ACCERN QUANTGROUP

ALPHASTREAM

BACKTEST REPORT

EVENT-DRIVEN

SENTIMENT STRATEGY

Company Earnings Focused

Holding Period: Days/Weeks

A. GENERAL OVERVIEW

Accern is the world's first big data media analytics provider to deliver the most comprehensive dataset of actionable and authentic stories and analytics from over 20 million sources for quantitative trading. Accern has developed strategic partnerships with data providers that collects content from 20 million news and blog sources and provides well over 5 million articles each day. Accern monitors these sources very frequently (faster than the indexing rate of major search engines) and filters out the majority (99.99%) of irrelevant articles and provides relevant articles and analytics to investment managers with a 97% accuracy rate.

DATA FIELDS

article_id
story_id
harvested_at
entities_name
entities_ticker
entities_global_id
entities_entity_id
entities_type
entities_exchange
entities_sector
entities_industry
entities_country
entities_region
entities_index
entities_competitors
event_groups_group
event_groups_type
story_sentiment (SS)
story_saturation (SSat)
story_volume (SV)
story_traffic (ST)
story_shares (SShares)
first_mention (FM)
article_type
article_sentiment (AS)
article_traffic (ATraf.)
article_url
source_id
overall_source_rank (OSR)
event_source_rank (ESR)
author_id
overall_author_rank (OAR)
event_author_rank (EAR)
event_impact_score_overall (EIO)
event_impact_score_entity (EIE)
avg_day_sentiment (ADS)
correlations_max_positive_ticker
correlations_max_positive_value
correlations_max_negative_ticker
correlations_max_negative_value

B. USING THE DATA FIELDS (MAIN ONES)

Harvested_at: The time we get the article. This field is in UTC and will need to be converted to exchange time. This can be used as a timestamp.

Entities_ticker: This is the ticker of the public company. This can be used to map to security pricing data.

Entities_global_id / Entities_entity_id: This is Bloomberg's unique ID. This can be used to map to security pricing data on Bloomberg.

Event_groups_groups: Event groups which can be used for event-driven trading.

Event_groups_type: Event sub-groups which can be used for event-driven trading.

Story_sentiment: Tracks the aggregated sentiment for a specific story. This can be used for event-driven trading.

Story_saturation: Tracks the saturation level for a specific story: This can be used for event-driven trading.

First_mention: Identify unique stories before they are exposed on the web. This can be used as a rush trigger.

Article_sentiment: Identify the tone the article is written in. This can be used as a directional trigger.

Overall/Event_source_rank: Identify sources which are trustworthy. This can be used as a filter mechanism.

Overall/Event_author_rank: Identify authors which are trustworthy. This can be used as a filter mechanism.

Event_impact_score_entity: Probability that a story will have a greater-than-1% impact on the stock price. This can be used as a decision maker.

Event_impact_score_overall: Probability that an event will have a greater-than-1% impact on the stock price. This can be used as a decision maker.

Correlations_max_negative_ticker: Identifies a ticker with a max negative price correlation to the ticker mentioned. This can be used for pair-trading.

C. THE SETUP

PORTFOLIO COMPANIES:

We ran the backtest on the NASDAQ 100 components. Below is the list of components used:

FOXA	AMAT	CHRW	CTXS	EXPE	HSIC	LMCK	MNST	PAYX	SIRI	TSCO	WFM
ATVI	ADSK	CA	CTSH	EXPD	ILMN	LMCA	MYL	QCOM	SPLS	TRIP	WYNN
ADBE	ADP	CTRX	COST	ESRX	INTC	LLTC	NTAP	REGN	SBUX	VRSK	XLNX
AKAM	AVGO	CELG	DTV	FFIV	INTU	MAR	NFLX	ROST	SRCL	VRTX	
ALXN	BIDU	CERN	DISH	FAST	ISRG	MAT	NVDA	SNDK	SYMC	VIAB	
ALTR	BBBY	CHTR	DLTR	FISV	KLAC	MXIM	NXPI	SBAC	TSLA	VIP	
AMGN	BIIB	CHKP	EBAY	GRMN	GMCR	MU	ORLY	STX	TXN	VOD	
ADI	BRCM	CSCO	EQIX	GILD	KRFT	MDLZ	PCAR	SIAL	PCLN	WDC	

STARTING CASH: We start off with $1,000,000 in all our portfolios.

BENCHMARK: We benchmark our algorithm performance with PowerShares QQQ Trust ETF (QQQ) which tracks the NASDAQ 100.

BACKTEST DATE: We set the backtest date to be 2012-08-25 to 2015-02-19.

COMMISSION: We set a default trade commission to be used in the backtest. Numbers are represented below in the code.

SLIPPAGE: We set a default slippage as well. Numbers are represented below in the code.

SCHEDULE: We set a default function that allows only intraday trading from market open to market close. Trading is in minutes.

```
    set_benchmark(symbol('QQQ'))

    set_commission(commission.PerShare(cost=0.014, min_trade_cost=1.4))

    set_slippage(slippage.VolumeShareSlippage(volume_limit=0.25, price_impact=0.1))

    schedule_function(end_of_day, date_rules.every_day(),
time_rules.market_close(minutes=1))
```

EXCHANGE TIME CONVERSION: The timestamp in our dataset is in UTC. This needs to be converted to exchange time (EST).

```
context.exchange_time = pd.Timestamp(get_datetime()).tz_convert('US/Eastern')
```

PLACING ORDERS: We will not place orders if a stock is already in the process of handling an order (fill time).

```
def check_if_no_conflicting_orders(stock):

    open_orders = get_open_orders()
    safeToMove  = True
    if open_orders:
        for security, orders in open_orders.iteritems():
            for oo in orders:
                if oo.sid == stock.sid:
                    if oo.amount != 0:
                        safeToMove = False
    return safeToMove
```

CHECK FOR INVALID POSITION: Check that the portfolio does not contain any broken position or external securities.

```
def check_invalid_positions(context, securities):

    for sid, position in context.portfolio.positions.iteritems():
        if sid not in securities and position.amount != 0:
            errmsg = \
                "Invalid position found: {sid} amount = {amt} on {date}"\
                .format(sid=position.sid,
                        amt=position.amount,
                        date=get_datetime())
            raise Exception(errmsg)
```

LONG POSITION AND EXIT:

a. If buy conditions are met and we have no positions, then we will buy shares.
b. If buy conditions are met and we already have long positions, we will not buy shares.
c. If buy conditions are met and we have short positions, we will exit the short positions and buy shares.

```
                if data[stock]['Metric A'] > context.upper_bound_a and data[stock]
['Metric B'] > context.upper_bound_b:


                    if context.portfolio.positions[stock.sid].amount == 0:
                        buy_position(context, data, stock)

                    else:
                        if context.portfolio.positions[stock.sid].amount < 0:
                            exit_position(context, data, stock)
```

SHORT POSITION AND EXIT:

a. If sell conditions are met and we have no positions, then we will sell shares.
b. If sell conditions are met and we already have short positions, we will not sell shares.
c. If sell conditions are met and we have long positions, we will exit the long positions and sell shares.

```
                elif data[stock]['Metric A'] < context.lower_bound_a and data[stock]
['Metric B'] > context.lower_bound_b:


                    if context.portfolio.positions[stock.sid].amount == 0:
                        short_position(context, data, stock)

                    else:
                        if context.portfolio.positions[stock.sid].amount > 0:
                            exit_position(context, data, stock)
```

BUYING / SELLING %:

Company Earnings: We used 5% of available cash in our portfolio per signal.
Financial Results, Financial Forecast, and Financial Ratings: We used 10% of available cash in our portfolio per signal.
Acquisition, Corporate Governance, and Contracts: We used 10% of available cash in our portfolio per signal.

BACKTEST FILE URL: https://dl.dropboxusercontent.com/u/70792051/Accern%20Backtest/NASDAQ100_BacktestVersion(92).csv

D. COMPANY EARNINGS

We conducted a backtest using "Company Earnings" which is an event group in our dataset. Our dataset is currently composed of 16 event groups and 78 event types which are assigned to over 1,000 events and 30,000 event variations. We wanted to test the reliability of Alpha Stream in detecting earnings information and trading on the information before it becomes exposed to millions of viewers online.

I. COMPANY EARNINGS [2 METRICS]

We conducted a backtest on the NASDAQ 100 components using the event group "Company Earnings" with a combination of 2 metrics; Article Sentiment and Event Impact Score on Entity.

