
Accern Python

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A python library to consume Accern's V4 REST API for Titan streaming/historical data.

Accern is a fast-growing NYC startup that is disrupting the way quantitative hedge funds can gain a competitive advantage using news and social media data. It currently has the world's largest financial news coverage, covering over 1 billion public news websites, blogs, financial documents, and social media websites. Furthermore, Accern derives proprietary analytics from each news story to help quantitative hedge funds make accurate trading decisions.

Accern consolidates multiple news data feeds into one to help drastically reduce costs of both small and large hedge funds. With Accern proprietary data filters, we are able to deliver relevant articles to clients with a 99 percent accuracy rate. Accern's delivery mechanism is a RESTful API where it delivers derived analytics from news articles, including the original article URLs so quantitative hedge funds can derive their own analytics in-house from the relevant articles.

The Accern library for Python helps users get fast, flexible data structures from Accern's V4 Titan streaming/historical data.

1.1 Installation

1.1.1 Install from PyPI

Accern python can be installed via pip From PyPI.

```
pip install accern
```

1.2 Getting started

This is a short tutorial on how to use accern python library for new users. You can see complex usage in [API](#).

1. Contact support@accern.com. and inquire about an Accern API token.
2. To quickly start using the Accern API, create an API instance and pass your token:

```
from accern import API
token = 'YOUR TOKEN'
Client = API(token)
```

3. Pass params to get filtered data and make an API request.

```
schema = {
    'filters': {
        'entity_ticker': 'AAPL'
    }
}
resp = Client.request(schema)
```

4. Specify the fields that your are looking for in the data and filter the results.

```
schema = {
    'select': [
        {
            'field': 'entity_industry'
        }, {
            'field': 'entity_ticker'
        }, {
            'field': 'entity_relevance'
        }
    ]
}
resp = Client.request(schema)
```

1.3 API

1.3.1 Schema Class/ Object

Accern Python Library allows user to filter and select Accern data in 3 different ways: REST API, streaming and historical data request. `schema` object is used in these three methods to convey user's idea of how to slice data.

Schema class here will provide some help functions and validate functions to help user build a right one.

1.3.1.1 Get Fields

Get available fields in the data.

```
from accern import Schema
print Schema.get_fields()
```

1.3.1.2 Get field options

For field type and available options.

```
Schema.get_options('event_group')
```


1.3.1.3 Build your schema

```
schema = {
    'select': [
        {
            'field': 'entity_ticker',
            'alias': 'ticker'
        }
    ],
    'filters': {
        'entity_sentiment': [
            [70, 100],
            [-100, -70]
        ]
    }
}
```

1.3.1.4 Validate schema

After drafting a schema, validate it along with the method you want to use.

```
Schema.validate_schema(method='api', schema=schema)
```

1.3.1.5 Select and add alias

To select only a few fields or rename the fields, pass the alias of the fields you want to schema.

```
schema = {
    'select': [
        {
            'field': 'entity_ticker',
            'alias': 'ticker'
        }
    ]
}

response = Client.request(schema)
```

The alias for the selected fields is optional and you can select multiple fields.

```
schema = {
    'select': [
        {
            'field': 'entity_ticker',
            'alias': 'ticker'
        }, {
            'field': 'harvested_at'
        }
    ]
}

response = Client.request(schema)
```

If you want to filter the data, here is a list of available fields to filter by:

Parameter	Description
entity_competitors	A list of ticker symbols of entity's competitors.
entity_country	The parent country of the entity.
<i>entity_industry</i>	The industry in which the entity is listed.
entity_region	The region where the entity is traded.
<i>entity_sector</i>	The sector that the entity belongs to.
entity_ticker	The traded ticker symbols of the extracted entity.
entity_type	The type of entity, such as public equity, commodity, cryptocurrency, etc.
<i>event</i>	Financial events extracted from the stories.
<i>event_group</i>	The broader financial events category.
from	The earliest timestamp allowed in the returned data.
last_id	The last id before the return data.
<i>story_type</i>	Where the stories are published and their mode of access.
story_group_exposure	The level of exposure for stories within a story group.

For the full list and available values, you can use the helper function mentioned above.

Pass the filters to `schema`. The value can be a single value or an array of values.

```
schema = {
    'filters': {
        'entity_industry': ['Apparel', 'Food Chains'],
        'event': 'Accident'
    }
}

response = Client.request(schema)
```

A list of filter examples is available at [Cookbook](#)

1.3.2 REST APIs

To start with, we import the following:

```
from accern import API
```

1.3.2.1 Create API Instance

Create an API instance

```
Client = API()
```

1.3.2.2 Authenticate REST API Client

Authenticate your account when using the API token. Pass it into the REST Client and the library will pass it to every request. An API request without a token will fail.

Your API tokens carry many privileges. Don't share your secret API tokens in any public spaces like Github, client-side code, etc.

To authenticate, pass it through the constructor or assign your `YOUR TOKEN` to the API instance.

```
token = 'YOUR TOKEN'
Client = API(token)
```

or

```
token = 'YOUR TOKEN'
Client.token = token
```

If token is not passed or invalid, an `AuthenticateError` will be raised

1.3.2.3 Request Data

The request method will send a GET request to retrieve data. The response will be the most recent 100 documents.

```
response = Client.request()
```

