

## Workshop

20.06.2023

# BUBA-Bot

Bundesbanks news analysis  
system with neural networks  
and webscraping for market  
intelligence

## PART I

# What is BUBA-Bot?

## BUBA-Insights

„Overhead“ framework for  
combining and displaying information

### BUBA-Tick

Intraday-Neartime  
Future market  
analysis system

### BUBA-Bot

Webcrawler & NLP  
System for news  
articles

### BUBA-GPT

Augmenting the  
BUBA-Bot articles  
database with AI  
analysis and chat

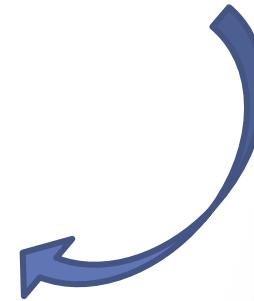


# PART I

## What is BUBA-Bot?



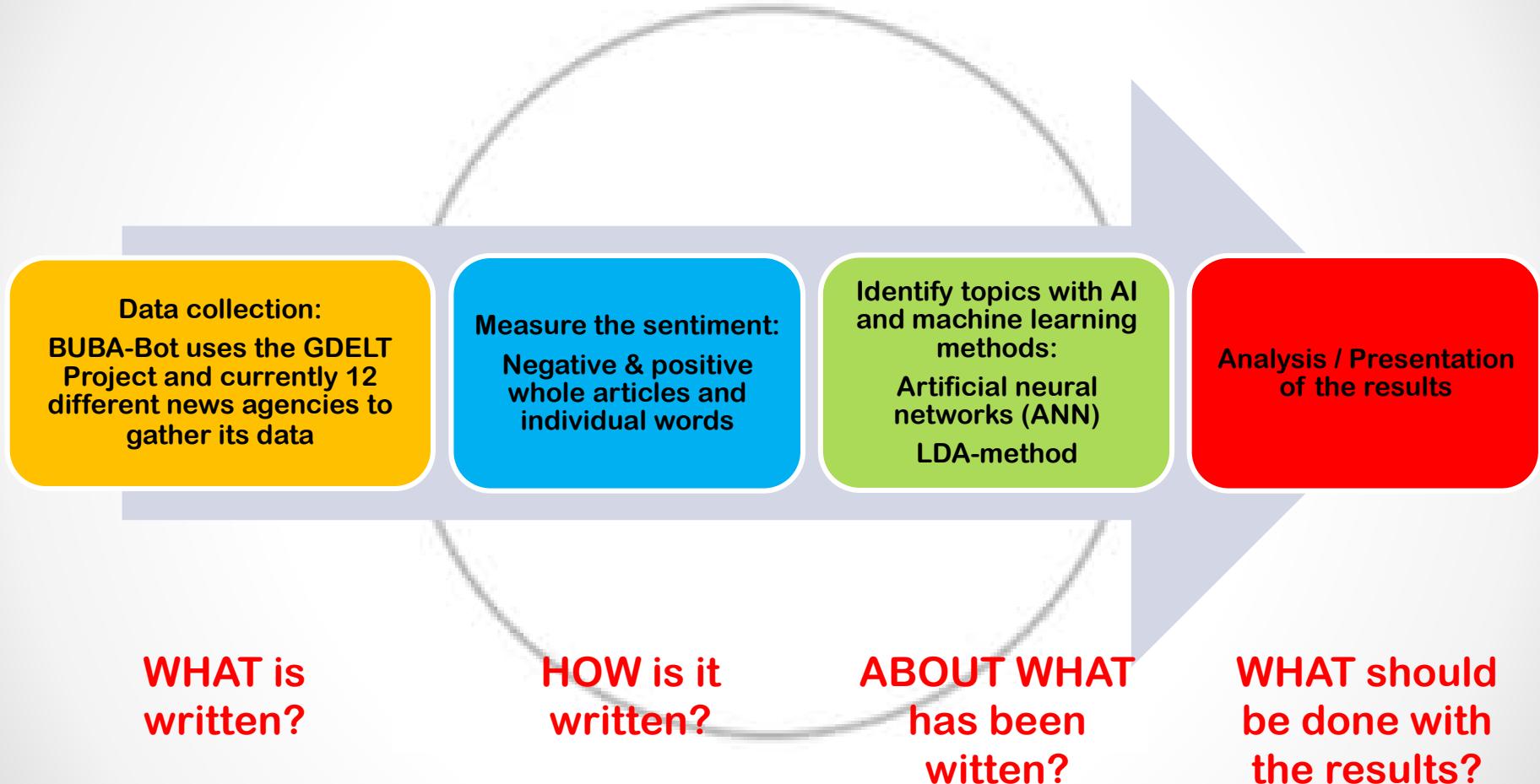
This is how  
textmining  
looks like in  
practice!



# PART I

## What is BUBA-Bot?

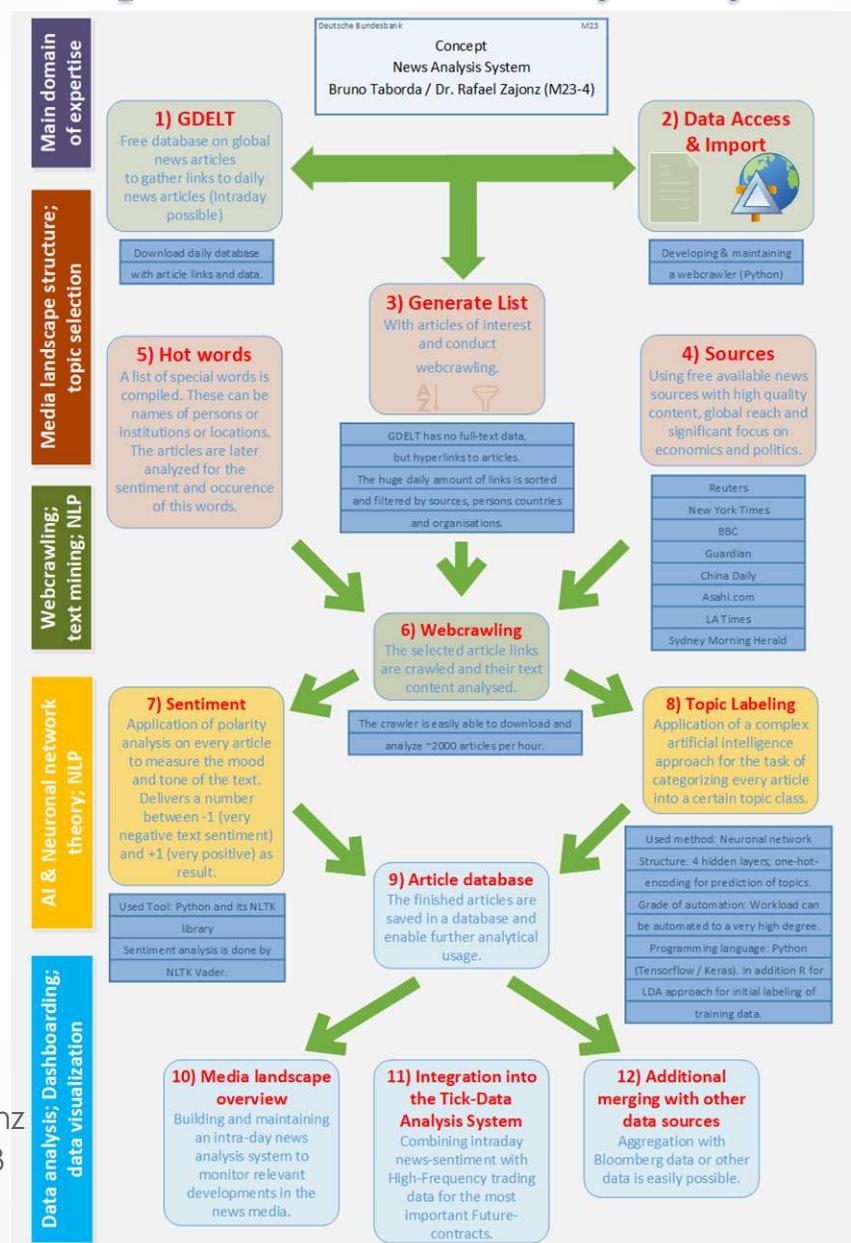
### The 4 basic components of BUBA-Bot



# PART II

## Structure and development of a text analysis system

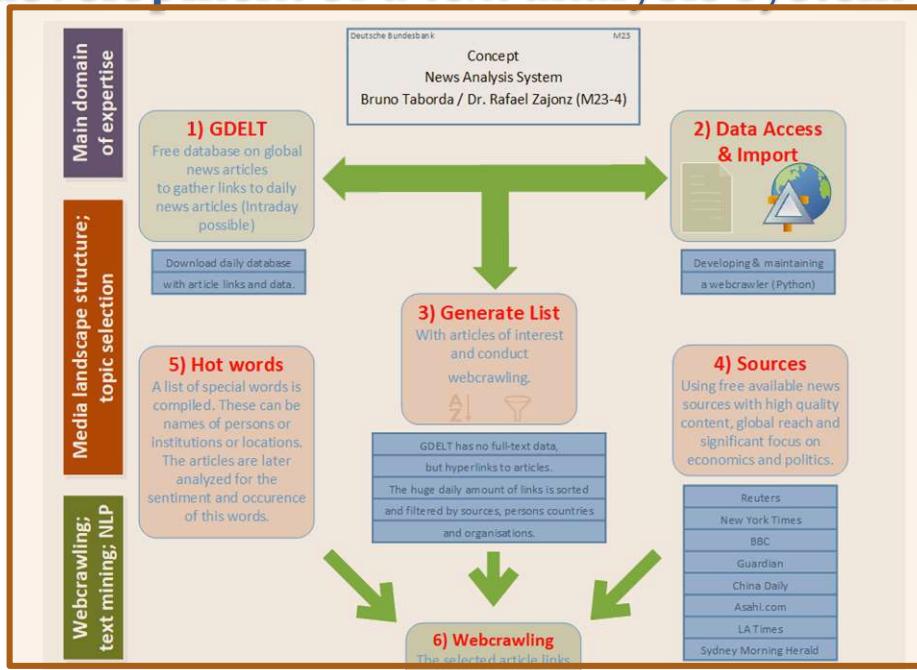
### The individual components of the BUBA-Bot system