CONDITIONS

Article Sentiment (-1 – 1): This metric calculated the sentiment score of an article which was relevant to a company.

- A positive sentiment score meant that the article was written in a positive tone towards a company.
- A negative sentiment score meant that the article was written in a negative tone towards a company.
- This could be used as a directional trigger.

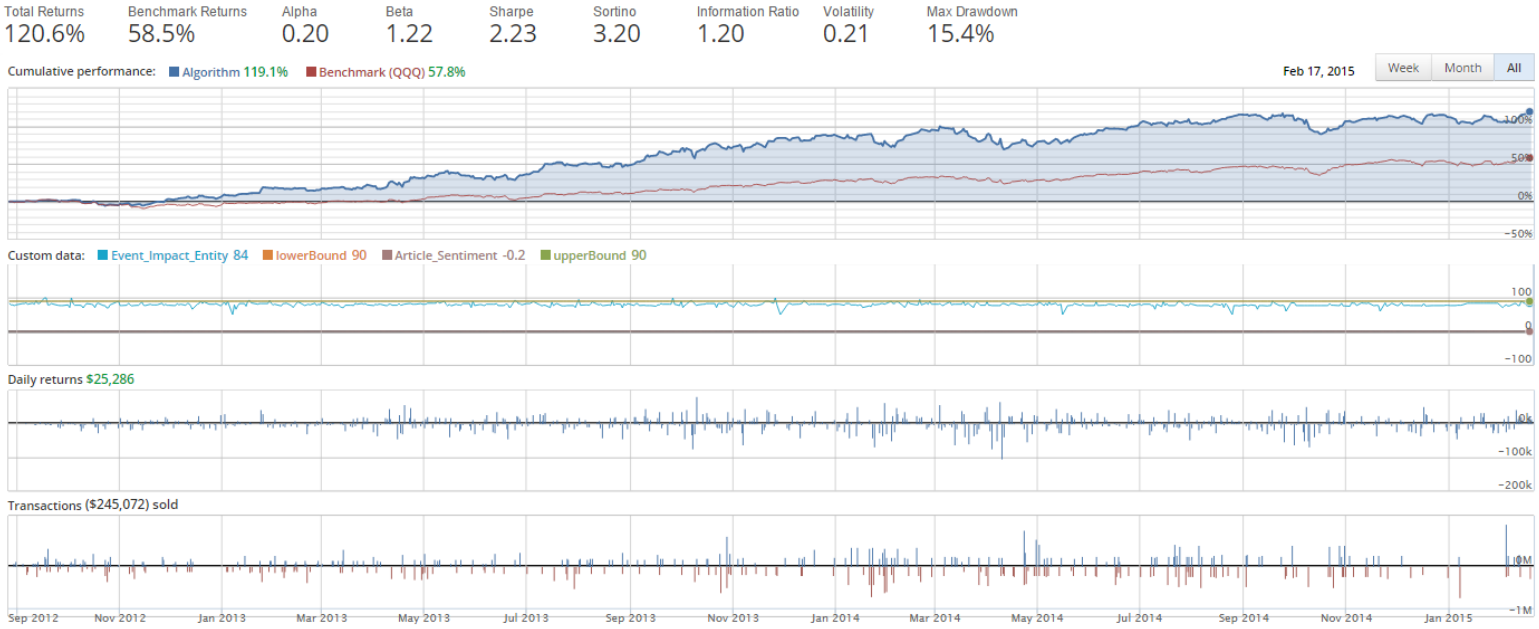
Event Impact Score on Entity (1-100): This metric calculated if an article would have a greater-than-1% impact on the stock on the same trading day.

- A high impact score meant that the article had a high probability of affecting the stock price by more than 1%.
- A low impact score meant that the article had a low probability of affecting the stock price by more than 1%.
- This can be used as a decision maker to execute an order.

Buy if: Article Sentiment **> 0.25 and** Event Impact Score on Entity **> 90**
Sell if: Article Sentiment **< -0.25 and** Event Impact Score on Entity **> 90**

RESULTS OVERVIEW

Below is the result we achieved from using a combination of the 2 metrics. We bought stocks when a positively-toned company earnings story was released and when it carried a high probability of impact. We sold stocks when a negatively-toned company earnings story was released and indicating a high probability of impact.



II. COMPANY EARNINGS [3 METRICS]

We conducted a backtest on the NASDAQ 100 components using the event group "Company Earnings" with a combination of 3 metrics; Article Sentiment, Overall Source Rank, and Event Impact Score on Entity.

CONDITIONS

Article Sentiment (-1 – 1): This metric calculated the sentiment score of an article which was relevant to a company.

- A positive sentiment score meant that the article was written in a positive tone towards a company.
- A negative sentiment score meant that the article was written in a negative tone towards a company.
- This could be used as a directional trigger.

Overall Source Rank (0-10): This metric calculated the timeliness and reposting of a source; can be used as a trust factor and a viral factor.

- A high overall source rank meant that source x was usually the first at releasing articles and other sources usually reposted the same information after source x had posted it.
- A lower overall source rank meant that source x was usually late at releasing articles than other sources and other sources usually never reposted the same information after source x had posted it.
- This could be used as a trust filter.

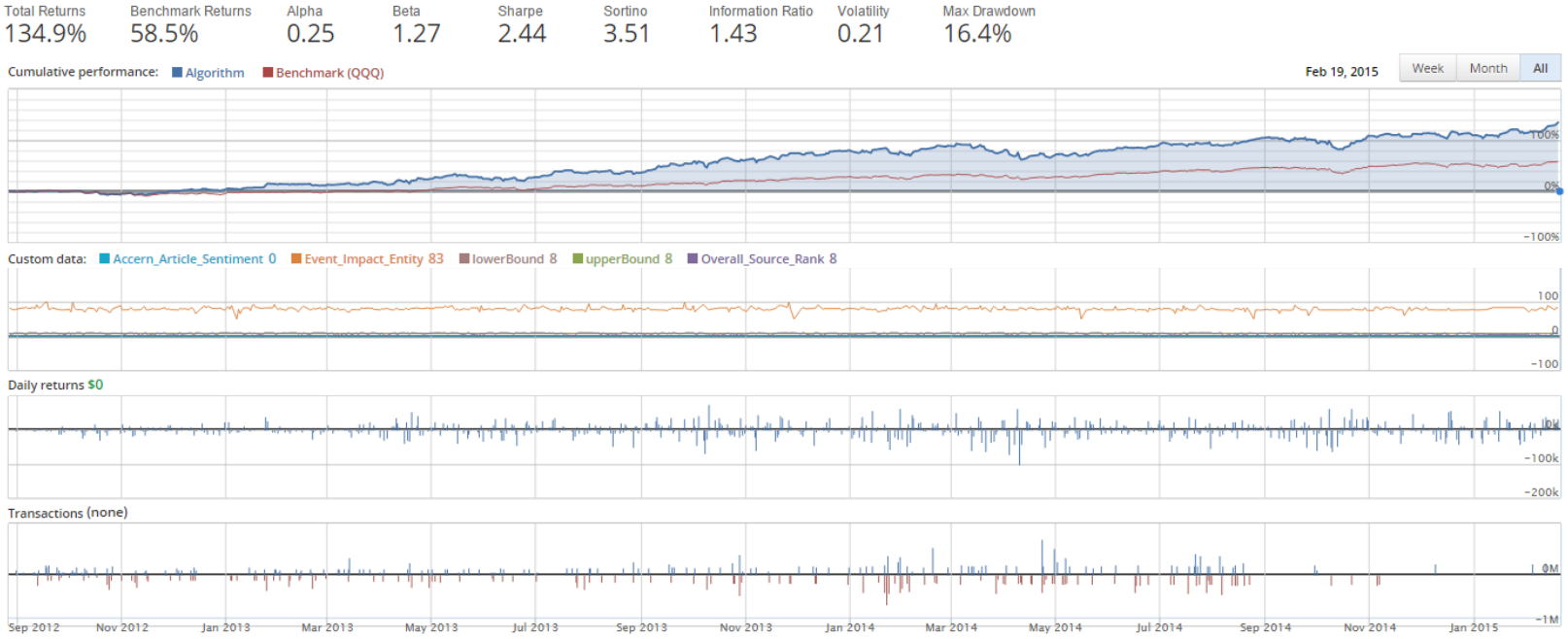
Event Impact Score on Entity (1-100): This metric calculated if the article would have a greater-than-1% impact on the stock on the same trading day.

