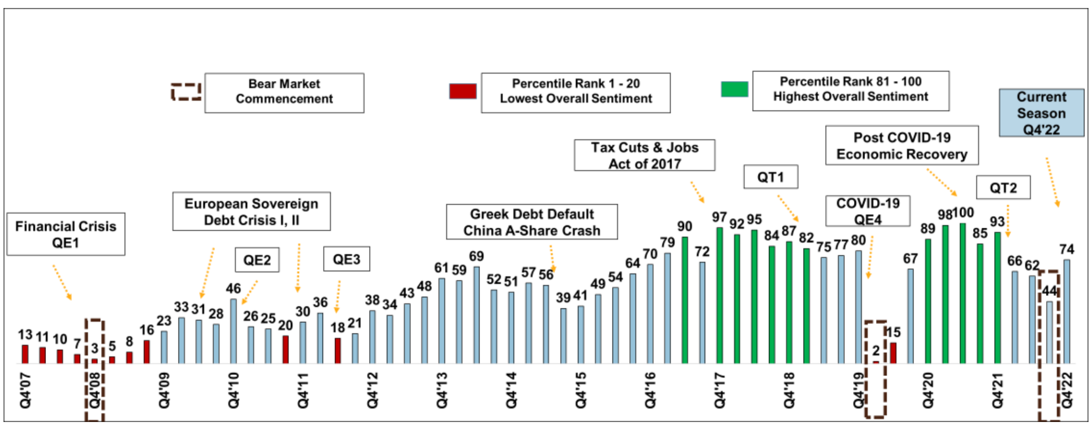
[1] To the best of our knowledge, this is the first series in the public domain where it reviews an entire earnings call season including examining financial actuals and guidance using texts only from call transcripts. Second edition.

1. Sentiment, Financials & Topics

The overall sentiment of S&P 500 firms rebounded in Q4'22 on the heels of three consecutive quarters of declines (Exhibit 1). The improved sentiment reflects the recovery in firms' financials especially with respect to their earnings. The breadth of firms citing bottom-line growth has recaptured its 15-year historical average[2] with a percentile rank of 47, a significant improvement from the first three fiscal quarters of 2022 (see exhibit A.1 in the appendix).

The easing of macro headwinds also aided in the improved financials and sentiment. The headwind surrounding the strong dollar has singularly been on the minds of the executives in 2022. The frequency of the mentions has been increasing at a clip of 30%+ for the past three seasons. In Q4'22, for the first time in the past year, the frequency of discussions declined. One plausible reason is that the executives are anticipating the current cycle of rate hikes is reaching an end and rate cuts are on the horizon (see exhibit on cover page). Another headwind surrounding supply chain continued to normalize as executives devoted 20% less time in discussing the topic from a season ago and 55% less time from a year ago. This may be another indication that the global supply chain is starting to revert to its pre-pandemic state.

Exhibit 1: Percentile Ranks[3] of S&P 500 Firms' Overall Sentiment For the Past 61 Seasons between Q4'07 and Q4'22



Source: S&P Global Market Intelligence Quantamental Research. Data as of February 24, 2023.