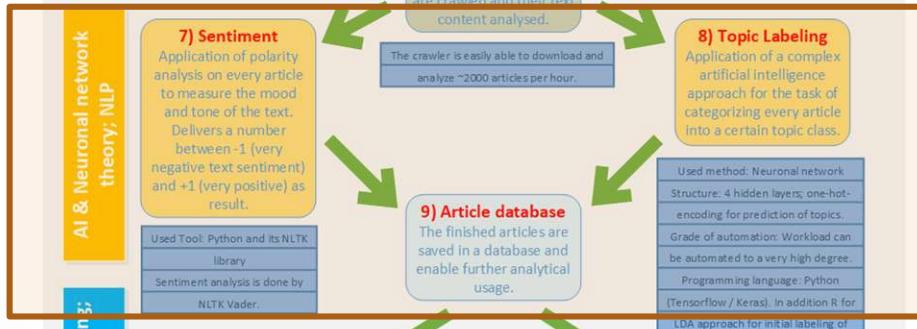
# PART II

## Structure and development of a text analysis system

The individual components of the BUBA-Bot system



**Step 1:**  
Webcrawling



**Step 2:**  
Sentiment & Topics



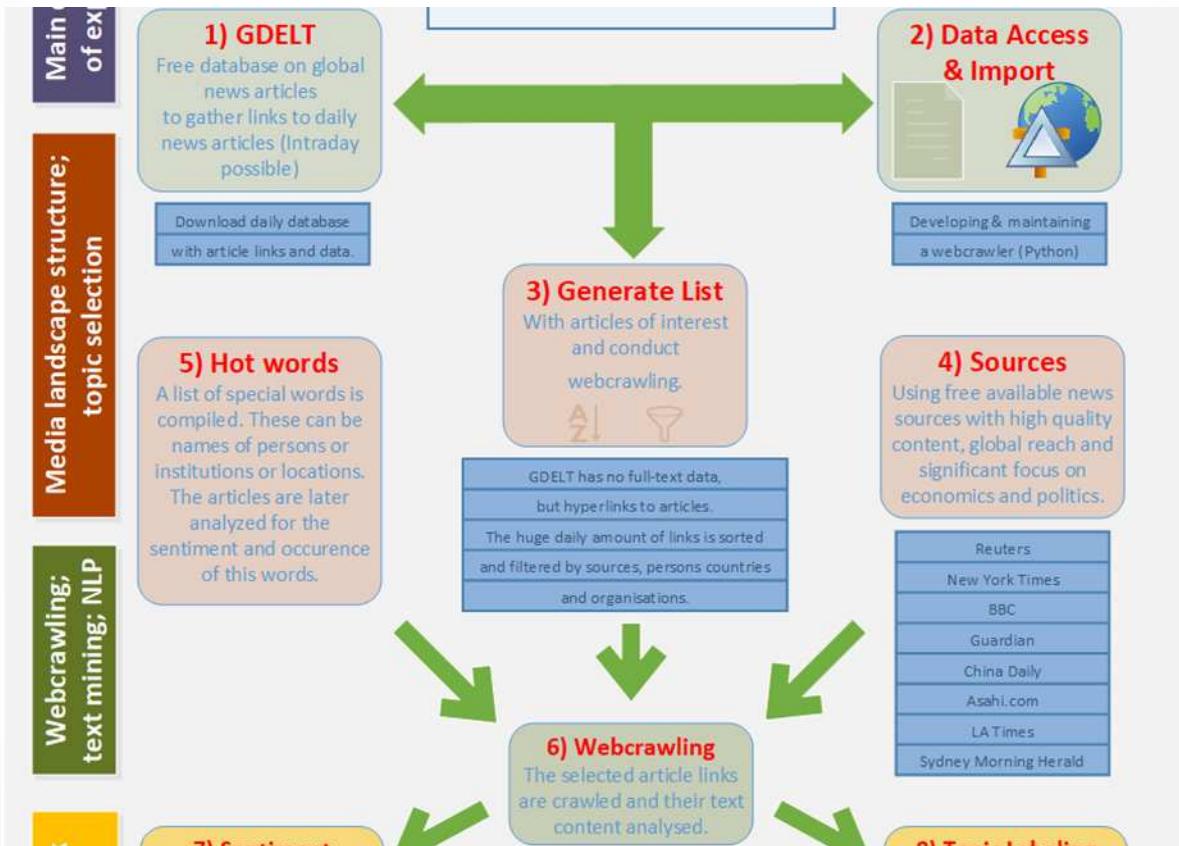
**Step 3:**  
Analysis & Presentation



# PART II

## Structure and development of a text analysis system

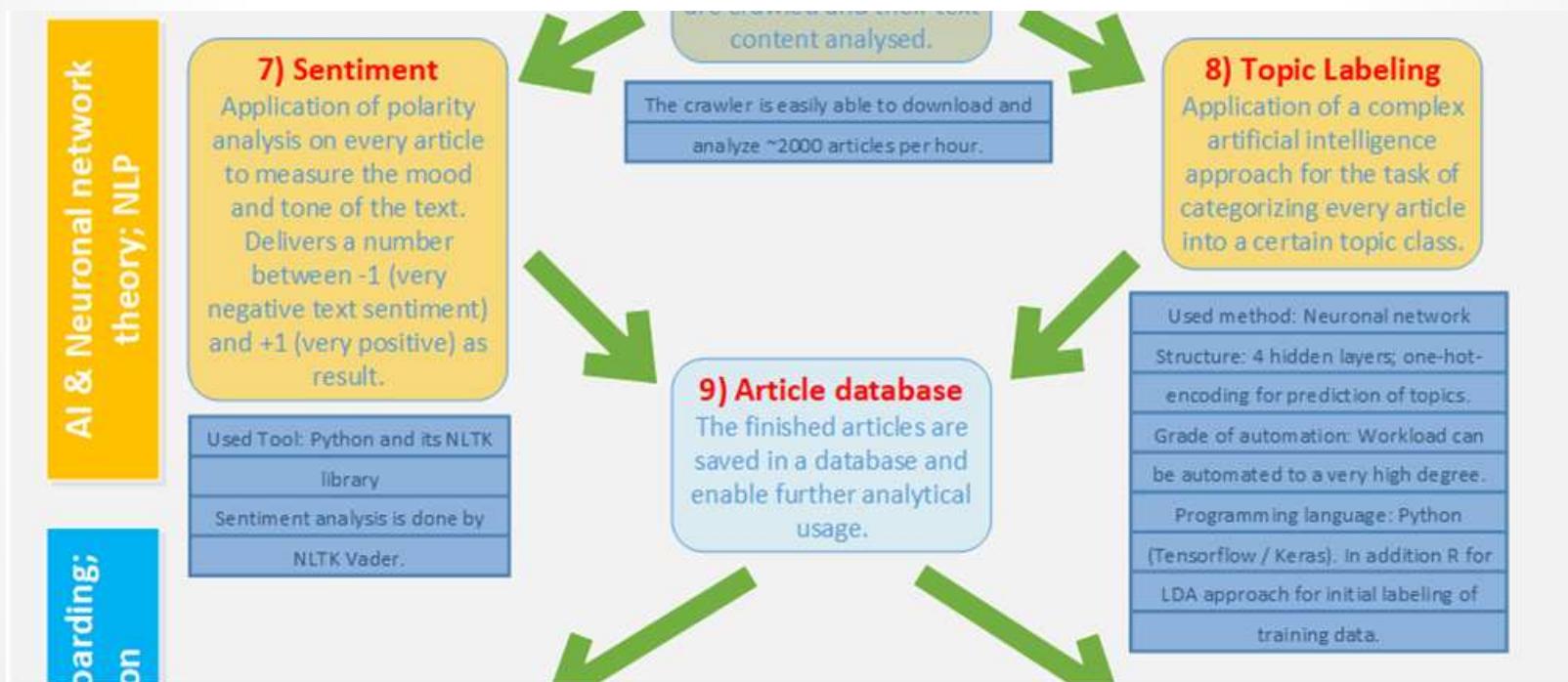
### Step 1: Webcrawling – Data gathering



# PART II

## Structure and development of a text analysis system

### Step 2: Sentiment analysis & topic identification



## PART II

# Structure and development of a text analysis system

### Step 3: Visualization and presentation of the results

Data analysis; Dashboard visualization

#### **10) Media landscape overview**

Building and maintaining an intra-day news analysis system to monitor relevant developments in the news media.

#### **11) Integration into the Tick-Data Analysis System**

Combining intraday news-sentiment with High-Frequency trading data for the most important Future-contracts.

#### **12) Additional merging with other data sources**

Aggregation with Bloomberg data or other data is easily possible.



## PART IV

# Sentiment analysis

The key aspect of sentiment analysis is to analyze a body of text in order to understand the opinion expressed by it. Typically, we quantify this sentiment with a positive or negative value, called polarity.

BUBA-Bot applies the widely used standard method „**Polarity-Analysis**“ to analyze the text content: The algorithm searches for sentences with certain „**polar**“ words (= words with a positive or negative emotional value in them). The algorithms also adjusts for the presence of **negating words** or words that **increase or diminish** the meaning of a word.

The overall sentiment is often inferred as positive, neutral or negative from the final sign of the cumulated polarity score for a sentence or article.



# PART V

## Machine Learning for topic identification

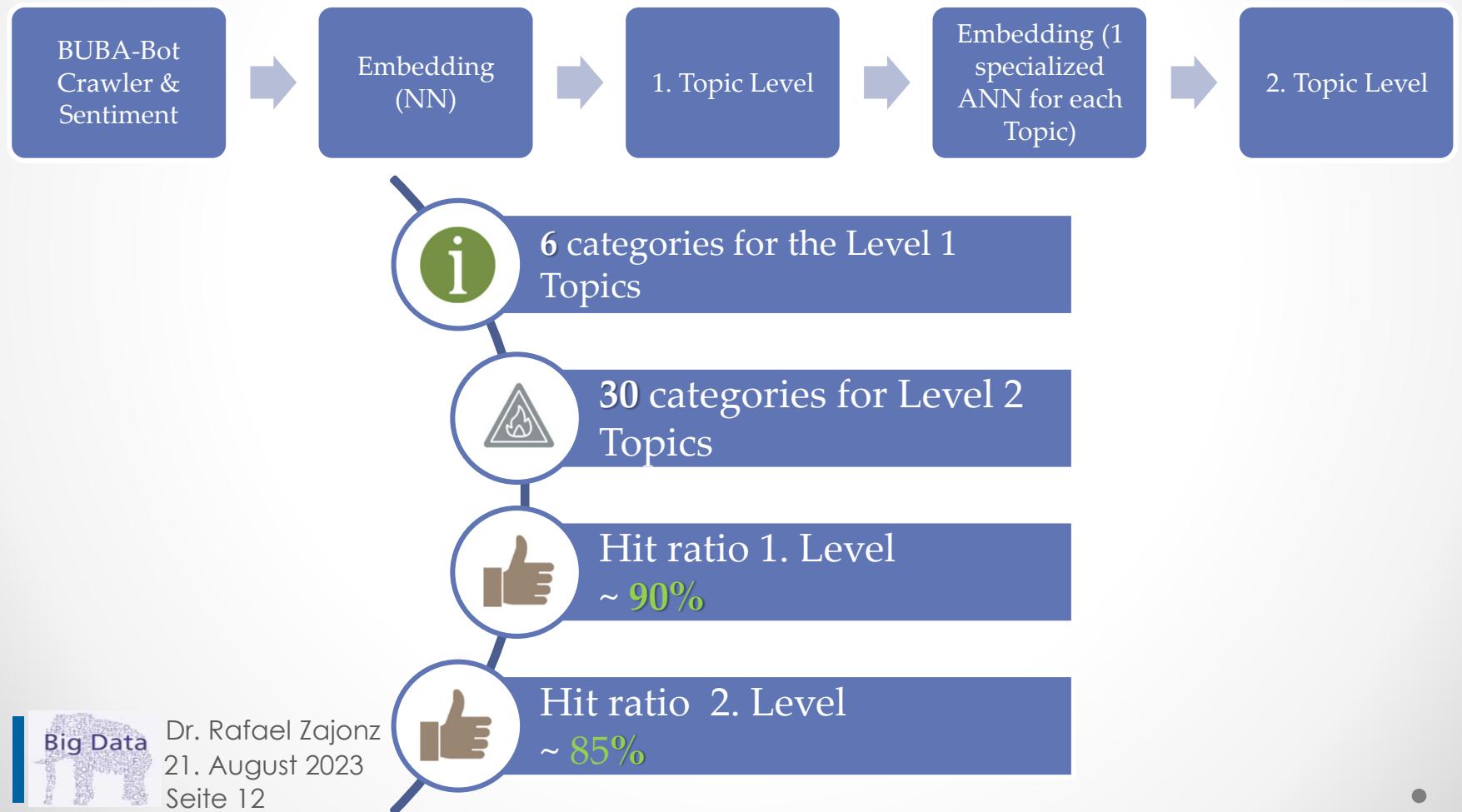
### Specifications of the BUBA-Bot ANN Module:

- Programming language: **Python, Tensorflow / Keras**
- Number of neural layers: **4**
- Word corpus that is used to teach the ANN: **20.000 different words**
- Number of neurons in the „embedding“ layer of the ANN: **400**
- Activation function in the final output layer: **„Softmax“**
- Optimization-Algo: **„rmsprop“**
- Loss-Function: **„categorical\_crossentropy“**



# PART V

## Machine Learning for topic identification



# PART V

## Machine Learning for topic identification

6 Main topics for Level 1  
General and time invariant

Unternehmen_Energie
Makrooekonomie_Geldpolitik
US_Intern
EU_Intern
Krieg_Krisen
Geopolitik

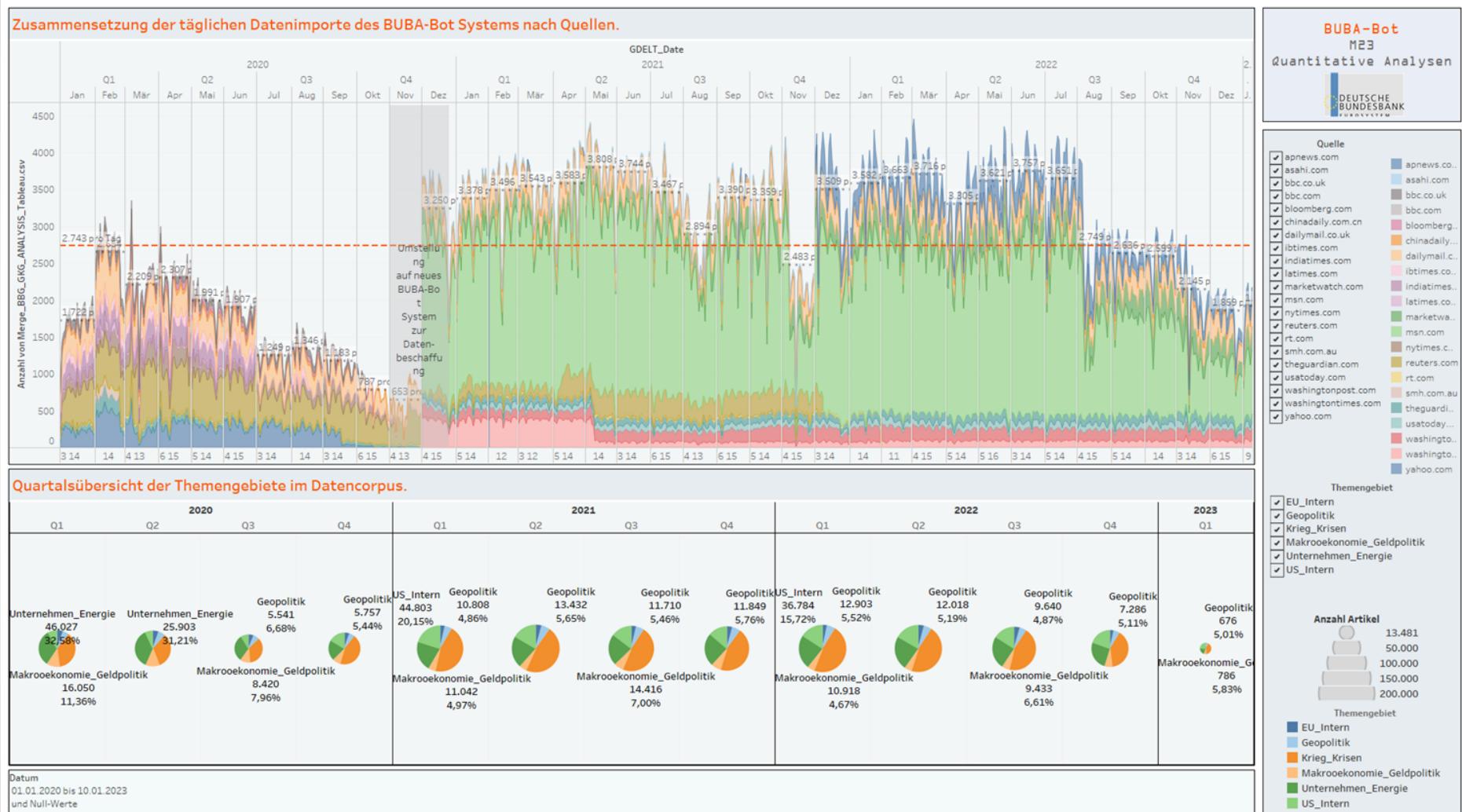
30 topics for Level 2  
Focused and flexible

