

Sentiment Quantified

Al-powered Earnings Call Analysis Detects Early Signs of Recovery Amidst Covid-19

Iridium

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Introduction

We believe that there is enormous untapped potential in equity capital markets across the Arabian Gulf region, and that by advancing the science and practice of investor relations, we can help unlock that potential and enable the highest levels of both organizational and individual achievement.

"Iridium advances the We a science and practice of Investor relations to help Preventech organizations and leaders Unlock their potential."

Oliver Schutzmann, CEO

We are now at the dawn of the 2020s. The use of artificial intelligence has already started to transform the investment industry. Concepts of machine learning, natural language processing and robotics that were previously in the realm of science fiction, are now commonplace techniques at every step of the investment management value chain.

While the investment industry has been quick to embrace artificial intelligence, organizations and leaders in the corporate world have been slower to understand and incorporate these concepts in their interactions with the market.

One area where this disparity is perhaps most keenly felt is in the field of company earnings calls. Many portfolio managers and research analysts now regularly use natural language processing algorithms to analyze these earnings calls, from basic fact and consistency checks to sentiment analysis and truth detection, all the way to prediction of future share price performance.

Even though this clearly has important implications for the way CEOs and CFOs prepare for and conduct their earnings calls, it is not an area which is typically well-understood or actively addressed by companies.

With Iridium Quant Lens, our proprietary AI platform, we aim to help you advance to the next level. In this report on the subject, we use the Iridium Quant Lens Natural Language Processing Algorithm to quantify sentiment amidst the current Covid-19 pandemic.

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Iridium Quant Lens NLP algorithms provide alternative view on market sentiment

Covid-19 was a dominant theme

Report Summary

Quantifying earnings call sentiment amidst Covid-19 with Iridium's NLP algorithm

The Iridium Quant Lens NLP algorithm automates earnings call analysis by quantifying language at a scale and speed that is impossible to replicate by the human brain. For this report we analyzed more than 550 earnings calls and over 3.2 million words to measure the Iridium Sentiment Index on a scale of -100 to +100 during a given calendar quarter (i.e. 2Q 2020 earnings calls hosted in 3Q 2020 calendar quarter).

Unsurprisingly, Covid-19 was a dominant theme during the year to date which materially impacted sentiment.

The Iridium Sentiment Index averaged +2 for calls conducted during the 2Q 2020 calendar quarter, a decline of 25 points from 1Q 2020 levels and the lowest level seen over the last five years. Nevertheless, there were early signs of improved sentiment in calls conducted in 3Q 2020 to date with a modest 7-point rise in the average sentiment Index quarter-on-quarter to +9.



Exhibit 1: Iridium Sentiment Index

Sentiment decline was widespread across all Gulf countries

Not all sectors were impacted equally

The decline in sentiment in 2Q 2020 was widespread and felt almost equally across all Arabian Gulf countries.

During the third quarter 2020, however, sentiment recovered modestly in Saudi Arabia, United Arab Emirates and Qatar, but continued to decline in Kuwait.

Not all sectors were equally impacted by Covid-19 during the last two quarters. The Consumer Discretionary sector showed the largest drop in sentiment of 44 points in 2Q and 3Q 2020 combined. The next most affected sector was Real Estate, followed by the Energy, Communications and Financials sectors.

Sentiment for Consumer Staples and Utilities, being more defensively positioned against Covid-19, held up relatively well, with Sentiment Index in 3Q 2020 at levels close to those at the beginning of the year.

NLP Algorithm automates earnings calls analysis

500+ transcripts of 100+ companies analyzed

NLP algorithm calculates the Iridium Sentiment Index on a scale from -100 to +100

Report Detail

Sentiment Analysis

Iridium Quant Lens NLP algorithms provide alternative view on market sentiment

The Iridium Quant Lens Natural Language Processing algorithm generates unbiased insights from the sentiment expressed by management, analysts, and investors during quarterly earnings calls. In this report, we use calendar quarters (i.e. 2Q 2020 earnings calls hosted in 3Q 2020 calendar quarter).

We analyzed over 550 transcripts of more than 100 Gulf-based listed companies for the last 5 years, providing the basis for insights for the region and across countries, sectors, and companies. This includes 38 transcripts for calls conducted to date during the third quarter of 2020, which covered the second quarter reporting cycle.

The NLP algorithm ingests earnings call transcript files, segments these between management presentation and question and answer sections, performs text pre-processing, and finally detects and categorizes language across several dimensions which include, inter alia, sentiment, confidence, certainty and complexity.

In this report, we concentrate mostly on the Iridium Sentiment Index which measures the net positivity of the language used on a scale of -100 to +100. Additionally, the algorithm performed analysis of Covid-19 and health related words to understand the extent to which this theme is discussed over time.

A summary of the methodology is illustrated in exhibit 2 below and is explained in more detail in the Methodology section.



Covid-19 was a dominant theme during the year to date which materially impacted sentiment

Usage of Covid-19 related words increased exponentially

Unsurprisingly, the number of Covid-19 and health related words expressed during first half of 2020 rose exponentially from their historic usage on quarterly earnings calls, increasing to 24 average mentions per transcript during the last two quarters compared to 5 mentions historically.