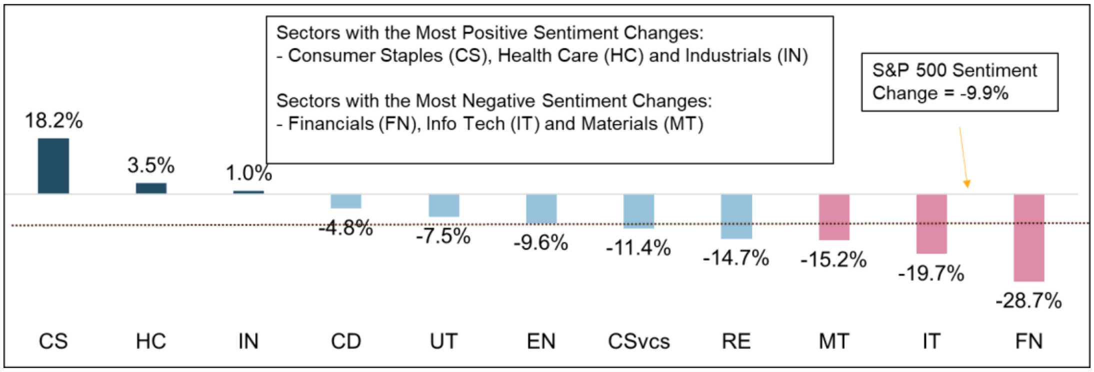
2. Sector Spotlight

Among the 11 GICS sectors in Q4'22, Consumer Staples had the largest year-over-year sentiment improvement as their executives discussed 'margin recovery' and 'seeing strong demand for 2023 and beyond' in their latest calls, the first time that these topics were discussed in the past five earnings seasons.

[2] Sixty-one earnings seasons are considered starting in Q4'07 where our transcripts data begins.
[3] Percentile ranks are used throughout the paper except on the cover page. A percentile rank of >= 81 means the season is among the 12 best out of the past 60 seasons for a given measure. A percentile rank of <= 20 means the season is among the 12 worst out of the past 60 seasons for a given measure.

On the other end, Financials had the largest year-over-year sentiment deterioration which was mainly driven by firms in the Banks and Consumer Finance industries as their executives discussed the decline in the volume of loan originations and the increase in deposit costs.

Exhibit 2: Year-Over-Year Sentiment Change for S&P 500 GICS Sectors Q4'22 Relative to Q4'21



Source: S&P Global Market Intelligence Quantamental Research. Data as of February 24, 2023.

The deteriorating level of sentiment in Financials was further exacerbated in mid-March with the implosions of SVB Financial Group and Signature Bank. Leading up to their insolvency, the sentiment for the two banks had turned negative in recent calls, which has only occurred in 2% of the calls in 2022 and 6% of the calls in the past 15 years. Other regional banks with negative sentiment scores this season are **M&T Bank, KeyCorp and PNC Financial.**[4]

3. Methodology

Textual Preprocessing

Applied the following steps to prepare the raw transcripts for analysis: i) Removed all numbers and punctuations[5] ii) Converted all words to lowercase iii) Removed stop words iv) Spelled out contractions.

Sentiment, Financial Growth & Looking Ahead

Post the textual preprocessing step, see Section 3.1 in Zhao (2018) for details on the sentiment 'Net Positivity' score, which is used to calculate the overall (average) sentiment that is used throughout this publication. See Section 2.1 in Zhao (2020) for details around the construction and the intuition for measuring the breadth of firms growing (or expecting to grow) their top-line, bottom-line and profitability actuals. Executives' prepared remarks and Q&A responses are used for the analysis.

[4] Also see our recently published brief on U.S. regional banks: Singing the (Banking) Blues.
[5] '!"#$%&\'()*+,-./:;<=>?@[\\]^_`{|}~•“”’'

New Emerging Topics & Trends

Post the textual preprocessing step, take the five hundred most frequently appearing n-grams for each earnings season where n ranges from one to eight. The filtering of the topics is done using a rolling window of five contiguous earnings seasons including the reference season (i.e., the current season). To make the publication more digestible, we focused on the bigrams but trigrams and 4-grams are fruitful as well. Executives' prepared remarks are used for the analysis as historically this section of the calls has the most textual similarity to identify emerging topics. In the Q&A responses, they are driven by the questions from the covering sell-side analysts.

4. Data

Textual Data Analytics (TDA)

TDA was launched in October 2019 and is productized from Quantamental Research's previous publications with an advanced suite of analytics and metrics added in May 2022. It is an off-the-shelf NLP solution that tailors to our Machine Readable Transcripts and outputs 800+ predictive and descriptive analytics for equity investing and various data science workflows. The analytics could be accessed via SQL, Snowflake or (DataBricks) Workbench.

