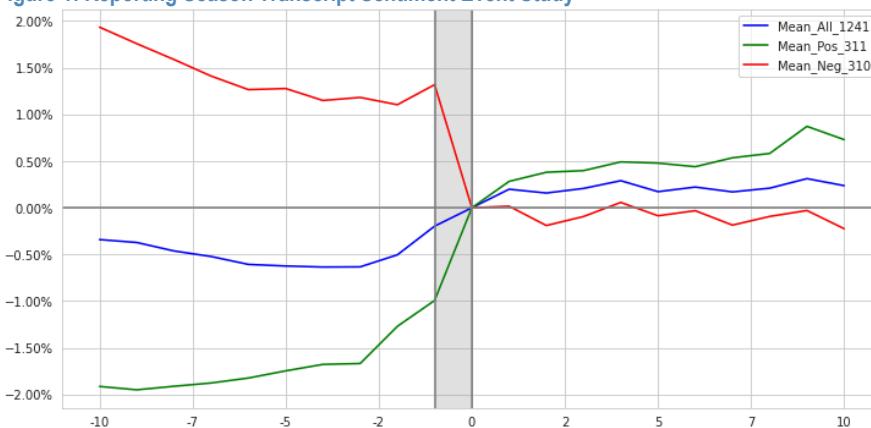


Big Data & AI Strategies

SmartBuzz for Trading Thematics in Earnings Call Transcripts and the News

- Extending our prior work on [NLP Sentiment Scores](#) with our thematic identification framework [SmartBuzz](#), we develop trading signals based on machine identified short-term thematics found in the stock news articles and company earnings result transcripts for ASX 200 stocks.
- We build SmartBuzz factors for various trading focused thematics on topics such as Earnings & Profits, Dividends, and ESG – testing for short-term moves in stock price after the results call and news publication. We use SmartBuzz to track the emergence and persistence of these themes through time, noting an increase in sentiment towards Earnings and Dividends Thematics recently.
- What we find is that these text sources offers unique insights, information frequencies, timeliness, and challenges. We can exploit the text to trade long-short for up to 10 days after publication with an average return spread of up to 1% and more with combinations of signals and filters.
- Identifying certain peculiarities with sentiment scores between both text sources, we find that using just the ‘Pos’ or ‘Neg’ labels works well for News, but for Transcripts we find a distinct bias that needs to be neutralised. Relevance also proves to be a useful tool to filter some results.
- Using a SmartBuzz factor built around ‘Reporting’ theme terms we tested the 10-day performance around the event dates. We found the original source of the event (i.e. the company transcripts) holds the strongest alpha, while News articles are useful with relevance filters.
- Despite the biased ‘positive outlook’ found in management earnings calls, the SmartBuzz ‘Reporting’ factor is still effective at distinguishing between subsequent outperformers and underperformers as shown in Figure 1.

Figure 1: Reporting Season Transcript Sentiment Event Study



Source: J.P. Morgan BD&AI, S&P Global. Event study shows S&P/ASX 200 stock excess returns for earnings seasons 2019-21.

Big Data, AI & NLP Strategy

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Example Use-Cases for NLP

In this report, we explore some example use-cases for Natural Language Processing (NLP) using some of our State of the Art (SotA) tools for sentiment scoring and theme identification.

- SmartBuzz Sentiment Scores using MPNET described in the [Muppet Wars](#) paper.
- Financially Relevant terms inspired from the [Smart Buzz 2.0](#) paper.

In this report we investigate both these tools to see how they can be applied to different text sources, identifying some biases and practical issues that need to be addressed when building a quantitative investment signal from unstructured text data.

Sentiment Models

One of the simplest sentiment models are based on the Harvard Dictionary or Loughran-McDonald dictionary approach (available in NLTK and VADER for example). These models had a -1 to +1 sentiment score for each word, and it is very quick to calculate an average sentiment for any sentence using these approaches.

Another approach, similar to the dictionaries mentioned above, that we have used is calculating a weighted term sentiment. With a million J.P. Morgan Analyst reports to draw on, in prior research we took the last 5 years (over 250k) with single stock overweight, neutral and underweight ratings (75k). In the 2017 paper “[Extracting Sentiment from News: Machine Learning in Big Data for the Classification of News Sentiment for Equities](#)” we used these ratings to assign a polarity score to each term, positive for overweight mentions and negative for underweight and neutral.

However, these methods are flawed, as reported by [Loughran and McDonald](#). In a large sample of 10-Ks during 1994 to 2008, almost three-fourths of the words identified as negative by the widely used Harvard Dictionary are words typically not considered negative in financial contexts.

Thankfully, sentiment has progressed a lot from the old days of look-up dictionaries. This is the primary reason we compared the performance of 17 state of the art Natural Language Processing models in our prior report: “[Assessing a range of NLP Transformer Models such as BERT, Electra, Funnel, GPT2, MPNet and variants](#)”

These SotA NLP models based on ‘Transformers’ embed a rich and deep understanding of language by reading billions of text documents before being fine-tuned for our financial sentiment problem. Based on the results from that paper we have settled on the MPNet model which was ‘fine-tuned’ using the J.P. Morgan Headline Sentiment dataset consists of 4,298 news headlines which have been manually assigned a sentiment label drawn from: POS, NEG, NEUT, or MIXED.

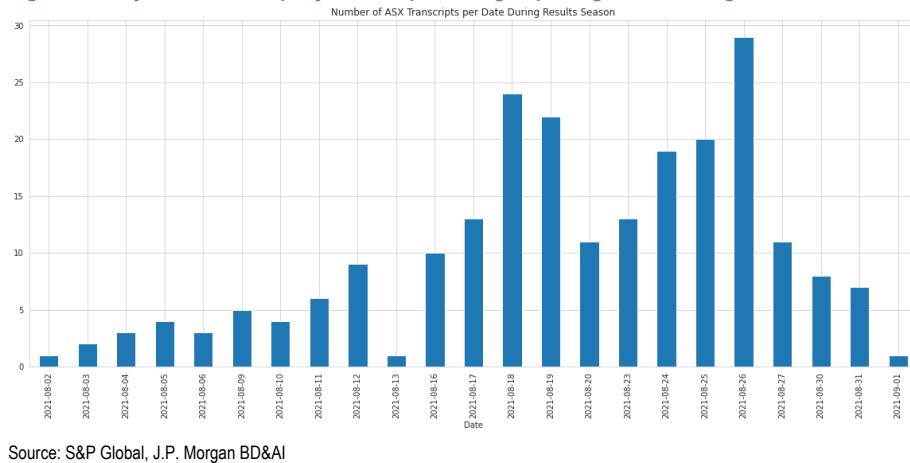
Comparing Text Sources

We inspected two different sources of text: transcripts (3 years) and news articles (1 month) for their effects during the recent earnings seasons.

Company Transcripts

Seeking information directly from the company is possible by assessing the earnings call company transcripts which we have obtained from [S&P Global/Capital IQ](#). Perhaps the simplest source of information (but also the most biased), getting information directly from the company in a timely fashion should offer an edge. Company transcripts are, by their nature, only considered for single companies on a single date, typically 3 or 6 months apart depending on the financial reporting rules.