A response example.

```
{
  "first_id": 2714394,
  "last_id": 2742321,
  "total": 100,
  "signals": [
    {
      "id": 2742321,
      "signal_id": "3c78ab00-c751-4e37-8e16-669bad2c7135",
      "story_id": "5a283895a656f23864041346",
      "new_story_group": false,
      "overall_author_republish_score": "0.0",
      "overall_author_timeliness_score": "2.6805",
      "overall_source_republish_score": "0.0",
      "overall_source_timeliness_score": "2.5707",
      "story_group_sentiment_avg": "16.8",
      "story_group_sentiment_stdev": "27.1",
      "story_sentiment": null,
      "templated_story_score": null,
      "author_id": 1265989,
      "source_id": 22210,
      "story_group_count": 4,
      "story_group_traffic_sum": 395006047,
      "story_traffic": 939796,
      "story_group_exposure": "high",
      "story_group_id": "e956870a-10a6-45f7-b6c1-aca6f9425886",
      "story_source": "bloog.pl",
      "story_type": "blog",
      "harvested_at": "2017-12-06T18:36:13.007Z",
      "entity_sentiment": null,
      "event_sentiment": null,
      "entity_name": "Apple Inc.",
      "entity_ticker": "AAPL",
      "entity_exchange": "NASDAQ",
      "entity_relevance": "100.0",
      "entity_country": "United States",
      "entity_indices": [
        "S&P 500",
        "Russell 1000",
        "Russell 3000",
      ]
    }
  ]
}
```

```

        "Wilshire 5000",
        "BARRON'S 400",
        "NASDAQ 100"
    ],
    "entity_industry": "Computer Manufacturing",
    "entity_region": "North America",
    "entity_sector": "Technology",
    "entity_competitors": [
        "005930",
        "005935",
        "6758",
        "2357",
        "HPQ",
        "MSFT",
        "IBM",
        "CSCO",
        "NOKIA",
        "MSI"
    ],
    "entity_type": "US_EQUITY",
    "entity_composite_figi": "BBG000B9XRY4",
    "entity_exch_code": "UW",
    "entity_figi": "BBG000B9Y5X2",
    "entity_market_sector": "Equity",
    "entity_security_description": "AAPL",
    "entity_security_type": "Common Stock",
    "entity_share_class_figi": "BBG001S5N8V8",
    "entity_unique_id": "EQ0010169500001000",
    "entity_unique_id_fut_opt": null,
    "entity_author_republish_score": "0.0",
    "entity_author_timeliness_score": "0.01",
    "entity_source_republish_score": "0.0",
    "entity_source_timeliness_score": "0.009",
    "event": "Product Development - General",
    "event_group": "Product Development",
    "event_relevance": "100.0",
    "event_author_republish_score": "0.0013",
    "event_author_timeliness_score": "42.7356",
    "event_source_republish_score": "0.0013",
    "event_source_timeliness_score": "42.6185",
    "event_impact_pct_change_avg": "0.0073",
    "event_impact_pct_change_stdev": "0.0715",
    "event_impact_pos": "55.9012",
    "event_impact_neg": "44.0988",
    "event_impact_gt_mu_add_sigma": "0.0915",
    "event_impact_lt_mu_sub_sigma": "0.0",
    "event_impact_gt_mu_pos_add_sigma_pos": "0.0",
    "event_impact_lt_mu_neg_sub_sigma_neg": "0.0",
    "event_impact_gt_mu_pos_add_2sigma_pos": "0.0",
    "event_impact_lt_mu_neg_sub_2sigma_neg": "0.0",
    "event_impact_gt_lpct_pos": "5.3065",
    "event_impact_lt_lpct_neg": "3.2022"
    },
    ...
]
}

```

To select only a few fields or filter some fields, build your schema and pass it to the function.

```

schema = {
    'select': [
        {
            'field': 'entity_ticker',
            'alias': 'ticker'
        }
    ]
}

response = Client.request(schema)

```

1.3.3 Streaming API Client

1.3.3.1 Stream Listener

Create a StreamListener and to handle streaming data.

```

from accern import Stream

myStreamListener = StreamListener()

```

Override the on_data function if you want to handle the data yourself.

By default, it returns the raw data.

```

class MyStreamListener(StreamListener):
    def on_data(self, data):
        df = json.loads(data), orient='columns'
        print (df.head())

```

1.3.3.2 Authenticate Stream Client

```

from accern import StreamClient
token = 'YOUR TOKEN'

stream = StreamClient(myStreamListener, token)

```

1.3.3.3 Filter and select with schema

```

from accern import StreamClient, StreamListener

schema = {
    'select': [
        {
            'field': 'entity_ticker',
            'name': 'ticker'
        },
        {
            'field': 'harvested_at',
            'name': 'hour'
        }
    ],
}

```

```
'filters': {
    'entity_ticker': [
        'AAPL', 'AMZN'
    ]
}
}
stream = StreamClient(MyStreamListener(), token, schema)
stream.performs()
```

1.3.4 Historical Data Request

Accern Historical Batch data request is available for user who has the permission to create a job(data request). The data can be downloaded when the job request is finished.

1.3.4.1 Create Historical Instance

Create an Historical instance

```
from accern import HistoricalClient
token = 'YOUR TOKEN'
Client = HistoricalClient(token)
```

1.3.4.2 Set up a job

name, description, filters and select are required field to create a job schema. For more detail of how to work with filters and select, please refer to the Schema.

```
schema = {
    'name': 'test',
    'description': 'request 2017 November data',
    'filters': [
        {
            'harvested_at': [
                '2017-11-01 00:00:00', '2017-11-30 23:59:59'
            ],
            'entity_sentiment': [
                [-100, 50]
            ]
        }
    ],
    'select': [
        {'field': 'entity_sentiment'},
        {'field': 'entity_ticker'},
        {'field': 'event'},
        {'field': 'harvested_at'}
    ]
}
```

1.3.4.3 Check your job history

```
resp = Client.get_jobs()
```

If you pass a job id to the `get_jobs` function, you will get the information of that job.

```
job_id = 'YOUR JOB ID'
resp = Client.get_jobs(job_id)
```

1.3.4.4 Select and Aggregations

You can add minute, hour, day, week, or month aggregation function to the field `harvested_at`. The alias field should match the function name you choose.

```
schema = {
    'name': 'Month',
    'description': 'Month Sentiment data',
    'select': [
        {
            'field': 'harvested_at',
            'alias': 'month',
            'function': 'month'
        }
    ]
}
```

The aggregation function will group signals based on the time interval you choose. If your data will contain other fields, an aggregation function should be given. Otherwise, an API error will occur.

```
schema = {
    'name': 'Month',
    'description': 'Month Sentiment data',
    'filters': [
        {
            'harvested_at': [
                ['2012-08-01 00:00:00', '2017-11-30 00:00:00']
            ],
            'entity_sentiment': [
                [-100, 50]
            ],
            'entity_ticker': [
                'AAPL',
                'AMZN'
            ]
        }
    ],
    'select': [
        {
            'field': 'entity_sentiment',
            'function': 'sum'
        },
        {
            'field': 'entity_ticker',
            'function': 'group'
        },
        {
            'field': 'harvested_at',
            'alias': 'month',
            'function': 'month'
        }
    ]
}
```

```
]
}
```

A full list of the available aggregation functions can be found at [Aggregation function](#)

