

Identifying Corporate Sociopolitical Activism in Corporate Twitter Posts

Overview

Corporate Sociopolitical Activism (CSA) – the action of companies to publicly express support for or in opposition to one side of a partisan debate – is associated with risks and benefits. In a recent study, Bhagwat et al. (2020) study the short-term reaction of investors a small sample of CSA events. To gain more conclusive insights, it is necessary to study continuous CSA engagement and not merely a small subset of announcements (events) in press notifications.

The aim of this thesis is to quantify corporate CSA engagement over time. This thesis should hence come up with a way to reliably classify Twitter posts into those containing CSA positions and other topics. We provide you with a dataset of several million Tweets by all S&P500 companies with corporate accounts. One way of achieving the thesis objective would be to tune sentence/text embeddings for the specific texts and thereby improve the performance of a pertained model. You will report your key findings with the help of descriptive plots and statistics.

Requirements

- Strong analytical toolkit (e.g. R)
- Initial knowledge of NLP approaches preferable

Language

English

Literature

Bhagwat, Y., Warren, N. L., Beck, J. T., Watson, G. F. (2020), "Corporate Sociopolitical Activism and Firm Value", *Journal of Marketing* 84 (5): 1–21, <https://doi.org/10.1177/0022242920937000>.

Hydock, C., Paharia, N., Blair, S. "Should Your Brand Pick a Side? How Market Share Determines the Impact of Corporate Political Advocacy." *Journal of Marketing Research* 57, no. 6 (December 1, 2020): 1135–51. <https://doi.org/10.1177/0022243720947682>.

Reimers, N. "Training Overview — Sentence-Transformers Documentation." *Sentence Transformers*. Accessed August 4, 2021. <https://www.sbert.net/docs/training/overview.html>.

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Companies' Focus on User Privacy: Cheap Talk or Actual Behavior?

Overview

Tech Companies like Apple or Google increasingly emphasize, that they care about user privacy and started to focus on protecting user privacy in their communications. Apple even used “privacy protection” as an advertising claim to promote the iPhone in 2020 (<https://www.youtube.com/watch?v=-l61NE0eqkw>). The question thereby is, does this focus translates into actual behavior, or is it only cheap talk?

This master thesis' goal is to investigate differences in tech companies' focus on user privacy by analyzing the communication of leading tech companies, e.g., to investors (e.g., annual reports, SEC filings) and/ or to users (e.g., social media posts, Twitter posts) and compare this focus with their actual behavior (e.g., data breaches, privacy complaints or technical innovations). The vision of the thesis is to provide knowledge to the public about how companies differ in their focus on user privacy and how credible companies are concerning their focus on user privacy.

Requirements

- Programming skills with programs like R or Python
- High interest in web scrapping
- High interest in text mining

Language

German / English

Literature

Ayyagari, R. (2012), "An Exploratory Analysis of Data Breaches from 2005-2011: Trends and Insights", *Journal of Information Privacy and Security*, 8 (2), 33-56.

Berger, J. / Humphreys, A. / Ludwig, S. / Moe, W. W. / Netzer, O. / Schweidel, D. A. (2020), "Uniting the Tribes: Using Text for Marketing Insight.", *Journal of Marketing*, 84 (1), 1–25.

Boroomand, F. / Leiponen, A. / Singh, G. V. (2020), "Discovering Firms' Data Strategies: A Topic Modelling Approach", Available as presentation at Youtube: <https://www.youtube.com/watch?v=gXXFcsuF2i8&feature=youtu.be> (accessed 18.02.21)

Martin, K. D. / Borah, A. / Palmatier, R. W. (2016), "Data Privacy: Effects on Customer and Firm Performance," *Journal of Marketing*, 81 (1), 36-58.

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Reducing opportunism of workers in the gig economy

Overview

Digital platforms in the gig economy (e.g., Uber, Amazon Mechanical Turk) increasingly use algorithm-based mechanisms to manage workers (Möhlmann et al, 2020). Although algorithmic management is an effective means to assure adequate worker output, it causes worker resistance and opportunism to the employed algorithms (Kellogg et al., 2020). For example, Uber drivers unite to protest against algorithmic management mechanisms or even take legal actions (Jiang et al., 2021).

This thesis should examine how the opportunism by workers against digital platforms in the gig economy could be reduced. For example, it can be compared whether using incentive-based approaches (e.g., more money for “better performers”) versus value based approaches (e.g., enhanced support such as offering training or equipment to loyal participants) are more effective (Eckhardt et al., 2019).