However, the number of mentions decreased during 3Q 2020 on a quarter-on-quarter basis, mainly in the question and answer sections of the calls, indicating that analysts and investors are possibly starting to move on from this theme.





Exhibit 4: Trend in Covid-19 and Health Related Words



Sentiment materially impacted in 2Q 2020

Furthermore, as expected, the sentiment of earnings calls dropped markedly in response to Covid-19 disruptions, with the Iridium Sentiment Index averaging +2 in 2Q 2020, a decline of 25 points from 1Q 2020 levels and the lowest level seen over the last five years.



Sentiment Analysis

Exhibit 5: Trend in Iridium Sentiment Index



Modest recovery in sentiment in 3Q 2020

Confidence also declined in 2Q, but has not recovered in 3Q 2020

Nevertheless, there are early signs of improved sentiment in 3Q 2020 to date with a modest 7-point rise in the average sentiment Index quarter-on-quarter to +9.

This drop in sentiment in the second quarter coincided with a drop in management confidence (a measure of the relative strength or weakness of language used). Confidence, however, did not recover in the third quarter, reflective of the continued uncertainty in the current environment.



Exhibit 6: Trend in Iridium

Confidence Index

Sentiment is correlated to overall market movements and profitability

Finally, it is worth highlighting that the trends in sentiment have closely tracked the overall market performance (i.e. the average MSCI GCC Index during each calendar quarter) as well as total profitability (i.e. total net profit for all Gulf-listed companies for each earnings cycle).

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Exhibit 7: Iridium Sentiment Index vs. MSCI GCC Index

Iridium Sentiment Index vs. MSCI GCC Index



Exhibit 8: Iridium Sentiment Index vs. GCC Companies Net Profit





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Sentiment decline was widespread across all Arabian Gulf countries

Sentiment decline in 2Q 2020 was widespread

The decline in sentiment in 2Q 2020 was widespread and felt almost equally across all GCC countries. Furthermore, for most countries, sentiment levels in the second quarter were at or near their lowest point over the last five years. Saudi Arabia was most impacted, with a 34-point decline in sentiment, while other countries declined between 20 and 25 points.

Modest recovery in 3Q 2020,
except for KuwaitDuring the third calendar quarter, however, sentiment in Saudi
Arabia recovered the most, by 15 points, compared with a 9-point
improvement in both Qatar and the United Arab Emirates. Kuwait
saw the smallest decrease in 2Q 2020 (-20 points), but sentiment
further declined in 3Q (-7 points).

Exhibit 9: Sentiment Trends for selected countries

Country	4Q 2019	Δ	1Q 2020	Δ	2Q 2020	Δ	3Q 2020
Kuwait	30	+0	30	-20	11	-4	7
Qatar	13	+7	20	-22	-2	+9	7
Saudi Arabia	21	+3	25	-34	-9	+15	6
United Arab Emirates	42	-8	34	-25	9	+9	17
Grand Total	25	+2	27	-25	2	+8	9



 Qatar

 Sentiment Trend

 60

 40

 20

 0

 -20

 30, 2018

 10, 2019

 30, 2018

 10, 2019

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Saudi Arabia









Not all sectors were impacted equally by Covid

Consumer Discretionary most impacted, followed by Real Estate, Energy, Communications and Financials	Not all sectors were equally impacted by Covid-19 during the last two quarters. The Consumer Discretionary sector showed the largest drop in sentiment of 44 points in 2Q and 3Q 2020 combined. The next most affected sector was Real Estate which declined 35 points during the last two quarters to reach the lowest absolute sentiment level of -20. The Energy, Communications and Financials sectors were also negatively impacted in the second quarter, but all posted moderate recoveries the following quarter.
Consumer Staples and Utilities were least impacted	On the other hand, sentiment for Consumer Staples and Utilities, being more defensively positioned against Covid-19 impacts, held up relatively well, with the Sentiment Index in 3Q 2020 at levels close to those at the beginning of the year.

Exhibit 10: Sentiment Trends for selected sectors

Sector	4Q 2019	Δ	1Q 2020	Δ	202020	Δ	3Q 2020
Communication Services	40	-4	36	-34	3	+8	11
Consumer Discretionary	33	-5	28	-5	23	-39	-16
Consumer Staples	21	-20	1	+1	1	+6	7
Energy	41	+3	44	-40	4	+14	18
Financials	29	+3	32	-28	5	+8	13
Industrials	20	+5	25	-15	10	+6	16
Materials	4	+3	7	-26	-18	+22	3
Real Estate	24	-8	15	-27	-11	-8	-20
Utilities	6	-27	-21	-15	-36	+46	9
Grand Total	25	+0	26	-24	1	+8	9



Exhibit 10 (continued): Sentiment Trends for selected sectors



Consumer Discretionary



Consumer Staples

Sentiment Trend



Energy













Sentiment Quantified

Definitions of NLP and sentiment analysis

Natural Language Processing Natural language processing (NLP) is a subfield of artificial intelligence concerned with the interactions between computers and human (natural) languages, in particular how to program computers to process and analyze large amounts of natural language data. The ultimate objective of NLP is to read, decipher, comprehend, and make sense of human languages in a manner that generates valuable insights. Most NLP techniques rely on statistical machine learning algorithms to derive meaning from unstructured text data.