- A high impact score meant that the article had a high probability of affecting the stock price by more than 1%.
- A low impact score meant that the article had a low probability of affecting the stock price by more than 1%.
- This could be used as a decision maker to execute an order.

Buy if: Article Sentiment > 0.25 and Overall Source Rank > 8 and Event Impact Score on Entity > 90
Sell if: Article Sentiment < -0.25 and Overall Source Rank > 8 and Event Impact Score on Entity > 90

RESULTS OVERVIEW

Below are the results we achieved from using a combination of the 3 metrics. We bought stocks when a trustworthy source released a positively-toned company earnings article with high probability of impact and sold stocks when a trustworthy source released a negatively-toned company earnings article with high probability of impact.



III. COMPANY EARNINGS [4 METRICS]

We conducted a backtest on the NASDAQ 100 components using the event group "Company Earnings" with a combination of 4 metrics; Article Sentiment, Overall Source Rank, Event Impact Score on Entity, and First Mention.

CONDITIONS

Article Sentiment (-1 – 1): This metric calculated the sentiment score of an article which was relevant to a company.

- A positive sentiment score meant that the article was written in a positive tone towards a company.
- A negative sentiment score meant that the article was written in a negative tone towards a company.
- This could be used as a directional trigger.

Overall Source Rank (0-10): This metric calculated the timeliness and reposting of a source; can be used as a trust or viral factor.

- A high overall source rank meant that source x was usually the first at releasing articles and other sources usually reposted the same information after source x had posted it.
- A lower overall source rank meant that source x was usually late at releasing articles than other sources and other sources usually never reposted the same information after source x had posted it.
- This could be used as a trust filter.

Event Impact Score on Entity (1-100): This metric calculated if the article would have a greater-than-1% impact on the stock.

- A high impact score meant that the article had a high probability of affecting the stock price by more than 1%.
- A low impact score meant that the article had a low probability of affecting the stock price by more than 1%.
- This could be used as a decision maker to execute an order.

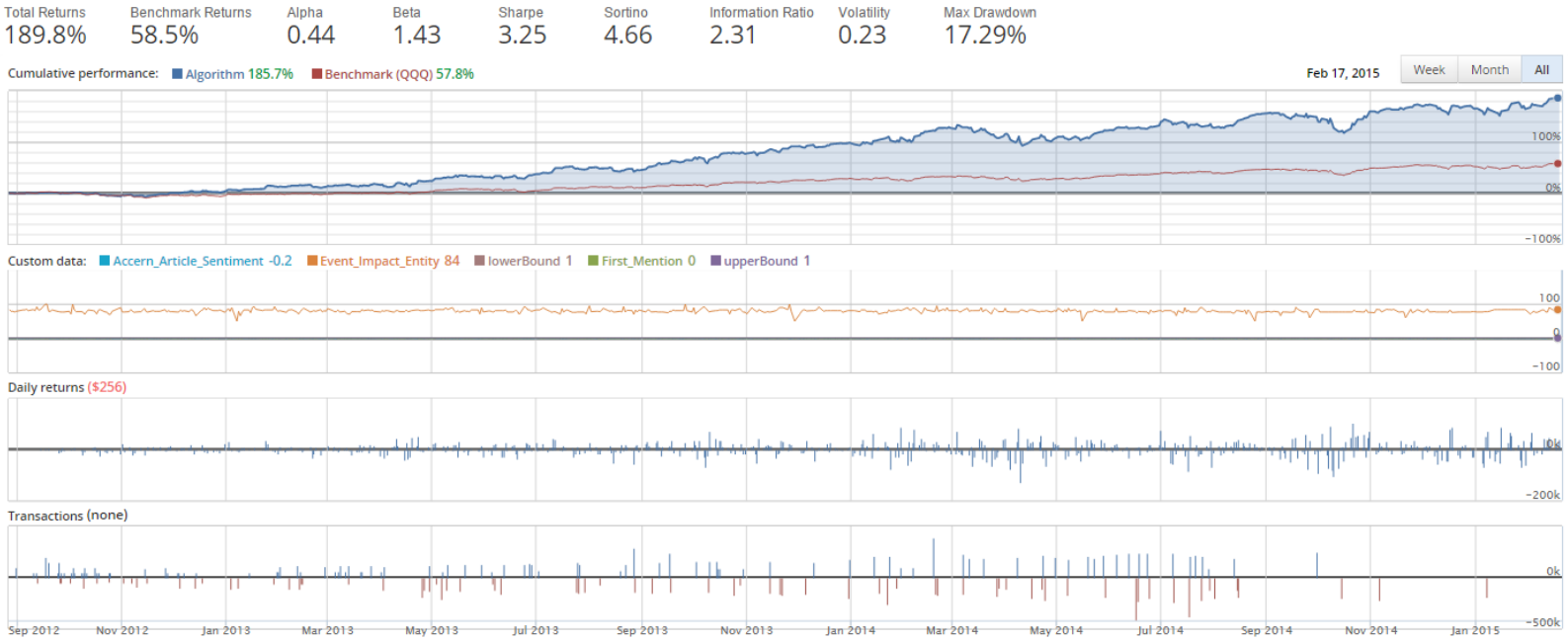
First Mention (TRUE/FALSE): This metric lets you know if a story hadn't been mentioned across 20 million sources within 2 weeks.

- TRUE meant that the story hadn't been mentioned across 20 million sources within a 2-week period.
- FALSE meant that the story had been mentioned across 20 million sources within a 2-week period.
- This could be used as a quick decision maker to execute an order.

Buy if: Article Sentiment **> 0.25** and Overall Source Rank **> 8** and Event Impact Score on Entity > **90** and First Mention = **TRUE**
Sell if: Article Sentiment **< -0.25** and Overall Source Rank **> 8** and Event Impact Score on Entity > **90** and First Mention = **TRUE**

RESULTS OVERVIEW

Below is the result we achieved from using a combination of the 4 metrics. We bought stocks when a unique company's earnings story was released by a trustworthy source who published the article in a positive tone and when it carried a high probability of impact. We sold stocks when a unique company's earnings story was released by a trustworthy source that published the article in a negative tone and indicating a high probability of impact.



E. COMPANY EARNINGS TOPIC ANATOMIZED

We conducted a backtest using the event types of "Company Earnings" which are Financial Results, Financial Forecast, and Financial Ratings. We wanted to break down our backtest results for Company Earnings and dissect the individual results of each event type related to earnings. We also wanted to test the predictive power of Company Earnings events such as Financial Forecast and Financial Ratings prior to actual earnings release.

I. FINANCIAL RESULTS [4 METRICS]

We conducted a backtest on the NASDAQ 100 components using a combination of 4 metrics in our data set.

CONDITIONS

Article Sentiment (-1 – 1): This metric calculated the sentiment score of an article which was relevant to a company.

- A positive sentiment score meant that the article was written in a positive tone towards a company.
- A negative sentiment score meant that the article was written in a negative tone towards a company.
- This could be used as a directional trigger.

Overall Source Rank (0-10): This metric calculated the timeliness and reposting of a source; could be used as a trust or viral factor.

- A high overall source rank meant that source x was usually the first at releasing articles and other sources usually reposted the same information after source x had posted it.
- A lower overall source rank meant that source x was usually late at releasing articles than other sources and other sources usually never reposted the same information after source x had posted it.
- This could be used as a trust filter.

Event Impact Score on Entity (1-100): This metric calculated if the article would have a greater-than-1% impact on the stock.

- A high impact score meant that the article had a high probability of affecting the stock price by more than 1%.
- A low impact score meant that the article had a low probability of affecting the stock price by more than 1%.
- This could be used as a decision maker to execute an order.