Unternehmensreporte
Korruption_Verbrechen_Governance
Boersenentwicklungen
Energie_Oel_Rohstoffe
Makrooekonomie
Kriminalitaet_Ungluecke
US_Intern
Welthandel
EU-UK_Brexit
Geopolitische_Spannungen
Fokus_Trump
Iran
EU_Wirtschaft_Innen_Aussenpolitik
Geldpolitik
China_Ostasien
Politische_Unruhen
Terror_Anschläge
UK
Syrien_Irak_IS
Luftfahrt
Klimawandel
US_Wahlkampf
Nordkorea
Lateinamerika
Katastrophen_Unfaelle
Naher_Osten
Italien
Politische_Wahlen
Russland_und_USA_Europa
Deutschland



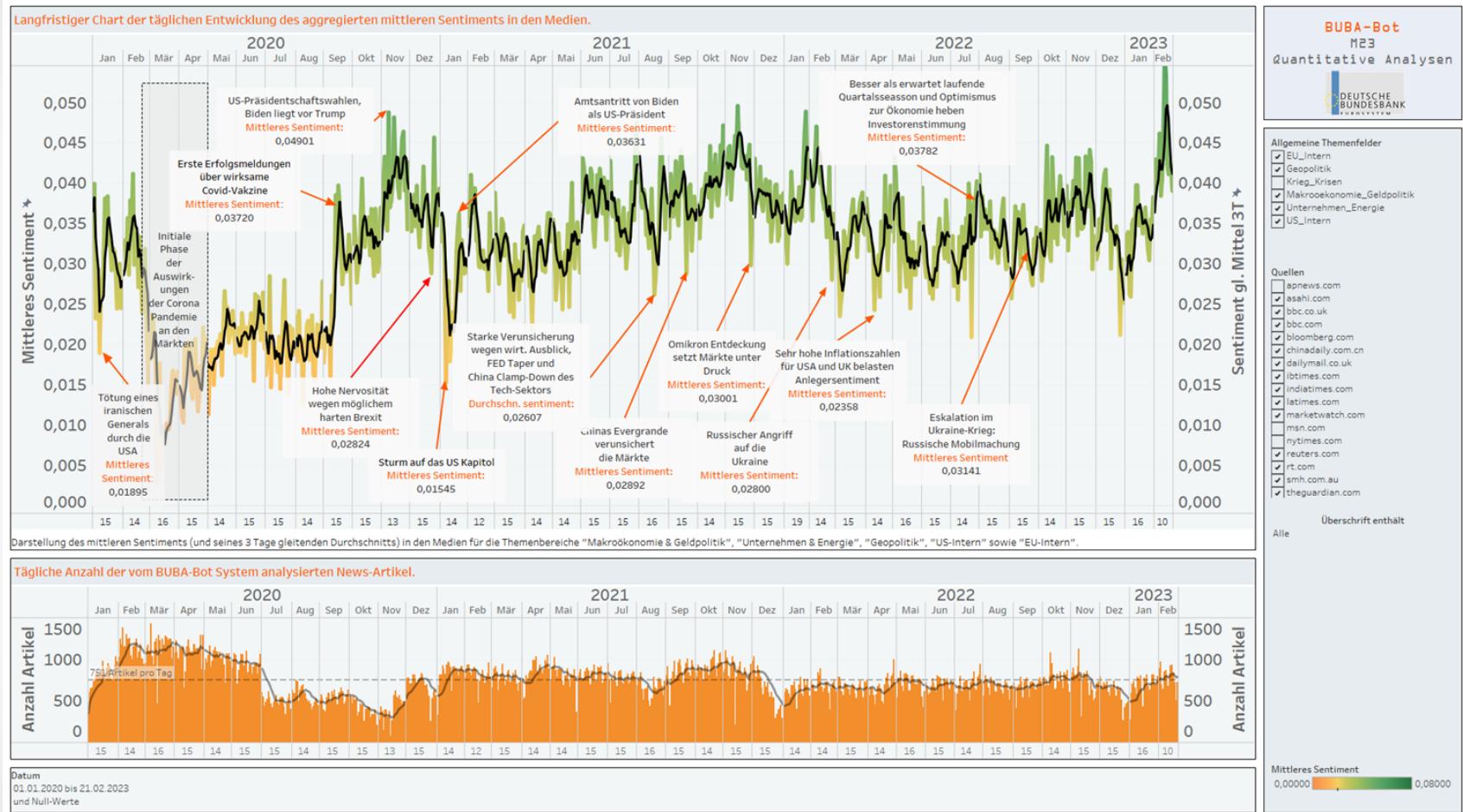
# PART VI

# Visualization and Dashboards



# PART VI

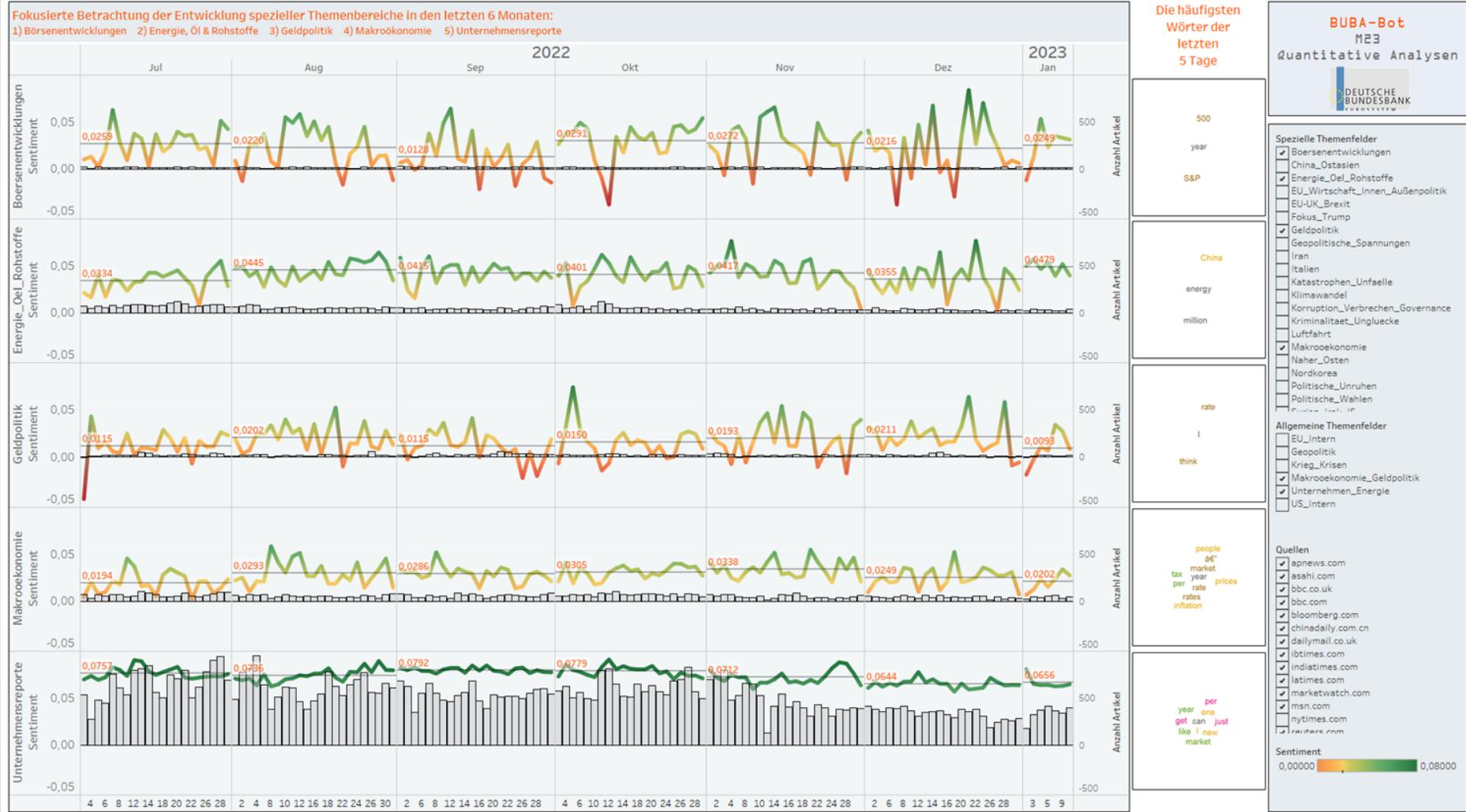
## Visualization and Dashboards



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21. August 2023  
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# PART VI

## Visualization and Dashboards

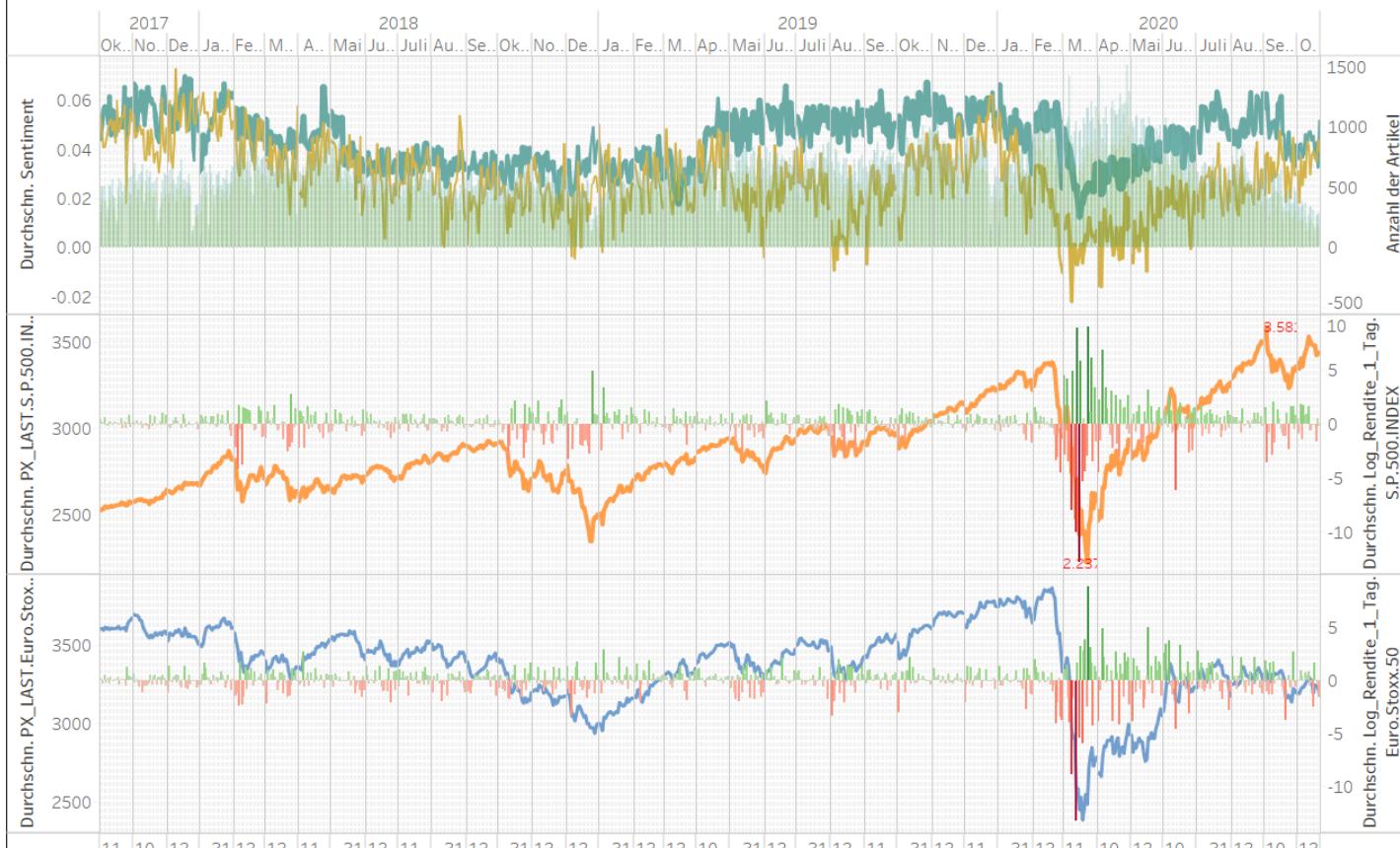


# PART VI

## Visualization and Dashboards

### Level 1 Themenspezifischer Sentimentverlauf und Kapitalmarktdaten.

Hier: Aktienmarkt mit S&P 500 und Euro Stoxx 50.