Figure 2: Daily Count of Company Transcripts during Reporting Month of August 2021



Source: S&P Global, J.P. Morgan BD&AI

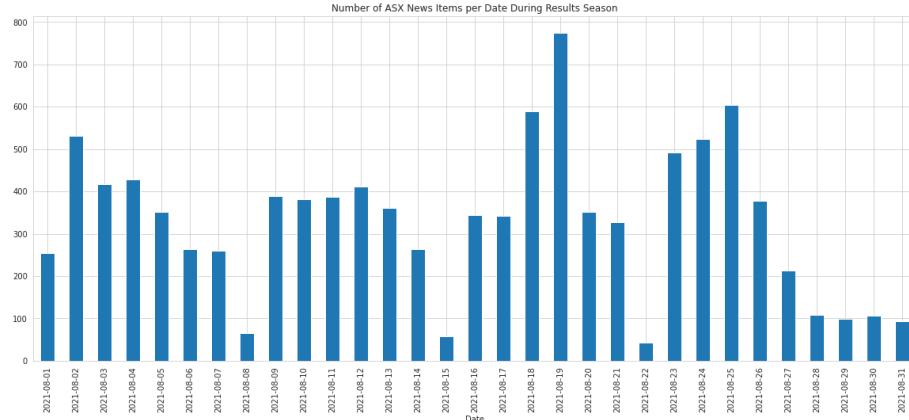
News

Some of the most difficult to process text was obtained from our News vendors (via LexisNexis). News feeds offer some unique challenges, being significantly more voluminous. We tag the 'focal' company in the news article and filter out news articles that mention more than 4 other companies.

For the News we calculate a single sentiment score after truncating the article at 500 words. On average this covers the most relevant first 10 paragraphs or so. Journalists are well aware that readership drops quickly and so are encouraged to front-load the important aspects of the story.

"A good Reuters story gets straight to the point and has all the main elements ... woven in from the top, not just tagged on as an after-thought. The tried and tested "inverted pyramid" method - ordering the elements of the story in declining order of importance - is hard to beat..." [Trust.org](#)

Figure 3: Daily Count of Company Related News Articles During Reporting Month



Source: LexisNexis, J.P. Morgan BD&AI

Case Study on the ASX Results Season

Applying the MPNet based SmartBuzz Sentiment Scores and SmartBuzz Thematics to different sources of text highlights some interesting differences.

As described in our Natural Language Processing report: "[Assessing a range of NLP Transformer Models such as BERT, Electra, Funnel, GPT2, MPNet and variants](#)" we have tagged each sentence or paragraph with one of 4 labels: **POS**, **NEG**, **NEUT** or **MIXED**. However, with some of the studies we noticed a significant amount of bias between these labels, some intentional and some behavioural. To create a more usable signal for subsequent quantitative analysis we also built a sentiment score.

Sentiment Score

For some of the sentiment aggregation we require a score. For this we use the following formula:

$$\text{SENTIMENT} = (\text{POS} - \text{NEG}) / (1 + \text{NEUT} + \text{MIXED})$$

Relevance Score (not Probability)

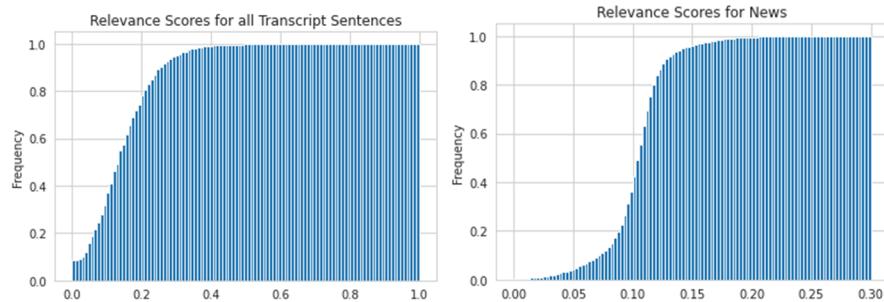
Especially with transcripts, but also in the news, we found a lot of the sentences were purely administrative. To build a relevant term list we used our Smart Buzz framework to identify key terms related to various financial buzzwords. Please see Appendix 2 for the 500 word list used.

For each sentence or paragraph, we used the following Relevance measure:

$$\text{RELEVANCE} = (\text{SUM OF BUZZ WORDS}) / (\text{SUM OF WORDS})$$

With this Relevance measure we set a threshold as low as 10% for Transcripts and 5% for News. This helped filter out sentences like: "We now open the call to Q&A".

Figure 4: Cumulative 'Relevance' per sentence across transcripts and news articles.



Source: J.P. Morgan BD&AI, S&P Global, LexisNexis

SmartBuzz Sentiment Score

Finally, we bring these two together with a relevance filter, returning NULL for the sentiment if the relevance is below our threshold:

```
SMARTBUZZ SENTIMENT SCORE = if RELEVANCE >= THRESHOLD:  

                                SENTIMENT  

                            else:  

                                NULL
```

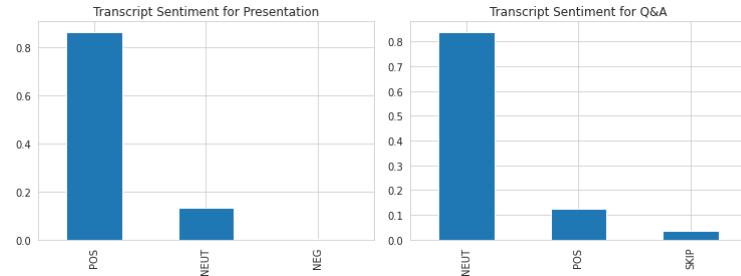
Observations and Practical Issues

When aggregating sentiment signals we found that there is a big difference in the profile of scores across the various sources of text. Simply selecting all stocks with an overall **POS** sentiment is not sufficient.

Transcripts

For example, we note the overwhelming positive bias to the **POS** for company transcripts especially when looking at just the presentation segment! Further we note the majority of the Q&A segment results in a more **NEUT** or neutral sentiment.

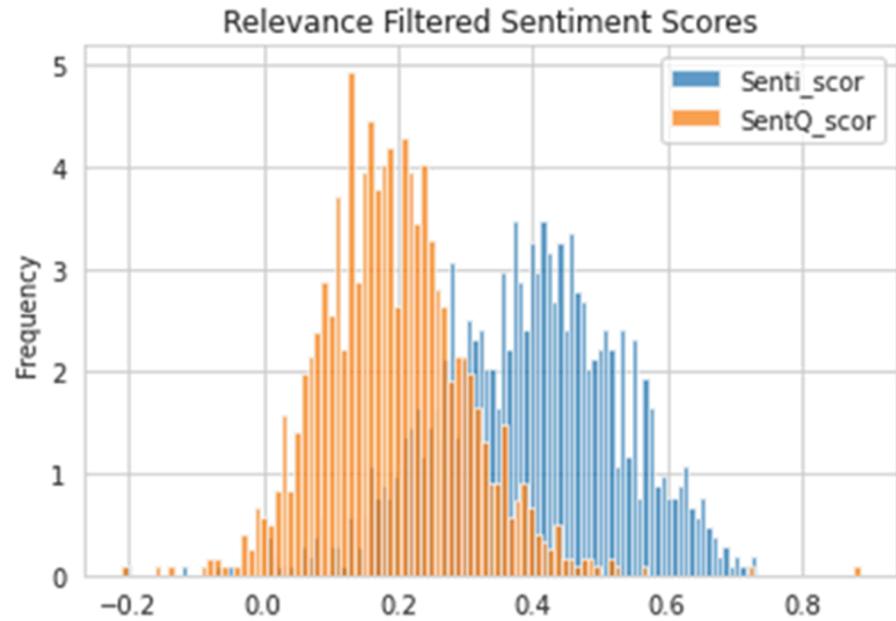
Figure 5: Raw Sentiment Tags across Company Transcript Presentations and Q&A sessions



Source: J.P. Morgan BD&AI, S&P Global. Note: #SKIP is for relevance < 5% for news articles and <10% for transcripts

Using Relevance Filtered Sentiment Scores across the company transcripts resulted in a much more usable distribution of scores.

