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Challenges for Legislators and Supervisors Ahead

Data Center Selection for
QoS-Aware Service Provision

Pump and Dump Market Manipulations:
Still a Risk for Investors?

“The Planned Financial Transaction
Tax is Untenable”



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Editorial

Challenges for Legislators and Supervisors Ahead

Stephan Bredt

Due to the soaring use of IT in the financial industry, financial transactions become faster and increase in quantity. Simultaneously, hardware and software problems at trading participants and platforms have stimulated a public debate on security, transparency, integrity and volatility of financial markets. The guidelines for IT regulation in the financial sector however remain controversial, e.g., in the MiFID II discussion on latency for high frequency trading (HFT). The task ahead for legislators and supervisors in IT regulation shall be differentiated into the following four aspects:

Technical progress and regulatory development lead to an increasing supervisory focus on IT stability and permanent adaption of stability-providing regulations. With OTC derivatives clearing being transferred on the basis of EMIR regulation to clearing houses in 2014, the IT system stability of clearing services providers will become a question of systemic importance. To safeguard IT stability of market places, the German High Frequency Trading Act of 2013 (HFTA) pledges exchanges and

MTFs to adopt maximum order-to-trade ratios and excessive usage fees, striving to limit the influence of HFT. This corresponds to the ESMA 2012 „Guidelines on systems and controls in an automated trading environment“, which call for instruments against capacity limit breaches and excessive flooding of order books.

Second, supervisory authorities will have to continuously adapt their instruments to be able to effectively execute micro-prudential supervision. ESMA guidelines require high technical standards for market places, such as close to real-time monitoring to be able to react to new trading strategies. The HFTA provides BaFin, the Trading Surveillance Offices and the Exchange Supervisory Authorities with reshaped instruments. Trading participants will be obliged to flag their orders generated through algorithmic trading to identify algorithms more quickly in order to react on peculiar trading behavior. Maximum order-to-trade ratios will contribute to strengthen trading platforms' resilience against impairments of market



Dr. Stephan Bredt
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Hessian Ministry of Economics,
Transport, Urban and
Regional Development

integrity. Moreover the Act requires appropriate measures, e.g., volatility interruptions, to ensure an orderly determination of prices also in case of significant price fluctuations.

Third, the intensified use of IT implies legal and normative consequences. The capital supplying function of market places must not be reduced by electronic trading-induced changes of the market structure. Due to the principle of equal opportunity, all trading participants must potentially be able to have access to the latest IT developments. More specifically, the applicability of market rules to all trading activities should be ensured. ESMA guidelines provide for the sole responsibility of the direct access provider. However, direct electronic access via order routing should constitute effective legal responsibility in order to prevent loopholes also because of the increasing number of order routing clients.

Finally, the increasing use of electronic systems in the financial industry creates macro-prudential challenges: Financial entities world-

wide use different identification codes which created difficulties in identifying financial market actors during the critical stage of the 2008 crisis. Therefore, the G-20 and the Financial Stability Board in 2012 initiated the "Legal Entity Identifier" project (LEI) which aims at developing a central register for financial market institutions and activities. The newly founded Regulatory Oversight Committee is now about to set up the foundation and operating unit of this project.

The aforementioned challenges can technically and legally be met. The central challenge for the needed regulation is politics. Resistance to the required regulations originates from well-known sources: international competition of financial centers, their political supporters and the industry itself. Therefore, the task for legislators and supervisors ahead comprises not merely the aforementioned IT-induced challenges but political challenges to realize regulation on an "European level playing field" to forge ahead in making financial markets more safe.

Research Report

Data Center Selection for QoS-Aware Service Provision

CLOUDS ARE INCREASINGLY BEING USED FOR THE DELIVERY OF COMPLEX SOFTWARE SERVICES WITH STRINGENT QUALITY OF SERVICE (QoS) DEMANDS. IN ORDER TO ACHIEVE COST-EFFICIENT PROVISION THROUGH THE UNDERLYING INFRASTRUCTURE, A SUITABLE SELECTION OF CLOUD DATA CENTERS IS REQUIRED. THIS REPORT PRESENTS A CORRESPONDING OPTIMIZATION APPROACH, WHICH IS SUITABLE FOR BOTH PRIVATE AND PUBLIC CLOUD SETTINGS.