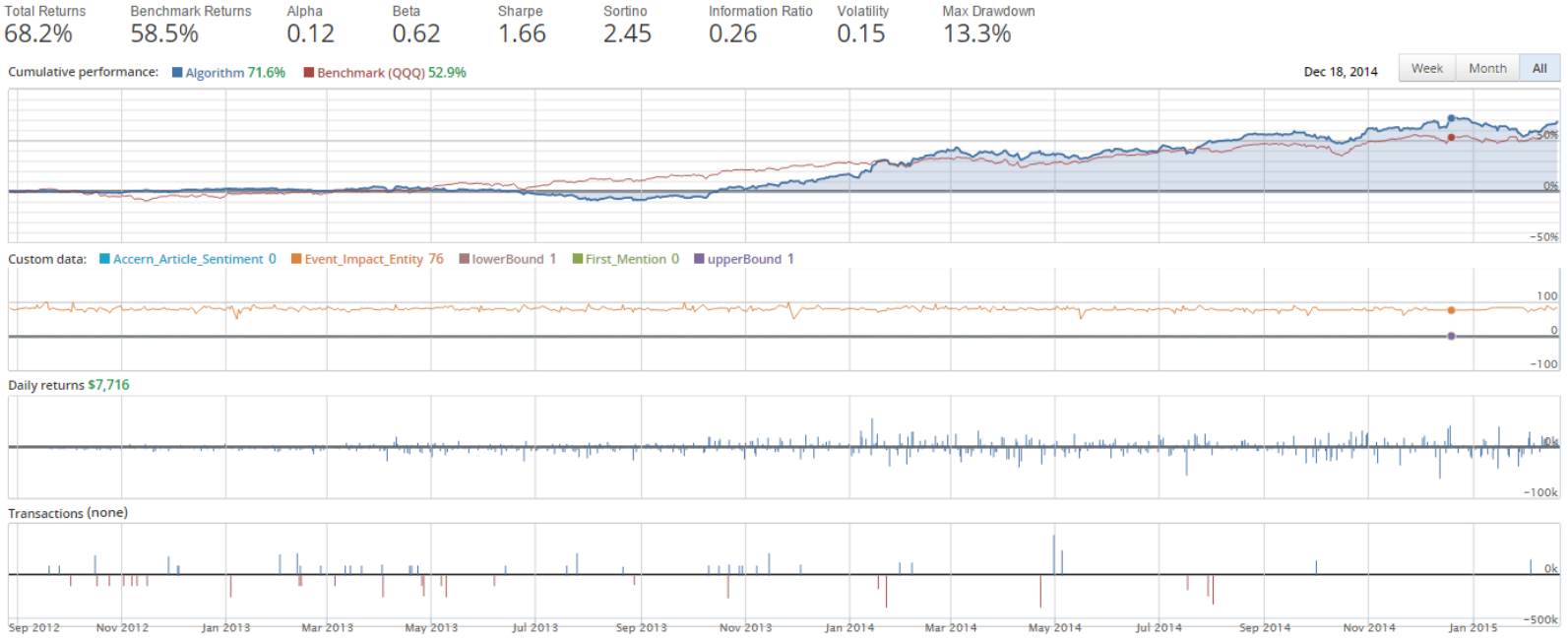
First Mention (TRUE/FALSE): This metric let you know if a story hadn't been mentioned across 20 million sources within 2 weeks.

- TRUE meant that the story hadn't been mentioned across 20 million sources within a 2-week period.
- FALSE meant that the story had been mentioned across 20 million sources within a 2-week period.
- This could be used as a quick decision maker to execute an order.

Buy if: Article Sentiment > 0.25 and Overall Source Rank > 8 and Event Impact Score on Entity > 90 and First Mention = TRUE
Sell if: Article Sentiment < -0.25 and Overall Source Rank > 8 and Event Impact Score on Entity > 90 and First Mention = TRUE

RESULTS OVERVIEW

Below is the result we achieved from using a combination of the 4 metrics. We bought stocks when a unique financial results story was released by a trustworthy source who published the article in a positive tone and when it carried a high probability of impact. We sold stocks when a unique financial results story was released by a trustworthy source that published the article in a negative tone and indicating a high probability of impact.



II. FINANCIAL FORECAST [4 METRICS]

We conducted a backtest on the NASDAQ 100 components using a combination of 4 metrics in our data set.

CONDITIONS

Article Sentiment (-1 – 1): This metric calculated the sentiment score of an article which was relevant to a company.

- A positive sentiment score meant that the article was written in a positive tone towards a company.
- A negative sentiment score meant that the article was written in a negative tone towards a company.
- This could be used as a directional trigger.

Overall Source Rank (0-10): This metric calculated the timeliness and reposting of a source; could be used as a trust or viral factor.

- A high overall source rank meant that source x was usually the first at releasing articles and other sources usually reposted the same information after source x had posted it.
- A lower overall source rank meant that source x was usually late at releasing articles than other sources and other sources usually never reposted the same information after source x has posted it.
- This could be used as a trust filter.

Event Impact Score on Entity (1-100): This metric calculated if the article would have a greater-than-1% impact on the stock.

- A high impact score meant that the article had a high probability of affecting the stock price by more than 1%.
- A low impact score meant that the article had a low probability of affecting the stock price by more than 1%.
- This could be used as a decision maker to execute an order.

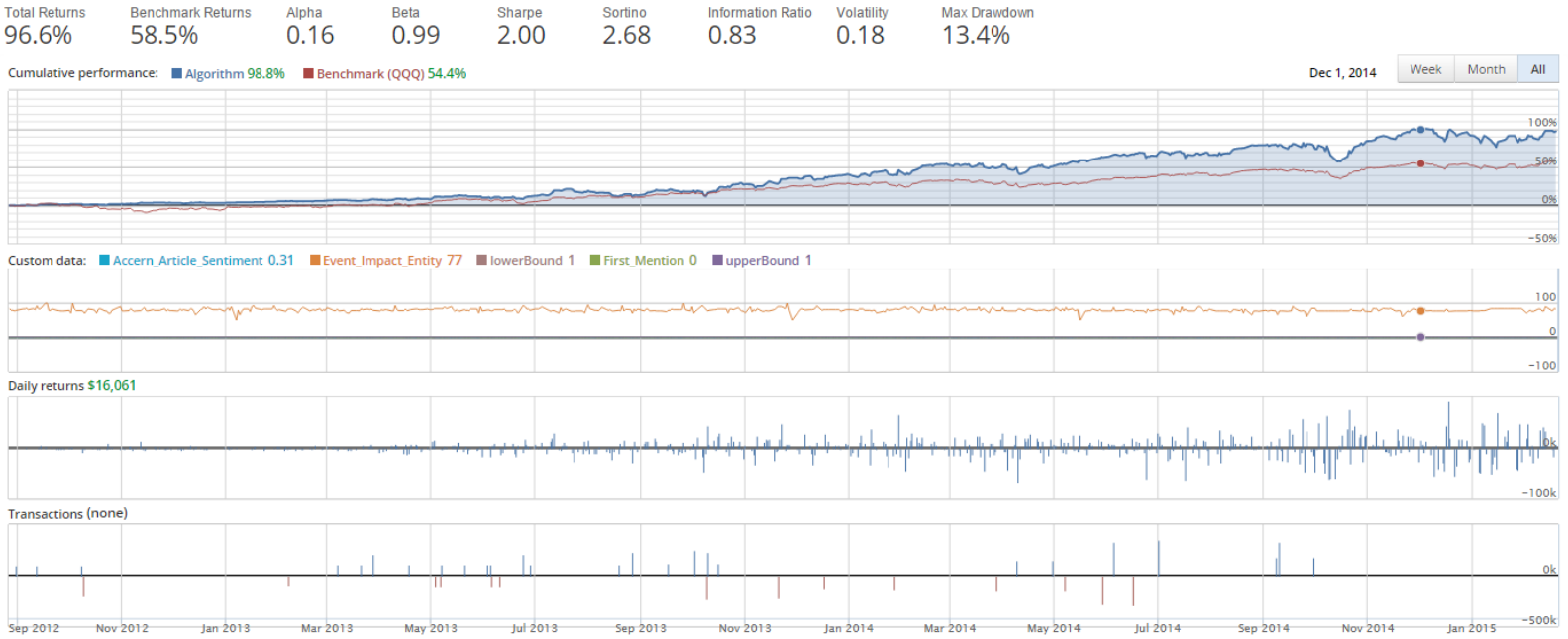
First Mention (TRUE/FALSE): This metric lets you know if a story hadn't been mentioned across 20 million sources within 2 weeks.

- TRUE meant that the story hadn't been mentioned across 20 million sources within a 2-week period.
- FALSE meant that the story had been mentioned across 20 million sources within a 2-week period.
- This could be used as a quick decision maker to execute an order.

Buy if: Article Sentiment **> 0.25** and Overall Source Rank **> 8** and Event Impact Score on Entity > **90** and First Mention = **TRUE**
Sell if: Article Sentiment **< -0.25** and Overall Source Rank **> 8** and Event Impact Score on Entity > **90** and First Mention = **TRUE**

RESULTS OVERVIEW

Below is the result we achieved from using a combination of the 4 metrics. We bought stocks when a unique financial forecast story was released by a trustworthy source who published the article in a positive tone and when it carried a high probability of impact. We sold stocks when a unique financial forecast story was released by a trustworthy source that published the article in a negative tone and indicating a high probability of impact.



