



Data Science in Business 2

Overview and project

08.10.2024: 13:00-15:00, Andrea

15.10.2024: 13:00-15:00, Andrea/Forian

22.10.2024: 13:00-15:00, Forian

29.10.2024: 13:00-15:00 Tomislav

05.11.2024: 13:00-15:00 Tomislav

12.11.2024: 13:00-15:00 Florian

19.11.2024: 13:00-15:00 Tomislav

26.11.2024: 13:00-15:00 Tomislav

03.12.2024: 13:00-15:00 Andrea/Tomislav

(Exercises)

10.12.2024 13:00-15:00 Presentations (Andrea and Tomislav)

Team



Andrea Schertler
Professor of Finance and
Business Analytics



Florian Stöckler
University Assistant at
the Institute of Banking
and Finance



Tomislav Duricic
University Assistant at
the Institute of Interactive
Systems and Data Science



Content

1. Prices and information in capital markets

- What does information efficiency mean?
- Price implications of selected corporate policies
- Models to predict stock returns
- Data sources for security prices

2. Text analysis

- Data acquisition
- Text extraction and cleanup
- Pre-processing
- Feature engineering
- Modeling and evaluation


3. Project presentation

Stock-price relevant company news


TECH

Amazon announces 20-for-1 stock split, \$10 billion buyback

PUBLISHED WED, MAR 9 2022 4:42 PM EST | UPDATED THU, MAR 10 2022 6:59 AM EST



C.E.O. Fired Over a Relationship ...
nytimes.com



Deutsche Bank to Raise Extra \$8.5Bln in Capital to Keep Market Share

SPUTNIK

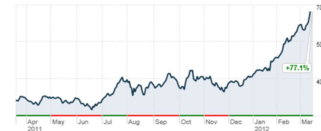
TECHNOLOGY NEWS FEBRUARY 14, 2020 / 3:58 AM / 2 MONTHS AGO

Tesla to recall 3,183 Model X vehicles in China: market regulator

Apple announces dividend and stock buyback

By David Goldman @CNRMoneyTech March 19, 2012 4:23 PM ET

Apple Inc.



<https://www.capital.de/wirtschaft-politik/fusion-von-deutscher-bank-und-commerzbank-ist-geschleiert>



Two important questions

- When will investors include the new information into the stock price?
- How much will the stock price increase or decrease?



<https://www.capital.de/wirtschaft-politik/fusion-von-deutscher-bank-und-commerzbank-ist-gescheitert>

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DELIVERIES AND GRADING

	Assignment 1	Assignment 2
Deliveries	a. Data, program files, ... to reproduce your results b. Report with your research results (1500 words) c. Oral presentation	a. Hand-written solutions to exercises b. Oral contributions to discussions
Hand-in date	November 28, 2024	
Grade weight	60%	20%+20%

Important hints:

- Students can work in teams of two students
- You are not allowed to use installed program packages to calculate abnormal returns



Literature

Text Analysis

- Vajjala, S., Majumder, B., Gupta, A., & Surana, H. (2020). Practical natural language processing: a comprehensive guide to building real-world NLP systems. O'Reilly Media.
- Bird, S., Klein, E., & Loper, E. (2009). *Natural language processing with Python: analyzing text with the natural language toolkit*. " O'Reilly Media, Inc."
- Tunstall, L., von Werra, L., & Wolf, T. (2022). *Natural language processing with transformers*. " O'Reilly Media, Inc."

Corporate Finance Policies

- Berk and DeMarzo, Corporate Finance, Global Edition.
Especially part V