1.4 Examples

1.4.1 REST: Request with filters

```
from accern import API
TOKEN = 'YOUR TOKEN'
Client = API(TOKEN)

schema = {
    'select': [
        {
            'field': 'entity_ticker',
            'name': 'ticker'
        },
        {
            'field': 'harvested_at',
            'name': 'time'
        }
    ],
    'filters': {
        'entity_ticker': [
            "AAPL", "GOOG"
        ]
    }
}

resp = Client.request(schema)
```

1.4.2 REST: Get one week data for restaurants entities

```
from accern import API
from datetime import datetime
import pandas as pd

restaurants = [
    'DPZ', 'SONC', 'MCD', 'CMG', 'BWLD', 'DNKN', 'TXRH', 'PZZA',
    'EAT', 'SHAK', 'CAKE', 'YUM', 'SBUX', 'WEN', 'JACK', 'PLAY', 'DFRG',
    'TACO', 'DENN', 'HABT', 'LOCO', 'WING', 'BLMN', 'PBPB', 'RRGB', 'FRGI',
    'FOGO', 'DRI'
]

schema = {
    'select': [
        {
            'field': 'entity_ticker'
        }, {
            'field': 'entity_sentiment'
        }, {
            'field': 'harvested_at'
        }
    ]
}
```



```

        }, {
            'field': 'entity_relevance'
        }
    ],
    'filters': {
        'entity_relevance': [70, 100],
        'entity_ticker': restaurants,
        'harvested_at': ['2017-12-01 00:00:00', '2017-12-07 00:00:00']
    }
}

TOKEN = 'YOUR TOKEN'
Client = API(TOKEN)

response = Client.request(schema)
##### Get restaurants data #####
result = pd.DataFrame()
while response['total'] > 0:
    df = pd.DataFrame.from_dict(response['signals'], orient='columns')
    result = result.append(df, ignore_index=True)
    schema['filters']['last_id'] = response['last_id']
    response = Client.request(schema)

result = result.drop_duplicates().reset_index(drop=True)
result.to_csv('restaurants.csv', index=False)

```

1.4.3 Streaming: Save to csv

```

from accern import StreamClient, StreamListener
from datetime import datetime
import os
import pandas as pd

class MyStreamListener(StreamListener):
    def on_data(self, raw_data):
        df = pd.DataFrame.from_dict(raw_data, orient='columns')
        print ("%s - Saving %s signals..." % (datetime.now(), len(df)))
        if not os.path.exists('output.csv'):
            df.to_csv('output.csv', encoding='utf-8', index=False)
        else:
            df.to_csv('output.csv', mode='a', header=False, encoding='utf-8',
↳index=False)

TOKEN = 'YOUR TOKEN'
stream = StreamClient(MyStreamListener(), TOKEN)
stream.performs()

```

1.4.4 Streaming: Create output csv structure and separate by hour

```

from accern import StreamListener, StreamClient
from datetime import datetime, timedelta
import os
import pandas as pd

```

```

from pymongo import MongoClient

record = datetime.now()
record_time = datetime(year=record.year, month=record.month, day=record.day,
↳hour=record.hour - 1, minute=0, second=0, microsecond=0)

class MyStreamListener(StreamListener):
    def __init__(self):
        self.db = MongoClient().accern

    def on_data(self, raw_data):
        global record_time
        df = pd.DataFrame.from_dict(raw_data, orient='columns')
        time = datetime.now()
        if (time - record_time).seconds / 60 > 60:
            record_time = record_time + timedelta(hours=1)
            df.to_csv('./accern_stream/2017-12-01/%s.csv' % (record_time.strftime('%Y-
↳%m-%dT%H:%M:%S')), index=False, encoding='utf-8')
            print ('Appended %s signals' % (len(df)))
        else:
            df.to_csv('./accern_stream/2017-12-01/%s.csv' % (record_time.strftime('%Y-
↳%m-%dT%H:%M:%S')), index=False, mode='a', header=False, encoding='utf-8')
            print ('Appended %s signals' % (len(df)))
myStreamListener = MyStreamListener()

TOKEN = 'YOUR TOKEN'
Streamer = StreamClient(MyStreamListener(), TOKEN)

if not os.path.exists('./accern_stream'):
    os.mkdir('./accern_stream')
if not os.path.exists('./accern_stream/2017-12-01'):
    os.mkdir('./accern_stream/2017-12-01')

Streamer.perform()

```

1.4.5 Streaming: Save to mongo

```

from accern import StreamClient, StreamListener
from datetime import datetime
import json
from pymongo import MongoClient

class MyStreamListener(StreamListener):
    def __init__(self):
        self.db = MongoClient()['accern'] # Replace with your db name

    def on_data(self, raw_data):
        data_json = raw_data
        print ("%s - Saving %s signals..." % (datetime.now(), len(data_json)))
        # Replace with your db, collection names
        self.db['accern']['stream'].insert_many(data_json)

TOKEN = 'YOUR TOKEN'
stream = StreamClient(MyStreamListener(), TOKEN)
stream.perform()

```

1.4.6 Historical Data: Create one historical job

A full example can be found at [Historical Job Example](#)

```
from accern import HistoricalClient

TOKEN = 'YOUR TOKEN'
Client = HistoricalClient(TOKEN)

schema = {
    'name': 'Daily Sentiment',
    'description': 'Get Daily Sentiment data',
    "select": [
        {
            "field": "entity_ticker",
            "alias": "ticker"
        }, {
            "field": "harvested_at"
        }
    ],
    "filters": [
        {
            "entity_ticker": ["AAPL", "GOOG", "MSFT"]
        }
    ]
}

resp = Client.create_job(schema)
```

1.4.7 Historical Data: Check the status of a historical job

```
from accern import HistoricalClient
import io
import requests
import pandas as pd

token = 'YOUR TOKEN'
Client = HistoricalClient(token)

resp = Client.get_jobs('YOUR JOB ID')
print resp['job']
```

1.4.8 Historical Data: Read the csv from the job's download link

```
from accern import HistoricalClient
import io
import requests
import pandas as pd

token = 'YOUR TOKEN'
Client = HistoricalClient(token)

resp = Client.get_jobs('YOUR JOB ID')
link = resp['job']['link']
raw_data = requests.get(link).content
```

```
data = pd.read_csv(io.StringIO(raw_data.decode('utf-8')))  
print data.head()
```

1.5 Appendix

1.5.1 Field Filter Cookbook

Here is a cookbook of how to filter fields by using our REST API.

```
from accern import API  
  
TOKEN = 'YOUR TOKEN'  
Client = API()  
Client.token = TOKEN
```