III. FINANCIAL RATINGS [4 METRICS]

We conducted a backtest on the NASDAQ 100 components using a combination of 4 metrics in our data set.

CONDITIONS

Article Sentiment (-1 – 1): This metric calculated the sentiment score of an article which was relevant to a company.

- A positive sentiment score meant that the article was written in a positive tone towards a company.
- A negative sentiment score meant that the article was written in a negative tone towards a company.
- This could be used as a directional trigger.

Overall Source Rank (0-10): This metric calculated the timeliness and reposting of a source; could be used as a trust or viral factor.

- A high overall source rank meant that source x was usually the first at releasing articles and other sources usually reposted the same information after source x had posted it.
- A lower overall source rank meant that source x was usually late at releasing articles than other sources and other sources usually never reposted the same information after source x has posted it.
- This could be used as a trust filter.

Event Impact Score on Entity (1-100): This metric calculated if the article would have a greater-than-1% impact on the stock.

- A high impact score meant that the article had a high probability of affecting the stock price by more than 1%.
- A low impact score meant that the article had a low probability of affecting the stock price by more than 1%.
- This could be used as a decision maker to execute an order.

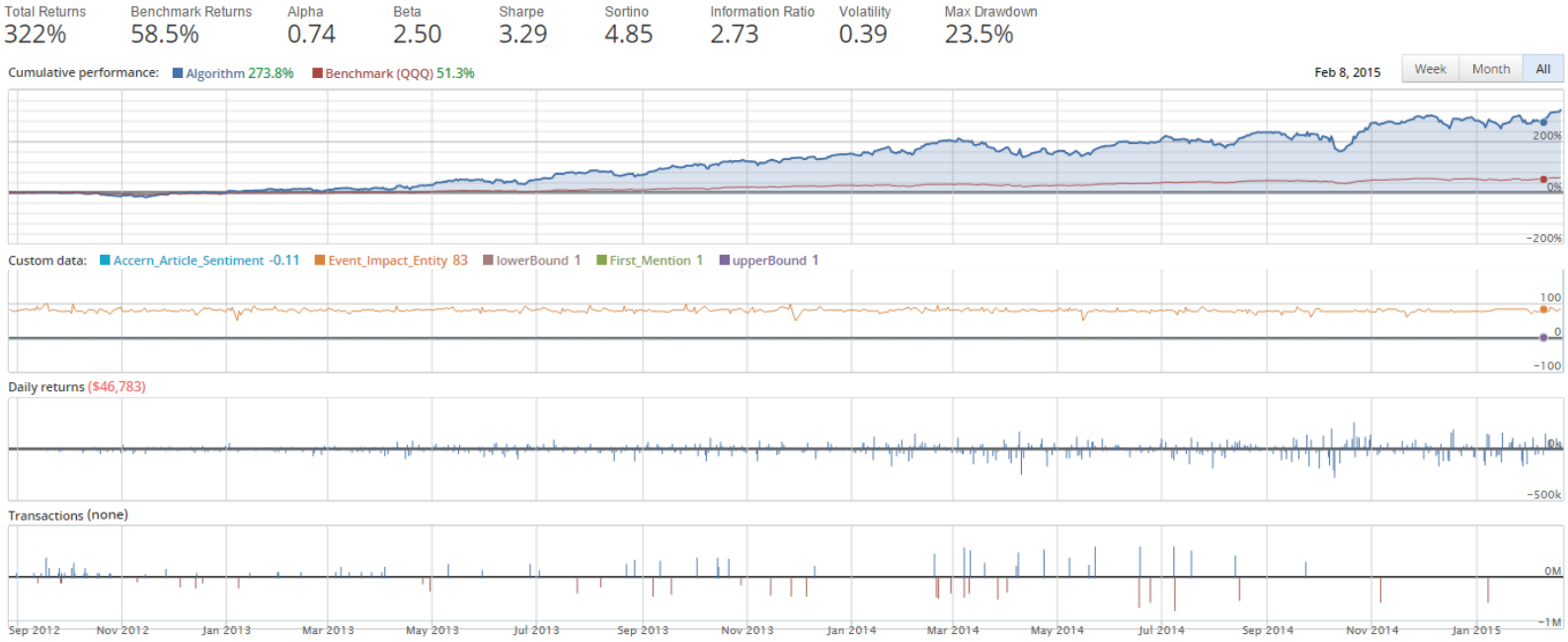
First Mention (TRUE/FALSE): This metric lets you know if a story hadn't been mentioned across 20 million sources within 2 weeks.

- TRUE meant that the story hadn't been mentioned across 20 million sources within a 2-week period.
- FALSE meant that the story had been mentioned across 20 million sources within a 2-week period.
- This could be used as a quick decision maker to execute an order.

Buy if: Article Sentiment **> 0.25** and Overall Source Rank **> 8** and Event Impact Score on Entity > **90** and First Mention = **TRUE**
Sell if: Article Sentiment **< -0.25** and Overall Source Rank **> 8** and Event Impact Score on Entity > **90** and First Mention = **TRUE**

RESULTS OVERVIEW

Below is the result we achieved from using a combination of the 4 metrics. We bought stocks when a unique financial rating story was released by a trustworthy source who published the article in a positive tone and when it carried a high probability of impact. We sold stocks when a unique financial rating story was released by a trustworthy source that published the article in a negative tone and indicating a high probability of impact.



F. ACQUISITIONS [2-METRICS]

We conducted a backtest using "Acquisitions", an event type in our data set. We wanted to identify acquisition stories as they were released on the web and conduct instant trade on the information before it became exposed to millions of viewers. We also wanted to identify the predictive power and accuracy of Alpha Stream in detecting major acquisition events ahead of the story's saturation.

CONDITIONS

Story Sentiment (-1 – 1): This metric calculated the aggregated sentiment score of a specific story.

- A positive sentiment score meant that the story was trending positively.
- A negative sentiment score meant that the story was trending negatively.
- This could be used as a directional trigger.

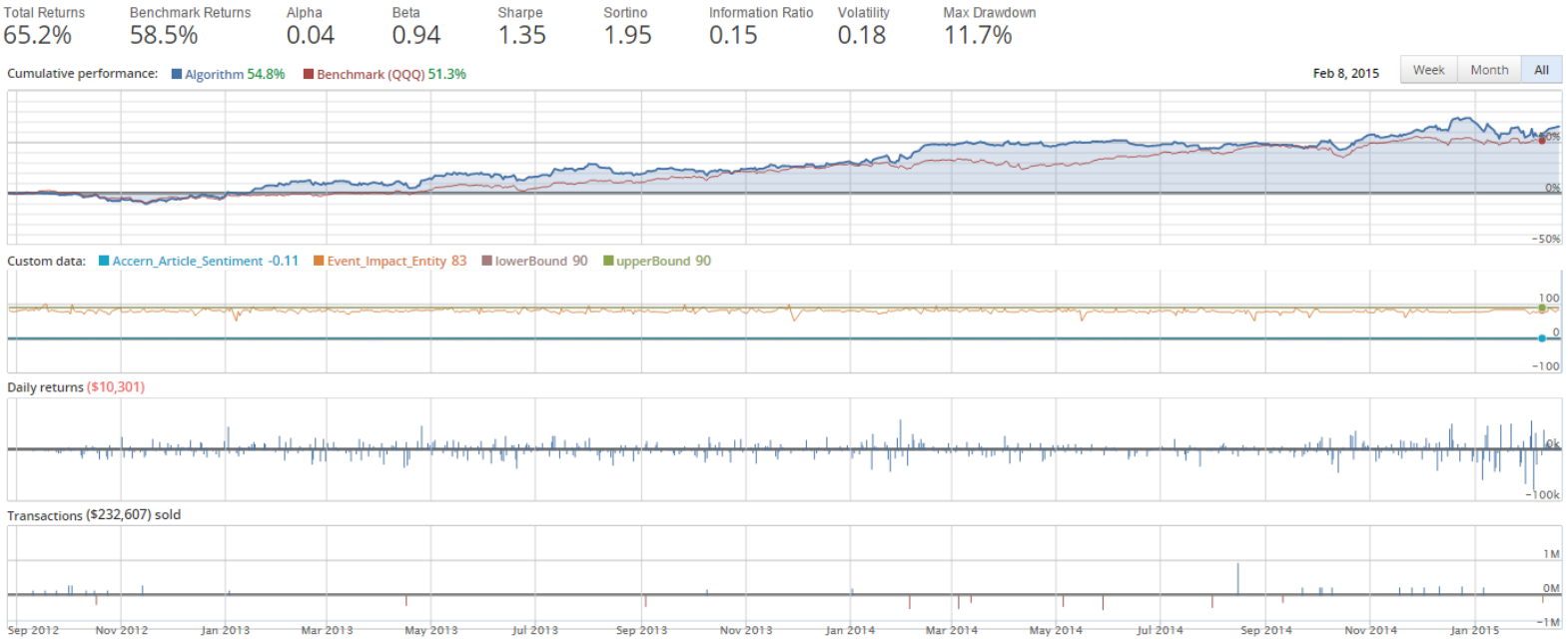
Event Impact Score on Entity (1-100): This metric calculated if the article would have a greater-than-1% impact on the stock.