Ulrich Lampe

Ronny Hans

Ralf Steinmetz

Introduction

For the financial services sector as “heavy user” of information technology, the application of cloud computing offers multiple potential benefits, most notably cost-savings due to consolidation and centralization of resources (e.g., Creeger, 2009). The historic root and traditional purpose of cloud computing has been to provide basic infrastructure services, such as virtual machines or storage. Recently, however, more sophisticated software services and applications, such as *Desktop as a Service*, are also being delivered by the cloud.

Such applications are characterized by relatively stringent Quality of Service (QoS) requirements, e.g., with respect to latency or availability, in order to provide adequate

Quality of Experience (QoE) for the end user. Due to these requirements, the existing cloud infrastructure – which is primarily driven by cost considerations and commonly makes very limited QoS assurances – appears insufficient.

In our research work, we examine how clouds can be exploited to deliver software services in a QoS-aware, yet still cost-efficient manner. In this context, we address two distinct, but similar questions:

1. How to select data centers for construction among a set of potential locations at *design time*?
2. How to assign users and services to existing data centers at *run time*?

Both questions ultimately aim at an optimal selection of (potential or existing) cloud data centers and (permanent or temporary) assignment to users with specific QoS and resource demands. Hence, the overarching research problem is coined as *Cloud Data Center Selection Problem*. It does not only concern large public cloud providers, but also companies which aim to provide a cost-efficient private cloud infrastructure to their internal customers.

The solution approach that is proposed in this report is part of a more comprehensive effort that will ultimately facilitate the cost-efficient exploitation of cloud resources as part of E-Finance processes.

Optimization Approach for Data Center Selection

Our solution approach to the Cloud Data Center Selection Problem is based on the formulation of a mathematical model, which can subsequently be solved by off-the-shelf solver frameworks in order to obtain an exact, i.e., optimal, solution.

For the initial model, we assume that the (private) cloud provider considers a preselected set of geographically distributed data centers. Each data center may provide resources within a certain predefined range, which is, e.g., given by size constraints. Furthermore, each data center is characterized by fixed costs, e.g., for construction or lease, and variable costs depending on the resource use, e.g., required server units. Using these parameters, both

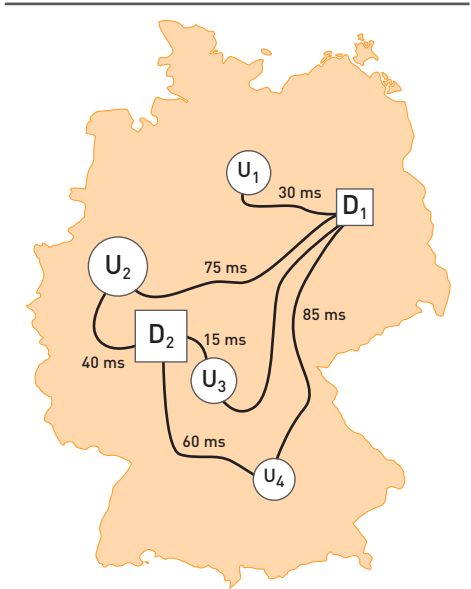


Figure 1: Simplified example of a Cloud Data Center Selection Problem

private and public data centers can be modeled, depending on the specific cost model.

The data centers should ultimately serve a set of user clusters. Each user cluster corresponds to a more or less fine-granular representation of a set of users. These user clusters exhibit specific resource demands and QoS requirements. Accordingly, the data centers make certain QoS guarantees for each user cluster, e.g., depending on the geographical distance and network topology.

A tangible example is given in Figure 1, where a company aims to serve four major user clusters (U₁ to U₄) using two data centers (D₁ and D₂).

Each user cluster and data center exhibits different resource demands and maximum supplies, as indicated by the respective symbol sizes. Furthermore, the latencies of the different links differ depending on the network topology. Thus, some data centers may be unsuitable to serve certain users with the desired service type.

The objective of the optimization approach consists in cost-minimization under the constraint that all user service demands are satisfied and that the corresponding QoS requirements are fulfilled. While this formulation only targets costs, non-monetary objectives, such as average QoS properties, may also be considered due to the flexible design of the approach.

For further details, we refer the interested reader to our recent publication (Hans et al., 2013), which contains additional formal specifications as well as the complete optimization model.