Zeit

01.10.2017 00:15:00 bis 21.10.2020 22:00:00

**BUBA-Bot**



**Textanalyse-System**

**S. 7 Sentimentverläufe B**



Wochentage  
Montag bis Freitag

Allgemeine Themenfelder  
Mehrere Werte

Spezielle Themenfelder  
Alle

Quellen  
Mehrere Werte

Anzahl der Artikel  
Makroökonomie\_Geldpoli..  
Unternehmen\_Energie

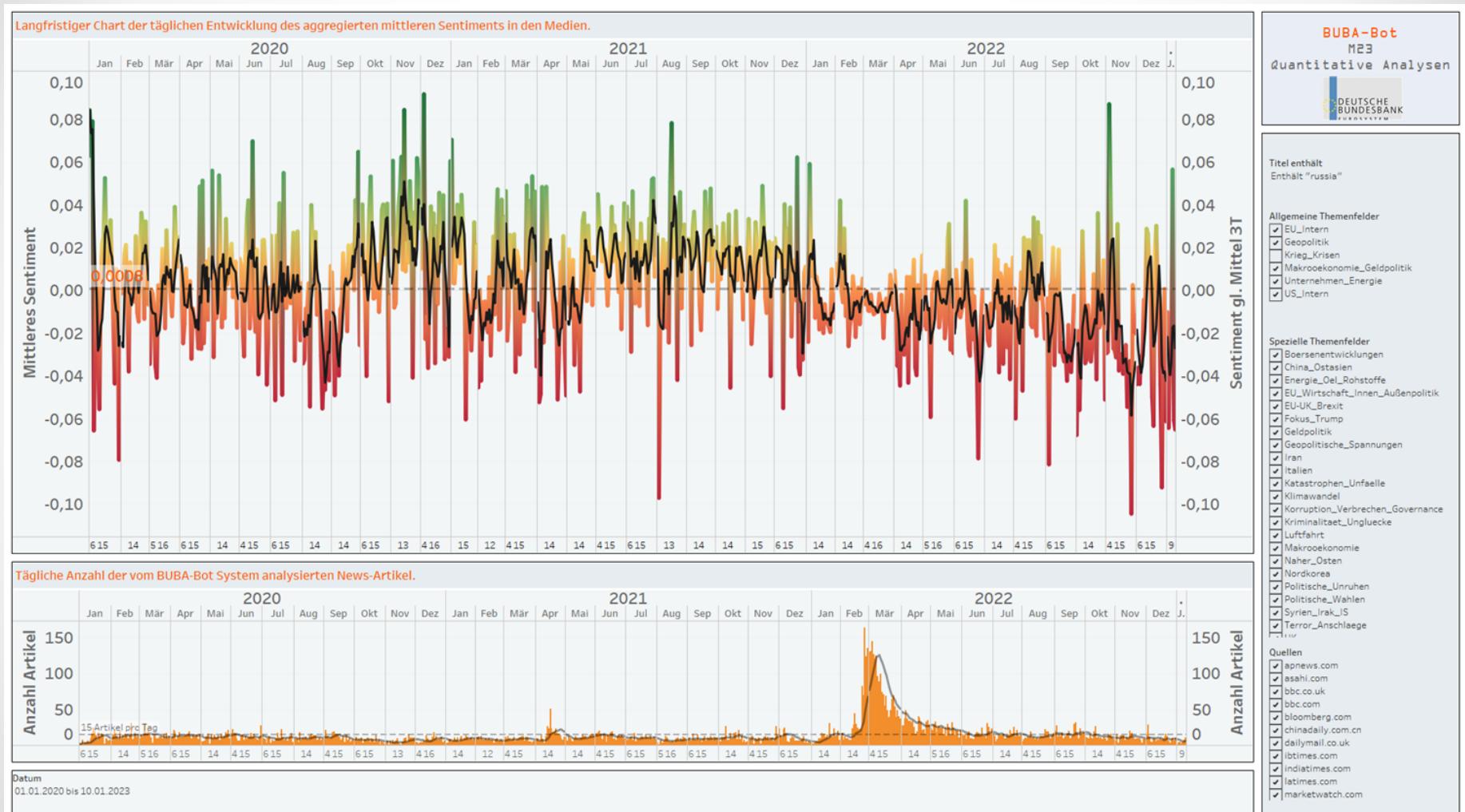
Anzahl Artikel
1
200
400
600
800
1,000
1,185

Themen-Sentiment  
Makroökonomie\_Geldpoli..  
Unternehmen\_Energie, Dur..



# PART VI

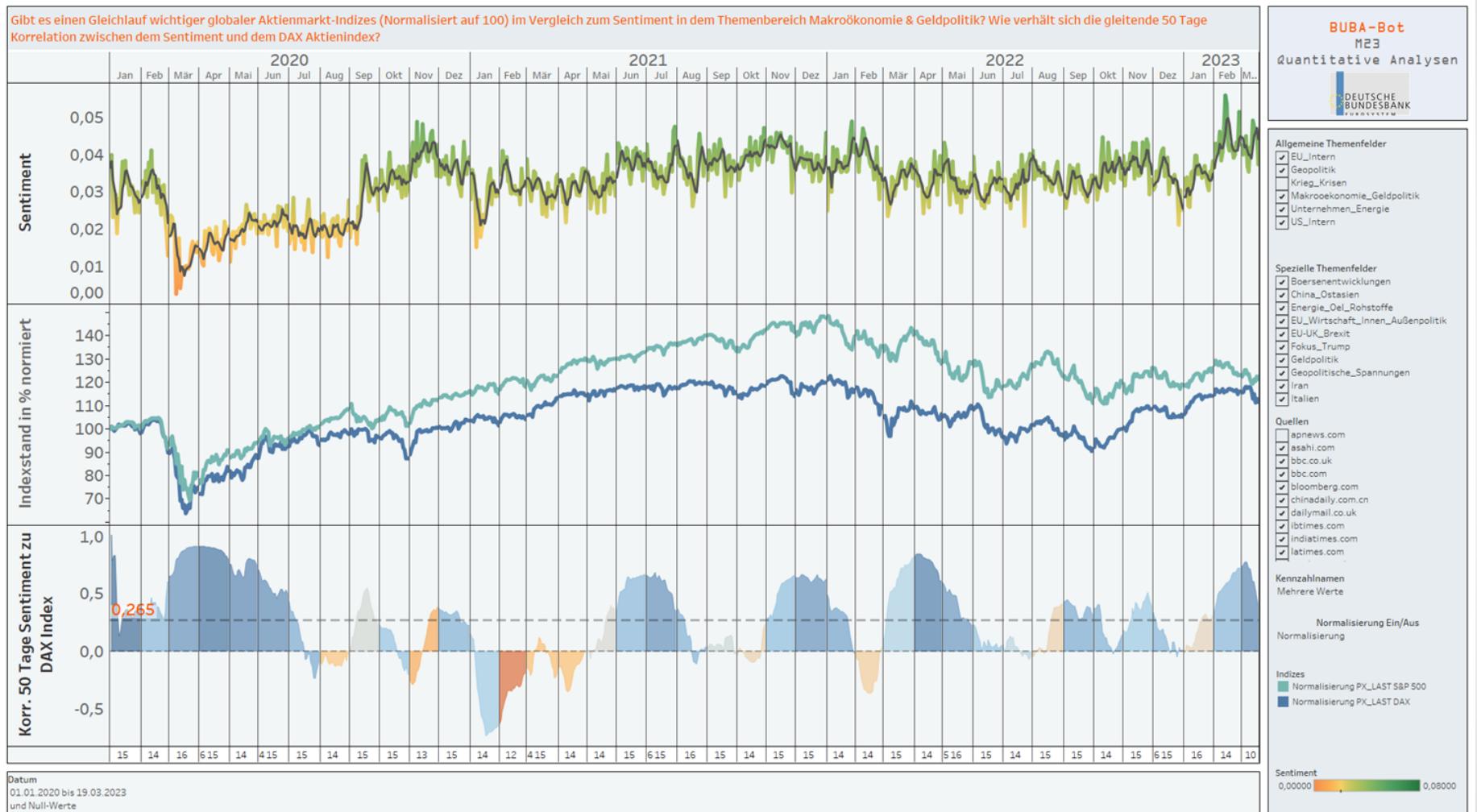
## Visualization and Dashboards



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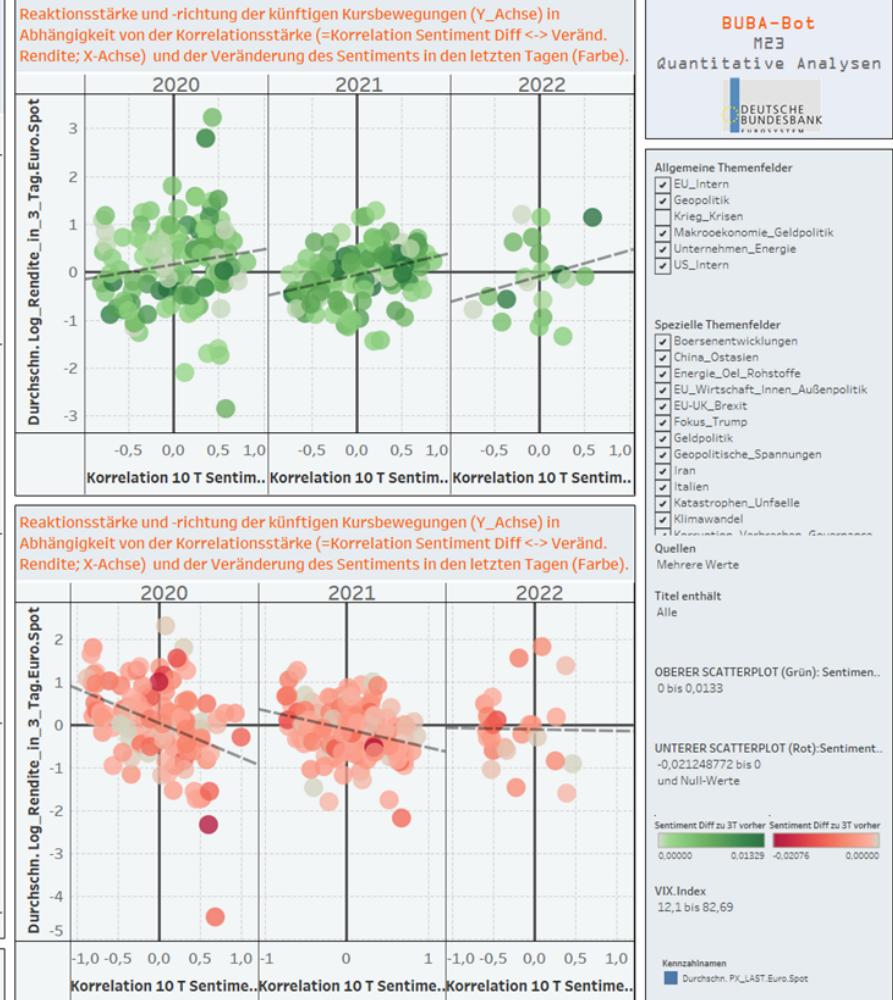
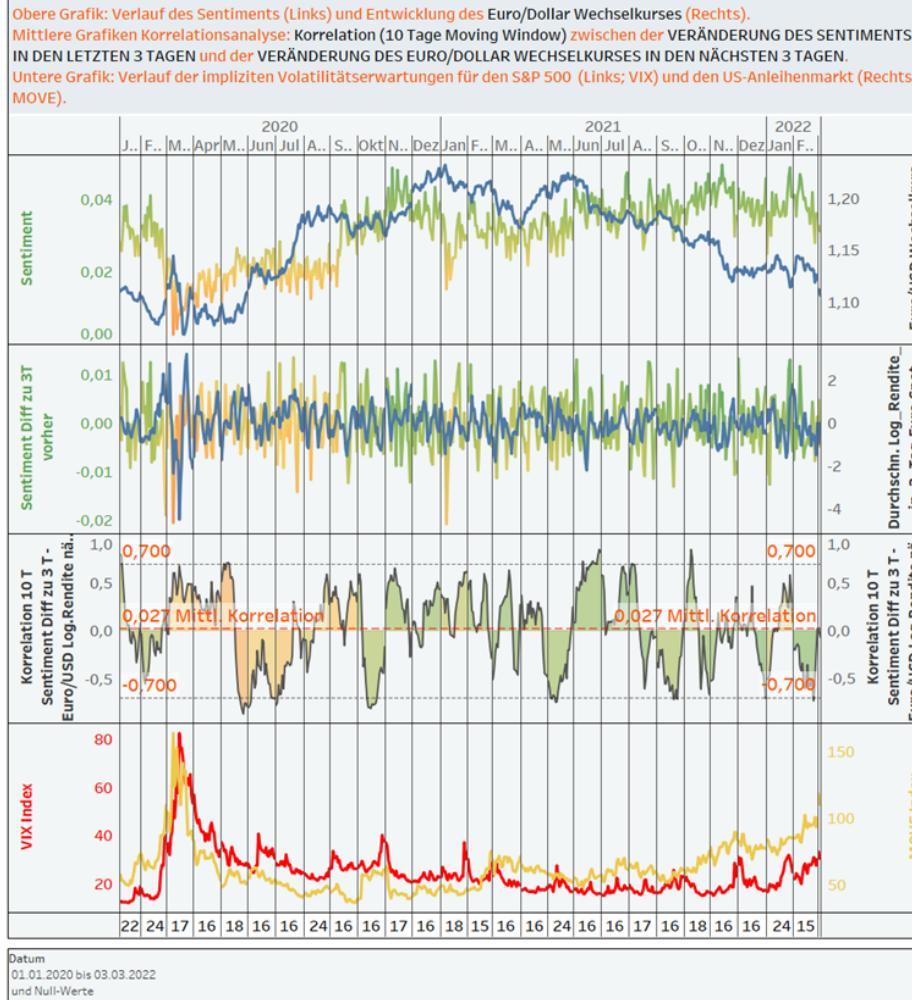
# PART VI