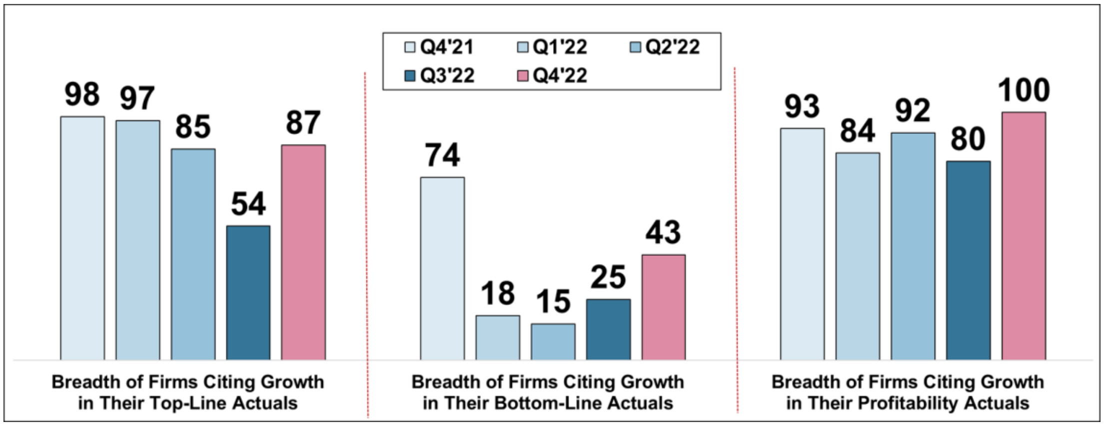
Machine Readable Transcripts

Transcripts is a global data set that was added to the S&P Global Market Intelligence's Xpressfeed product in September 2017. Among its key features, the data set captures the different segmentations of earnings calls in the follow ways:

- Sections (e.g., prepared remarks, sell-side analyst questions, responses to questions)
- Speaker types (e.g., executives, sell-side analysts, shareholders etc.)
- Professionals (e.g., Tim Cook) where the individual professional identifiers serve as a unique key that connects the transcripts data set with the S&P Global Market Intelligence's Professionals and Sell-side Estimates data sets.

Appendix

Exhibit A.1: Percentile Ranks of S&P 500 Firms Citing Growth in Their Actuals Earnings Seasons Q4'21 – Q4'22 (Current)



Source: S&P Global Market Intelligence Quantamental Research. Data as of February 24, 2023.

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Our Recent Research

February 2023: Watch Your Language: Executives' Remarks on Earnings Calls Impact CDS Spreads
While company earnings calls are targeted at equity analysts, information relevant to credit investors are discussed on these calls. This report documents that executive remarks have an impact on credit default swap spreads. The percentage change in CDS spreads of companies with the worst executive sentiment reading is larger than that of companies with the best sentiment reading post earnings call. Credit investors should consider using executive sentiment as an additional tool to gauge the direction of future CDS spread movements.

January 2023: Machines Signal Q4'22 Guidance Not Falling Off a Cliff: An In-Depth Textual Review of Q3'22 Earnings Call Transcripts
In Q3'22, the sentiment of S&P 500 firms has deteriorated to a level not seen since the IMF Greek Debt Default. Firms' focus has shifted away from pandemic-related concerns to interest rate-related ones. Financial growth is uneven. The breadth of firms citing profitability growth remains a bright spot yet the number of firms citing bottom-line growth has been mired in an "earnings recession" throughout 2022. Guidance for Q4'22 is far from falling off a cliff. . This series demonstrates the richness and the intuitiveness of insights that could be surfaced algorithmically from textual data.

October 2022: Hanging on Every Negative Word: Natural Language Processing Analysis of Credit Rating Action Reports
Credit ratings are opinions about credit risk. When a credit rating changes, the analyst explains why, in a report. The 'why' is important. For an equity investor, a downgrade due to a rapid decline in a company's sales has a negative implication; whereas, a downgrade due to an increase in leverage arising from a share buyback program may be viewed as positive. This study finds that the relative size of the price impact following a downgrade is dependent on the magnitude of the tone and the topics of focus in the report (Figure 1). Downgrades with strong negative sentiment underperform downgrades with positive sentiment by 2.7% over the following month.

March 2022: The Sounds of Silence: No Response Speaks Volumes
No simple remedy for gender discrimination exists. But the first step in solving any problem is collecting the data to understand it. This research shows firms that share their data on diversity, equity, and inclusion (DEI) have taken further steps to address gender equity concerns. The S&P Global Corporate Sustainability Assessment (CSA) is a premier benchmarking survey and litmus test for inclusion in the S&P Dow Jones Sustainability Index. Firms that participated in the CSA survey in 2021 had better DEI outcomes.