- A high impact score meant that the article had a high probability of affecting the stock price by more than 1%.
- A low impact score meant that the article have a low probability of affecting the stock price by more than 1%.
- This could be used as a decision maker to execute an order.

Buy if: Story Sentiment > 0.25 and Event Impact Score on Entity > 90
Sell if: Story Sentiment < -0.25 and Event Impact Score on Entity > 90

RESULTS OVERVIEW

Below is the result we achieved from using a combination of the 2 metrics. We bought stocks when a positively-toned acquisition story was released and when it carried a high probability of impact. We sold stocks when a negatively-toned acquisition story was released and indicating a high probability of impact.



G. CORPORATE GOVERNANCE [2-METRICS]

We conducted a backtest using "Corporate Governance", an event group in our data set. We wanted to identify stories on corporate governance as they were released on the web and conduct instant trade on the information before it became exposed to millions of viewers. We also wanted to identify the predictive power of management decisions on stock prices.

CONDITIONS

Story Sentiment (-1 – 1): This metric calculated the aggregated sentiment score of a specific story.

- A positive sentiment score meant that the story was trending positively.
- A negative sentiment score meant that the story was trending negatively.
- This could be used as a directional trigger.

Event Impact Score on Entity (1-100): This metric calculated if the article would have a greater-than-1% impact on the stock.

- A high impact score meant that the article had a high probability of affecting the stock price by more than 1%.
- A low impact score meant that the article have a low probability of affecting the stock price by more than 1%.
- This could be used as a decision maker to execute an order.

Buy if: Story Sentiment > 0.25 and Event Impact Score on Entity > 90
Sell if: Story Sentiment < -0.25 and Event Impact Score on Entity > 90

RESULTS OVERVIEW

Below is the result we achieved from using a combination of the 2 metrics. We bought stocks when a positively-toned corporate governance story was released and when it carried a high probability of impact. We sold stocks when a negatively-toned corporate governance story was released and indicating a high probability of impact.

H. CONTRACTS [2-METRICS]

We conducted a backtest using "Contracts", an event group in our data set. We wanted to identify stories on strategic partnerships and contractual agreements as they were released on the web and conduct instant trade on the information before it became exposed to millions of viewers. We also wanted to identify the predictive power of contractual agreements and partnerships on stock prices.

CONDITIONS

Story Sentiment (-1 – 1): This metric calculated the aggregated sentiment score of a specific story.

- A positive sentiment score meant that the story was trending positively.
- A negative sentiment score meant that the story was trending negatively.
- This could be used as a directional trigger.

Event Impact Score on Entity (1-100): This metric calculated if the article would have a greater-than-1% impact on the stock.

- A high impact score meant that the article had a high probability of affecting the stock price by more than 1%.
- A low impact score meant that the article have a low probability of affecting the stock price by more than 1%.
- This could be used as a decision maker to execute an order.

Buy if: Story Sentiment > 0.25 and Event Impact Score on Entity > 90
Sell if: Story Sentiment < -0.25 and Event Impact Score on Entity > 90

RESULTS OVERVIEW

Below is the result we achieved from using a combination of the 2 metrics. We bought stocks when a positively-toned contract story was released and when it carried a high probability of impact. We sold stocks when a negatively-toned contract story is released and indicating a high probability of impact.

I. ALPHA STREAM BACKTEST CONCLUSION

We successfully backtested a few event-driven sentiment strategies using Alpha Stream News and Blog dataset and received positive results. We tested several types of strategies each with different metric combinations (2-4) but stayed consistent with the condition inputs. *Numbers in* **()** *are adjusted for beta = 1 relative to the NASDAQ 100 Index.*

Company Earnings [2 Metrics]:

Buy if: Article Sentiment **> 0.25 and** Event Impact Score on Entity **> 90**
Sell if: Article Sentiment **< -0.25 and** Event Impact Score on Entity **> 90**

Alpha Stream Returns: **120.6% (99.75%)**	Beta: **1.22**	Information Ratio: **1.20**
Benchmark Returns: **58.5%**	Sharpe: **2.23**	Volatility: **0.21**
Alpha: **0.20**	Sortino: **3.20**	Max Drawdown: **15.4%**

Company Earnings [3 Metrics]:

Buy if: Article Sentiment **> 0.25** and Overall Source Rank **> 8** and Event Impact Score on Entity > **90**
Sell if: Article Sentiment **< -0.25** and Overall Source Rank **> 8** and Event Impact Score on Entity > **90**

Alpha Stream Returns: **134.9% (107.28%)**	Beta: **1.27**	Information Ratio: **1.43**
Benchmark Returns: **58.5%**	Sharpe: **2.44**	Volatility: **0.21**
Alpha: **0.25**	Sortino: **3.51**	Max Drawdown: **16.4%**

Company Earnings [4 Metrics]:

Buy if: Article Sentiment **> 0.25** and Overall Source Rank **> 8** and Event Impact Score on Entity > **90** and First Mention = **TRUE**
Sell if: Article Sentiment **< -0.25** and Overall Source Rank **> 8** and Event Impact Score on Entity > **90** and First Mention = **TRUE**

Alpha Stream Returns: **189.8% (134.23%)**	Beta: **1.43**	Information Ratio: **2.31**
Benchmark Returns: **58.5%**	Sharpe: **3.25**	Volatility: **0.23**
Alpha: **0.44**	Sortino: **4.66**	Max Drawdown: **17.29%**

Financial Results [4 Metrics]:

Buy if: Article Sentiment > 0.25 and Overall Source Rank > 8 and Event Impact Score on Entity > 90 and First Mention = TRUE
Sell if: Article Sentiment < -0.25 and Overall Source Rank > 8 and Event Impact Score on Entity > 90 and First Mention = TRUE

Alpha Stream Returns: 68.2% (106.94%)	Beta: 0.62	Information Ratio: 0.26
Benchmark Returns: 58.5%	Sharpe: 1.66	Volatility: 0.15
Alpha: 0.12	Sortino: 2.45	Max Drawdown: 13.3%

Financial Forecast [4 Metrics]:

Buy if: Article Sentiment > 0.25 and Overall Source Rank > 8 and Event Impact Score on Entity > 90 and First Mention = TRUE
Sell if: Article Sentiment < -0.25 and Overall Source Rank > 8 and Event Impact Score on Entity > 90 and First Mention = TRUE

Alpha Stream Returns: 96.6% (97.53%)	Beta: 0.99	Information Ratio: 0.83
Benchmark Returns: 58.5%	Sharpe: 2.00	Volatility: 0.18
Alpha: 0.16	Sortino: 2.68	Max Drawdown: 13.4%

Financial Ratings [4 Metrics]:

Buy if: Article Sentiment > 0.25 and Overall Source Rank > 8 and Event Impact Score on Entity > 90 and First Mention = TRUE
Sell if: Article Sentiment < -0.25 and Overall Source Rank > 8 and Event Impact Score on Entity > 90 and First Mention = TRUE

Alpha Stream Returns: 322% (131.80%)	Beta: 2.50	Information Ratio: 2.73
Benchmark Returns: 58.5%	Sharpe: 3.29	Volatility: 0.39
Alpha: 0.74	Sortino: 4.85	Max Drawdown: 25.5%

Acquisitions [2 Metrics]:

Buy if: Article Sentiment **> 0.25 and** Event Impact Score on Entity **> 90**
Sell if: Article Sentiment **< -0.25 and** Event Impact Score on Entity **> 90**

Alpha Stream Returns: **65.2% (69.04%)**	Beta: **0.94**	Information Ratio: **0.15**
Benchmark Returns: **58.5%**	Sharpe: **1.35**	Volatility: **0.18**
Alpha: **0.04**	Sortino: **1.95**	Max Drawdown: **11.7%**