# Visualization and Dashboards



# PART VI

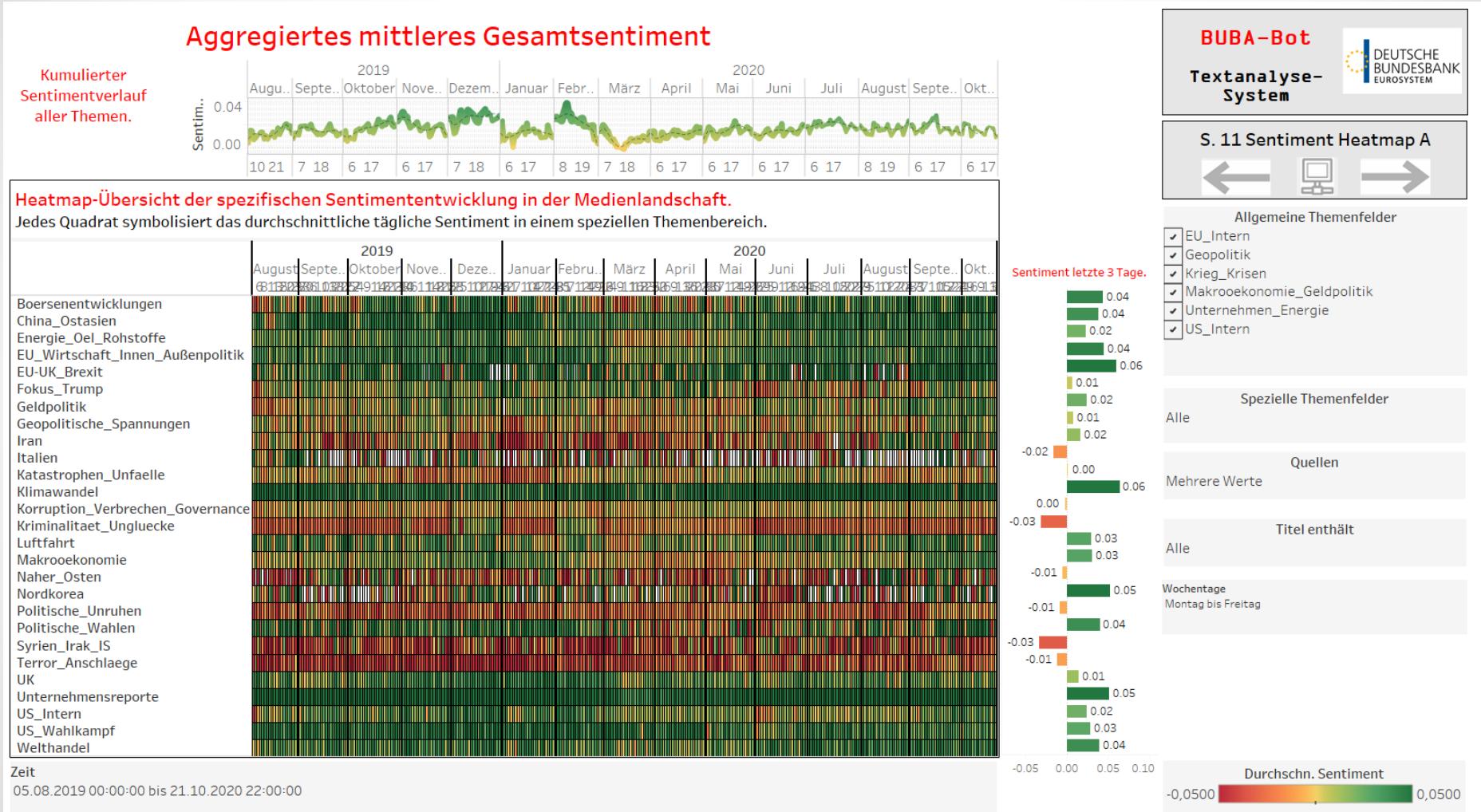
## Visualization and Dashboards



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# PART VI

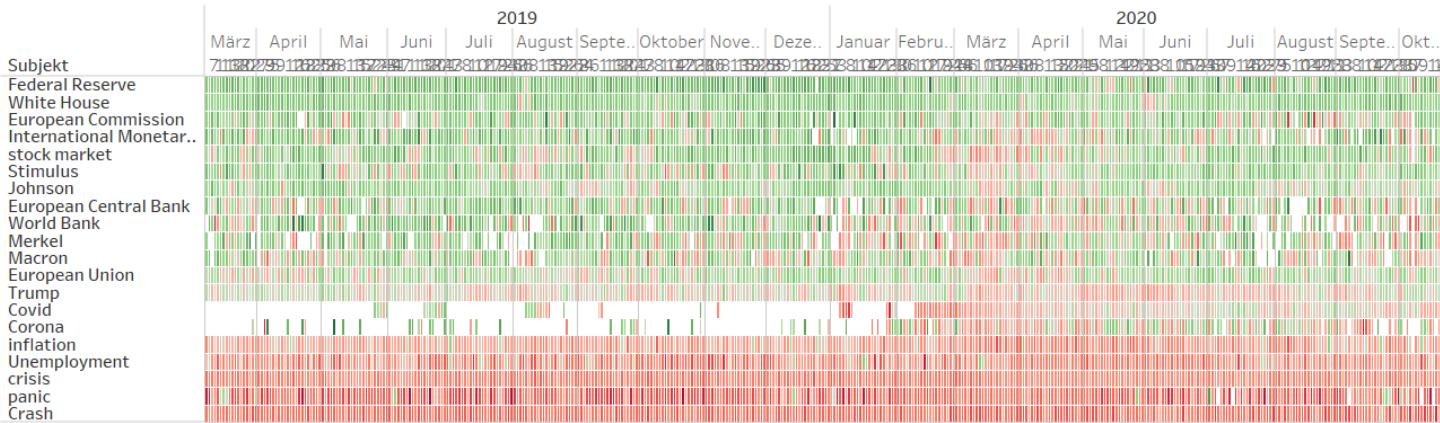
## Visualization and Dashboards



# PART VI

## Visualization and Dashboards

### Heatmap der zeitl. Entwicklung des Sentiments



**BUBA-Bot**



**Textanalyse-System**

**S. 13 Wortanalyse B**



Allgem. Themenfelder  
Alle

Spezielle Themenfelder  
Alle

Subjekt  
Mehrere Werte

SourceCommonName  
Alle

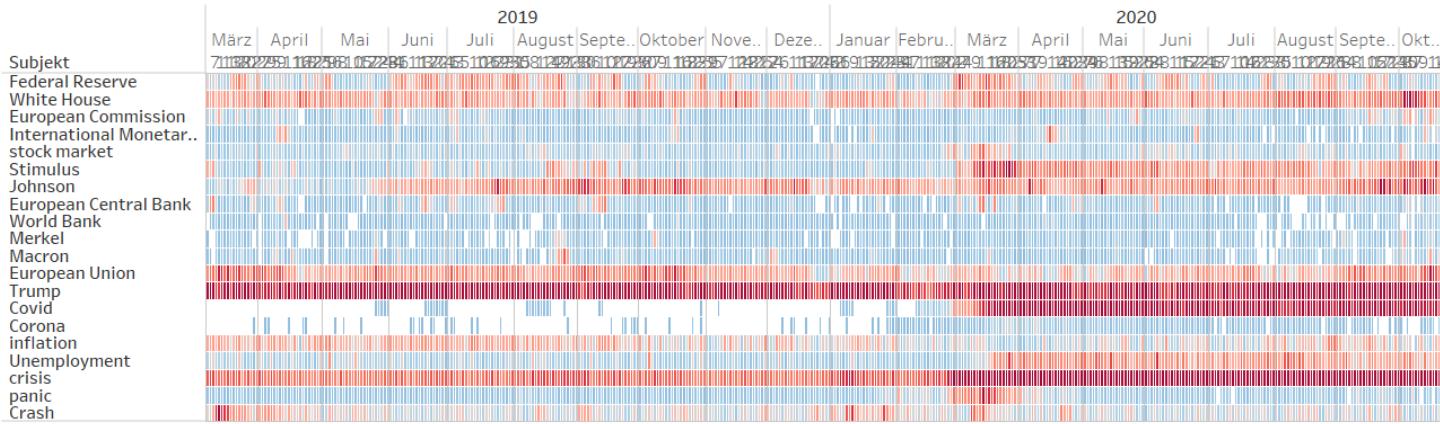
% Anteil Vorkommen  
0,048 bis 100

Anzahl der Datensätze  
3 bis 1,522

Sentiment  
-0,500 0,500

% Anteil Vorkommen  
0,100 10,000

### Heatmap der zeitl. Entwicklung der Häufigkeit



Zeit  
06.03.2019 00:00:00 bis 21.10.2020 22:00:00



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# PART VI

# Visualization and Dashboards

# PART VI

## Visualization and Dashboards

Persons_Pos	Person_Name	Position	Identifi...	Titel	GKGR...	Level_1_Topic	Level_2_Topic	Transf...	GDELT...	GDELT_Date_Time_Con...
Rhiannon Hoyle,17	Rhiannon Hoyle	17	<a href="https://www...">https://www...</a>	Independent Audit Identifies Rio Ti...	2023032...	Unternehmen_Ene...	Korruption_Verbrechen...	0	2023032...	2023-03-20T00:00:00.000
Rhiannon Hoyle,3141	Rhiannon Hoyle	3141	<a href="https://www...">https://www...</a>	Independent Audit Identifies Rio Ti...	2023032...	Unternehmen_Ene...	Korruption_Verbrechen...	0	2023032...	2023-03-20T00:00:00.000
Kellie Parker,2726	Kellie Parker	2726	<a href="https://www...">https://www...</a>	Independent Audit Identifies Rio Ti...	2023032...	Unternehmen_Ene...	Korruption_Verbrechen...	0	2023032...	2023-03-20T00:00:00.000
Hassan Imran,1144	Hassan Imran	1144	<a href="https://gl...">https://gl...</a>	US sowed 20 years of misery	2023032...	Krieg_Krisen	Syrien_Irak_IS	0	2023032...	2023-03-20T00:15:00.000
Kofi Annan,1002	Kofi Annan	1002	<a href="https://gl...">https://gl...</a>	US sowed 20 years of misery	2023032...	Krieg_Krisen	Syrien_Irak_IS	0	2023032...	2023-03-20T00:15:00.000
Saddam Hussein,95	Saddam Hussein	95	<a href="https://gl...">https://gl...</a>	US sowed 20 years of misery	2023032...	Krieg_Krisen	Syrien_Irak_IS	0	2023032...	2023-03-20T00:15:00.000
Saddam Hussein,5226	Saddam Hussein	5226	<a href="https://gl...">https://gl...</a>	US sowed 20 years of misery	2023032...	Krieg_Krisen	Syrien_Irak_IS	0	2023032...	2023-03-20T00:15:00.000
Muntazer Al-Zaidi,5853	Muntazer Al-Zaidi	5853	<a href="https://gl...">https://gl...</a>	US sowed 20 years of misery	2023032...	Krieg_Krisen	Syrien_Irak_IS	0	2023032...	2023-03-20T00:15:00.000
Firdous Square,156	Firdous Square	156	<a href="https://gl...">https://gl...</a>	US sowed 20 years of misery	2023032...	Krieg_Krisen	Syrien_Irak_IS	0	2023032...	2023-03-20T00:15:00.000
Ahmad Ghouri,4574	Ahmad Ghouri	4574	<a href="https://gl...">https://gl...</a>	US sowed 20 years of misery	2023032...	Krieg_Krisen	Syrien_Irak_IS	0	2023032...	2023-03-20T00:15:00.000
Arhama Siddiqा,3228	Arhama Siddiqा	3228	<a href="https://gl...">https://gl...</a>	US sowed 20 years of misery	2023032...	Krieg_Krisen	Syrien_Irak_IS	0	2023032...	2023-03-20T00:15:00.000
Michael Henry,2560	Michael Henry	2560	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
John McGuigan,2480	John McGuigan	2480	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,227	Letitia James	227	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,1236	Letitia James	1236	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,1420	Letitia James	1420	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
John McGuigan,2480	John McGuigan	2480	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,4420	Letitia James	4420	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,4569	Letitia James	4569	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,4718	Letitia James	4718	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Michael Henry,2560	Michael Henry	2560	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,4718	Letitia James	4718	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,2955	Letitia James	2955	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,4569	Letitia James	4569	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,4420	Letitia James	4420	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,1420	Letitia James	1420	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,1236	Letitia James	1236	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,227	Letitia James	227	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Letitia James,2955	Letitia James	2955	<a href="https://w...">https://w...</a>	Drag story hour protester is arreste...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke	0	2023032...	2023-03-20T00:15:00.000
Michael Cohen,30	Michael Cohen	30	<a href="https://w...">https://w...</a>	Testimony could discredit key witne...	2023032...	US_Internal	Fokus_Trump	0	2023032...	2023-03-20T00:15:00.000
Rudy Giuliani,4005	Rudy Giuliani	4005	<a href="https://w...">https://w...</a>	Testimony could discredit key witne...	2023032...	US_Internal	Fokus_Trump	0	2023032...	2023-03-20T00:15:00.000
Robert Costello,774	Robert Costello	774	<a href="https://w...">https://w...</a>	Testimony could discredit key witne...	2023032...	US_Internal	Fokus_Trump	0	2023032...	2023-03-20T00:15:00.000
Alvin Bragg,361	Alvin Bragg	361	<a href="https://w...">https://w...</a>	Testimony could discredit key witne...	2023032...	US_Internal	Fokus_Trump	0	2023032...	2023-03-20T00:15:00.000
Donald Trump,142	Donald Trump	142	<a href="https://w...">https://w...</a>	Testimony could discredit key witne...	2023032...	US_Internal	Fokus_Trump	0	2023032...	2023-03-20T00:15:00.000