Figure 6: Sentiment Scores for Transcript Presentations (“Senti_scor”) and Q&A (“SentQ_scor”)

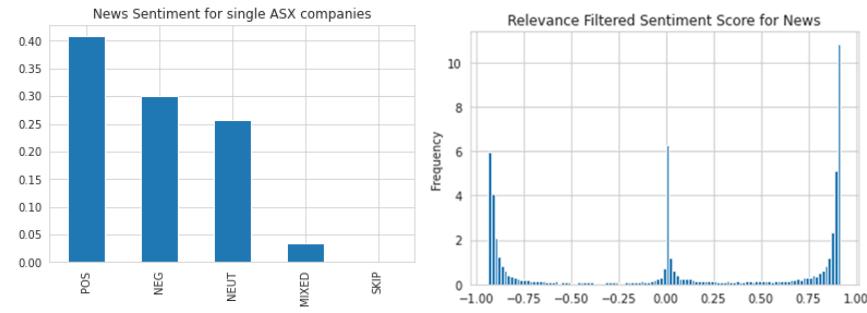


Source: J.P. Morgan BD&AI, S&P Global

News Reports

The Positive Bias was also prevalent with news articles, albeit much more manageable. Note the much different histogram of SmartBuzz Sentiment Scores for news with three distinct groupings close to -1, 0, +1. Note that our news access is relatively new and for this study we have used just one month of news focusing on S&P/ASX 200 listed stocks.

Figure 8: SmartBuzz Sentiment Tags and Scores for Company Related News Articles



Source: J.P. Morgan BD&AI. Note: #SKIP is for relevance < 5% for news articles and <10% for transcripts

Figure 9: Sample SmartBuzz Sentiment Tags, Scores, Relevance and Text for News Articles

date	sentiment	senti_score	relevance	title	body
2021-08-12	POS	0.881266	0.129278	Thursday August 12, 2021 GlaxoSmithKline ADR (...	DAILY ADR AND DEPOSITORY RECEIPT REPORT\n\nGla...
2021-08-06	POS	0.333230	0.119718	Square to buy 'buy now, pay later' giant After...	In a blockbuster deal that rocks the fintech w...
2021-08-20	NEUT	-0.006977	0.061728	PLL Reminder: Kestler Topaz Meltzer & Check, L...	Link to Story\n\nRADNOR, Pa., Aug. 20, 2021 (G...
2021-08-19	NEG	-0.487822	0.094787	Daily Sector Newsletter: Food, beverage & toba...	AUSTRALIAN DAILY SECTOR NEWS\n\nMarket capital...
2021-08-25	POS	0.909260	0.141869	PGG Wrightson (PGW: NZD3.69) lifts 2.8% strong...	NEW ZEALAND END-OF-DAY STOCK REPORT\n\nPGG Wri...
2021-08-25	POS	0.914374	0.136792	Telix Pharmaceuticals (TLX: \$A7.15) - PRE-MARK...	AUSTRALIAN PRE-MARKET STOCK REPORT BULLISH SIG...
2021-08-09	POS	0.882760	0.137037	Monday August 09, 2021 Agricultural Bank of Chi...	DAILY ADR AND DEPOSITORY RECEIPT REPORT\n\nAgr...
2021-08-27	POS	0.861842	0.149837	Ramsay Health Care (RHC: \$A68.23) up 2.4% in 2...	AUSTRALIAN INTRA-DAY STOCK REPORT\n\nFriday Au...
2021-08-13	NEUT	0.133205	0.134328	Piedmont Lithium Inc. (NASDAQ:PLL) Given Avera...	Piedmont Lithium Shares of Piedmont Lithium In...
2021-08-25	MIXED	0.124136	0.114833	Rio Tinto resumes operations at Richards Bay i...	Rio Tinto said on Tuesday it has begun the pro...
2021-08-18	POS	0.893529	0.136029	Scandium International Mining (SCY: 21.0c) soa...	CANADIAN END-OF-DAY STOCK REPORT\n\nScandium I...
2021-08-12	POS	0.779726	0.120000	Australia stocks higher at close of trade; S&P...	Investing.com -\n\nInvesting.com – Australia s...
2021-08-03	NEUT	0.000696	0.055556	Thomas, Clyde	NOTICE TO CREDITORS\n\nHaving qualified as Adm...
2021-08-26	POS	0.889887	0.174377	Strategic Investment by Fortescue and Lind Par...	Candente Copper Corp. (TSX:DNT, BVL:DNT) (*Can...
2021-08-11	NEG	-0.904544	0.138790	Wednesday August 11, 2021 Wesfarmers ADR (WFAF...	DAILY ADR AND DEPOSITORY RECEIPT REPORT\n\nWes...

Source: J.P. Morgan BD&AI, LexisNexis

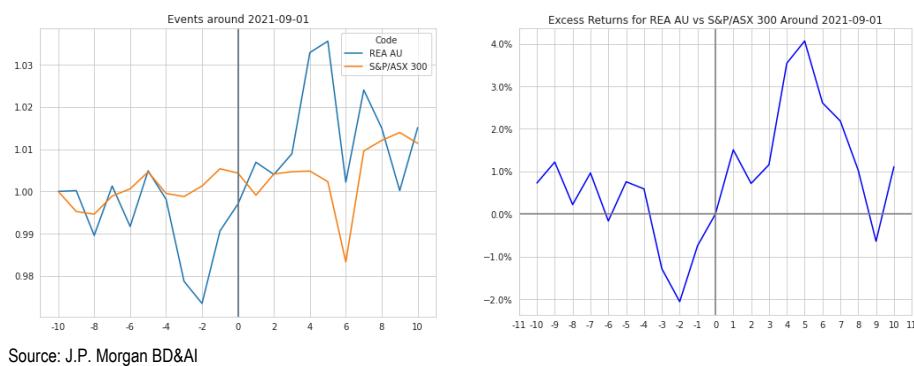
Event Study

It is of critical interest to observe the performance of stocks around these events, and for this we use an Event Study framework to track the relative returns around the results for transcripts and publication dates for the news.

Event Study Design

For our event study we rebase the stocks total returns index to \$1.00, 10 days before the event date and do the same for the benchmark. We then deduct the index level from the stock price and rebase the active returns to 1.0 on the close of the event date. As such, an outperforming stock will always have a positive gradient.