Filter by single event.

```
schema = {  
    'filters': {  
        'event': 'Analyst Ratings'  
    }  
}  
  
resp = Client.request(schema)
```

Filter by a list of events.

```
schema = {  
    'filters': {  
        'event': ['Analyst Ratings', 'Corporate Actions']  
    }  
}
```

Get only `entity_type = US_EQUITY`.

```
schema = {  
    'filters': {  
        'entity_type': 'US_EQUITY'  
    }  
}
```

Get only `story_type = news`.

```
schema = {  
    'filters': {  
        'story_type': 'news'  
    }  
}
```

Get articles with low `story_group_exposure`.

```
schema = {  
    'filters': {  
        'story_group_exposure': 'low'  
    }  
}
```

```
}
}
```

You can provide multiple fields in the filter (they will be AND'd).

```
schema = {
    'filters': {
        'event': ['Analyst Ratings', 'Corporate Actions'],
        'story_group_exposure': 'low',
        'story_type': 'news'
    }
}
```

You can filter date by either `from` or `harvested_at`. The time is in UTC.

```
schema = {
    'filters': {
        'from': '2017-11-01'
    }
}
```

or

```
schema = {
    'filters': {
        'harvested_at': ['2017-11-01 00:00:00', '2017-11-31 00:00:00']
    }
}
```

1.5.2 Field Aggregate Function

Field	Functions
author_id	count
entity_author_republish_score	average, count, max, min, sum
entity_author_timeliness_score	average, count, max, min, sum
entity_country	group
entity_exch_code	group
entity_exchange	group
entity_industry	group
entity_relevance	average, count, max, min, sum
entity_sentiment	average, count, max, min, sum
entity_source_timeliness_score	average, count, max, min, sum
entity_source_republish_score	average, count, max, min, sum
entity_ticker	group
entity_type	group
event_author_timeliness_score	average, count, max, min, sum
event_author_republish_score	average, count, max, min, sum
event_group	group
event_source_timeliness_score	min, max, avg, sum
event_source_republish_score	average, count, max, min, sum
event_impact_gt_1pct_pos	group
event_impact_gt_mu_add_sigma	group

Continued on next page

Table 1.1 – continued from previous page

Field	Functions
event_impact_gt_mu_pos_add_2sigma_pos	average, count, max, min, sum
event_impact_gt_mu_pos_add_sigma_pos	average, count, max, min, sum
event_impact_lt_l_pct_neg	average, count, max, min, sum
event_impact_lt_mu_sub_sigma	average, count, max, min, sum
event_impact_lt_mu_sub_add_2sigma_pos	average, count, max, min, sum
event_impact_lt_mu_sub_add_sigma_pos	average, count, max, min, sum
event_impact_neg	average, count, max, min, sum
event_impact_pct_change_avg	average, count, max, min, sum
event_impact_pct_change_stdev	average, count, max, min, sum
event_impact_pos	average, count, max, min, sum
event_relevance	average, count, max, min, sum
event_sentiment	average, count, max, min, sum
event	group
harvested_at	minute, hour, day, week, month
overall_author_timeliness_score	average, count, max, min, sum
overall_author_republish_score	average, count, max, min, sum
overall_source_timeliness_score	average, count, max, min, sum
overall_source_republish_score	average, count, max, min, sum
story_group_count	average, count, max, min, sum
story_group_exposure	group
story_group_traffic_sum	average, count, max, min, sum
story_traffic	average, count, max, min, sum
story_type	group
templated_story_score	average, count, max, min, sum

1.5.3 Field Value List

1.5.3.1 entity_sector

1.5.3.2 entity_industry

entity_sector	entity_industry
Basic Industries	Agricultural Chemicals
Basic Industries	Aluminum
Basic Industries	Containers/Packaging
Basic Industries	Electric Utilities: Central
Basic Industries	Engineering & Construction
Basic Industries	Environmental Services
Basic Industries	Forest Products
Basic Industries	General Bldg Contractors - Nonresidential Bldgs
Basic Industries	Home Furnishings
Basic Industries	Homebuilding
Basic Industries	Major Chemicals
Basic Industries	Metal Fabrications
Basic Industries	Military/Government/Technical
Basic Industries	Mining & Quarrying of Nonmetallic Minerals (No Fuels)
Basic Industries	Miscellaneous
Basic Industries	Other Specialty Stores

Continued on next page

Table 1.2 – continued from previous page

entity_sector	entity_industry
Basic Industries	Package Goods/Cosmetics
Basic Industries	Paints/Coatings
Basic Industries	Paper
Basic Industries	Precious Metals
Basic Industries	Specialty Chemicals
Basic Industries	Steel/Iron Ore
Basic Industries	Telecommunications Equipment
Basic Industries	Textiles
Basic Industries	Water Supply
Capital Goods	Aerospace
Capital Goods	Auto Manufacturing
Capital Goods	Auto Parts:O.E.M.
Capital Goods	Automotive Aftermarket
Capital Goods	Biotechnology: Laboratory Analytical Instruments
Capital Goods	Building Materials
Capital Goods	Building Products
Capital Goods	Construction/Ag Equipment/Trucks
Capital Goods	Containers/Packaging
Capital Goods	Electrical Products
Capital Goods	Electronic Components
Capital Goods	Engineering & Construction
Capital Goods	Fluid Controls
Capital Goods	Homebuilding
Capital Goods	Industrial Machinery/Components
Capital Goods	Industrial Specialties
Capital Goods	Marine Transportation
Capital Goods	Medical Specialities
Capital Goods	Metal Fabrications
Capital Goods	Military/Government/Technical
Capital Goods	Miscellaneous
Capital Goods	Ordnance And Accessories
Capital Goods	Pollution Control Equipment
Capital Goods	Railroads
Capital Goods	Specialty Chemicals
Capital Goods	Steel/Iron Ore
Capital Goods	Tools/Hardware
Capital Goods	Wholesale Distributors
Consumer Durables	Automotive Aftermarket
Consumer Durables	Building Products
Consumer Durables	Consumer Electronics/Appliances
Consumer Durables	Consumer Specialties
Consumer Durables	Containers/Packaging
Consumer Durables	Diversified Electronic Products
Consumer Durables	Electrical Products
Consumer Durables	Electronic Components
Consumer Durables	Home Furnishings
Consumer Durables	Industrial Machinery/Components
Consumer Durables	Industrial Specialties
Consumer Durables	Metal Fabrications