October 2021: Glass Floors and Ceilings: Why Closing the Median Wage Gap Isn't Fair

The gender wage gap describes the disparity in compensation between women and men doing the same work. Progress on this issue is commonly measured by comparing the median compensation for women to men. This research demonstrates that firms are catering to the focus on median compensation and are paying women in a tighter range around the median, compared to men in equivalent positions. Effectively, women have been given a glass floor as redress for the still-present glass ceiling. This 'Gender-Based Compensation Management' not only undermines the goal of equitable pay; but because the high end of the compensation range can be much farther from the median than the low end, this paradigm is a net disadvantage for women.

September 2021: The Board Matrix: The (ESG) Value of Well-Connected Directors
Corporate boards are responsible for shaping and overseeing environmental, social and governance (ESG) policies for their organizations. This report examines the relationship between companies connected through shared board members and ESG performance. It finds that companies with strong board networks (companies with directors who serve on more than one corporate board or are well-connected) have better certain ESG outcomes than firms with weak board networks. Well-connected directors can utilize their network for information on emerging ESG trends/best practices and share this knowledge with their companies. Given their roles on multiple boards, well-connected directors are also better informed about the needs of different stakeholders (governments, communities, ESG activists) than directors with little or no network. This awareness of stakeholder management translates to better ESG performance for companies with well-connected directors.

August 2021: Technology Momentum: Peer Networks from Patents
Companies with similar patent portfolios exhibit peer group momentum. A strategy that buys (sells) stocks of focal companies in the Russell 3000 with outperforming (underperforming) technology peers produces an annualized risk-adjusted return of 5.23% in a historical backtest. The strategy returns are more pronounced for smaller companies. In the Russell 2000, the strategy demonstrates more efficacy with annualized long-short return of 7.32%. The strategy is distinct from sector momentum strategies. After controlling for sector momentum, 3.60% excess return in the Russell 3000 can be attributed to technology peer group momentum.

July 2021: Branching Out: Graph Theory Fundamentals
Investment analysis has evolved beyond financial data to non-financial, or alternative data. Typically, the focus has been on using alternative datasets that are purely time-series and tabular. Graph networks meanwhile offer investors the ability to gain deeper insights into the connections between economies, industries, and individual corporations.

May 2021: U.S Filings: No News is Good News
Company annual filings are a vital but often under-analyzed source of information for investors. Market moving content is buried within an ever-growing body of text that on average is equivalent to a 240-page novel. The filings contain subtle revisions making a computational linguistic approach imperative. Faced with this voluminous amount of text and the minute

number of changes, investors have historically overlooked the newly embedded information and the implications of those additions

March 2021: **Hiding in Plain Sight – Risks That Are Overlooked**
This report uses three metrics (Minimum Edit Distance, Jaccard Similarity, and Cosine Similarity) to identify companies that made significant changes to the "Risk Factors" section of their filings. These metrics can serve as alpha signals or be used to quickly identify a pool of companies that require further investigation.

January 2021: **Leadership Change That Matters: A Value and Momentum Story**
December 2020: **Warranted Optimism: Sentiment vs. Supply Chain**
December 2020: **A Dark Winter for REITS: Trouble Brewing**
October 2020: **Sweet Spots in the C-Suite: Executive Best Practices for Shareholder Friendly Firms**
October 2020: **Just the (Build)Fax: Property Intelligence from Building Permit Data**
August 2020: **The Analyst Matrix: Profiting from Sell-Side Analysts' Coverage Networks**
June 2020: **The Information Supply Chain Begins Recovering From COVID**
May 2020: **Never Waste a Crisis: Following the Smart Money Through Beneficial Ownership Filings**

May 2020: **Risky Business: Foot Traffic, Vacancy Rates and Credit Risks**

May 2020: **Finding the Healthy Stocks in Health Care During Lockdown**

May 2020: **No More Walks in the (Office) Park: Tying Foot Traffic Data to REITs**

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September 2016: A League of their Own: Batting for Returns in the REIT Industry - Part 1

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