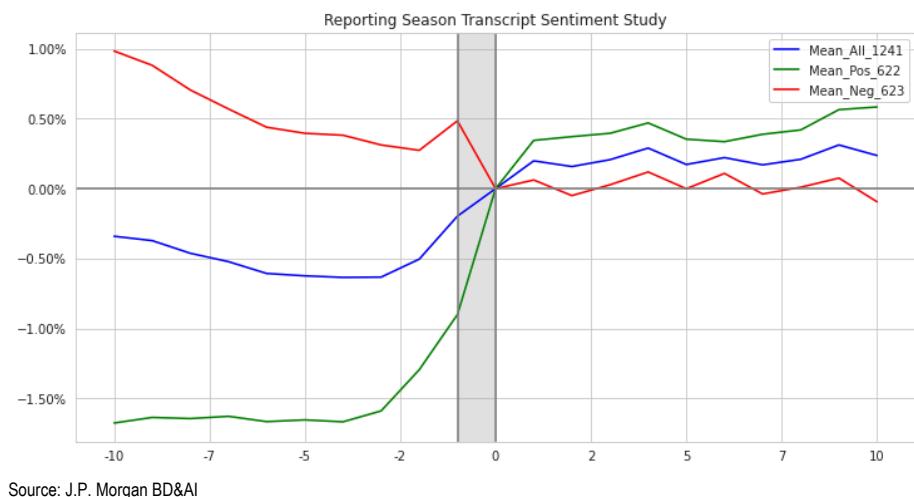
Figure 10: Event Study Returns Comparison



Source: J.P. Morgan BD&AI

Then for the event study we simply take the average excess (or total) returns around the event dates. We also measure the returns for a POS and NEG sub-portfolios. The POS portfolio is (ex-ante) expected to outperform the NEG portfolio and we can use flexible filters to build these two sub-portfolios, drawing upon the full set of event study candidates.

Figure 11: Event Study – All stocks in Blue, Positive basket in Green and Negative basket in Red



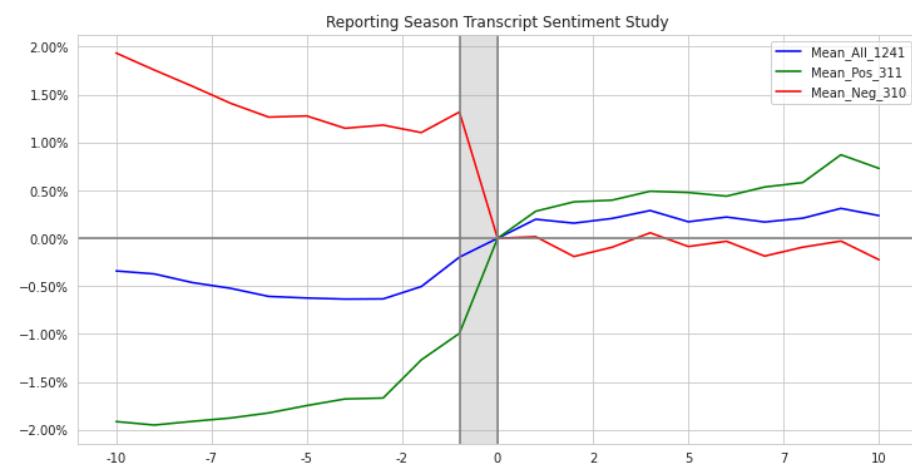
Source: J.P. Morgan BD&AI

Transcript Events

Despite the strong ‘positive spin’ used in management announcement calls, the SmartBuzz Sentiment Score is still effective at distinguishing between outperformers and underperformers. Note we have used an aggressive 4PM cutoff for the transcripts, any releases after this time are rolled over to the next business day and trades are executed at the close on t_0 .

The spread in returns between the top quartile and bottom quartile SmartBuzz Sentiment Scores was 95bps after 10 days as shown in the figure below.

Figure 12: Transcript based Event Study – Last 3 Years

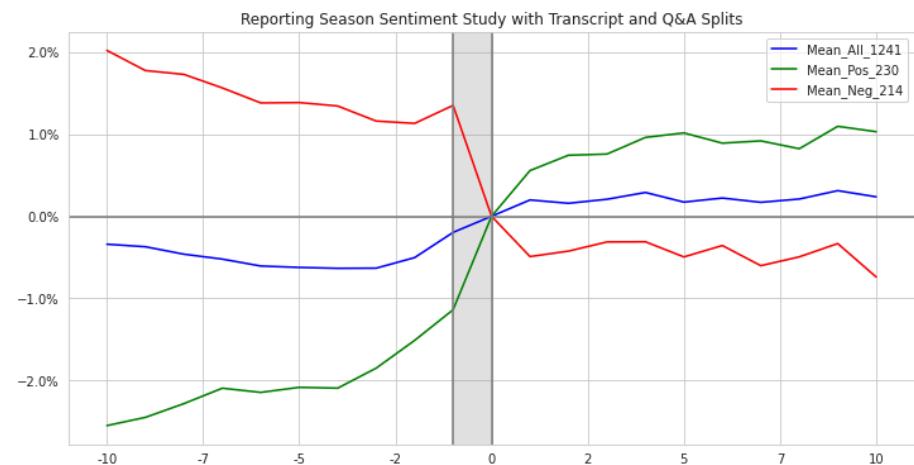


Source: J.P. Morgan BD&AI

Company Transcripts Incorporating Q&A

Using both the transcript sentiment to split between the positive vs extremely positive sentiment from management discussions and subsequently by the most positive quartile of Q&A sentiment vs least quartile showed strong spread in returns over 1% on the next day and building to 1.5% over the week. The spread widens to 1.77% after two weeks.

Figure 13: Transcript based Event Study – Splits based on Transcript midpoint and Q&A quartiles



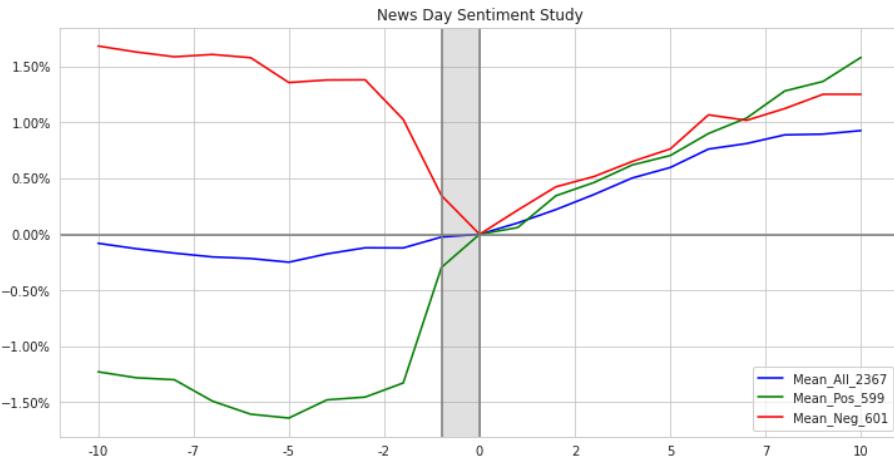
Source: J.P. Morgan BD&AI

News Events - All News is Good News

The news based event study proved to be not so straightforward. It seems that one does indeed need to '*read between the lines*' to extract the most from the news. Please also be aware that the news event study is quite limited, using 1 month's data.