Continued on next page

Table 1.2 – continued from previous page

entity_sector	entity_industry
Consumer Durables	Miscellaneous manufacturing industries
Consumer Durables	Office Equipment/Supplies/Services
Consumer Durables	Publishing
Consumer Durables	Specialty Chemicals
Consumer Durables	Telecommunications Equipment
Consumer Non-Durables	Apparel
Consumer Non-Durables	Beverages (Production/Distribution)
Consumer Non-Durables	Consumer Electronics/Appliances
Consumer Non-Durables	Consumer Specialties
Consumer Non-Durables	Electronic Components
Consumer Non-Durables	Environmental Services
Consumer Non-Durables	Farming/Seeds/Milling
Consumer Non-Durables	Food Chains
Consumer Non-Durables	Food Distributors
Consumer Non-Durables	Homebuilding
Consumer Non-Durables	Meat/Poultry/Fish
Consumer Non-Durables	Motor Vehicles
Consumer Non-Durables	Package Goods/Cosmetics
Consumer Non-Durables	Packaged Foods
Consumer Non-Durables	Plastic Products
Consumer Non-Durables	Recreational Products/Toys
Consumer Non-Durables	Shoe Manufacturing
Consumer Non-Durables	Specialty Foods
Consumer Non-Durables	Telecommunications Equipment
Consumer Non-Durables	Textiles
Consumer Non-Durables	Tobacco
Consumer Services	Advertising
Consumer Services	Automotive Aftermarket
Consumer Services	Books
Consumer Services	Broadcasting
Consumer Services	Building operators
Consumer Services	Catalog/Specialty Distribution
Consumer Services	Clothing/Shoe/Accessory Stores
Consumer Services	Consumer Electronics/Video Chains
Consumer Services	Consumer Specialties
Consumer Services	Consumer: Greeting Cards
Consumer Services	Department/Specialty Retail Stores
Consumer Services	Diversified Commercial Services
Consumer Services	Electronics Distribution
Consumer Services	Farming/Seeds/Milling
Consumer Services	Food Chains
Consumer Services	Home Furnishings
Consumer Services	Homebuilding
Consumer Services	Hotels/Resorts
Consumer Services	Marine Transportation
Consumer Services	Military/Government/Technical
Consumer Services	Miscellaneous
Consumer Services	Motor Vehicles
Consumer Services	Movies/Entertainment

Continued on next page

Table 1.2 – continued from previous page

entity_sector	entity_industry
Consumer Services	Newspapers/Magazines
Consumer Services	Office Equipment/Supplies/Services
Consumer Services	Other Consumer Services
Consumer Services	Other Specialty Stores
Consumer Services	Paper
Consumer Services	Professional Services
Consumer Services	Publishing
Consumer Services	RETAIL: Building Materials
Consumer Services	Real Estate
Consumer Services	Real Estate Investment Trusts
Consumer Services	Recreational Products/Toys
Consumer Services	Rental/Leasing Companies
Consumer Services	Restaurants
Consumer Services	Services-Misc. Amusement & Recreation
Consumer Services	Telecommunications Equipment
Consumer Services	Television Services
Consumer Services	Transportation Services
Energy	Coal Mining
Energy	Consumer Electronics/Appliances
Energy	Electric Utilities: Central
Energy	Industrial Machinery/Components
Energy	Integrated oil Companies
Energy	Metal Fabrications
Energy	Natural Gas Distribution
Energy	Oil & Gas Production
Energy	Oil Refining/Marketing
Energy	Oilfield Services/Equipment
Finance	Accident & Health Insurance
Finance	Banks
Finance	Business Services
Finance	Commercial Banks
Finance	Diversified Commercial Services
Finance	Diversified Financial Services
Finance	Finance Companies
Finance	Finance/Investors Services
Finance	Finance: Consumer Services
Finance	Investment Bankers/Brokers/Service
Finance	Investment Managers
Finance	Life Insurance
Finance	Major Banks
Finance	Property-Casualty Insurers
Finance	Real Estate
Finance	Savings Institutions
Finance	Specialty Insurers
Health Care	Biotechnology: Biological Products (No Diagnostic Substances)
Health Care	Biotechnology: Commercial Physical & Biological Research
Health Care	Biotechnology: Electromedical & Electrotherapeutic Apparatus
Health Care	Biotechnology: In Vitro & In Vivo Diagnostic Substances
Health Care	Hospital/Nursing Management

Continued on next page

Table 1.2 – continued from previous page

entity_sector	entity_industry
Health Care	Industrial Specialties
Health Care	Major Pharmaceuticals
Health Care	Medical Electronics
Health Care	Medical Specialities
Health Care	Medical/Dental Instruments
Health Care	Medical/Nursing Services
Health Care	Ophthalmic Goods
Health Care	Other Pharmaceuticals
Health Care	Precision Instruments
Miscellaneous	Business Services
Miscellaneous	Industrial Machinery/Components
Miscellaneous	Multi-Sector Companies
Miscellaneous	Office Equipment/Supplies/Services
Miscellaneous	Other Consumer Services
Miscellaneous	Publishing
Public Utilities	Electric Utilities: Central
Public Utilities	Environmental Services
Public Utilities	Natural Gas Distribution
Public Utilities	Oil & Gas Production
Public Utilities	Oil/Gas Transmission
Public Utilities	Power Generation
Public Utilities	Telecommunications Equipment
Public Utilities	Water Supply
Technology	Advertising
Technology	Computer Communications Equipment
Technology	Computer Manufacturing
Technology	Computer Software: Prepackaged Software
Technology	Computer Software: Programming, Data Processing
Technology	Computer peripheral equipment
Technology	Diversified Commercial Services
Technology	EDP Services
Technology	Electrical Products
Technology	Electronic Components
Technology	Industrial Machinery/Components
Technology	Professional Services
Technology	Radio And Television Broadcasting And Communications Equipment
Technology	Retail: Computer Software & Peripheral Equipment
Technology	Semiconductors
Technology	Telecommunications Equipment
Transportation	Aerospace
Transportation	Air Freight/Delivery Services
Transportation	Marine Transportation
Transportation	Oil Refining/Marketing
Transportation	Other Transportation
Transportation	Railroads
Transportation	Transportation Services
Transportation	Trucking Freight/Courier Services
n/a	n/a

