Masterseminar FIN 780

„Finance and Linguistics"

An Interdisciplinary Seminar in Collaboration with McKinsey

Using textual analysis in a business context is one of the hot topics in current research but also in practice. In recent years, several articles using linguistic methods have been published in the top finance journals. At the same time, companies like McKinsey successfully apply these concepts in their daily business (e.g. to predict default rates). This has become possible due to the enormous amounts of text that is now available in digital format and the availability of the necessary processing capabilities.

In this seminar, we will gain an overview over the methods and possibilities for application of (partially automated) text-analysis in various contexts. The seminar is interdisciplinary in nature and will be conducted jointly by professors from Finance (Prof. Niessen-Ruenzi and Prof. Ruenzi) and Linguistics (Prof. Henn and Dr. Gredel). Additionally, the seminar will be conducted together with representatives from McKinsey Germany – a leading consultancy firm with an interest in developing these methods for further applications. Thus, this course gives you the opportunity to gain a unique qualification that none of our standard courses can offer you.

Topics will be assigned to teams consisting of 2 to max. 3 students. Most of the topics will be assigned to an interdisciplinary student team consisting of business administration and German philology/linguistics students.

While no finance-background is expected from linguistics students participating and no linguistics-background is expected from the finance students participating, we expect all participants to be open-minded and willing to dig into new topics.

A good website with some information on an application of text analysis in finance is:

www.nd.edu/~mcdonald/Word_Lists.html

Most of the topics require you to work on a corpus containing a collection of texts. These corpora will be provided or have to be downloaded from press archives by students. Dr. Gredel will give an introductory lecture on how to retrieve the necessary data.

Topics

1) **Investor Sentiment and the News Media**

   Investor sentiment is defined as the irrational component of investor expectations or investor mood. In this term paper, a German Sentiment Indicator should be developed based on corpus linguistic analysis of newspaper articles.

   Similar to Tetlock (2007), articles from German newspapers have to be downloaded from LexisNexis and/or Factiva and/or WISO and their tone has to be evaluated with a computer linguistic program LIWC and Antconc. The computation of the indicator will be done in collaboration with the student working on topic 2. The aim of this term paper is to come up with a time-varying measure of sentiment which is then compared to other sentiment indicators that have been proposed in the literature (see Finter, Niessen-Ruenzi and Ruenzi (2012)). The term paper should then evaluate how the news-based sentiment indicator correlates with other sentiment indicators and conclude whether news-based indicators are useful to measure investor sentiment.

   Access to the linguistic program, the news databases and data on alternative sentiment indicators will be provided.

   <u>Readings</u>
   - Baker, M., and J. Wurgler (2006), Investor Sentiment and the Cross-Section of Stock Returns, Journal of Finance, 61(4), 1645-1680.
   - Barberis, N., Shleifer, A., and R. Vishny (1998), A model of investor sentiment, Journal of Financial Economics 49, 307-343.
   - Fiehler, R. (1990), Kommunikation und Emotion: theoretische und empirische Untersuchungen zur Rolle von Emotionen in der verbalen Kommunikation.
   - Finter, P., Niessen-Ruenzi, A., and S. Ruenzi (2012),The Impact of Investor Sentiment on the German Stock Market, Zeitschrift für Betriebswirtschaft (2012), Vol. 82, pp. 133-163.
   - Fries, N. (2003), Gefühlswortschatz im GWDS In: Wiegand, H. E., Untersuchungen zur kommerziellen Lexikographie der deutschen Gegenwartssprache I.
   - Henn-Memmesheimer, B. (forthcoming): Sprechen über Emotionen. Neurobiologisch und alltagssprachlich. Das Beispiel *Angst*, in: Polajnar, J. Emotionen in Sprache und Kultur, 22-36.
   - Špes S. (forthcoming): Gefühlswörter im „Wortbildungsnest" Das Wortbildungsnest, dessen Nestglieder und Entfaltung im Hypertext, in: Polajnar, J. Emotionen in Sprache und Kultur, 121-134.
   - Tetlock, P. C. (2007), Giving content to investor sentiment*:* The role of media in the stock market, Journal of Finance, 62(3), 1139-1168.