Firstly, it is interesting to note a few points from our raw news event study. Clearly in this small sample, '*All News is Good News*', as stocks outperformed an average of nearly 1% for the two weeks after the news article was published. Somewhat disappointingly the other observation is that raw sentiment splits proved to have contrarian returns, with the Negative sentiment stocks outperforming the Positives stocks at first, until crossing over in the last few days of our analysis with a spread of just 33bps.

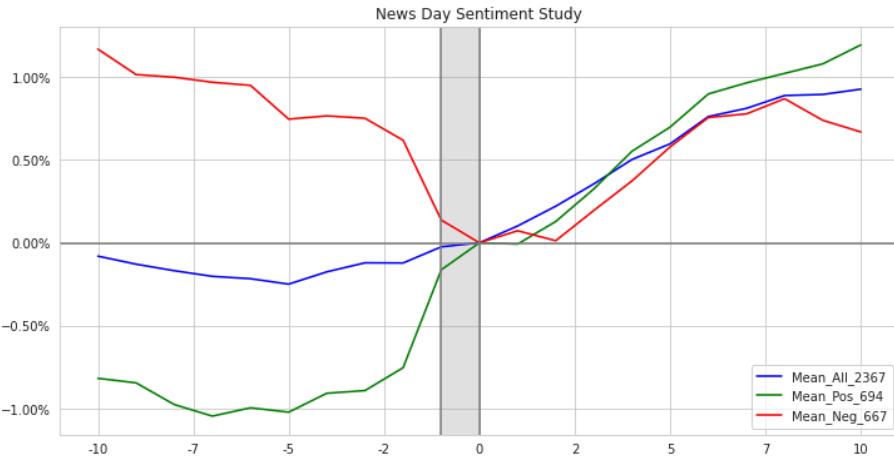
Figure 14: News Day Event Study – Showing top and bottom quartile of Sentiment events



Source: J.P. Morgan BD&AI

To help identify outperforming events earlier we also split our event study by flagging stocks news articles that were above average in Sentiment and Relevance, with a cleaner 53bps of outperformance when we pay attention to the Positive news stories by SmartBuzz Sentiment Score that were more Relevant.

Figure 15: News Day Event Study – Showing top and bottom half of Sentiment and Relevance



Source: J.P. Morgan BD&AI

Smart Buzz + Sentiment

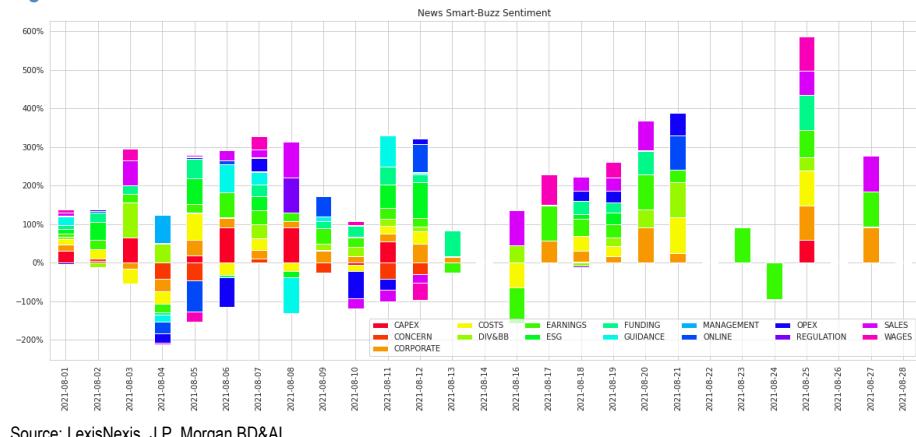
We have a long history of publishing our SmartBuzz thematic research. One of the drivers for testing the Sentiment capable NLP models was to be able to apply cutting edge models such as those from MPNet with our SmartBuzz tools.

For each sentence in a news article, or transcript, we can now perform two actions. Firstly we use MPNet to score the sentiment of each sentence. Secondly we use SmartBuzz to identify the *location* of sub-topics (lower case) and themes (UPPER) within the sentence.

News SmartBuzz Profile

In this fashion we can monitor the SmartBuzz Thematics per day from the news. As we can see below, for example, the Earnings & Guidance topics were typically positive throughout results season. In contrast the Costs theme fluctuated within the news articles.

Figure 16: SmartBuzz Sentiment Themes from News Articles

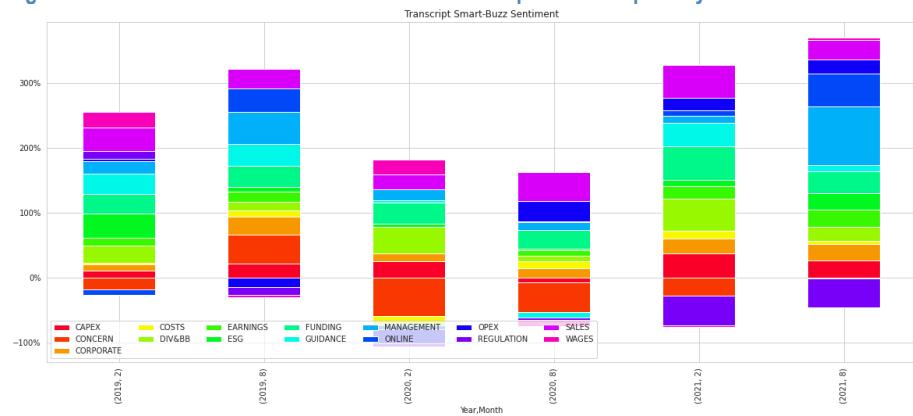


Source: LexisNexis, J.P. Morgan BD&AI

Transcript Smart Buzz

Another approach is to look at the change in thematics across the last 6 reporting seasons for the whole market. When we do this, it is easy to see the average sentiment definitely dipped in 2020 and is much more bullish in 2021. We also see that Regulation is getting a lot more negative mentions this year, Guidance sentiment shrank in the most recent period, while Earnings and Dividends & BuyBacks themes are strengthening in 2021. Further details are shown in Appendix 1.

Figure 17: SmartBuzz Thematic Sentiment for Transcripts over the past 3 years of results



Source: J.P. Morgan BD&AI, S&P Global

Conclusions

The use of NLP tools to analyse unstructured textual data is becoming more attainable and widespread. However, we note special care needs to be taken as a “one model for all” approach doesn’t necessarily offer the best outcome. For example we found that over 80% of company earnings call transcripts are rated ‘POS’ and almost none rate ‘NEG’ due to the language used by management when describing their business performance.