1.5.3.3 event

1.5.3.4 event_group

event_group	event
Disaster	Accident
General Business Actions	Accomplishment
Real Estate	Account
Company Financials	Company Financials - Accounting
Economy	Economy - Accounting
Company Financials	Accounting Procedures
Mergers And Acquisitions	Mergers And Acquisitions - Acquisition
Laws And Regulations	Act
Contracts	Contracts - Action
Legal Actions	Legal Actions - Action
Corporate Governance	Corporate Governance - Action Plan
General Business Actions	General Business Actions - Action Plan
Market Performance	Activity
General Business Actions	Adverse
Product Development	Aerospace
Laws And Regulations	Agency
Disaster	Aggression
Contracts	Contracts - Agreement
Legal Actions	Allegation
General Business Actions	General Business Actions - Announcement
Rumors	Rumors - Announcement
Company Financials	Annual
Legal Actions	Antitrust
Real Estate	Arrangement
Insurance	Auto Insurance
Product Development	Automotive
Economy	Awards
Economy	Bailout
Financial Securities	Balloon Payment
Bankruptcy	Bankruptcy - Bank
Financing Actions	Financing Actions - Bank
Laws And Regulations	Bills
Criminal Actions	Blackmail
Financial Securities	Financial Securities - Bond Agreement
Financial Securities	Financial Securities - Bond Agreement
Financial Securities	Bond Computation
Financial Securities	Bond Individual
Financial Securities	Bond Method
Financial Securities	Bond Price
Financial Securities	Bond Process
Financial Securities	Bond Return
Financial Securities	Bond Status
Financial Securities	Bond Systems
Financial Securities	Bond Theory
Financial Securities	Bond Type

Continued on next page

Table 1.3 – continued from previous page

event_group	event
Financial Securities	Bonds
Financial Securities	Bondspayment
Criminal Actions	Breach
Company Financials	Budget
Laws And Regulations	Bureau
Laws And Regulations	Cabinet Department
Financial Securities	Call
Corporate Action	Corporate Action - Capital Expenditure
Financing Activities	Financing Activities - Capital Expenditure
Insurance	Car Insurance
Financing Actions	Charging
Corporate Governance	Chronology
Laws And Regulations	Claim
Laws And Regulations	Clause
Collaborations	Collaborations Entity
Bankruptcy	Collateral
Laws And Regulations	Commitee
Bankruptcy	Bankruptcy - Company
Economy	Economy - Company
Financing Actions	Financing Actions - Company
Corporate Governance	Company Change
Company Financials	Company Earnings
Company Financials	Company Earnings Delay
Company Financials	Company Expenses
Insurance	Insurance - Company Security
Laws And Regulations	Laws And Regulations - Company Security
Laws And Regulations	Concurrent Resolution
Laws And Regulations	Congress
Criminal Actions	Conspiracy
Economy	Economy - Consumer
Real Estate	Real Estate - Consumer
Product Development	Product Development - Consumer Goods
Laws And Regulations	Contract Law
Laws And Regulations	Contractual Provision
Laws And Regulations	Corporate Bankruptcy
Financial Securities	Coupon
Legal Actions	Court
Laws And Regulations	Court Order
Insurance	Coverage
Insurance	Coverage Gap
Financing Activities	Credit
Criminal Actions	Criminal Actions - Crime
Criminal Actions	Crimes
Economy	Currency
Security	Cyber Security
Criminal Actions	Cybercrime
Collaborations	Deals
Insurance	Death Rate
Bankruptcy	Bankruptcy - Debt

Continued on next page

Table 1.3 – continued from previous page

event_group	event
Economy	Economy - Debt
Financial Securities	Financial Securities - Debt
Financing Actions	Financing Actions - Debt
Financing Activities	Financing Activities - Debt
Financial Securities	Debt Secuti
Real Estate	Deed
Laws And Regulations	Default Rule
Bankruptcy	Bankruptcy - Defaults
Laws And Regulations	Degree
Business Concerns	Delays
Laws And Regulations	Department Of Justice
Business Concerns	Departure
Insurance	Deposit Insurance
Legal Actions	Detention
Product Development	Development
Business Concerns	Disagreements
Laws And Regulations	Disclaimer
Laws And Regulations	Disclosure
Laws And Regulations	Laws And Regulations - Dispute
Real Estate	Real Estate - Dispute
Economy	Distribution
Business Concerns	Disturbance
Mergers And Acquisitions	Divestiture
Collaborations	Collaborations - Document
Laws And Regulations	Laws And Regulations - Document
Legal Actions	Legal Actions - Document
Real Estate	Real Estate - Document
Security	Domestic Security
Company Financials	Donation
Analyst Ratings	Downgrade
Company Financials	Earnings Forecast
Economy	Economic
Economy	Economic Analysis
Economy	Economic Cycle
Economy	Economic Situation
Economy	Economic Theory
Economy	Economist
Economy	Education
Laws And Regulations	Education Foundation
Economy	Elasticity
Product Development	Electronic
Corporate Governance	Employee
Economy	Employment
Economy	Economy - Energy
Product Development	Product Development - Energy
Product Development	Entertainment
Legal Actions	Entity
Corporate Action	Corporate Action - Environmental Issue
Disaster	Disaster - Environmental Issue

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Table 1.3 – continued from previous page

event_group	event
Financial Securities	Financial Securities - Equity
Laws And Regulations	Laws And Regulations - Equity
Stock Valuation	Equity Value
Company Financials	Errors
Corporate Governance	Event
Laws And Regulations	Exam
Corporate Governance	Expansion
Real Estate	Expenses
Insurance	Expire
Insurance	Extra Liability Insurance
Laws And Regulations	Federal
Laws And Regulations	Federal Agency
Laws And Regulations	Federal Communications Commission
Laws And Regulations	Federal Reserve Bank
Laws And Regulations	Fiduciary
Corporate Action	Corporate Action - Finance
Insurance	Insurance - Finance
Stock Valuation	Stock Valuation - Finance
Laws And Regulations	Laws And Regulations - Financial
Product Development	Product Development - Financial
Corporate Governance	Financial Change
Financing Activities	Financial Investments
Financing Activities	Financial Recovery
Corporate Action	Financial Reports
Financing Activities	Financial Risk
Legal Actions	Fines
Government	Food And Drug Administration
Economy	Economy - Forecast
Mergers And Acquisitions	Mergers And Acquisitions - Forecast
Laws And Regulations	Form
Criminal Actions	Criminal Actions - Fraud
Laws And Regulations	Laws And Regulations - Fraud
Legal Actions	Legal Actions - Fraud
Real Estate	Real Estate - Fraud
Financial Securities	Fund
Corporate Governance	Funding
Economy	Game Theory
Economy	Gdp Movement
Analyst Ratings	Analyst Ratings - General
Collaborations	Collaborations - General
Company Financials	Company Financials - General
Criminal Actions	Criminal Actions - General
Disaster	Disaster - General
Economy	Economy - General
Employment Actions	Employment Actions - General
Financing Activities	Financing Activities - General
Laws And Regulations	Laws And Regulations - General
Legal Actions	Legal Actions - General
Market Performance	Market Performance - General

