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DIPLOMARBEITEN / MASTER THESES IM FSS 2013

TOPIC R1: How to (robustly) measure financial literacy

Advisor: Lena Jaroszek

TOPIC R2: An empirical evaluation of a textual analysis based investor sentiment index

Advisor: Alexander Hillert

TOPIC R3: Predicting bankruptcy - A textual analysis approach

Advisor: Alexander Hillert

TOPIC R4: Does Public Opinion affect Executive Pay?

Advisor: Paris Tsotsonos

TOPIC R7: Linking Fund Flows, Market Liquidity, and Asset Prices

Advisor: Michael Ungeheuer

TOPIC R8: Downside Liquidity Risk

Advisor: Michael Ungeheuer



Topic R1: How to (robustly) measure financial literacy

If private investors are free in their investment, saving and credit taking decisions and neither state nor company pension systems take decisions for them the question is at hand, whether individuals are able to assume responsibility for their financial decisions. Studies therefore evaluate private investors' financial literacy – i.e. their understanding of concepts common in financial context – and analyze whether superior financial knowledge is associated with more favorable financial outcomes. For this purpose financial literacy is typically assessed via quiz questions in household surveys. However, there are differences in how the information on correct and incorrect responses is aggregated into an index or a measure which ultimately enters regression specifications in order to test hypotheses.

The aim of the master thesis is twofold: First, the student is to conduct a literature research on approaches to approximate financial literacy, including proxies like general schooling or numerical skills but also different measures constructed from quiz questions in consumer surveys. The findings from existing literature are to be discussed and compared. Secondly, appropriate measures are to be chosen for the latter part of the thesis in which the student is to empirically analyze households' investment/saving decisions based on the MEA 2009 SAVE survey. The measures are to be implemented and compared with respect to the robustness of the results depending on the different measures employed.

Requirements:

We expect the candidate to show a sound knowledge in econometrics. The empirical work requires the use of the cross sectional micro dataset SAVE (access will be provided). We recommend that the candidate should feel comfortable in the use of a statistical software program (such as Stata).

Literature:

Van Rooij, M.; Lusardi, A. and R. Alessie (2011): Financial literacy and stock market participation. *Journal of Financial Economics*, 101(2), pp. 449-472.

Behrman, J. R.; Mitchell, O. S.; Soo, C. K. and D. Bravo (2012): How Financial Literacy Affects Household Wealth Accumulation. *American Economic Review*, 102(3), pp. 300-304.

Bucher-Koenen, T.; Lusardi, A. (2011): Financial literacy and retirement planning in Germany. *Journal of Pension Economics and Finance*, 10(4), pp. 565-584.

Advisor: Lena Jaroszek

Topic R2: An empirical evaluation of a textual analysis based investor sentiment index

Investor sentiment is defined as the irrational component of investor expectations or investor mood. One of the most commonly used sentiment indices is the index proposed by Baker and Wurgler (2006), which consists of different quantitative components (e.g. number of IPOs, NYSE share turnover, closed-end fund discount, etc.). In this master thesis an alternative sentiment index based on corpus linguistic analysis should be developed and evaluated. To create the text corpus articles from US newspapers have to be downloaded from LexisNexis and/or Factiva. The tone of the corpus can be analyzed with linguistic software like LIWC or Antconc. In addition to established wordlists (e.g. the Harvard wordlist (cf. Tetlock (2007)) and the Loughran/McDonald (2011) wordlist) the student should create an own wordlist by adapting the established lists to the text corpus at hand. Having constructed the news-based sentiment index the student should check the correlations with other sentiment indices like Baker/Wurgler (2006) and macro-economic factors.

In the next step the student should analyze whether the news-based sentiment index can explain the return spreads of sentiment-prone stocks (e.g. young, non-dividend paying, or growth stocks) and non-sentiment-prone stocks (e.g. old, dividend paying, or value stocks). Thereby it should be checked whether the news-based sentiment index has additional explanatory power in explaining the return patterns when compared to traditional sentiment indices.

Investor sentiment can not only explain cross-sectional differences in stock returns but also explain the profitability of market anomalies. Stambaugh et al. (2012) analyze a broad set of anomalies and show that about 70% of the profitability of these anomalies occurs in months following high investor sentiment. Therefore, the student should test whether the news-based sentiment also influences the profitability of these anomalies and whether it provides additional explanatory power, when compared with the traditional sentiment indices.