2) News Sentiment as a Predictor of Risk

In this term paper, a word list capturing the concept of "risk" should be developed based on linguistic analysis of newspaper articles. Similar to Tetlock (2007), articles from German newspapers have to be downloaded from LexisNexis and/or Factiva and/or WISO and their tone has to be evaluated with a computer linguistic program.

The aim of this term paper is to develop a time-varying measure of the importance of the concept of "risk" in the business media and investigate how this measure is correlated with contemporaneous market volatility and whether it is useful to predict volatility (see Baker and Wurgler (2006), Kumar and Lee (2006)). The paper should also explore the methodological potential of co-occurrence profiles for sentiment analyses.

Access to the linguistic program and the news databases will be provided.

Readings
- Baker, M., and J. Wurgler (2006), Investor Sentiment and the Cross-Section of Stock Returns, Journal of Finance, 61(4), 1645-1680.
- Barberis, N., Shleifer, A., and R. Vishny (1998), A model of investor sentiment, Journal of Financial Economics 49, 307-343.
- Fiehler, R. (1990), Kommunikation und Emotion: theoretische und empirische Untersuchungen zur Rolle von Emotionen in der verbalen Kommunikation.
- Finter, P., Niessen-Ruenzi, A., and S. Ruenzi (2012),The Impact of Investor Sentiment on the German Stock Market, Zeitschrift für Betriebswirtschaft (2012), Vol. 82, pp. 133-163.
- Fries, N. (2003), Gefühlswortschatz im GWDS In: Wiegand, H. E., Untersuchungen zur kommerziellen Lexikographie der deutschen Gegenwartssprache I.
- Henn-Memmesheimer, B. (forthcoming): Sprechen über Emotionen. Neurobiologisch und alltagssprachlich. Das Beispiel *Angst*, in: Polajnar, J. Emotionen in Sprache und Kultur, 22-36.
- Kumar, A., and C. M. C. Lee (2006), Retail investor sentiment and return comovements, Journal of Finance, 61(5), 2451-2485.
- Špes S. (forthcoming): Gefühlswörter im „Wortbildungsnest" Das Wortbildungsnest, dessen Nestglieder und Entfaltung im Hypertext, in: Polajnar, J. Emotionen in Sprache und Kultur, 121-134.
- Tetlock, P. C. (2007), Giving content to investor sentiment*:* The role of media in the stock market, Journal of Finance, 62(3), 1139-1168.

3) Public Opinion and Executive Compensation in Germany

Similar to Kuhnen and Niessen (2012), this term paper is supposed to develop a measure of public opinion on executive compensation in Germany. Articles on executive compensation in German newspapers have to be downloaded from LexisNexis and/or Factiva and/or WISO and a word list has to be developed that captures public opinion on executive pay in Germany. In the

next step, the word list has to be compared to a list capturing public opinion on CEO pay in the United States. It has to be analyzed how cultural differences explain divergences between both lists. Access to the linguistic program and the news databases will be provided.

Readings

- Kuhnen, C.M., and A. Niessen (2012), Public Opinion and Executive Compensation, Management Science (2012), Vol. 58, pp. 1249-1272.
- Core, J. E., W. Guay, and D. F. Larcker (2008), The power of the pen and executive compensation, Journal of Financial Economics, Vol. 88, 1–25.
- Dyck, A., N. Volchkova, and L. Zingales (2008), The corporate governance role of the media: Evidence from Russia, Journal of Finance, Vol. 63, 1093–1135.