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Table 1.3 – continued from previous page

event_group	event
Mergers And Acquisitions	Mergers And Acquisitions - General
Product Development	Product Development - General
Real Estate	Real Estate - General
Retirement Planning	Retirement Planning - General
Rumors	Rumors - General
Stock Valuation	Stock Valuation - General
General Business Actions	Goal
Economy	Economy - Government
Insurance	Insurance - Government
Bankruptcy	Bankruptcy - Government Agency
Economy	Economy - Government Agency
Financing Actions	Financing Actions - Government Agency
Government	Government - Government Agency
Economy	Government Policy
Laws And Regulations	Government Spending
Economy	Graph
Laws And Regulations	Guarantee
Corporate Action	Headquarters-Change
Insurance	Health Insurance
Laws And Regulations	Health Insurance Security
Insurance	Insurance - Healthcare
Laws And Regulations	Laws And Regulations - Healthcare
Financial Securities	High Yield
Insurance	Homeowners Insurance
Laws And Regulations	Identity
Laws And Regulations	Illegal
Economy	Illegal Trade
General Business Actions	Improvement
Economy	Indications
Economy	Indicators
Laws And Regulations	Individual
Security	Infrastructure Security
Corporate Governance	Initiative
Corporate Action	Corporate Action - Insider Activities
Stock Activities	Stock Activities - Insider Activities
Legal Actions	Insider Trading
Economy	Economy - Institution
Legal Actions	Legal Actions - Institution
Real Estate	Real Estate - Institution
Economy	Institutions
Real Estate	Insurance
Laws And Regulations	Insurance Clause
Laws And Regulations	Insurance Coverage
Insurance	Insurance Industry
Insurance	Insurance Plan
Product Development	Intellectual Property
Economy	Economy - Interest
Laws And Regulations	Laws And Regulations - Interest
Bankruptcy	Bankruptcy - Interest Rate

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Table 1.3 – continued from previous page

event_group	event
Economy	Economy - Interest Rate
Financing Actions	Financing Actions - Interest Rate
Corporate Governance	Corporate Governance - Investment
Financing Activities	Financing Activities - Investment
Laws And Regulations	Laws And Regulations - Investment
Real Estate	Real Estate - Investment
Retirement Planning	Retirement Planning - Investment
Economy	Investment
Laws And Regulations	Investor
Contracts	IPO
Stock Activities	Ipo
Company Financials	Issues
Laws And Regulations	Joint Resolutions
Company Financials	Joint Return
Laws And Regulations	Judicial Order
Financial Securities	Jumbo
Economy	Economy - Labor
Laws And Regulations	Laws And Regulations - Labor
Economy	Economy - Labor Union
Employment Actions	Employment Actions - Labor Union
Financial Securities	Ladder
Laws And Regulations	Laws And Regulations - Law
Real Estate	Real Estate - Law
Corporate Governance	Corporate Governance - Lawsuit
Legal Actions	Legal Actions - Lawsuit
Employment Actions	Employment Actions - Layoff
Rumors	Rumors - Layoff
Financing Actions	Financing Actions - Lease
Real Estate	Real Estate - Lease
Real Estate	Legal
Laws And Regulations	Legal Action
Laws And Regulations	Legal Authority
Laws And Regulations	Legal Bond
Laws And Regulations	Legal Distinction
Laws And Regulations	Legal Document
Legal Actions	Legal Ethics
Mergers And Acquisitions	Legal Provision
Laws And Regulations	Legislative Body
Laws And Regulations	Letter
Bankruptcy	Leverage
Laws And Regulations	Liability
Insurance	Life Insurance
Laws And Regulations	Limited Liability Company
General Business Actions	Limiting
Company Financials	Liquidation
Legal Actions	Litigation
Bankruptcy	Bankruptcy - Loan
Financing Actions	Financing Actions - Loan
Laws And Regulations	Laws And Regulations - Loan

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Table 1.3 – continued from previous page

event_group	event
Economy	Economy - Loans
Real Estate	Real Estate - Loans
Disaster	Man-Made Disaster
Employment Actions	Management
Corporate Governance	Management Decisions
Corporate Governance	Management Regulation
Laws And Regulations	Manager
Insurance	Managing Risk
Real Estate	Real Estate - Market
Stock Valuation	Stock Valuation - Market
Economy	Market Concetration
Economy	Market Economics
Economy	Market Industry
Corporate Action	Market-Share
Product Development	Marketing
Economy	Markets
Company Financials	Marriage Tax
Financial Securities	Financial Securities - Measure
Real Estate	Real Estate - Measure
Insurance	Medicare
Mergers And Acquisitions	Mergers And Acquisitions - Merger
Business Concerns	Mistakes
Economy	Model
Economy	Monetary
Economy	Monetary Policy
Economy	Monetary System
Laws And Regulations	Monitoring System
Bankruptcy	Bankruptcy - Mortgage
Financing Actions	Financing Actions - Mortgage
Real Estate	Real Estate - Mortgage
Corporate Action	Name Change
Disaster	Natural Disaster
Financial Securities	Negative
Financial Securities	Net
Collaborations	Collaborations - Non-Profit
Laws And Regulations	Laws And Regulations - Non-Profit
Bankruptcy	Bankruptcy - Obligation
Financial Securities	Financial Securities - Obligation
Laws And Regulations	Laws And Regulations - Obligation
Laws And Regulations	Offense
Financial Securities	Option
Laws And Regulations	Order
General Business Actions	Overload
Corporate Action	Corporate Action - Ownership
Laws And Regulations	Laws And Regulations - Ownership
Real Estate	Real Estate - Ownership
Financial Securities	Par Value
Contracts	Contracts - Partnership
Corporate Action	Corporate Action - Partnership