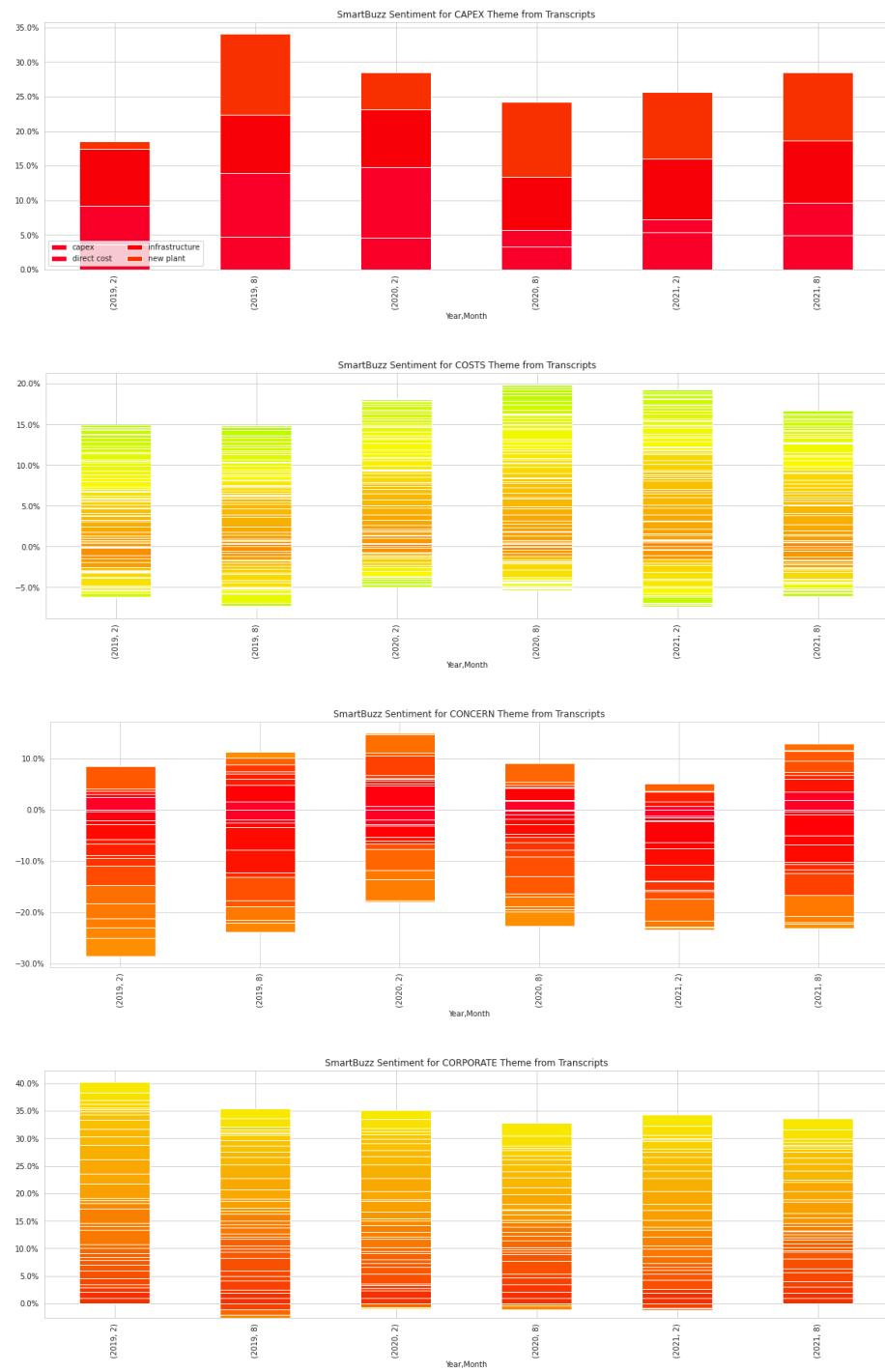
Despite these biases, with a carefully crafted SmartBuzz Sentiment Score that incorporates Relevance, we were able to identify a strong alpha source for Company Transcripts and News.

We also used our SmartBuzz Thematics tools to monitor the changing sentiment around reporting season transcripts for the past 3 years, noting an increased concern about Regulations (negative sentiment), positive mentions to Earnings and Dividend related topics and fading sentiment around Guidance.

Appendix 1

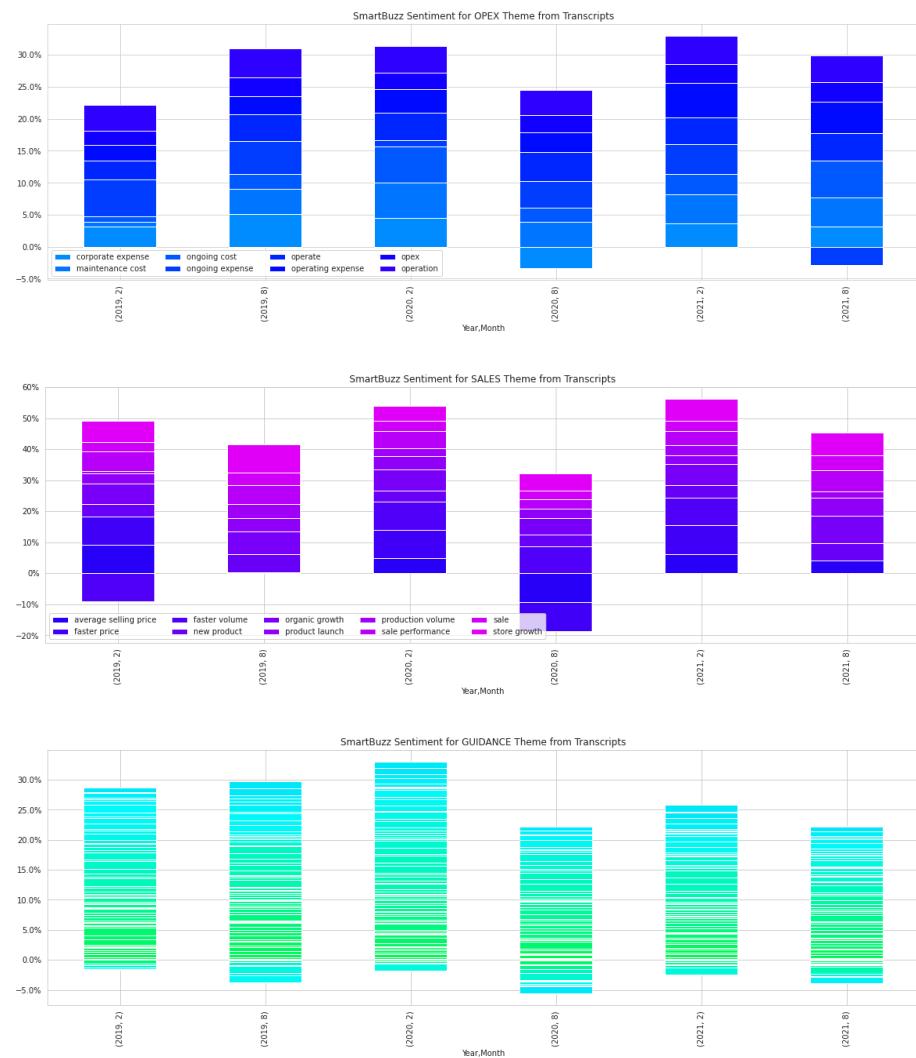
Drilling down within Smart-Buzz Themes from Company transcripts

Figure 18: Smart Buzz Themes and Detailed Sentiment Scores through Time









Source: J.P. Morgan BD&AI

Appendix 2

Drilling down within Smart-Buzz Themes and Terms.