Requirements

- High interest in the topic
- Interest in analytical tasks
- Programming skills in R or Python

Language

German / English

Literature

Eckhardt, G. M., Houston, M. B., Jiang, B., Lamberton, C., Rindfleisch, A., & Zervas, G. (2019). Marketing in the sharing economy. *Journal of Marketing*, 83(5), 5-27.

Jiang, J.; Adam, M.; and Benlian, A., (2021) Algoactivistic practices in ridesharing - A topic modeling & grounded theory approach. *ECIS 2021 Research Papers*.

Kellogg, K. C., Valentine, M. A., & Christin, A. (2020). Algorithms at work: The new contested terrain of control. *Academy of Management Annals*, 14(1), 366-410.

Möhlmann, M., Zalmanson, L., Henfridsson, O., & Gregory, R. W. (2021). Algorithmic management of work on online labor platforms: When matching meets control. *MIS Quarterly*.

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Application of State-of-the-Art Customer-Based Corporate Valuation Models to a Richer Set of Companies

Overview

In recent years sophisticated models for a Customer-based Corporate Valuation (CBCV) have been proposed. The idea of CBCV models is to value a company by first estimating the value of the customer base, achieved by accurately modeling customer acquisition, retention, and spending. In the papers introducing these models, the authors have applied them to a small selection of firms to show how well they work. This raises the question of whether the firms that made it into the paper were chosen because they suited the particular specifications of the models. The models have not been applied to a wider range of companies, such that it is unclear whether there are scenarios where they do not work. The aim of this thesis is to apply state-of-the-art CBCV models to a more representative set of companies. The aims may be achieved via a simulation and empirical study. The results will shine light on the strengths and weaknesses of the current models. Identified weaknesses open up exciting opportunities for future research.

Requirements

- Sufficient Math-skills to be able to understand the statistical models used in the papers
- Sufficient programming skills to be able to program the models either in R or Python

Language

German / English

Literature

McCarthy, D.M., Fader, P.S., Hardie, B.G.S. (2017), "Valuing Subscription-Based Businesses Using Publicly Disclosed Customer Data", *Journal of Marketing* 81(1), 17–35.

McCarthy, D.M., Fader, P.S.,(2018), "Customer-Based Corporate Valuation for Publicly Traded Noncontractual Firms". *Journal of Marketing Research*, 55(5), 617–635.

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What Do IPO Prospectus Reveal about SaaS Firms?

Overview

Along with the development of information technology, an increasing number of Software-as-a-Service (SaaS) firms have been established and gone public. However, there have been only few studies looking at SaaS firms. In particular, it remains to be studied how the business strategy varies across different SaaS firms, and what economic implications the different strategies have.

The aim of the thesis is to develop a measure of the strategical orientation of SaaS firms and to empirically apply this measure. One potential way to proceed is to: (1) collect IPO prospectus of SaaS firms from the Securities and Exchange Commission's (SEC) Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system; (2) measure strategical orientation of interest by either reading through the collected IPO prospectus or analyzing the text using computer-aided textual analysis methods; and (3) investigate whether the different strategical orientations have an influence on firms' financial performance.

Requirements

- High interest in the topic
- Programming skills in R or Python
- Knowledge of econometrics

Language

English

Literature

Berger, J., Humphreys, A., Ludwig, S., Moe, W.W., Netzer, O., Schweidel, D.A. (2020), "Uniting the Tribes: Using Text for Marketing Insight", *Journal of Marketing*, 84(1), 1–25.

Loughran, T., McDonald, B. (2013), "IPO First-Day Returns, Offer Price Revisions, Volatility, and Form S-1 Language", *Journal of Financial Economics*, 109(2), 307–326.

Saboo, A. R., Grewal, R. (2012), "Stock Market Reactions to Customer and Competitor Orientations: The Case of Initial Public Offerings", *Marketing Science*, 32(1), 70–88.

Bellstam, G., Bhagat, S., Cookson, J. A. (2020), "A Text-Based Analysis of Corporate Innovation", *Management Science*.

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Measuring the Political Position of News Media

Overview

Although objectivity remains an important principle of journalistic professionalism, the news media are often accused of being biased towards the political left or right. Given the massive study that document the causal impact of news media on our political and economic choice, understanding whether news media is politically biased and how its political positions changes over time could help us understand and monitor the political discourse.

The aim of the thesis is to develop a measure of the political position of news media and to provide descriptive analysis of the measure. One potential way to proceed is to: (1) gather news articles from different news media websites using web crawling (scripts available); (2) process the texts of the news articles to measure the political positions of news media using the recent advances in text-based analysis (scripts available); (3) use the measure you developed to characterize the evolution of the political position of news media over time and to make exploratory analysis.