# PART VI

## Visualization and Dashboards

V2LO...	V2LOCATIONS_Location_FullName	V2LO...	V2LO...	V2LO...	V2LOCATIONS_Latitude	V2LOCATIONS_Longitude	V2LO...	V2LO...	Identifi...	Title	GKGR...	Level_1_Topic	Level_2_Topic
1	China	CH	CH	CH	35	105	CH	1280	<a href="https://w...">https://w...</a>	Report explores origins of pre...	2023032...	Makroökonomie...	China_Ostasien
1	China	CH	CH	CH	35	105	CH	914	<a href="https://w...">https://w...</a>	Report explores origins of pre...	2023032...	Makroökonomie...	China_Ostasien
1	China	CH	CH	CH	35	105	CH	123	<a href="https://w...">https://w...</a>	Report explores origins of pre...	2023032...	Makroökonomie...	China_Ostasien
5	Fujian, Fujian, China	CH	CH07	13011	26.545	117.843	-1905684	72	<a href="https://w...">https://w...</a>	Report explores origins of pre...	2023032...	Makroökonomie...	China_Ostasien
1	China	CH	CH	CH	35	105	CH	198	<a href="https://w...">https://w...</a>	Report explores origins of pre...	2023032...	Makroökonomie...	China_Ostasien
1	China	CH	CH	CH	35	105	CH	402	<a href="https://w...">https://w...</a>	Report explores origins of pre...	2023032...	Makroökonomie...	China_Ostasien
2	New Jersey, United States	US	USNJ		40.314	-74.5089	NJ	2494	<a href="https://w...">https://w...</a>	Drag story hour protester is ar...	2023032...	Krieg_Krisen	Kriminalitaet_Unglu...
2	New York, United States	US	USNY		42.1497	-74.9384	NY	2801	<a href="https://w...">https://w...</a>	Drag story hour protester is ar...	2023032...	Krieg_Krisen	Kriminalitaet_Unglu...
2	New York, United States	US	USNY		42.1497	-74.9384	NY	2520	<a href="https://w...">https://w...</a>	Drag story hour protester is ar...	2023032...	Krieg_Krisen	Kriminalitaet_Unglu...
2	New York, United States	US	USNY		42.1497	-74.9384	NY	555	<a href="https://w...">https://w...</a>	Drag story hour protester is ar...	2023032...	Krieg_Krisen	Kriminalitaet_Unglu...
2	New York, United States	US	USNY		42.1497	-74.9384	NY	126	<a href="https://w...">https://w...</a>	Drag story hour protester is ar...	2023032...	Krieg_Krisen	Kriminalitaet_Unglu...
3	Greenwich Village, New York, United States	US	USNY	NY061	40.7284	-74.0029	951781	1477	<a href="https://w...">https://w...</a>	Drag story hour protester is ar...	2023032...	Krieg_Krisen	Kriminalitaet_Unglu...
3	Greenwich Village, New York, United States	US	USNY	NY061	40.7284	-74.0029	951781	1293	<a href="https://w...">https://w...</a>	Drag story hour protester is ar...	2023032...	Krieg_Krisen	Kriminalitaet_Unglu...
3	Greenwich Village, New York, United States	US	USNY	NY061	40.7284	-74.0029	951781	300	<a href="https://w...">https://w...</a>	Drag story hour protester is ar...	2023032...	Krieg_Krisen	Kriminalitaet_Unglu...
3	Manhattan, New York, United States	US	USNY	NY061	40.7834	-73.9662	971945	2235	<a href="https://w...">https://w...</a>	Testimony could discredit key ...	2023032...	US_Inter	Fokus_Trump
2	New York, United States	US	USNY		42.1497	-74.9384	NY	8	<a href="https://w...">https://w...</a>	Testimony could discredit key ...	2023032...	US_Inter	Fokus_Trump
3	Manhattan, New York, United States	US	USNY	NY061	40.7834	-73.9662	971945	316	<a href="https://w...">https://w...</a>	Testimony could discredit key ...	2023032...	US_Inter	Fokus_Trump
3	Manhattan, New York, United States	US	USNY	NY061	40.7834	-73.9662	971945	1382	<a href="https://w...">https://w...</a>	Testimony could discredit key ...	2023032...	US_Inter	Fokus_Trump
3	Manhattan, New York, United States	US	USNY	NY061	40.7834	-73.9662	971945	4908	<a href="https://w...">https://w...</a>	Testimony could discredit key ...	2023032...	US_Inter	Fokus_Trump
3	Manhattan, New York, United States	US	USNY	NY061	40.7834	-73.9662	971945	870	<a href="https://w...">https://w...</a>	Testimony could discredit key ...	2023032...	US_Inter	Fokus_Trump
1	Russian	RS	RS		60	100	RS	3605	<a href="https://w...">https://w...</a>	Testimony could discredit key ...	2023032...	US_Inter	Fokus_Trump
3	White House, District Of Columbia, United St...	US	USDC	DC001	38.8951	-77.0364	531871	3487	<a href="https://w...">https://w...</a>	Testimony could discredit key ...	2023032...	US_Inter	Fokus_Trump
3	White House, District Of Columbia, United St...	US	USDC	DC001	38.8951	-77.0364	531871	4250	<a href="https://w...">https://w...</a>	Testimony could discredit key ...	2023032...	US_Inter	Fokus_Trump
3	Manhattan, New York, United States	US	USNY	NY061	40.7834	-73.9662	971945	5542	<a href="https://w...">https://w...</a>	Testimony could discredit key ...	2023032...	US_Inter	Fokus_Trump
2	New York, United States	US	USNY		42.1497	-74.9384	NY	995	<a href="https://w...">https://w...</a>	Testimony could discredit key ...	2023032...	US_Inter	Fokus_Trump
4	Rome, Lazio, Italy	IT	IT07	18350	41.9	12.4833	-126693	1239	<a href="https://a...">https://a...</a>	Pope Benedict XVI's aide ackn...	2023032...	Krieg_Krisen	Korruption_Verbrec...
4	Rome, Lazio, Italy	IT	IT07	18350	41.9	12.4833	-126693	4	<a href="https://a...">https://a...</a>	Pope Benedict XVI's aide ackn...	2023032...	Krieg_Krisen	Korruption_Verbrec...
3	Manhattan, New York, United States	US	USNY	NY061	40.7834	-73.9662	971945	326	<a href="https://w...">https://w...</a>	Gammeeok restaurant closed ...	2023032...	Krieg_Krisen	Kriminalitaet_Unglu...
2	New York, United States	US	USNY		42.1497	-74.9384	NY	1243	<a href="https://w...">https://w...</a>	Gammeeok restaurant closed ...	2023032...	Krieg_Krisen	Kriminalitaet_Unglu...
3	Manhattan, New York, United States	US	USNY	NY061	40.7834	-73.9662	971945	980	<a href="https://w...">https://w...</a>	Gammeeok restaurant closed ...	2023032...	Krieg_Krisen	Kriminalitaet_Unglu...
3	Manhattan, New York, United States	US	USNY	NY061	40.7834	-73.9662	971945	1163	<a href="https://w...">https://w...</a>	Gammeeok restaurant closed ...	2023032...	Krieg_Krisen	Kriminalitaet_Unglu...
2	New York, United States	US	USNY		42.1497	-74.9384	NY	107	<a href="https://w...">https://w...</a>	Gammeeok restaurant closed ...	2023032...	Krieg_Krisen	Kriminalitaet_Unglu...

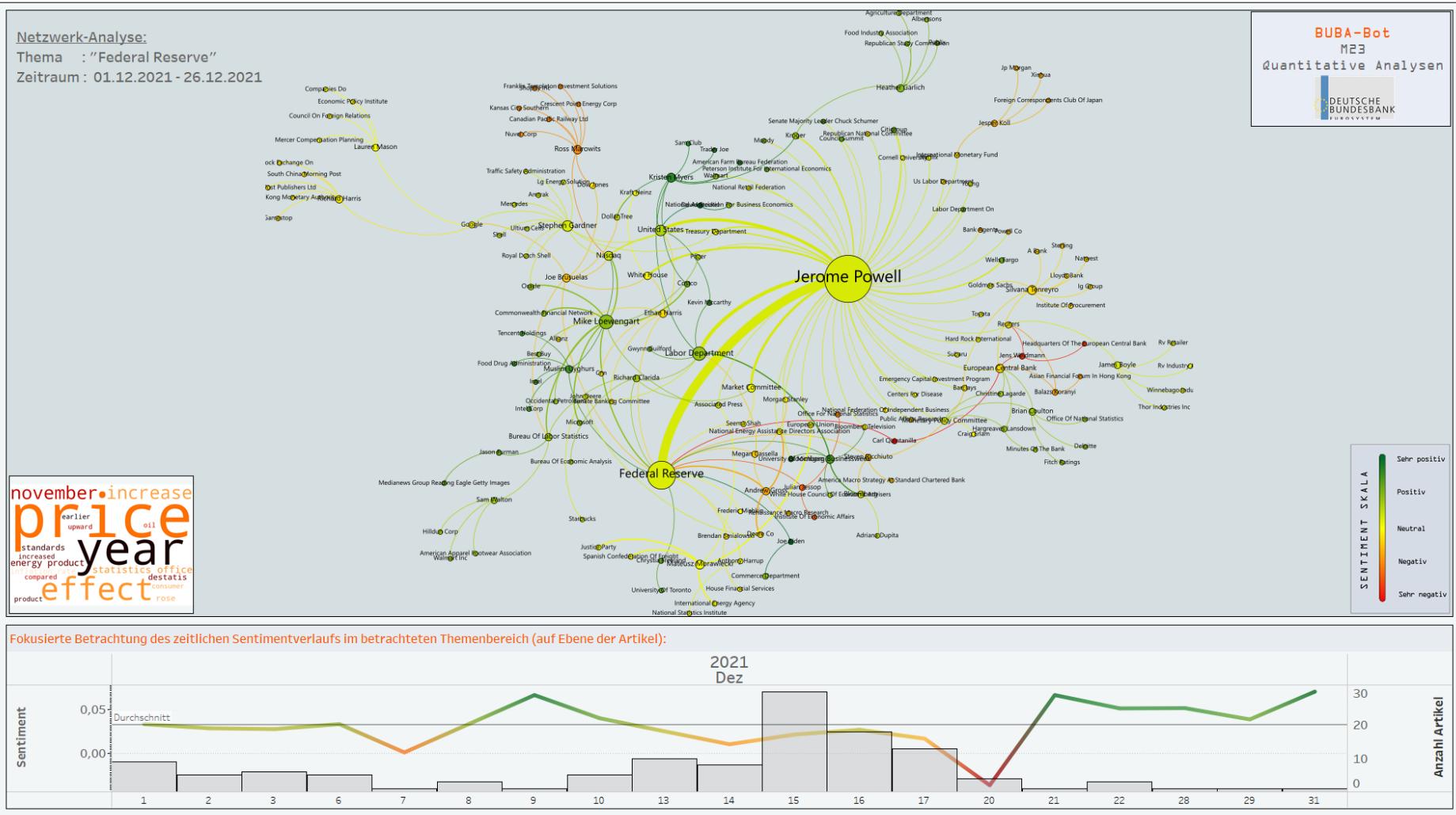
# PART VI

## Visualization and Dashboards

Organization...	Organization_Name	Position	Identifi...	Titel	GKGR...	Level_1_Topic	Level_2_Topic
Credit Suisse,4294	Credit Suisse	4294	<a href="https://w...">https://w...</a>	Why \$17 Billion&#xA0;in Credit Suisse 'CoCo...	2023032...	Unternehmen_Energie	Unternehmensreporte
Credit Suisse Gr...	Credit Suisse Group	4367	<a href="https://w...">https://w...</a>	Why \$17 Billion&#xA0;in Credit Suisse 'CoCo...	2023032...	Unternehmen_Energie	Unternehmensreporte
Credit Suisse,167	Credit Suisse	167	<a href="https://w...">https://w...</a>	Why \$17 Billion&#xA0;in Credit Suisse 'CoCo...	2023032...	Unternehmen_Energie	Unternehmensreporte
Credit Suisse,608	Credit Suisse	608	<a href="https://w...">https://w...</a>	Why \$17 Billion&#xA0;in Credit Suisse 'CoCo...	2023032...	Unternehmen_Energie	Unternehmensreporte
Credit Suisse Gr...	Credit Suisse Group	4300	<a href="https://w...">https://w...</a>	Why \$17 Billion&#xA0;in Credit Suisse 'CoCo...	2023032...	Unternehmen_Energie	Unternehmensreporte
Credit Suisse,2762	Credit Suisse	2762	<a href="https://w...">https://w...</a>	Why \$17 Billion&#xA0;in Credit Suisse 'CoCo...	2023032...	Unternehmen_Energie	Unternehmensreporte
Credit Suisse,2817	Credit Suisse	2817	<a href="https://w...">https://w...</a>	Why \$17 Billion&#xA0;in Credit Suisse 'CoCo...	2023032...	Unternehmen_Energie	Unternehmensreporte
Credit Suisse,3555	Credit Suisse	3555	<a href="https://w...">https://w...</a>	Why \$17 Billion&#xA0;in Credit Suisse 'CoCo...	2023032...	Unternehmen_Energie	Unternehmensreporte
Credit Suisse,3783	Credit Suisse	3783	<a href="https://w...">https://w...</a>	Why \$17 Billion&#xA0;in Credit Suisse 'CoCo...	2023032...	Unternehmen_Energie	Unternehmensreporte
Credit Suisse,1807	Credit Suisse	1807	<a href="https://w...">https://w...</a>	Why \$17 Billion&#xA0;in Credit Suisse 'CoCo...	2023032...	Unternehmen_Energie	Unternehmensreporte
Associated Press...	Associated Press	1963	<a href="https://gl...">https://gl...</a>	Pension reform spirals into crisis for Macron	2023032...	Geopolitik	Politische_Unruhen
Republicans Part...	Republicans Party	1900	<a href="https://gl...">https://gl...</a>	Pension reform spirals into crisis for Macron	2023032...	Geopolitik	Politische_Unruhen
Leaders Of The ...	Leaders Of The Republicans Party	3127	<a href="https://gl...">https://gl...</a>	Pension reform spirals into crisis for Macron	2023032...	Geopolitik	Politische_Unruhen
National Assem...	National Assembly	825	<a href="https://gl...">https://gl...</a>	Pension reform spirals into crisis for Macron	2023032...	Geopolitik	Politische_Unruhen
National Assem...	National Assembly	1492	<a href="https://gl...">https://gl...</a>	Pension reform spirals into crisis for Macron	2023032...	Geopolitik	Politische_Unruhen
National Assem...	National Assembly	2205	<a href="https://gl...">https://gl...</a>	Pension reform spirals into crisis for Macron	2023032...	Geopolitik	Politische_Unruhen
Republicans Part...	Republicans Party	3127	<a href="https://gl...">https://gl...</a>	Pension reform spirals into crisis for Macron	2023032...	Geopolitik	Politische_Unruhen
Facebook,2702	Facebook	2702	<a href="https://w...">https://w...</a>	Sydney man Dilor Yeretzian fights for life in B...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke
Mcdonald,419	Mcdonald	419	<a href="https://w...">https://w...</a>	Sydney man Dilor Yeretzian fights for life in B...	2023032...	Krieg_Krisen	Kriminalitaet_Ungluecke
European Court,...	European Court	1620	<a href="https://w...">https://w...</a>	DAILY MAIL COMMENT: Gray areas undermin...	2023032...	EU_Intern	UK
Agriculture Orga...	Agriculture Organization Of The Unit...	883	<a href="http://eu...">http://eu...</a>	Ancient way sowing success	2023032...	Geopolitik	China_Ostasien
United States,32...	United States	3273	<a href="http://eu...">http://eu...</a>	Belt and Road promoting common develop...	2023032...	Geopolitik	China_Ostasien
Development Ba...	Development Bank	3783	<a href="http://eu...">http://eu...</a>	Belt and Road promoting common develop...	2023032...	Geopolitik	China_Ostasien