4) **Predicting bankruptcy**
   Similar to Loughran and McDonald (2011), a word list capturing liquidity problems and the threat of bankruptcy should be developed for German or U.S. firms. Articles on (German or U.S.) firms that eventually go bankrupt have to be downloaded from LexisNexis and a word list has to be developed that captures the risk of bankruptcy. Differences between the Loughran/McDonald list and the list developed should be investigated. Finally, it can be investigated how a linguistic measure of default probability from press articles on specific firms based on the word list developed correlates with one of the following variables:
   a) Actual defaults
   b) Analyst recommendations
   c) Credit ratings

Access to the linguistic program, the news databases and databases containing analyst recommendations and credit ratings will be provided.

Readings

- Loughran, T., and B. McDonald (2010), When is a Liability not a Liability? Textual Analysis, Dictionaries, and 10-Ks, Journal of Finance, 66(1), 35-65.

5) **Managerial Styles and Fashions**

Different management styles or managerial traits are in fashion at different points in time. In this term paper, we want to understand which management styles the business press talks about and how these are evaluated in press articles. Articles on management as published in „Manager Magazin" or „Wirtschaftswoche" have to be collected and checked for the occurrence of terms associated with certain management styles. In addition, time trends regarding the evolution of the prevalence and the evaluation (positive/negative) of these traits should be investigated. For example, being characterized as "efficient" might have a different evaluation in the mid-1990s as

compared to the early 2000s. Access to the linguistic program and a news database will be provided.

Readings

- Kieser A. (1997), Rhetoric and Myth in Management Fashion, Organization, 4, 49-74.
- Kieser A., Bort S. (2011), Fashion in organization theory: An Empirical Analysis of the Diffusion of Theoretical Concepts. Organization Studies 32, 655 – 681.
- McClelland and Burnham (1976), Power is a great motivator, Harvard Business Review.

6) **Was the subprime crisis predictable?**

Many commentators argue that the housing bubble and thus the irrational valuations of subprime mortgage backed securities that caused the crises were predicted, while investment banks and rating agencies claim that this was not the case. This term paper is supposed to check these views by analyzing the frequency with which words such as "housing bubble" (but also others) that are specifically linked to the subprime crisis starting in 2007 develops around that time. When did these words appear in news paper articles for the first time and how often? Was the subprime crisis as surprising to banks as they claimed it was? Or were there rumors far in advance of the crisis? Additionally (or alternatively) one could also examine whether the press talks about real estate and house prices with a positive or negative tone and how this pattern develops around the outbreak of the crises. Access to the linguistic program and the news database will be provided.

Readings

Lischinsky, A. (2011), In times of crisis: a corpus approach to the construction of the financial crisis annual reports, Critical Discourse Studies, 8, 153-168.

7) **Name changes of mutual funds**
Mutual funds tend to change their names in line with market phases. However, as shown by Cooper, Gulen and Rau (2005), these name changes are rarely associated with a shift in investment styles. For example, a fund who changed its name to "High tech Fund" in 1999 did not necessarily invest more in high-tech funds – it was just a marketing scam to attract investors. This term paper is supposed to shed light on mutual fund name changes from a linguistic perspective. Name changes have to be indentified and it should be checked whether any clear patterns are also observable in a more recent period (similar to the high-tech name change wave of the late 1990s). The impact of name changes on fund flows should also be investigated. Access to mutual fund data will be provided.

Readings
- Cooper, M., H. Gulen H., and R. Rau (2005), Changing Names with Style: Mutual Fund Name Changes and Their Effects on Fund Flows, Journal of Finance, 60, 2825–2858.

8) Public opinion on Financial Markets Regulation

Economic downturns are frequently associated with changes of regulation. For example, corporate scandals such as Enron or Worldcom led to the introduction of the Sarbanes Oxley Act. Also, the recent financial crisis has led to an intensive debate about bank regulation. This term paper should develop a time varying measure of public opinion on regulation. Articles on regulation and regulatory changes have to be downloaded from LexisNexis and/or Factiva and/or WISO and their tone has to be evaluated with a computer linguistic program. Finally, the frequency and the average tone of these articles over time should be correlated with the business cycle to examine whether regulation is really talked about more during crises and whether regulation is seen more favorably by the press in such times. Access to the linguistic program and the news database will be provided.