Note that Categories with leading underscore (eg _inc, _timing, etc.) are not used for SmartBuzz themes but the corresponding words are used to determine the relevance scores.

Figure 19: Smart Buzz Themes and Terms

Themes	Matching Text	Themes	Matching Text	Themes	Matching Text	Themes	Matching Text
_dec	contraction	CAPEX	capex	DIV&BB	buyback activity	WAGES	compensation
_dec	decline	CAPEX	direct costs	DIV&BB	buyback authorization	WAGES	employee wage
_dec	decrease	CAPEX	infrastructure	DIV&BB	buyback program	WAGES	
_dec	down	CAPEX	new plant	DIV&BB	buyback	WAGES	employment cost
_dec	downturn	CAPEX	plant costs	DIV&BB	company repurchase	WAGES	headcount reduction
_dec	drop	CONCERN	accident	DIV&BB	dividend	WAGES	job openings
_dec	fall	CONCERN	breach	DIV&BB	dividend unchanged	WAGES	quitting
_dec	less	CONCERN	bushfires	DIV&BB	drop dividend	WAGES	redundancies
_dec	lessen	CONCERN	catastrophes	DIV&BB	repurchase	WAGES	redundancy cost
_dec	low	CONCERN	court case	DIV&BB	authorization		restructure costs
_dec	lower	CONCERN	cyclones	DIV&BB	repurchase	WAGES	restructuring initiatives
_dec	narrow	CONCERN	death	DIV&BB	share buyback	WAGES	severance
_dec	negative	CONCERN	died	DIV&BB	share buyback program	WAGES	bonus
_dec	reduce	CONCERN	disaster	DIV&BB	share repurchase	WAGES	
_dec	reduction	CONCERN	earthquakes	DIV&BB	special dividend	WAGES	hiring
_dec	scale back	CONCERN	fatality	DIV&BB	stock buyback	WAGES	labour
_dec	shrink	CONCERN	fire	DIV&BB	dps	WAGES	salaries
_dec	slash	CONCERN	flood	EARNINGS	bb	WAGES	wages
_dec	small	CONCERN	hazards	EARNINGS	earnings	WAGES	staff
_dec	soften	CONCERN	killed	EARNINGS	ebit	WAGES	termination
_dec	soft	CONCERN	lawsuit	EARNINGS	ebitda	WAGES	labour shortage
_dec	weaken	CONCERN	natural disaster	EARNINGS	npat	WAGES	strike
_dec					loss	WAGES	tight labour
_dec							tight labour condition
_dec	weak	CONCERN	red flag	EARNINGS	profit	WAGES	wage pressure
_dec	worse	CONCERN	storm	EARNINGS	inefficiency	WAGES	contractor
_dec	worsen	CONCERN	storms	EARNINGS	losses	GUIDANCE	guide
_dec	diminish	CONCERN	sued	EARNINGS	eps	GUIDANCE	guidance
_inc	boost	CONCERN	terrorist	EARNINGS	cagr	GUIDANCE	guidance
_inc	better	CONCERN	tragedy	EARNINGS	result	GUIDANCE	future
_inc	big	CONCERN	tragic	EARNINGS	resulted	GUIDANCE	earnings guidance
_inc	climb	CONCERN	violations	ESG	carbon	GUIDANCE	guidance range
_inc	expand	CONCERN	warning	ESG	carbon emissions	GUIDANCE	fy guidance
_inc	expansion	CONCERN	weather events	ESG	carbon footprint	GUIDANCE	eps guidance
_inc	grow	CONCERN	wet weather	ESG	environmental	GUIDANCE	financial guidance
_inc	growth	CORPORATE	acquisition	ESG	environmental social governance	GUIDANCE	sales guidance
_inc							
_inc	hike	CORPORATE	asset acquisition	ESG	esg	GUIDANCE	company guidance
_inc	heighten	CORPORATE	asset disposal	ESG	governance	GUIDANCE	eps guidance range
_inc	higher	CORPORATE	bolt on acquisition	ESG	remuneration report	GUIDANCE	annual guidance
_inc	improve	CORPORATE	break fee	ESG	responsible	GUIDANCE	initial guidance
_inc	lift	CORPORATE	centralizing	ESG	shareholder value	GUIDANCE	revenue guidance
_inc	increase	CORPORATE	change segment	ESG	social	GUIDANCE	new guidance
_inc	more	CORPORATE	deferred consideration	ESG	socially responsible	GUIDANCE	ebitda guidance
_inc							
_inc	positive	CORPORATE	driving efficiency	ESG	socially responsible investing	GUIDANCE	revenue guidance range
_inc	raise	CORPORATE	initiatives	ESG	sri	GUIDANCE	margin guidance
_inc	rise	CORPORATE	integration cost	FUNDING	debt book	GUIDANCE	guidance given
_inc	rocket	CORPORATE	joint venture	FUNDING	debt capacity	GUIDANCE	guidance ranges
_inc	skyrocket	CORPORATE	new deals	FUNDING	debt cost	GUIDANCE	organic growth