# PART VI

## Visualization and Dashboards



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# PART VI

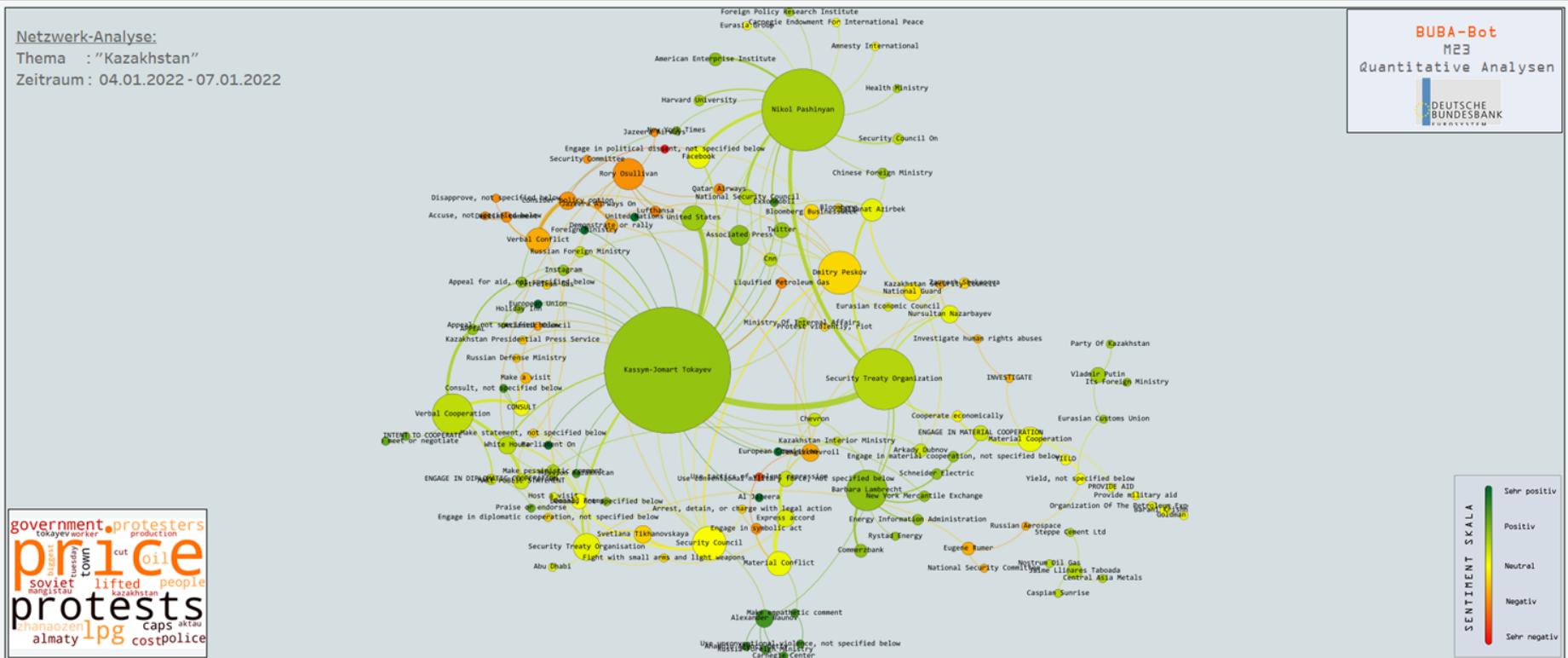
## Visualization and Dashboards

Netzwerk-Analyse:

Thema : "Kazakhstan"

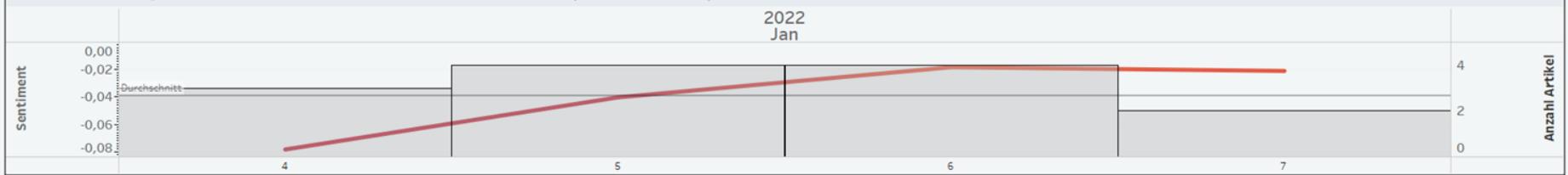
Zeitraum : 04.01.2022 - 07.01.2022

BUBA-Bot  
M23  
Quantitative Analysen  
DEUTSCHE  
BUNDES BANK  
Deutschland



government protesters  
protests  
price  
oil  
soviet  
mangistau  
zhaozen  
almaty  
town  
lpg  
cost  
police  
people  
lifted

Fokussierte Betrachtung des zeitlichen Sentimentverlaufs im betrachteten Themenbereich (auf Ebene der Artikel):

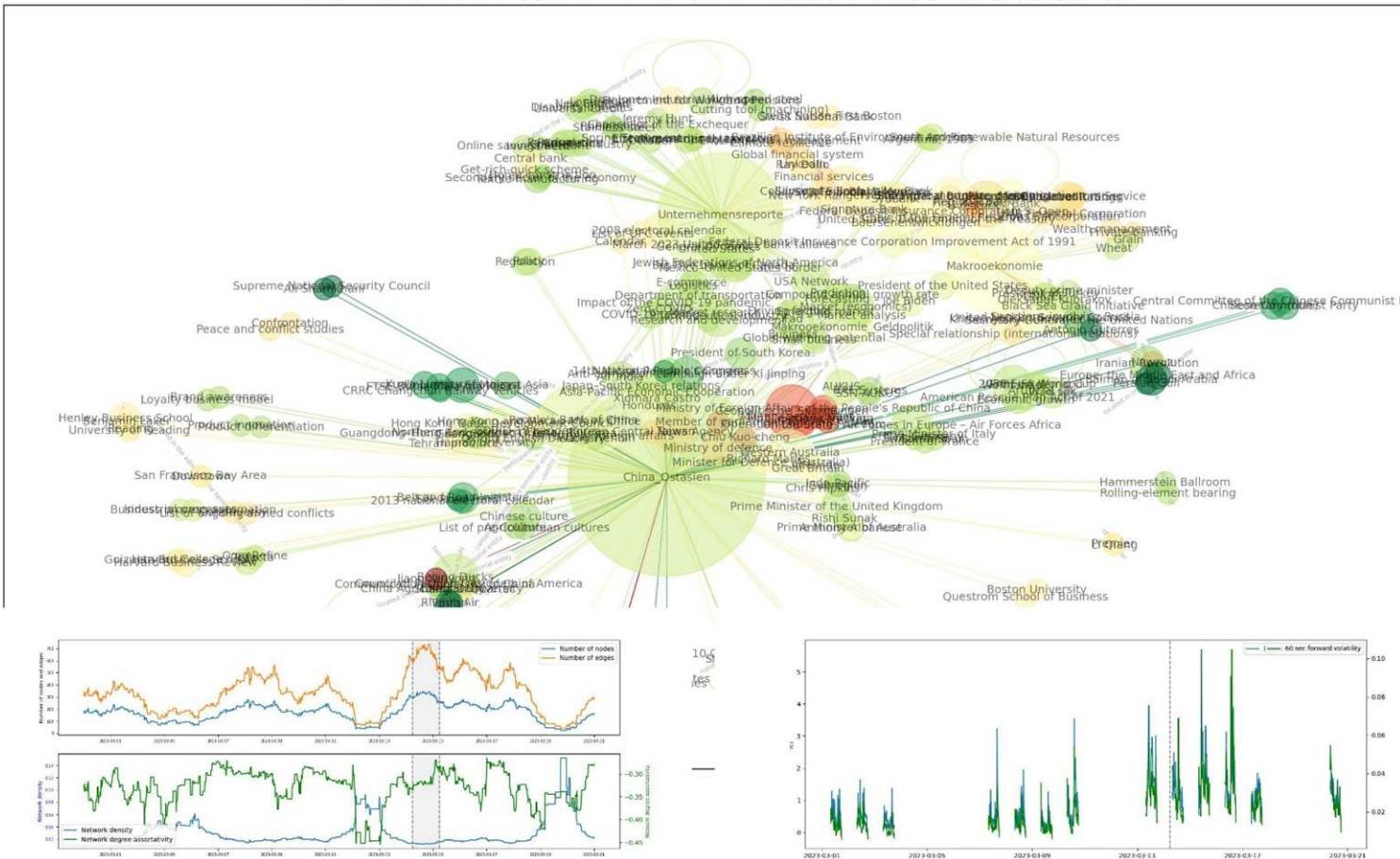


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# PART VI

# Visualization and Dashboards

Graph 1 - Main data sample  
Time: 2023-03-14 06:00 - 2023-03-15 06:00 Number of articles: 43



# PART I

## BUBA-Bot as an integral part of the BUBA-Insight system

Quick-FCI: Market status German Gov Bond Futures   Quick-FCI: Market status FR and IT Gov Bond Futures   Quick-FCI: Market status German DAX Future   [The segments of the future market for European government bonds](#)   Quantifying market episodes & turbulences   Information about the BUBA-Tick System

### The segments of the future market for European government bonds.

Please select the start and end points for the data set. Then press "Generate Graphs".

Please select the starting date for the graph  
2023/01/01

Please select the end date for the graph  
2023/06/06

Please select the future contract categories that should be displayed:  
 DE\_10Y    DE\_2Y    DE\_5Y    DE\_30Y    DAX    IT\_10Y    FR\_10Y

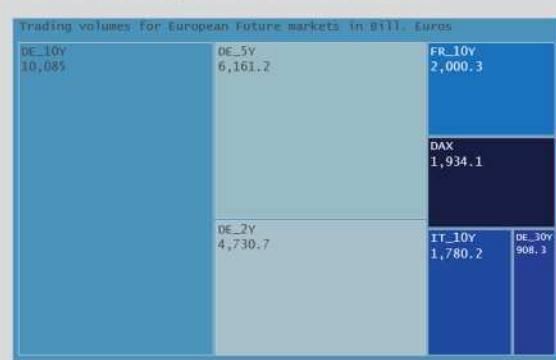
Generate Graphs

Euro denom. trading volumes for European Future markets from 2023-01-01 till 2023-06-06

Trading volumes for European Future markets in B(M) Euro

Contract	Value
DE_10Y	10,085
DE_5Y	6,161.2
FR_10Y	2,000.3
DAX	1,934.1
DE_2Y	4,730.7
IT_10Y	1,780.2
DE_30Y	908.3

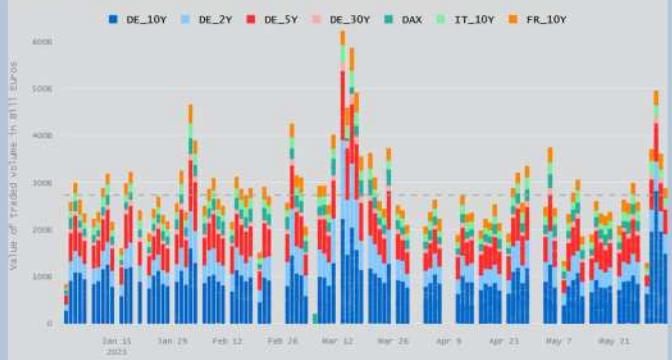
Avg\_FCI



You can now download the filtered data if you wish.  
[Download data as CSV](#)

Euro denom. trading volumes for European future markets from 2023-01-01 till 2023-06-06