Requirements

- Programming skills such as R or Python
- High Interest in the topic
- Basic econometric knowledge

Language

English

Literature

Gentzkow, M., Shapiro, J.M., Taddy, M. (2019), "Measuring Group Differences in High-Dimensional Choices: Method and Application to Congressional Speech", *Econometrica*, 87(4), 1307-1340.

Iyyer, M., Enns, P., Boyd-Graber, J., Resnik, P. (2014), "Political Ideology Detection Using Recursive Neural Networks", *Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics*, 1113-1122.

Ou-Yang L. (2020), "Newspaper 3k: Article Scraping Curation", Python Library, available online: <https://newspaper.readthedocs.io/en/latest/>, (accessed 27/09/2020).

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Algorithm Marketing: How do Data Scientists advertise their Inventions? A Textual Analysis of Conference Proceedings

Overview

Data Science is a flourishing field of research where researchers release dozens of new algorithms each year. Standing out from the crowd of released research requires not only innovative algorithms, but also smart marketing on behalf of the researcher. A good understanding of these strategies is valuable for researchers, as it allows them to better disseminate their ideas, but also for firms, who seek to spot the next innovations.

Thus, this research aims to empirically investigate which marketing strategies researchers employ when marketing their data science innovations.

To answer this question, the student should gather a dataset of recent data science innovations from large conferences (e.g. the conference proceedings of KDD, ICML, or others). Then, the student should analyze the data using text mining techniques (e.g., topic models). Thereby, the student should identify how researchers promote their algorithms – and how successful these strategies are (e.g., measured by subsequent citations).

Requirements

- High motivation and interest in the topic
- Mandatory: Experience with a statistical programming language (such as R or Python)
- Experience with (or willingness to learn) text mining techniques

Language

English / German

Literature

Berger, J. / Humphreys, A. / Ludwig, S. / Moe, W. W. / Netzer, O. / Schweidel, D. A. (2020), “Uniting the Tribes: Using Text for Marketing Insight.”, *Journal of Marketing*, 84(1), 1-25.

Manu, F. A. / Sriram, V. (1996), “Innovation, Marketing Strategy, Environment, and Performance.”, *Journal of Business Research*, 35(1), 79-91.

Zhu, Y. / Dukes, A. (2017), “Prominent Attributes under Limited Attention.”, *Marketing Science*, 36(5), 683-698.

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Enhancing Consumer Privacy in Online Advertising

Overview

Many techniques in online advertising such as behavioral targeting are based on personal data and often criticized for their privacy violations. Due to the increasing regulation of privacy and legal burdens for data-driven advertising, the industry recently tries to develop a more sustainable advertising ecosystem. For instance, big players such as Google came up with several proposals that describe more private solutions and ideas for online advertising, their so-called Privacy Sandbox. As privacy in only advertising is currently a hot and intensively discussed topic, a comprehensive and well-structured overview is missing.

The aim of the thesis is to provide a conceptual overview of privacy-enhancing principles and techniques as well as their current implementation in online advertising. Moreover, the thesis should describe and evaluate the various solutions to enhance consumer privacy in online advertising and discuss future ideas.

Requirements

- High interest in the topic
- Willingness to gain understanding of complex technical ideas and implementations
- Willingness to work on a conceptual topic

Language

German or English

Literature

Art. 29 Data Protection Working Party (2014), "Opinion 05/2014 on Anonymisation Techniques", https://ec.europa.eu/justice/article-29/documentation/opinion-recommendation/files/2014/wp216_en.pdf (retrieved 11/08/2021).

Google (2021), "The Privacy Sandbox: Building a more Private, Open Web", <https://privacysandbox.com/> (retrieved 11/08/2021).

Mendes, R., Vilela, J.P. (2017), "Privacy-Preserving Data Mining: Methods, Metrics, and Applications", IEEE Access, 5, 10562-10582.

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The Impact of Cookie Banner Choices on Trackers

Overview

With the introduction of the GDPR, websites that wish to process the personal data of European citizens need to obtain user's consent before doing so. This mechanism is implemented via a cookie banner that asks users to opt-in to data collection, processing, and sharing with trackers. However, a website can have a "legitimate interest" in processing a user's data, and in such a case, it does not need to obtain the user's consent. Additionally, some websites share personal data with trackers even if the user had no interaction with the cookie banner (Degeling et al., 2019).