Corporate Governance [2 Metrics]:

Buy if: Article Sentiment **> 0.25 and** Event Impact Score on Entity **> 90**
Sell if: Article Sentiment **< -0.25 and** Event Impact Score on Entity **> 90**

Alpha Stream Returns: **101.49% (100.5%)**	Beta: **1.01**	Information Ratio: **0.74**
Benchmark Returns: **58.5%**	Sharpe: **1.65**	Volatility: **0.24**
Alpha: **0.17**	Sortino: **2.30**	Max Drawdown: **17.9%**

Contracts [2 Metrics]:

Buy if: Article Sentiment **> 0.25 and** Event Impact Score on Entity **> 90**
Sell if: Article Sentiment **< -0.25 and** Event Impact Score on Entity **> 90**

Alpha Stream Returns: **125.69% (84.93%)**	Beta: **1.51**	Information Ratio: **0.99**
Benchmark Returns: **58.5%**	Sharpe: **1.77**	Volatility: **0.28**
Alpha: **0.16**	Sortino: **2.30**	Max Drawdown: **23%**

J. APPENDIX

I. Company Earnings [2 Metrics] – Daily Position and Gains / Transaction Details

Date	Security	Last Sale Price	Quantity	Position	Gains
2012-08-27 - *Backtest starts*				$1,000,000.00	- -
2012-08-28				$1,000,000.00	- -
2012-08-29				$1,000,000.00	- -
2012-08-30				$1,000,177.13	$176.20
2012-08-31				$1,000,049.39	$49.09
2012-09-04				$999,923.56	($76.50)
2012-09-05				$1,000,423.42	$423.36
2015-02-10				$2,088,122.13	$526,799.46
2015-02-11				$2,103,198.89	$544,826.57
2015-02-12				$2,126,739.56	$571,772.22
2015-02-13				$2,149,261.15	$594,293.81
2015-02-17				$2,166,065.33	$611,097.98
2015-02-18				$2,191,351.64	$601,091.05
2015-02-19 - *Backtest ends*				$2,205,945.81	$615,685.22

Date	Security	Transaction	Quantity	Last Sale Price	$ Amount
2012-09-18 - *Buys $151,247.21, Sells $101,461.33 (6 transactions)*					
9:32 AM	AMGN	BUY	600	$82.36	$49,414.20
9:32 AM	PCAR	BUY	816	$42.68	$34,826.06
9:33 AM	AMGN	BUY	617	$82.34	$50,803.78
9:33 AM	PCAR	BUY	381	$42.53	$16,203.17
1:14 PM	TXN	SELL	-1768	$28.68	($50,702.70)
1:15 PM	TXN	SELL	-1771	$28.66	($50,758.63)
2012-09-19 - *Buys $350,528.46 (13 transactions)*					

II. Company Earnings [2 Metrics] – Backtest Returns and Alpha

RETURNS	1 MONTH	3 MONTH	6 MONTH	12 MONTH
August 2012	0	N/A	N/A	N/A
September 2012	0.007	N/A	N/A	N/A
October 2012	-0.057	-0.05	N/A	N/A
November 2012	0.0869	0.033	N/A	N/A
December 2012	0.028	0.053	N/A	N/A
January 2013	0.1019	0.231	0.17	N/A
February 2013	-0.013	0.117	0.154	N/A
March 2013	0.059	0.152	0.214	N/A
April 2013	0.077	0.126	0.386	N/A
May 2013	-0.007	0.134	0.267	N/A
June 2013	0.028	0.1	0.267	N/A
July 2013	0.094	0.117	0.258	0.472
August 2013	0.001	0.126	0.277	0.473
September 2013	0.126	0.234	0.357	0.647
October 2013	0.029	0.16	0.296	0.796
November 2013	0.079	0.25	0.4079	0.783
December 2013	0.025	0.138	0.404	0.779
January 2014	-0.061	0.038	0.205	0.516
February 2014	0.1	0.059	0.324	0.6899
March 2014	-0.06	-0.029	0.105	0.499
April 2014	-0.0351	-0.002	0.036	0.343
May 2014	0.066	-0.033	0.024	0.441
June 2014	0.064	0.095	0.063	0.492
July 2014	0.018	0.155	0.153	0.388
August 2014	0.054	0.1419	0.104	0.461
September 2014	-0.005	0.067	0.168	0.291
October 2014	-0.037	0.009	0.166	0.208
November 2014	0.034	-0.01	0.13	0.157
December 2014	-0.005	-0.01	0.056	0.123
January 2015	-0.029	-0.002	0.007	0.161
February 2015	0.072	0.035	0.024	0.131

ALPHA	1 MONTH	3 MONTH	6 MONTH	12 MONTH
August 2012	0	N/A	N/A	N/A
September 2012	0.005	N/A	N/A	N/A
October 2012	-0.006	-0.015	N/A	N/A
November 2012	0.074	0.058	N/A	N/A
December 2012	0.038	0.1	N/A	N/A
January 2013	0.09	0.206	0.187	N/A
February 2013	-0.016	0.103	0.163	N/A
March 2013	0.03	0.115	0.206	N/A
April 2013	0.032	0.052	0.294	N/A
May 2013	-0.066	-0.015	0.1419	N/A
June 2013	0.068	0.047	0.154	N/A
July 2013	0.026	0.018	0.082	0.359
August 2013	0.007	0.084	0.091	0.353
September 2013	0.058	0.0859	0.137	0.469
October 2013	-0.0701	-0.001	0.03	0.453
November 2013	0.014	-0.003	0.136	0.38
December 2013	-0.009	-0.074	0.02	0.293
January 2014	-0.03	-0.034	-0.033	0.078
February 2014	0.0429	-0.023	-0.004	0.144
March 2014	-0.007	-0.024	-0.087	0.059
April 2014	-0.03	-0.024	-0.058	-0.037
May 2014	-0.008	-0.051	-0.084	0.044
June 2014	0.054	-0.017	-0.044	-0.021
July 2014	0.004	0.044	0	-0.019
August 2014	0.004	0.046	-0.054	-0.05
September 2014	0.005	0.01	-0.008	-0.102
October 2014	-0.068	-0.067	-0.023	-0.114
November 2014	-0.027	-0.082	-0.051	-0.174
December 2014	0.015	-0.063	-0.056	-0.114
January 2015	-0.015	-0.003	-0.059	-0.054
February 2015	-0.002	0.019	-0.057	-0.106

III. Company Earnings [3 Metrics] – Daily Position and Gains / Transaction Details

Date	Security	Last Sale Price	Quantity	Position	Gains
2012-08-27 - *Backtest starts*				$1,000,000.00	--
2012-08-28				$1,000,000.00	--
2012-08-29				$1,000,000.00	--
2012-08-30				$1,000,000.00	--
2012-08-31				$999,360.92	($638.34)
2012-09-04				$999,121.12	($877.89)
2012-09-05				$999,506.86	($492.15)
2015-02-10				$2,191,654.06	$817,775.72
2015-02-11				$2,203,553.06	$829,674.72
2015-02-12				$2,242,360.09	$898,095.23
2015-02-13				$2,274,601.76	$930,336.90
2015-02-17				$2,294,490.18	$950,225.32
2015-02-18				$2,316,211.92	$971,947.06
2015-02-19 - *Backtest ends*				$2,349,169.27	$1,004,904.41

Date	Security	Transaction	Quantity	Last Sale Price	$ Amount
2012-09-18 - *Buys $150,578.96, Sells $100,861.04 (6 transactions)*					
9:32 AM	AMGN	BUY	598	$82.36	$49,248.89
9:32 AM	PCAR	BUY	816	$42.68	$34,826.06
9:33 AM	AMGN	BUY	614	$82.34	$50,556.76
9:33 AM	PCAR	BUY	375	$42.53	$15,947.25
1:14 PM	TXN	SELL	-1758	$28.68	($50,415.92)
1:15 PM	TXN	SELL	-1760	$28.66	($50,445.12)
2012-09-19 - *Buys $202,196.74 (4 transactions)*					