Readings
- Moran M., (1986), Theories of Regulation and Changes in Regulation: The Case of Financial Markets, Political Studies 34, 185-201.

9) Public opinion on corporate consultancies

The recent financial crisis has intensified public criticism on investment bankers, while corporate consultancies are also often seen critically by a wider public (e.g. Rolf Hochhuth, 2004, McKinsey Kommt). This term paper investigates how public opinion on certain industries, particularly investment banking and corporate consultancies, has developed over time. Articles mentioning large consultancies or investment banks have to be downloaded from LexisNexis and/or Factiva and/or WISO and their tone has to be evaluated with a computer linguistic program. Finally, it should be investigated how the tone on consultancies and investment banks develops and whether it is correlated with economic downturns. Access to the linguistic program and the news database will be provided.

Readings

- Ernst, B./ Kieser, A. (2002): "Versuch, das unglaubliche Wachstum des Beratungsmarktes zu erklären." In: Schmidt, R./ Gergs, H./ Pohlmann, M. (2002): Managementsoziologie. Themen, Desiderate, Perspektiven. Rainer Hampp Verlag. München und Mering.
- Faust, Michael (2002): "Warum boomt die Managementberatung - und warum nicht zu allen Zeiten und überall?" In: Schmidt, R./ Gergs, H./ Pohlmann, M. (2002): "Managementsoziologie. Themen, Desiderate, Perspektiven." Rainer Hampp Verlag. München und Mering.

10) Impact of the Sarbanes Oxley Act on Self-Reports

In this term paper, a sample of company reports should be investigated to find out how companies changed their reporting style pre-/post SOX. As firms are more accountable for the content of their reports post SOX, it is an open question whether they changed the way in which they report on their own business, e.g. whether the texts get more conservative and less enthusiastic. The respective company reports have to be downloaded from EDGAR (Management's Discussion and Analysis" Section in 10-Q and 10-K Filings) and their tone has to be evaluated using a computer linguistic program. Differences pre-/post SOX have to be investigated. Access to the linguistic program and the news database will be provided.

Readings

- Lobo, G. Zhou, J. (2006), Did Conservatism in Financial Reporting Increase after the Sarbanes-Oxley Act? Initial Evidence, Accounting Horizons 20, 57-75.,

11) Media Coverage of Corporate Takeovers

Many M&A transactions are not completed after the initial announcement. In this term paper, it will be examined whether the tone of press articles mentioning the acquirer and/or both the target and the acquirer in such an announced transaction can predict whether the takeover will be successfully completed. Merger data will be provided and press articles can be retrieved via Factiva or Lexis-Nexis. Access to the linguistic program and the news database will be provided.

Readings

- Buehlmaier (2012), The Role of the Media in Takeovers: Theory and Evidence, Working Paper.

12) Tone of Basle II – Pillar 3 Risk Reports

According to Pillar 3 of the Basle II bank regulation, financial institutions have to regularly publish a risk report. In this project, these risk reports have to be collected and the tone of the language used in these reports has to be analyzed. In a first step, a word list containing positive and negative words in this context has to be developed based on the detailed evaluation of a test sample. Then, a larger set of reports can be automatically classified using this word list. Finally, the classification of a bank based on this procedure can be correlated with the credit rating of this specific bank. Access to the linguistic program and the news database will be provided.

Readings

- Pérignon, C., and D.R. Smith, forthcoming, The level and quality of Value-at-Risk disclosure by commercial banks, Journal of Banking and Finance.
- Sabiwalsky, R., 2012, Does Basel II Pillar 3 risk exposure data help to identify risky banks? Working paper, Free University of Berlin.