This thesis aims to answer: Is GDPR fulfilling its promise to online users regarding personal data protection? To support this aim, the student can ask the following research question: "What impact does user's cookie banner choice ("Reject All" or "Accept All") have on the number of website's trackers? The student could use [Ghostery Insights](#) to collect the data by visiting multiple websites and recording how the website's usage of trackers changes – according to a cookie banner choice.

Requirements

- High interest in the topic
- Willingness to collect and analyse necessary data
- Experience with statistical software (preferably R, Python, STATA, Excel)

Language

English

Literature

Ghostery (2019), "Introducing Ghostery Insights Beta", Ghostery Blog, <https://www.ghostery.com/blog/>. (accessed 15/02/2021).

Sakamoto, T., & Matsunaga, M. (2019), "After GDPR, Still Tracking or Not? Understanding Opt-Out States for Online Behavioral Advertising", 2019 IEEE Security and Privacy Workshops (SPW), 92-99. <https://doi.org/10.1109/SPW.2019.00027>.

Sanchez-Rola, I., Dell'Amico, M., Kotzias, P., Balzarotti, D., Bilge, L., Vervier, P.-A., & Santos, I. (2019), "Can I Opt Out Yet?", Proceedings of the 2019 ACM Asia Conference on Computer and Communications Security", 340-351. <https://doi.org/10.1145/3321705.3329806>.

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Policing the Police: Are EU Regulators' Websites Compliant with the GDPR?

Overview

European Commission enforced GDPR — a revolutionary privacy law that protects European citizens' data as they browse websites — on May 25th, 2018. According to the law, any website that processes data of European citizens should comply with GDPR. Yet, a recent case revealed that European Parliament's website shared data with trackers located in the US while presenting misleading consent notices to its members (noyb, 2021).

Thus, this thesis aims to investigate: To what degree EU regulators' websites reveal non-compliance with the GDPR? The student should carefully design criteria for assessing the "GDPR compliance status" of a website, e.g., by looking at the reasons for historical GDPR fines of websites. Afterward, the student should apply such framework in an empirical setting on a sample of EU regulators' websites (e.g., European Parliament, EEA Member States' Supervisory Authorities) or websites of political parties/politicians in Germany.

Requirements

- High interest in the topic
- Willingness to collect and analyse necessary data
- Experience with statistical software (preferably R, Python, STATA, Excel)

Language

English

Literature

Matte, C., Bielova, N., & Santos, C. (2019), "Do Cookie Banners Respect My Choice? Measuring Legal Compliance of Banners from IAB Europe's Transparency and Consent Framework", ArXiv, <https://arxiv.org/abs/1911.09964>.

Mohan, J., Wasserman, M., & Chidambaram, V. (2019), "Analyzing GDPR Compliance Through the Lens of Privacy Policy", In Heterogeneous Data Management, Polystores, and Analytics for Healthcare, 82-95. https://doi.org/10.1007/978-3-030-33752-0_6.

noyb (2021), "Data Transfers to the US and Insufficient Cookie Information: noyb Files Complaint Against the European Parliament", Home, <https://noyb.eu/en/data-transfers-us-and-insufficient-cookie-information-noyb-files-complaint-against-european>. (accessed 16/02/2021).

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Suspending Your Competitors From Your Platform: Impact of Amazon's Seller Purge on Competition

Overview

Amazon plays a dual role on its platform: providing the infrastructure for the Amazon marketplace and simultaneously competing with third party sellers on it. In late April 2021, Amazon fully suspended at least 16 third-party seller accounts — possibly due to their practice of buying fake reviews. Those sellers included well-known electronics brands such as Aukey and Mpow. This thesis should analyze the causal effect of this unforeseen and complete seller suspension on the degree of competition in the Amazon marketplace. You could, for example, ask if Amazon's products benefit from the suspension of competing third-party offers (e.g., via higher sales). We will provide a rich data set of prices, sales ranks, ratings, star ratings, and metadata of all products the 16 third-party sellers were offering before the suspension. Additionally, you will generate your own data sets of competing products with an unpublished R package provided by your supervisor.

Requirements

- Programming skills in a statistical language such as R (preferred), Python, Stata
- Basic econometric knowledge

Language

English

Literature

Ovide, S. (May 21, 2021), "Amazon's Great Purge", The New York Times, <https://www.nytimes.com/2021/05/21/technology/amazons-great-purge.html>, accessed July 8th, 2021

Zhu, F. (2019), "Friends or foes? Examining Platform Owners' Entry Into Complementors' Spaces", Journal of Economics & Management Strategy, 28(1), 23–28. <https://doi.org/10.1111/jems.12303>

Zhu, F., & Liu, Q. (2018), "Competing With Complementors: An Empirical Look at Amazon.com", Strategic Management Journal, 39(10), 2618–2642. <https://doi.org/10.1002/smj.2932>

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Substitution From Offline to Online Commerce: What Remains After the Pandemic?