Themes	Matching Text	Themes	Matching Text	Themes	Matching Text	Themes	Matching Text
_inc	snowball	CORPORATE	offshoring	FUNDING	debt	GUIDANCE	guidance adjusted eps guidance
_inc	soar	CORPORATE	overhaul	FUNDING	financial leverage	GUIDANCE	eps guide ebitda guidance
_inc	strong	CORPORATE	rationalization	FUNDING	foreign exchange	GUIDANCE	range
_inc	strengthen	CORPORATE	realignment	FUNDING	funding capacity	GUIDANCE	npat guidance
_inc	surge	CORPORATE	rebranding	FUNDING	funding	GUIDANCE	growth guidance
_inc	up	CORPORATE	redesign	FUNDING	interest expense	GUIDANCE	year guidance
_inc	uptick	CORPORATE	reorganization	FUNDING	interest	GUIDANCE	quarterly guidance
_inc	upturn	CORPORATE	reporting lines	FUNDING	operating leverage	GUIDANCE	net income guidance revised guidance
_inc	wide	CORPORATE	reshuffle	FUNDING	revolving credit facility	GUIDANCE	
_inc	widen	CORPORATE	restructure	FUNDING	rising gross	GUIDANCE	ebit guidance
_inc	alike	CORPORATE	right sizing	FUNDING	senior debt	GUIDANCE	guidance despite
_neu	similar	CORPORATE	rightsizing	FUNDING	trade financing	GUIDANCE	fy guide
_neu	identical	CORPORATE	simplification	FUNDING	utilization	GUIDANCE	original guidance
_neu	confirm	CORPORATE	strategic review	FUNDING	volume	GUIDANCE	implied guidance
_neu	flat	CORPORATE	streamlining	FUNDING	term debt	GUIDANCE	ebitda margin guidance
_neu	previous	CORPORATE	successful implementation	FUNDING	undrawn bank facilities	GUIDANCE	profit guidance
_neu	repeat	CORPORATE	supply chain optimization	MANAGEMENT	CEO	GUIDANCE	updated guidance
_neu	regular	CORPORATE	technology investment	MANAGEMENT	chief executive officer	GUIDANCE	fcf guidance
_neu	restate	CORPORATE	transformation	MANAGEMENT	CFO	GUIDANCE	prior guidance
_neu	level	CORPORATE	transformation program	MANAGEMENT	chief financial officer	GUIDANCE	management guidance
_neu	same	CORPORATE	product	MANAGEMENT	CTO	GUIDANCE	underlying guidance
_timing	quarter	CORPORATE	street	MANAGEMENT	chief technological officer	GUIDANCE	volume guidance
_timing	quarterly	CORPORATE	consensus	MANAGEMENT	COO	GUIDANCE	previous guidance
_timing	quarterlies	CORPORATE	estimate	MANAGEMENT	chief operation officer	GUIDANCE	current guidance
_timing	annual	CORPORATE	historical	MANAGEMENT	appoint	GUIDANCE	operating profit guidance
_timing	year	CORPORATE	contract	MANAGEMENT	leadership change	GUIDANCE	adjusted ebitda guidance
_timing	yearly	CORPORATE	efficient	MANAGEMENT	management search	GUIDANCE	production guidance
_timing	half	CORPORATE	process improvement	MANAGEMENT	new board	GUIDANCE	cash flow guidance
_timing	semi	COSTS	amortization	MANAGEMENT	new director	GUIDANCE	sales growth guidance
_timing	timing	COSTS	expense	MANAGEMENT	notify	GUIDANCE	
_timing	day	COSTS	asset impairments	MANAGEMENT	quit	GUIDANCE	net profit guidance
_timing	week	COSTS	cash outflows	MANAGEMENT	resign	GUIDANCE	fy revenue guidance
_timing	fourths	COSTS	clawback	MANAGEMENT	retire	GUIDANCE	adjusted eps range
_timing	halves	COSTS	closure cost	MANAGEMENT	succession planning	GUIDANCE	capex guidance
_timing	consecutive	COSTS	codb	MANAGEMENT	terminated	GUIDANCE	fy eps guidance
_timing	cogs	COSTS	cogs	MANAGEMENT		GUIDANCE	ebit margin guidance
_timing	versus	COSTS	commodity cost	ONLINE	advertising	GUIDANCE	total revenue guidance
_timing	decade	COSTS	controllable cost	ONLINE	facebook	GUIDANCE	eps growth guidance
_units	ten	COSTS	corporate cost	ONLINE	google	GUIDANCE	eps outlook
_units	hundred	COSTS	cost base	ONLINE	internet	GUIDANCE	prior guidance range
_units	thousand	COSTS	cost of doing business	ONLINE	online	GUIDANCE	fcf guide
_units	million	COSTS	cost of goods sold	ONLINE	social media	GUIDANCE	opex guidance
_units	billion	COSTS	cost reduction	ONLINE	twitter	GUIDANCE	current guidance range
_units	dollar	COSTS	cost reduction	ONLINE	web	GUIDANCE	operating margin

Themes	Matching Text	Themes	Matching Text	Themes	Matching Text	Themes	Matching Text
_units	cents	COSTS	program cost	OPEX	corporate expenses	GUIDANCE	guidance
_units	pound	COSTS	efficiency program	OPEX	maintenance cost	GUIDANCE	guidance issued
_units	euro	COSTS	electricity cost	OPEX	ongoing costs	GUIDANCE	capex guide
_units	whan	COSTS	electricity prices	OPEX	ongoing expenses	GUIDANCE	preliminary guidance
_units	ton	COSTS	employee expenses	OPEX	op ex	GUIDANCE	cost guidance
_units	tonne	COSTS	energy consumption	OPEX	operate	GUIDANCE	line guidance
_units	price	COSTS	energy cost	OPEX	operating expense	GUIDANCE	growth target
_units	yen	COSTS	energy prices	OPEX	opex	GUIDANCE	initial outlook
_units	bps	COSTS	expense	OPEX	operation	GUIDANCE	free cash flow
_units	pts	COSTS	exploration expense	REGULATION	aluminium tariff	GUIDANCE	guidance
_units	percent	COSTS	fair value adjustment	REGULATION	brexit	GUIDANCE	comp guidance
_units	pennies	COSTS	fixed cost	REGULATION	draft decision	GUIDANCE	expense guidance
COSTS	restructuring cost	COSTS	freight cost	REGULATION	estimate tariff	GUIDANCE	previous guidance
COSTS	reversals	COSTS	freight rates	REGULATION	european union trade	GUIDANCE	range
COSTS	rolling stock	COSTS	fuel cost	REGULATION	government shutdown	GUIDANCE	initial guidance
COSTS	significant cost	COSTS	fuel prices	REGULATION	impact from trade	GUIDANCE	range
COSTS	stamp duty	COSTS	funding cost	REGULATION	regulatory costs	GUIDANCE	guidance likely
COSTS	strip ratios	COSTS	goodwill impairment	REGULATION	regulatory	GUIDANCE	guidance provided
COSTS	transport cost	COSTS	higher depreciation	REGULATION	steel tariff	GUIDANCE	long term guidance
COSTS	transportation	COSTS	implementation cost	REGULATION	tariff	GUIDANCE	unchanged
COSTS	underlying cost	COSTS	increased depreciation	REGULATION	trade concern	GUIDANCE	guidance
COSTS	unit cost	COSTS	incremental cost	REGULATION	trade deal	GUIDANCE	medium term
COSTS	variable cost	COSTS	input cost	REGULATION	trade negotiations	GUIDANCE	guidance
COSTS	wholesale prices	COSTS	insurance proceeds	REGULATION	trade war	GUIDANCE	standing guidance
COSTS	writeoff	COSTS	labor cost	SALES	average selling price	GUIDANCE	ffo guidance
COSTS	deferred tax asset	COSTS	legal cost	SALES	average selling prices	GUIDANCE	revenue growth
COSTS	deferred tax liability	COSTS	lower material	SALES	faster price	GUIDANCE	guidance
COSTS	tax adjustments	COSTS	market price	SALES	faster volume	GUIDANCE	preliminary outlook
COSTS	tax charge	COSTS	mining cost	SALES	new product	GUIDANCE	capex target
COSTS	tax effect	COSTS	occupancy cost	SALES	organic growth	GUIDANCE	prior guide
COSTS	tax impact	COSTS	overall cost	SALES	product launch	GUIDANCE	guidance remains
COSTS	tax	COSTS	overhead cost	SALES	production volumes	GUIDANCE	previous range
COSTS	depreciation	COSTS	packaging cost	SALES	sales performance	GUIDANCE	group guidance
COSTS	penalty	COSTS	regulatory cost	SALES	sale	GUIDANCE	fy guidance range
COSTS	plant cost	COSTS	reinsurance cost	SALES	store growth	GUIDANCE	initial targets
COSTS	power cost	COSTS	renewable			GUIDANCE	ffo guidance range
COSTS	processing cost	COSTS	restructure cost			GUIDANCE	segment guidance
COSTS	production cost	COSTS	restructuring charges			GUIDANCE	new guidance range

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