All relevant databases (CRSP, Compustat, LexisNexis, Factiva) are accessible at the University of Mannheim. Access to the linguistic software LIWC and Antconc is provided at the Chair of International Finance.

Preliminaries: A sound knowledge in textual analysis is needed for this topic. Therefore students with an expertise in textual analysis (e.g. participants of the FIN 780 seminar "Finance and Linguistics") will be preferred in the allocation process. Furthermore, basic knowledge (or ability/willingness to acquire basic knowledge) in econometrics and STATA is required.

Introductory Literature:

Baker, M., and J. Wurgler (2006), Investor Sentiment and the Cross-Section of Stock Returns, *Journal of Finance*, 61, 1645-1680.

Loughran, T., and B. McDonald (2011), When is a Liability not a Liability? Textual Analysis, Dictionaries, and 10-Ks, *Journal of Finance*, 66, 35-65.

Stambaugh, R.F., J. Yu, and Y. Yuan (2012), The short of it: Investor sentiment and anomalies, *Journal of Financial Economics*, 104, 288-302.

Tetlock, P.C. (2007), Giving content to investor sentiment: the role of media in the stock market, *Journal of Finance*, 62, 1139-1168.

Advisor: Alexander Hillert

Topic R3: Predicting bankruptcy – A textual analysis approach

There are several studies which construct models which use quantitative information, like stock market and accounting data, to predict corporate bankruptcy (e.g. Chava and Jarrow (2004) and Shumway (2001)). Campbell et al. (2008) extend the prediction models of Chava and Jarrow (2004) and Shumway (2001). For example, they re-scale some previously used variables and add additional variables like corporate cash holdings and the book-to-market ratio to the model. The aim of this thesis is to further augment the prediction model with qualitative information. As qualitative information two different data sources, press articles and corporate reports, should be used. Articles from US newspapers and newswires about firms can be downloaded from LexisNexis and/or Factiva. The text corpus for the analysis of corporate reports should be the “Management’s Discussion and Analysis” Section of the 10-K and 10-Q filing. In this section the management describes the current situation of the company and gives an outlook for the future. In addition 8-K filings, which are current reports that “companies must file with the SEC to announce major events that shareholders should know about” (<http://www.sec.gov/answers/form8k.htm>), should also be used as text corpus. The tone of the text corpora can be analyzed with linguistic software like LIWC or Antconc. In addition to established wordlists (e.g. the Harvard wordlist (cf. Tetlock (2007)) and the Loughran/McDonald (2011) wordlist) the student should create an own wordlist by adapting the established lists to the context of bankruptcy. Finally the student should analyze whether the qualitative information, i.e. the tone of the text corpora, predicts bankruptcy and whether it has additional predictive power when used in the model of Campbell et al. (2008).

All relevant databases (CRSP, Compustat, LexisNexis, Factiva) are accessible at the University of Mannheim. Access to the linguistic software LIWC and Antconc is provided at the Chair of International Finance. Corporate reports (8-Ks, 10-Qs, 10-Ks, etc.) can be obtained from EDGAR (<http://www.sec.gov/search/search.htm>).

Preliminaries: A sound knowledge in textual analysis is needed for this topic. Therefore students with an expertise in textual analysis (e.g. participants of the FIN 780 seminar “Finance and Linguistics”) will be preferred in the allocation process. Furthermore, basic knowledge (or ability/willingness to acquire basic knowledge) in econometrics and STATA is required.

Introductory Literature:

Campbell J.Y., J. Hilscher, and J. Szilagyi (2008), In Search of Distress Risk, *Journal of Finance*, 68, 2899-2939.

Chava, S. and R. A. Jarrow (2004), Bankruptcy prediction with industry effects, *Review of Finance*, 8, 537–569.

Loughran, T., and B. McDonald (2011), When is a Liability not a Liability? Textual Analysis, Dictionaries, and 10-Ks, *Journal of Finance*, 66, 35-65.

Shumway, T. (2001), Forecasting bankruptcy more accurately: A simple hazard model, *Journal of Business*, 74, 101–124.

Tetlock, P.C. (2007), Giving content to investor sentiment: the role of media in the stock market, *Journal of Finance*, 62, 1139-1168.