Value of traded volume in B(M) Euro



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# PART I

## BUBA-Bot as an integral part of the BUBA-Insight system

CHART B: Tick & Vola for DE\_2Y Futures on 2023-03-17

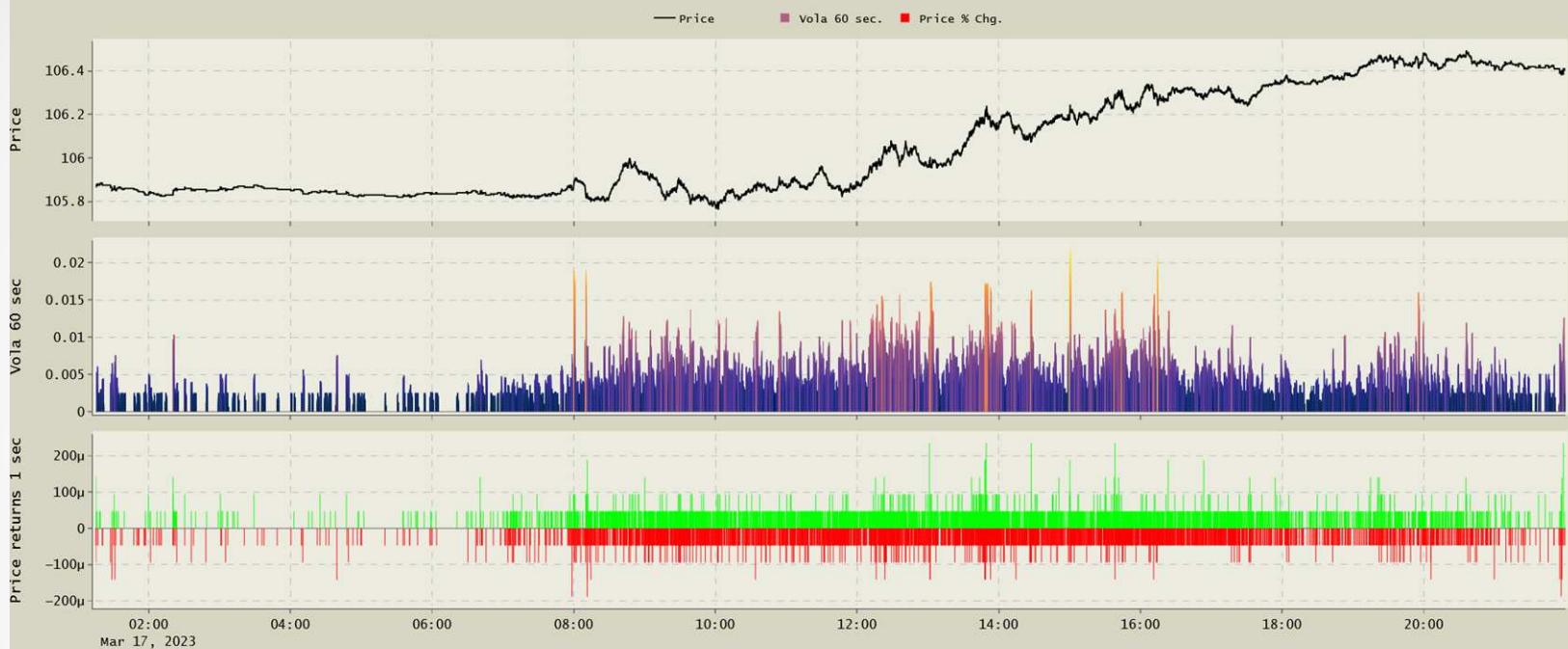
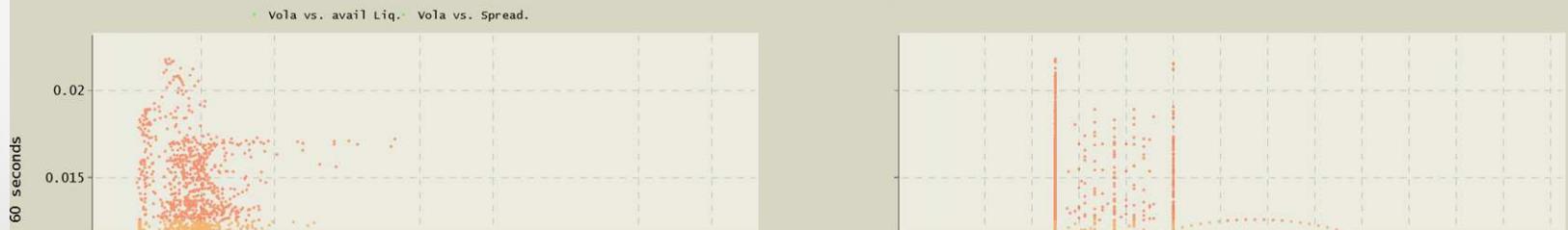
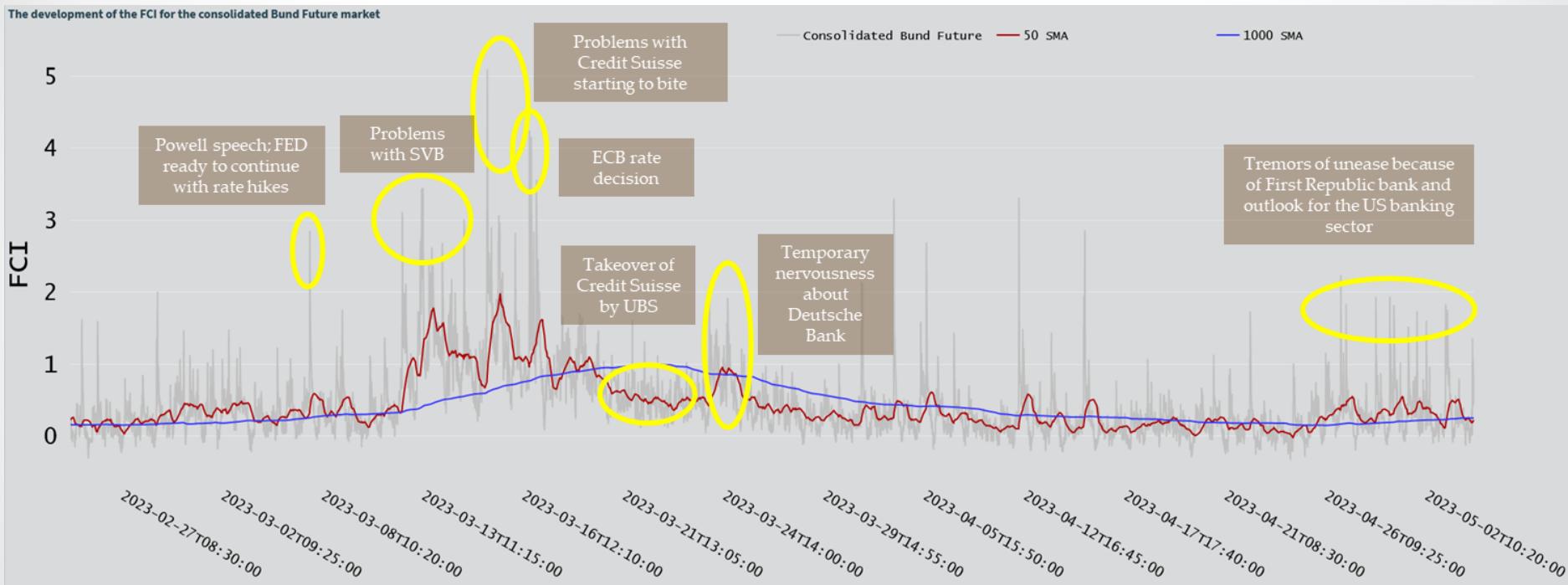


CHART C-2: Past 60 sec Volatility vs. avail. liquidity and Spreads for DE\_2Y Futures on 2023-03-17



# PART I

## BUBA-Bot as an integral part of the BUBA-Insight system



# PART I

## BUBA-GPT

Please select the starting date for the sample selection

2023/03/15

Please select the end date for the sample selection

2023/03/20

MAIN TOPICS: Please select the level 1 topics that should be considered for the talk:

Makroökonomi... x

Total number of articles in the sample after filtering for topic level 1: 523

DETAILED TOPICS: Please select the level 2 topics that should be considered for the talk:

Unternehmensr... x Kriminalität\_U... x Korruption\_Verb... x US\_Intern x Welthandel x Fokus\_Trump x China\_Ostasien x Energie\_Oel\_Ro... x Naher\_Osten x Terror\_Anschläge x Makroökonomie x Katastrophen\_U... x Geopolitische\_S... x  
Klimawandel x US\_Wahlkampf x EU\_Wirtschaft\_J... x Politische\_Unnu... x Syrien\_Irak\_IS x Nordkorea x Luftfahrt x UK x Iran x Politische\_Wahlen x Geldpolitik x Boersenentwickl... x Italien x EU-UK\_Brexit x

Total number of articles in the sample after filtering for topic level 2: 523

SOURCES: Please select the news agencies that should enter the sample selection:

msn.com x asahi.com x chinadaily.com.cn x washingtonpost... x washingtontime... x usatoday.com x apnews.com x marketwatch.com x theguardian.com x dailymail.co.uk x

Total number of articles in the sample after filtering for sources: 523

WEEKDAYS: Please select the weekdays that should enter the sample selection:

Montag x Dienstag x Mittwoch x Donnerstag x Freitag x

Total number of articles in the sample after filtering for weekdays: 461

OPTIONAL: Article title contains:

ECB

Only contains or exact match?

Exact match  
 Contains

Filtering the data to select only article headlines containing ECB

The final sample has 8 with an exact match of 'ECB' in the headline.

Index	Unnamed: 0	GDELT_Date	GKGRECORDID	SourceCommonName	TranslationInfo	title	len_title	creation_date	lat_tz_clean	Location_0	Location_1	Location_2	Location_3	GDELT.Date_Time	GDELT.Time	word_count_bt_clean
0	67138	2692135	2023-03-17	20230317121500-899	chinadaily.com.cn	0 ECB raises interest rates by another 50 bps	43	2023-03-17	972	GM	<NA>	<NA>	<NA>	2023-03-17	12:15:00	125
1	68630	2690842	2023-03-16	20230317004500-1000	dailymail.co.uk	0 Defiant ECB powers on with 0.5% rate hike despite financial market turmoil	79	2023-03-16	1350	US	SZ	UK	<NA>	2023-03-16	00:45:00	197
2	68724	2690936	2023-03-16	20230316140000-304	marketwatch.com	0 U.S. stocks open lower after jobless claims data, ECB decision	62	2023-03-16	628	<NA>	<NA>	<NA>	<NA>	2023-03-16	14:00:00	90
3	69079	2691291	2023-03-16	20230317004500-1056	dailymail.co.uk	0 MARKET REPORT: Roller-coaster ride for investors as ECB hikes interest rate	75	2023-03-16	2677	IT	UK	EI	FR	2023-03-16	00:45:00	405
4	69152	2691364	2023-03-16	20230316151500-807	marketwatch.com	0 Why ECB looked past Credit Suisse drama to deliver another supersize rate hike	78	2023-03-16	2518	<NA>	<NA>	<NA>	<NA>	2023-03-16	15:15:00	345
5	69234	2691446	2023-03-16	20230316210000-1593	marketwatch.com	0 Fed likely to follow ECB's playbook and hike interest rates next week	69	2023-03-16	2858	<NA>	<NA>	<NA>	<NA>	2023-03-16	21:00:00	409
6	69648	2691860	2023-03-16	20230316103000-1137	marketwatch.com	0 Treasury yields move higher as Credit Suisse tensions ease and traders eye ECB rate decision	92	2023-03-16	2083	SZ	<NA>	<NA>	<NA>	2023-03-16	10:30:00	292
7	70060	2689053	2023-03-15	20230315133000-838	marketwatch.com	0 ECB to Raise Rate. Unlike the Fed, the Banking Crisis Won't Raise Doubts.	73	2023-03-15	1951	<NA>	<NA>	<NA>	<NA>	2023-03-15	13:30:00	271



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# PART I

## BUBA-GPT

Chat with BUBA-GPT about recent news and events [Sitting down for a talk with ChatGPT](#)

The final sample has 3 articles.

title
0 ECB raises interest rates by another 50 bps
1 Defiant ECB powers on with 0.5% rate hike despite financial market tur...
2 U.S. stocks open lower after jobless claims data, ECB decision

The selected articles have been prepared for usage with GPT!

Lets start a talk with BubaGPT!

The chat history of Rafael Zajonz so far is:

Why did the ECB hike the interest rates? And wa..

The ECB hiked interest rates to bring down infl..

Why did the ECB hike the interest rates? And wa..

The ECB hiked interest rates to bring down infl..

And the US central bank? What is their current position on interest rates

The passage does not provide information about the current position of the US central bank on  
interest rates

Counter: 2

Enter your input here

So the current problems in the banking sector were no deterrent for the ECB to hike rates?

BubaGPT: The ECB went ahead with a rate hike despite financial market turmoil and concerns about the strength of the banking system, with ECB chief Christine Lagarde insisting there could be no "trade-off" between fighting inflation and financial stability. However, some analysts expected the ECB to turn more dovish and hint at a slowdown in the pace and size of further hikes.



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# PART I

## BUBA-GPT

The next step: Run our own local BUBA-GPT LLM machine without the need for OpenAI or other external services.

- Sensitive data is NOT leaving the house
  - Much larger scope for using the AI for new research topics and ideas
  - Doesn't generate a large bill to pay for token usage.
- 
- Current prototype of BUBA-GPT is locally running even on a single PC with good performance.
  - Highly flexible in the use of different AI models. Download and change new AI models in seconds.

```
✓ role_1 = "assistant" ...  
  
✓ message_content = Info_text_part_2 + " " + "How do the leading central banks in the world see the potential and the problems of stablecoins?" ...  
  
### Instruction:  
The prompt below is a question to answer, a task to complete, or a conversation  
to respond to; decide which and write an appropriate response.  
  
### Prompt:  
### Response: Pretend to be an economist. Answer short and informative How do the leading central banks in the world see the potential and the problems of stablecoins?  
### Response:  
As an economist, I would say that stablecoins are a relatively new and emerging asset class that has the potential to disrupt traditional financial systems. However, there are also several challenges and
```