IV. Company Earnings [3 Metrics] – Backtest Returns and Alpha

RETURNS	1 MONTH	3 MONTH	6 MONTH	12 MONTH
August 2012	-0.001	N/A	N/A	N/A
September 2012	0	N/A	N/A	N/A
October 2012	-0.062	-0.062	N/A	N/A
November 2012	0.078	0.012	N/A	N/A
December 2012	0.024	0.036	N/A	N/A
January 2013	0.096	0.209	0.134	N/A
February 2013	-0.015	0.105	0.118	N/A
March 2013	0.068	0.152	0.193	N/A
April 2013	0.046	0.099	0.329	N/A
May 2013	0	0.116	0.233	N/A
June 2013	0.014	0.06	0.221	N/A
July 2013	0.072	0.0869	0.195	0.355
August 2013	0.003	0.09	0.217	0.36
September 2013	0.133	0.218	0.291	0.541
October 2013	0.04	0.182	0.2839	0.707
November 2013	0.091	0.2859	0.402	0.729
December 2013	0.033	0.1729	0.428	0.745
January 2014	-0.027	0.097	0.296	0.549
February 2014	0.076	0.082	0.391	0.6929
March 2014	-0.06	-0.016	0.154	0.49
April 2014	-0.046	-0.034	0.059	0.36
May 2014	0.059	-0.05	0.027	0.44
June 2014	0.055	0.066	0.049	0.499
July 2014	0.008	0.125	0.0869	0.4089
August 2014	0.07	0.138	0.081	0.503
September 2014	-0.017	0.06	0.13	0.304
October 2014	0.04	0.094	0.231	0.304
November 2014	0.017	0.039	0.183	0.215
December 2014	-0.012	0.044	0.107	0.162
January 2015	0.018	0.023	0.119	0.216
February 2015	0.099	0.106	0.15	0.242

ALPHA	1 MONTH	3 MONTH	6 MONTH	12 MONTH
August 2012	-0.001	N/A	N/A	N/A
September 2012	-0.003	N/A	N/A	N/A
October 2012	-0.006	-0.024	N/A	N/A
November 2012	0.067	0.037	N/A	N/A
December 2012	0.033	0.08	N/A	N/A
January 2013	0.088	0.188	0.15	N/A
February 2013	-0.018	0.092	0.126	N/A
March 2013	0.04	0.119	0.186	N/A
April 2013	0.003	0.029	0.246	N/A
May 2013	-0.062	-0.028	0.117	N/A
June 2013	0.06	0.006	0.109	N/A
July 2013	-0.004	-0.022	0.015	0.244
August 2013	0.009	0.042	0.023	0.24
September 2013	0.058	0.053	0.059	0.363
October 2013	-0.062	0.009	-0.005	0.364
November 2013	0.021	0.02	0.106	0.319
December 2013	-0.007	-0.052	0.013	0.241
January 2014	0.004	0.023	0.047	0.096
February 2014	0.021	0.002	0.058	0.13
March 2014	-0.008	-0.011	-0.039	0.037
April 2014	-0.04	-0.055	-0.0351	-0.031
May 2014	-0.011	-0.068	-0.078	0.033
June 2014	0.04	-0.043	-0.054	-0.021
July 2014	-0.008	0.012	-0.064	-0.005
August 2014	0.013	0.031	-0.077	-0.013
September 2014	-0.006	-0.002	-0.047	-0.091
October 2014	0.004	0.007	0.024	-0.028
November 2014	-0.042	-0.041	-0.019	-0.125
December 2014	0.013	-0.017	-0.02	-0.084
January 2015	0.038	0.022	0.04	-0.014
February 2015	0.027	0.0859	0.053	-0.014

V. Company Earnings [4 Metrics] – Daily Position and Gains / Transaction Details

Date	Security	Last Sale Price	Quantity	Position	Gains
2012-08-27 - *Backtest starts*				$1,000,000.00	- -
2012-08-28				$1,000,000.00	- -
2012-08-29				$1,000,000.00	- -
2012-08-30				$1,000,000.00	- -
2012-08-31				$999,360.92	($638.34)
2012-09-04				$998,982.07	($1,017.19)
2012-09-05				$999,511.09	($488.17)
2012-09-06				$1,001,386.86	$1,387.60
2015-02-10				$2,739,806.59	$1,299,464.68
2015-02-11				$2,751,758.46	$1,311,416.54
2015-02-12				$2,790,899.56	$1,350,557.65
2015-02-13				$2,839,374.91	$1,399,032.99
2015-02-17				$2,857,409.94	$1,417,068.03
2015-02-18				$2,857,154.07	$1,416,812.15
2015-02-19 - *Backtest ends*				$2,897,897.63	$1,457,555.72

Date	Security	Transaction	Quantity	Last Sale Price	$ Amount
2012-10-09 - *Buys $49,769.09, Sells $98,736.05 (4 transactions)*					
2:18 PM	BRCM	SELL	-1486	$33.19	($49,323.31)
2:19 PM	BRCM	SELL	-1495	$33.05	($49,412.74)
2:22 PM	ALXN	BUY	221	$112.42	$24,844.16
2:23 PM	ALXN	BUY	223	$111.77	$24,924.93
2012-10-10 - *Buys $98,468.12 (2 transactions)*					

VI. Company Earnings [4 Metrics] – Backtest Returns and Alpha

RETURNS	1 MONTH	3 MONTH	6 MONTH	12 MONTH
August 2012	-0.001	N/A	N/A	N/A
September 2012	-0.001	N/A	N/A	N/A
October 2012	-0.061	-0.062	N/A	N/A
November 2012	0.072	0.006	N/A	N/A
December 2012	0.03	0.036	N/A	N/A
January 2013	0.08	0.192	0.118	N/A
February 2013	0.004	0.117	0.123	N/A
March 2013	0.054	0.1429	0.185	N/A
April 2013	0.05	0.111	0.324	N/A
May 2013	0.056	0.168	0.304	N/A
June 2013	0.029	0.14	0.303	N/A
July 2013	0.092	0.186	0.318	0.473
August 2013	-0.019	0.1019	0.287	0.446
September 2013	0.137	0.218	0.388	0.645
October 2013	0.077	0.201	0.424	0.886
November 2013	0.081	0.323	0.458	0.902
December 2013	0.038	0.208	0.471	0.917
January 2014	0.044	0.171	0.406	0.853
February 2014	0.097	0.189	0.5729	1.025
March 2014	-0.071	0.065	0.2859	0.785
April 2014	-0.021	-0.002	0.169	0.665
May 2014	0.075	-0.022	0.162	0.6949
June 2014	0.044	0.098	0.169	0.72
July 2014	-0.013	0.107	0.105	0.553
August 2014	0.115	0.148	0.122	0.765
September 2014	-0.025	0.073	0.178	0.515
October 2014	0.0429	0.134	0.255	0.468
November 2014	0.053	0.072	0.23	0.43
December 2014	-0.031	0.065	0.1429	0.336
January 2015	-0.003	0.018	0.155	0.276
February 2015	0.097	0.06	0.136	0.275

ALPHA	1 MONTH	3 MONTH	6 MONTH	12 MONTH
August 2012	-0.001	N/A	N/A	N/A
September 2012	-0.003	N/A	N/A	N/A
October 2012	-0.02	-0.034	N/A	N/A
November 2012	0.059	0.03	N/A	N/A
December 2012	0.039	0.08	N/A	N/A
January 2013	0.066	0.167	0.134	N/A
February 2013	0.001	0.101	0.132	N/A
March 2013	0.021	0.094	0.177	N/A
April 2013	0.003	0.027	0.226	N/A
May 2013	-0.005	0.012	0.169	N/A
June 2013	0.067	0.0869	0.181	N/A
July 2013	0.006	0.0859	0.127	0.357
August 2013	-0.012	0.057	0.09	0.32
September 2013	0.067	0.044	0.156	0.458
October 2013	-0.016	0.034	0.151	0.526
November 2013	0.022	0.0859	0.185	0.483
December 2013	0.004	0.011	0.079	0.4079
January 2014	0.076	0.103	0.171	0.401
February 2014	0.024	0.103	0.25	0.465
March 2014	-0.016	0.07	0.094	0.334
April 2014	-0.015	-0.025	0.0709	0.272
May 2014	0.002	-0.041	0.049	0.2839
June 2014	0.009	-0.024	0.055	0.181
July 2014	-0.0351	-0.042	-0.072	0.114
August 2014	0.047	-0.008	-0.06	0.216
September 2014	-0.01	-0.014	-0.037	0.084
October 2014	-0.005	0.017	-0.023	0.08
November 2014	-0.001	-0.037	-0.048	0.024
December 2014	0	-0.016	-0.029	0.039
January 2015	0.026	0.017	0.048	-0.015
February 2015	0.014	0.033	0.006	-0.046

CREDITS

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ACCERN QUANTGROUP