Advisor: Alexander Hillert



Topic R4: Does Public Opinion affect executive Pay?

Recently, a lot of academic studies have been published that examine the effect of public opinion, usually channeled by the news media, on corporate decision making. In the context of corporate governance, public opinion has been shown to have a disciplining effect on firms (e.g. Dyck and Zingales, 2002). Regarding executive compensation, Bebchuk et al. (2002) and Bebchuk and Fried (2004) point out that public outrage may cause firms to cut CEO pay. Additionally, Weisbach (2007) argues that firms may camouflage high CEO pay by structuring pay packages in a way so that they do not catch the public's attention.

Finally, Kuhnen and Niessen (2012) examine whether public opinion affects the structure and level of executive compensation by applying textual analysis on news media articles, thereby extracting the degree of public outrage with respect to executive pay. They find that after more negative media coverage firms shift their pay packages for executives to less contentious types of pay such as salary, although the overall level of pay does not change. This indicates that firms do take into account public opinion. The effect is especially pronounced when firms, CEOs, and boards have stronger reputation concerns.

The goal of this thesis is twofold: Firstly, the relevant literature with regards to executive compensation and public opinion as a disciplining device for corporate decision making should be reviewed and illustrated. Secondly, the empirical study of Kuhnen and Niessen (2012) should be (partly) replicated, extending the time frame and taking into account the recent discussion of bonuses for executives.

All relevant databases (CRSP, Compustat, Execucomp, LexisNexis, Factiva) are accessible at the University of Mannheim. Access to the linguistic software LIWC and Antconc is provided at the Chair of International Finance.

Preliminaries: A sound knowledge in textual analysis is needed for this topic. Therefore students with an expertise in textual analysis (e.g. participants of the FIN 780 seminar "Finance and Linguistics") will be preferred in the allocation process. Furthermore, basic knowledge (or ability/willingness to acquire basic knowledge) in econometrics and STATA is required.

Introductory Literature:

Bebchuk, L., Fried, J. (2004): *Pay Without Performance*, Harvard University Press, Cambridge, MA.

Bebchuk, L., Fried, J., Walker, D. (2002): Managerial power and rent extraction in the design of executive compensation, *Univ. Chicago Law Rev.*, 69, 751–846.

Dyck, A., Zingales, L. (2002): The corporate governance role of the media, *The Right to Tell: The Role of the Media in Development*, The World Bank, Washington, DC, 107–141.

Kuhnen, C. M., Niessen, A. (2012): Public Opinion and Executive Compensation, *Management Science*, 58, 1249-1272.

Weisbach, M. S. (2007): Optimal executive compensation versus managerial power: A review of Lucian Bebchuk and Jesse Fried's pay without performance: The unfulfilled promise of executive compensation, *Journal of Economic Literature*, 45, 419–428.

Advisor: Paris Tsotsonos

TOPIC R7: Linking Fund Flows, Market Liquidity and Asset Prices

Liquidity costs tend to be fragile and linked to price changes, i.e. they tend to suddenly jump to high levels while prices drop. Often these extreme events happen simultaneously for many securities. For instance, on 'Black Monday' in 1987 – with no apparent reason – prices for many securities dropped sharply while illiquidity increased. One reason for these extreme contagion effects could be the theoretical mechanism suggested by Brunnermeier/Pedersen (2009): An initial loss causes funding problems for speculators (e.g. leveraged hedge funds). In order to meet margin calls, funds liquidate stocks. This further depresses prices of existing positions and hence amplifies the problem. Another amplifying effect after an initial loss could be fund outflows, as analyzed by Coval/Stafford (2007), i.e. performance-sensitive investors demanding back their money, which further increases losses on existing positions and so on. Thus empirical observations and theoretical explanations prompt the question: What is the nature of the link between the behavior of funds and extreme liquidity crises?

The goal of this master thesis is to review and classify theories about destabilizing mechanisms linking the behavior of speculators – specifically funds – and market liquidity during crises. Additionally an empirical study, testing the relationship between fund flows (and/or other fund-related variables), stock liquidity and asset prices should be conducted.

Required skills: The empirical work for this topic requires the use of statistical software (e.g. Stata), elementary manipulation of data (e.g. the calculation of Amihud's illiquidity ratio from return, price and volume data) and the application of econometric/statistical methods. Some experience in this area would be helpful.