Evaluation Results

In order to assess the practical applicability of our proposed solution approach, we have conducted an extensive quantitative evaluation. The primary goal of this evaluation was to assess whether the computational complexity of the algorithm permits an application to problem instances of practically relevant size. For that purpose, we created 12 test cases, each involving a different number of data centers and user clusters. For each test case, 50 problem instances were created and solved with our approach. Subsequently, we computed

the mean computation time for each test case across all problem instances.

In order to realistically model the problem instances, we used data from the 2010 United States Census as a basis (U.S. Census Bureau, 2013). Data center and user cluster specifications were then generated based on properties such as median incomes, population densities, and geographical distances.

The results of the quantitative evaluation are provided in Figure 2. As can be seen, the mean computation times quickly increase with the problem size, namely the number of considered data centers and user clusters. For the largest test cases, which involve 40 data centers and up to 600 user clusters, average computation times in the order of magnitude of minutes are observed.

This indicates that our proposed solution approach is well-applicable for long-term data center selection at design time, e.g., in early project stages, where sufficient time is available for the decision process. However, for short-term decisions during runtime (e.g., to handle peak service demands), the use of more efficient heuristic approaches appears favorable.

Conclusions and Outlook

Cloud computing offers the potential for cost savings, whether applied internally in the form of a private cloud or through the lease of external resources from a public cloud. However, with more and increasingly complex

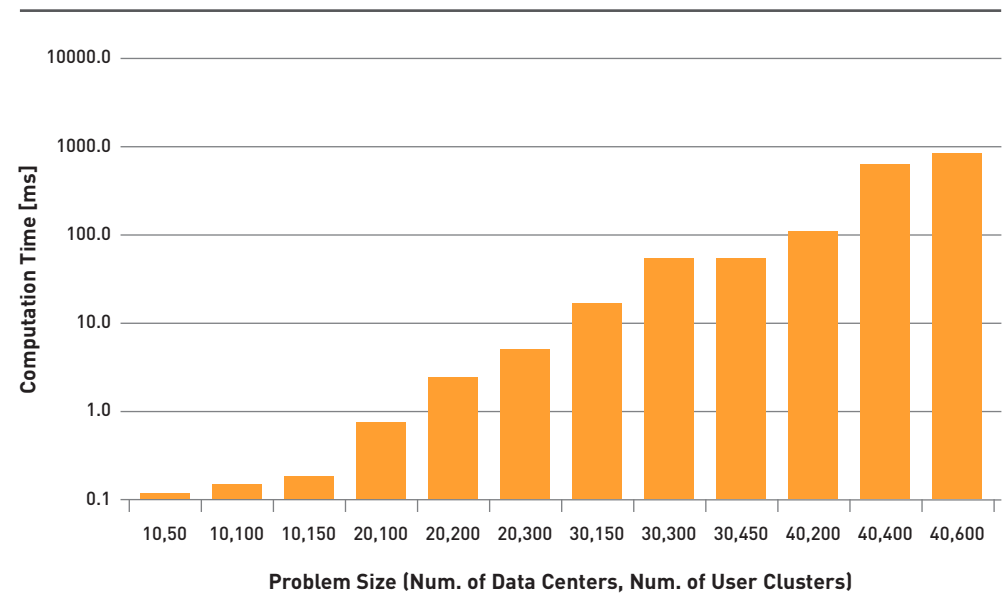


Figure 2: Mean computation times for optimally solving Cloud Data Center Selection Problems of different sizes. Sample size $n = 50$ per problem size

applications being provided by clouds, complex QoS requirements have to be satisfied.

In this report, we introduced an initial optimization approach for cost-efficient, QoS-aware data center selection, which can be applied in various application scenarios. As our evaluation has shown, the approach is well suited for the long-term selection of cloud infrastructures.

Given the relatively high computational complexity, we are currently working on heuristic solution approaches that are also applicable under stringent time constraints at run time, and thus permit to dynamically assign end users to data centers.

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Research Report

Pump and Dump Market Manipulations: Still a Risk for Investors?

DURING PUMP AND DUMP MARKET MANIPULATIONS, DECEIVERS ADVERTISE STOCKS BY PUBLISHING VERY POSITIVE NEWS TO PROFIT FROM AN INCREASED PRICE LEVEL. MARKET SURVEILLANCE AUTHORITIES HAVE TAKEN SEVERAL COUNTERMEASURES AGAINST SUCH FRAUDULENT STOCK RECOMMENDATIONS, BUT SIMULTANEOUSLY, DECEIVERS HAVE CONSTANTLY UPDATED THEIR TACTICS. THE RESEARCH INVESTIGATES WHETHER SUCH MANIPULATIONS STILL POSE A RISK FOR INVESTORS AND IF YES, WHICH CHARACTERISTICS DRIVE THEIR SUCCESS.