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Table 1.3 – continued from previous page

event_group	event
Bankruptcy	Bankruptcy - Payment
Corporate Governance	Corporate Governance - Payment
Financing Actions	Financing Actions - Payment
Real Estate	Real Estate - Payment
Rumors	Rumors - Payment
Financing Activities	Payments
Legal Actions	Penalty
Product Development	Pharmaceuticals
Criminal Actions	Plagiarism
Laws And Regulations	Pledge
Bankruptcy	Bankruptcy - Policy
Economy	Economy - Policy
Financing Actions	Financing Actions - Policy
Laws And Regulations	Laws And Regulations - Policy
Corporate Governance	Portfolio Management
Corporate Governance	Position
Contracts	Pre-Contract
Insurance	Premium
Corporate Action	Corporate Action - Price
Economy	Economy - Price
Stock Valuation	Pricing
Insurance	Printed Document
Real Estate	Processes
Corporate Action	Product
Rumors	Product Development
Product Development	Product Discontinuation
Product Development	Product Improvement
Product Development	Product Development - Product Launch
Rumors	Rumors - Product Launch
Product Development	Product Recall
Real Estate	Program
Laws And Regulations	Laws And Regulations - Property
Real Estate	Real Estate - Property
Insurance	Property Insurance
Laws And Regulations	Proposed Legislation
Laws And Regulations	Prospectus
Laws And Regulations	Public Holiday
Corporate Governance	Public Issues
General Business Actions	Public Relations
Company Financials	Qualified Individuals
Financial Securities	Rating
Economy	Ratio
Economy	Real Estate
Economy	Recession
Laws And Regulations	Laws And Regulations - Record
Real Estate	Real Estate - Record
Employment Actions	Recruitment
Company Financials	Company Financials - Regulation
Laws And Regulations	Laws And Regulations - Regulation

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Table 1.3 – continued from previous page

event_group	event
Laws And Regulations	Regulation Procedure
Legal Actions	Regulations
Product Development	Regulatory
Insurance	Reimbursement Plan
Laws And Regulations	Relationship
Real Estate	Rent
Corporate Governance	Reorganization
Economy	Report
Real Estate	Repossession
Laws And Regulations	Representative
Product Development	Research And Development
Employment Actions	Resignation
Corporate Governance	Resolution
Economy	Retail Establishment
Economy	Economy - Retirement
Insurance	Insurance - Retirement
Retirement Planning	Retirement Security
Laws And Regulations	Laws And Regulations - Right
Real Estate	Real Estate - Right
Insurance	Insurance - Risk
Stock Valuation	Stock Valuation - Risk
Insurance	Risk Management
Laws And Regulations	Rule
Corporate Governance	Rules
Real Estate	Sale
Laws And Regulations	Sale Of Securities
Economy	Sales Amount
Bankruptcy	Bankruptcy - Securities
Corporate Governance	Corporate Governance - Securities
Laws And Regulations	Security
Rumors	Sell Off
Legal Actions	Settlement
Laws And Regulations	Share
Corporate Governance	Shareholders
Stock Valuation	Shares
Real Estate	Short
Contracts	Signing
Laws And Regulations	Simple Resolution
Real Estate	Situation
Financing Activities	Spin Off
Laws And Regulations	Standard
Laws And Regulations	State Law
Laws And Regulations	Statute
Market Performance	Stock Activities
Market Performance	Stock Activity
Stock Activities	Stock Delisting
Economy	Stock Index
Corporate Action	Corporate Action - Stock Market
Economy	Economy - Stock Market

Continued on next page

Table 1.3 – continued from previous page

event_group	event
Stock Activities	Stock Split
Corporate Governance	Stocks
Corporate Governance	Store
Laws And Regulations	Strategy
Product Development	Supplies
Corporate Action	Supply
Economy	Survey
Laws And Regulations	Laws And Regulations - Takeover
Mergers And Acquisitions	Mergers And Acquisitions - Takeover
Company Financials	Company Financials - Tax
Economy	Economy - Tax
Financial Securities	Financial Securities - Tax
Laws And Regulations	Laws And Regulations - Tax
Company Financials	Tax Accounting
Company Financials	Tax Allowance
Company Financials	Tax Business Income/Revenue
Company Financials	Tax Collection Method
Company Financials	Tax Company/Business
Company Financials	Tax Consumption Tax
Company Financials	Tax Credit Type
Company Financials	Tax Deduction
Company Financials	Tax Definition
Company Financials	Tax Expense
Company Financials	Tax Forms
Company Financials	Tax Government/Business
Company Financials	Tax Government/Personal
Company Financials	Tax Gross
Company Financials	Tax Identifier
Company Financials	Tax Income
Company Financials	Tax Income Type
Company Financials	Company Financials - Tax Individual
Company Financials	Tax Investment
Company Financials	Tax Law
Company Financials	Tax Law/Country
Company Financials	Tax Law/Definition
Company Financials	Tax Law/Irs
Company Financials	Tax Loss
Company Financials	Tax Method
Company Financials	Tax Method/Definition
Company Financials	Tax Mortgage
Company Financials	Tax Net
Company Financials	Tax Personal
Company Financials	Tax Policy
Company Financials	Tax Process
Company Financials	Tax Property
Company Financials	Tax Property Law
Company Financials	Tax Refund/Returns
Company Financials	Tax Requirement
Company Financials	Tax Returns

Continued on next page

Table 1.3 – continued from previous page

event_group	event
Company Financials	Tax Sale
Company Financials	Tax Season
Company Financials	Tax Type
Company Financials	Tax Value
Corporate Action	Taxes
Company Financials	Taxpayer
Product Development	Tech
Business Concerns	Termination
Laws And Regulations	Terms And Conditions
Economy	Theory
Laws And Regulations	Time
Laws And Regulations	Tool
Economy	Trade
Laws And Regulations	Trading
Business Concerns	Tragedy
Real Estate	Transaction
Financial Securities	Treasury
Economy	Trend
Real Estate	Type
Insurance	Type Of Insurance
Business Concerns	Uncertainty
Analyst Ratings	Upgrade
Company Financials	Company Financials - Value
Real Estate	Real Estate - Value
Collaborations	Values
Criminal Actions	Violation
Employment Actions	Employment Actions - Wage
Financial Securities	Financial Securities - Yield

1.5.3.5 story_type

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