Introductory Literature:

Brunnermeier, M.K., L.H. Pedersen (2009): Market Liquidity and Funding Liquidity, *Review of Financial Studies*, 22(6), pp. 2201-2238.

Krishnamurthy, A. (2010): Amplification Mechanisms in Liquidity Crises, *American Economic Journal: Macroeconomics*, 2(3), pp. 1-30.

Coval, J., E. Stafford (2007): Asset Fire Sales (and Purchases) in Equity Markets, *Journal of Financial Economics*, 86, pp. 479-512.

Koch, A., S. Ruenzi, L. Starks (2010): Commonality in Liquidity: A Demand-Side Explanation, Working Paper.

Lou, D. (2012): A Flow-Based Explanation for Return Predictability, *Review of Financial Studies*, 25(12), pp. 3457-3489.

Daniel, K., T. Moskowitz (2012): Momentum Crashes, Working Paper.

Amihud, Y., H. Mendelson, L.H. Pedersen (2005): Liquidity and Asset Prices, *Foundations and Trends in Finance*, 1(4), 269-364.

Advisor: Michael Ungeheuer

TOPIC R8: Downside Liquidity Risk

There is strong empirical evidence for a risk premium for assets whose returns move with the market particularly during downturns. Ang, Chen and Xing (2006) measure asymmetric dependence via conditional covariances – conditional on below-average market returns – and find a significant risk premium for this downside beta. Ruenzi and Weigert (2012) focus on *extreme* downside events (crises) by using tail dependence, a measure from extreme value theory, to classify stocks. They find an even stronger premium. A second line of research finds some evidence for a liquidity risk premium, i.e. a premium for stocks whose returns or liquidity costs co-move with market returns or market liquidity costs (see Acharya and Pedersen, 2005). Combining these two strands of literature, Ruenzi, Weigert and Ungeheuer (2013) measure downside liquidity risk. Again, stocks with strong dependence during crises bear a significant risk premium.

There are sound theoretical reasons for liquidity shocks to be particularly extreme and systemic (see Brunnermeier and Pedersen, 2009 and Krishnamurthy, 2010). Empirically, liquidity-shocks are fat-tailed and co-move with each other and returns, particularly during market downturns and liquidity crises. With that said, it is not clear how to optimally measure the (downside) dependence between liquidity and returns. Some alternative measures of dependence that could be used are for instance: Pearson correlation, Spearman ('rank') correlation, conditional versions of these correlation coefficients (e.g. conditional on the market return being below its 10th/20th/30th percentile) and tail dependence. The goal of this master thesis is to conduct an empirical study, analyzing a wide range of measures of (downside) dependence in the context of liquidity risk and testing their relationships to expected returns.

Required skills: The empirical work for this topic requires the use of statistical software (e.g. Stata), elementary manipulation of data (e.g. the calculation of Amihud's illiquidity ratio from return, price and volume data) and the application of econometric/statistical methods (e.g. when calculating liquidity shocks and measures of dependence). Some experience in this area would be helpful.

Introductory Literature:

Ang, A., J. Chen, Y. Xing (2006): Downside Risk, *Review of Financial Studies*, 19, pp. 1191-1239.

Ruenzi, S., F. Weigert (2012): Extreme Dependence Structures and the Cross-Section of Expected Stock Returns, Working Paper.

Brunnermeier, M.K., L.H. Pedersen (2009): Market Liquidity and Funding Liquidity, *Review of Financial Studies*, 22(6), pp. 2201-2238.

Krishnamurthy, A. (2010): Amplification Mechanisms in Liquidity Crises, *American Economic Journal: Macroeconomics*, 2(3), pp. 1-30.

Acharya, V.V., L.H. Pedersen (2005): Asset Pricing with Liquidity Risk, *Journal of Financial Economics*, 77, pp. 375-410.

Goyenko, R.Y., C.W. Holden, C.A. Trzcinka (2009): Do liquidity measures measure liquidity?, *Journal of Financial Economics*, 92(2), pp. 153-181.

Ruenzi, S., M. Ungeheuer, F. Weigert (2013): Extreme Downside Liquidity Risk, Working Paper.

Advisor: Michael Ungeheuer