Michael Siering

Introduction

During pump and dump market manipulations, a deceiver first buys a stock, advertises the stock by spreading very positive messages within the Internet or via other communication channels such as fax, and finally sells the stock with profit. Previous research on such stock recommendations sent via E-mail has found that pump and dump campaigns can cause dramatic losses for investors when the scammer closes the position (Böhme and Holz, 2006) and that consequently, trading on pump and dump campaigns cannot be recommended. Thereby, pump and dump campaigns are pursued by scammers that are either independent from the targeted company or carried out by company representatives. In some cases, also third parties are hired in order to promote a certain stock.

The Securities and Exchange Commission (SEC) has taken legal countermeasures against these stock recommendations by prosecuting manipulators, suspending trading or releasing warnings. From a technical perspective, spam-filters are constantly being improved to reduce the amount of spam being received. However, deceivers update their tactics and the advent of Social Media has offered new possibilities to distribute fraudulent contents (Abbasi et al., 2010). Consequently, messages that urge readers to buy specific stocks are also published on blogs or micro blogging services. In contrast to previous spam campaigns, where mostly identical E-mails have been sent to a large audience, current campaigns are pursued via different channels and by means of varying messages.

In view of these countermeasures against pump and dump campaigns on the one hand and new possibilities to publish fraudulent stock recommendations on the other hand, this research investigates whether such recommendations are still effective, i.e., whether there is still a market impact during the campaign or if investors have become more experienced, are aware of the regulator's warnings, and avoid buying the related shares. Furthermore, the novel characteristics of the current market environment are also considered in order to examine the impact caused by such fraudulent stock recommendations. While previous studies focus on identical messages sent to

the public, this research takes into account the characteristics of campaigns, represented by dissimilar messages with different contents and publishers, to analyze the campaign success.

Since such pump and dump campaigns, in which messages are published that urge readers to buy the advertised stock, are very similar to classical advertisements (Arens et al., 2012), marketing research can provide a basis in order to derive aspects potentially making pump and dump campaigns effective. At first, it can be assumed that an increased number of deceptive stock recommendations

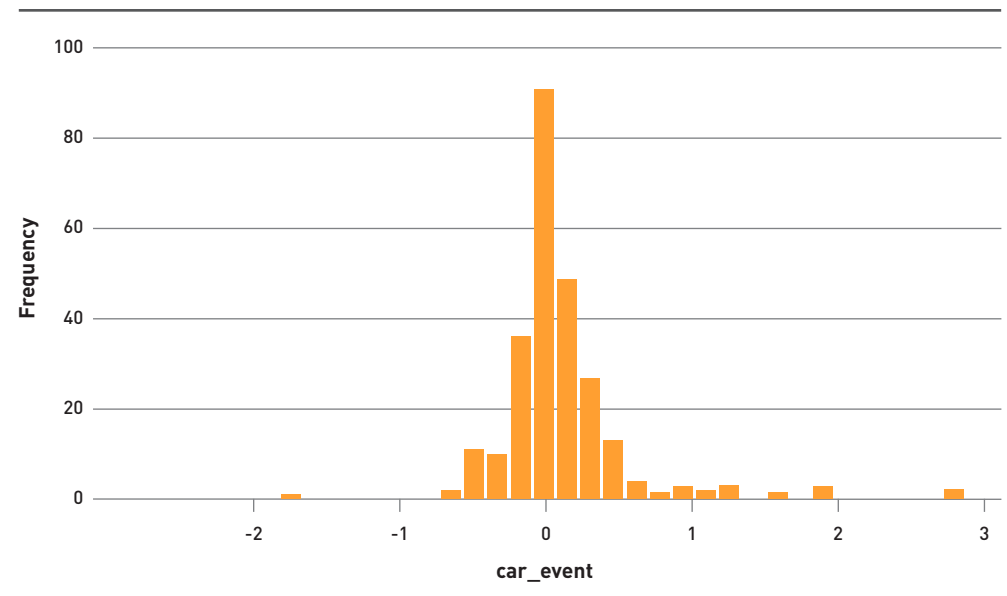


Figure 1: Distribution of cumulative abnormal returns during the campaign (car_event)