Overview

The pandemic has accelerated the shift from offline to online commerce. After life has mostly “returned to normalcy” in the US, we can analyze which changes in customer habits remain after the pandemic.

This thesis will be a data-intense exercise that combines two exciting data sources. We will provide you (a) with access to location data from ~ 20 million US smartphone devices. That data enables you to estimate daily visitor numbers of almost all US offline stores and locations. Additionally, you will (b) use historical product-level Amazon data (prices, sales ranks, ratings, etc.) to estimate shifts in online commerce. This project aims to combine both data sources and estimate the degree to which consumption patterns changed in which categories.

Requirements

- Programming skills in a statistical language such as R (preferred), Python, Stata
- Basic econometric knowledge

Language

English

Literature

Bounie, D., Youssouf C., Galbraith, J.W. (2020), “Consumers’ Mobility, Expenditure and Online-Offline Substitution Response to COVID-19: Evidence from French Transaction Data.” *Available at SSRN 3588373*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3588373.

Forman, C., Ghose, A., Goldfarb, A. (2009), “Competition Between Local and Electronic Markets: How the Benefit of Buying Online Depends on Where You Live.” *Management Science* 55 (1): 47–57. <https://doi.org/10.1287/mnsc.1080.0932>.

Wang, K., Goldfarb, A. (2017), “Can Offline Stores Drive Online Sales?” *Journal of Marketing Research* 54 (5): 706–19. <https://doi.org/10.1509/jmr.14.0518>

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Pick a Problem and Solve It: Developing and Publishing an R Package

Overview

Science increasingly relies on open-source statistical software such as R. Scientists can easily share software in their specific domain through R packages. Tools such as `devtools` have made it comparatively easy to write your own software and distribute it as an R package.

This thesis aims to (a) pick a relevant problem in business and economics that would benefit from a collection of functions making this problem easier to solve. You then (b) write R code that solves this problem and (c) document it systematically in package documentation and vignettes. As the last step, if your package provides value to the scientific community, we encourage you to submit it to CRAN. You will write your thesis in the style of articles in “The R Journal,” but we will assign considerable weight to the problem’s technical solution. In that process, we encourage you to learn and apply software engineering best practices such as version control and unit tests.

Requirements

- Programming skills in R and the ambition to become an expert
- Motivation to learn R software development

Language

English

Literature

The R Journal (2021), <https://journal.r-project.org/>, accessed July 9th, 2021.

Wickham, H., Bryan, J. (2015), “R Packages: Organize, Test, and Share Your Code”, <https://r-pkgs.org/>

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How does the Stock Market React to Data Breaches?

Overview

Once a firm fails to protect its consumers' privacy, how would it suffer? The stock market provides quantifiable answers with its instantaneous reactions. When the Facebook–Cambridge Analytica data scandal erupted in 2018, over \$119 billion was wiped off Facebook's market value with a dramatic decline of its stock price. Analysis of stock market reaction to data breaches helps firms to evaluate the potential loss and make preparations accordingly. More specifically, what is the effect of data breach announcements on stock market activity (e.g., stock price, bid-ask spread)? Would the market react differently to firms from different industries?

In this thesis, the student could search for data breaches from sources like privacy rights clearinghouse or through mining announcements, collect stock market data from APIs like Yahoo Finance, examine the impact of data breaches on stock performance and market activity, and explore heterogeneity in market behavior.

Requirements

- High interest in the topic
- Knowledge of econometrics
- Knowledge of programming skills (Python or R)

Language

English

Literature

Lange, R. / Burger, E.W. (2017). "Long-term Market Implications of Data Breaches, not", *Journal of Information Privacy and Security*, 13(4), 186-206.

Rosati, P. / Cummins, M. / Deeney, P. / Gogolin, F. / van der Werff, L. / Lynn, T. (2017). "The Effect of Data Breach Announcements Beyond the Stock Price: Empirical Evidence on Market Activity", *International Review of Financial Analysis*, 49, 146–154.

Tripathi, M./ Mukhopadhyay, A. (2020). "Financial Loss due to a Data Privacy Breach: An Empirical Analysis", *Journal of Organizational Computing and Electronic Commerce*, 30(4), 381–400.

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