Sentiment Analysis Sentiment analysis refers to the use of natural language processing, text analysis, computational linguistics, and statistical machine learning to systematically identify, extract, quantify, and study behavioral patterns and subjective information. In the context of management earnings calls, sentiment analysis aims to identify hidden truths, emotions and idiosyncrasies behind the commentaries of CEOs and CFOs, and the answers they provide to questions asked by analysts and investors.

These techniques are already in use at many financial institutions today, including Blackrock, Fidelity, Goldman Sachs, JP Morgan (to name a few), and an ever-increasing amount of academic papers, quantitative research, as well as AI platforms, products and services have emerged in recent years.

Specifically, research analysts and institutional investors use NLP algorithms to uncover subliminal indicators to help confirm or discredit their opinion and view of management credibility, or their investment thesis, or to predict a company's future share price performance.

The analysis of 'hidden' sentiment in earnings calls is of course not a new concept as these have long been judged by analysts and investors the old-fashioned way, by listening to, and forming an opinion of, senior management.

The rise of artificial intelligence and computational power, combined with the exponential availability of unstructured data, enables quantification of sentiment indicators at a scale and speed impossible to replicate by the human brain.

Use Case



Methodology

Iridium Quant Lens Natural Language Processing

Approach	Iridium used natural language processing techniques to analyze
	earnings call transcripts of listed companies in the six countries of
	the Arabian Gulf region (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia
	and the United Arab Emirates). The methodology we employed is
	illustrated in Exhibit 11 and explained below in further detail.
Text Source	We commenced the process by compiling all publicly available transcripts and then converted these to a machine-readable format.
T. 1.C 1.1	Next we comported the transcripts in order to differentiate
Text Segmentation	between the management presentation and the Q&A section of the earnings calls. Typically, management presentations entail prepared remarks in a structured format, and the Q&A sessions are unstructured.

Exhibit 11: Methodology Outline





Ingestion Algorithm The NLP algorithm ingested and processed the management presentation and Q&A session with a custom engineered text processing code generated in Python, which was based on the 'nltk' natural language processing library. This algorithm performed two key functions in turn: Text Pre-Processing 1. Text pre-processing, which involves cleaning the text by removing punctuation, stop words (e.g. words such as "the"), parsing sentences and tokenising and normalising words (i.e. the process of converting a sentence into usable, standardised words). 2. Lexical Featurisation, which is the process of converting text into Lexical Featurisation quantifiable measures or characteristics. In this initial analysis, we employed basic statistical features such as sentence and word counts, with the latter being classified into different sentiment categories through comparison to a comprehensive financial dictionary created by Loughran and McDonald (2018). Examples of these sentiment buckets, as well as a sample text are shown in Exhibit 12 below. Additionally, a custom dictionary of Covid-19 and health related words was compiled by Iridium and word counts in this bucket were created.

Exhibit 12: Illustration of Word Sentiment Categorization in Transcripts

...We made excellent progress with our digital transformation program, investing heavily in our network and clearly driving efficiencies across the business. Financially, the industry-wide shift from manual to digital, along with macroeconomic instability and currency weaknesses in two of our markets, could place unforeseen pressure on our Group performance. Revenues were down 4% in 1H 2019, compared to the same period last year. Meanwhile, EBITDA grew 2% during the first half of 2019. This increase was offset by a negative impact from the settlement we reached with the regulator. We believe the favorable FX environment for two of our markets will drive an increase in profitability going forward...

•	•	•	•	•	•
Positive	Negative	Strong	Weak	Unclear	Litigious
Better	Concerns	Always	Could	Appears	Adjudged
Confident	Decline	Best	Depend	Approximately	Contract
Growth	Disadvantage	Clearly	May	Assume	Contravention
Opportunity	Disappointing	Definitely	Maybe	Believe	Injunction
Pleased	Losses	Strongly	Might	Depend	Regulatory
Positive	Missed	Undisputed	Perhaps	Presume	Ruling
Proactive	Shrinkage	Undoubtedly	Possibly	Seems	Settlement
Strong	Slower	Will	Suggest	Unidentified	Statutory



Language Scoring	Next, the word counts for each transcript portion were processed by the algorithm and converted to standardised language and sentiment metrics, with those used in this report being explained in Exhibit 13.				
Exhibit 13: Language Metrics	Sentiment Index is a measure of language positivity or negativity calculated using the relative number of positive vs. negative words in the text, converted to a scale from -100% (entirely negative) to +100% (entirely positive).				
	Confidence Index measures the confidence of the language used in the text and is computed using the relative number of strong vs. weak words in the text, converted to a -100 (entirely weak) to +100 scale (entirely strong).				
	Covid-19 Wordcount measures the number of words related to Covid-19 or health occurring in the earnings call or portion thereof, expressed either as the absolute number of words or a percentage of total words.				

Model Evaluation

Finally, the language metrics were analysed using visualization and statistical tools to determine trends over time, by sector and geography.

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