published also increases the reach of the corresponding campaign, especially when these recommendations are sent by different publishers. Consequently, it can also be assumed that the corresponding stock market return is increased (Hypothesis 1). At second, advertising success should depend on the question of whether all messages are published during one day or whether different days are covered. Thus, it can be assumed that an increased spam campaign length positively influences the stock return impact (Hypothesis 2). Finally, previous research has found that emotions play an important role to increase consumers' product attention as well as product recall (Chandy et al., 2001), so it can be assumed that positive sentiment expressed within suspicious stock recommendations positively influences the stock return impact (Hypothesis 3).

Dataset and Methodology

To investigate the success of pump and dump campaigns, a dataset covering stock recommendations that are suspicious to be part of such a campaign is acquired. To identify suspicious messages, this study follows the SEC guidelines that warn investors of pump and dump stock recommendations (SEC, 2012). For instance, a suspicious stock recommendation has to deal with stocks that are traded on low-regulated markets like Pink Sheets or OTC Bulletin Board and each message has to urge the readers to buy the stock, which is indicated by statements such as "another

winner to buy now" or "new spotlight stock". Furthermore, suspicious messages shall contain vague disclaimers matching the SEC criteria. Here, the SEC gives examples such as "XYZ Newsletter receives fees from the companies we write about in our newsletter". Therefore, the analyzed sample relies on messages matching the SEC criteria by using the "Newsletters Hub" of the website <http://newsletter.hotstocked.com>. This website does not publish own stock recommendations, but collects and aggregates different third party stock recommendations published via E-mail but also in the Web and in Social Media which ensures that an adequate audience is covered. The sample selection results in 1,299 suspicious stock recommendations.

For each message acquired, the corresponding daily stock closing prices from Yahoo! Finance are retrieved and the messages are grouped by advertising campaigns. A campaign covers several suspicious stock recommendations sent within a maximum timespan of one trading week. This procedure results in 252 advertising campaigns, which are on average composed of five different messages sent out by approximately two promoters during a period of approximately two days. The most comprehensive advertising campaign consists of 42 different messages and is carried out by 14 different promoters.

Based on event study methodology (Mac Kinlay, 1997), the market impact of these

stock recommendations is determined by calculating abnormal returns for the time span when the suspicious stock recommendations are published. Abnormal returns cover the proportion of the return that can be attributed to the event. These are calculated by subtracting the estimated normal return that would have occurred if the event had not taken place from the return of the security over the event window. Daily abnormal returns are calculated, if however the campaign covers more than one day, abnormal returns are cumulated.

Furthermore, the sentiment of these stock recommendations is determined in order to investigate whether this has an influence on the following market reactions. Therefore, a dictionary-based sentiment analysis approach is applied that determines sentiment by incorporating a dictionary of sentiment bearing words (Tetlock et al., 2008). To calculate the sentiment for each pump and dump campaign, the sentiment of the respective single suspicious stock recommendations is determined. The approach obtains the occurrences of positive and negative words by comparing each document with the positive and negative word lists and adapts different document-level sentiment measures that relate the number of sentiment bearing words to the total number of words. Thereafter, for each campaign, the average of these measures related to the documents contained is calculated and used within the following analysis.

Empirical Results

The results of the event study reveal that stock recommendations being suspicious to be part of pump and dump schemes published within the Web and in Social Media still cause stock market reactions. During the campaigns, an average cumulative abnormal return (car_event) of 8.7% can be measured. As can be seen from the distribution of cumulative abnormal returns during the campaigns (Figure 1), there are also cases where car_event is negative, probably caused by market participants selling the stocks already during the spam campaign. Furthermore, to also take the developments after the event window into account when the pump and dump campaign has ended, the average cumulative abnormal returns beginning from the last message published are calculated for the following 20 trading days. Figure 2 shows on average cumulative abnormal returns of -20.60% within the first five days, -30.11% within the first ten days and -47.40% within the first 20 trading days after the pump and dump campaign has ended. These values are different from zero at the 1% level of significance. Thus, a massive price decrease after the campaign has ended is found, which may be caused by manipulators or private investors selling the advertised stocks.

After having confirmed that currently published suspicious stock recommendations still have an impact on stock prices, the determinants of this stock price impact are investigated. Therefore, a regression analysis is applied, taking

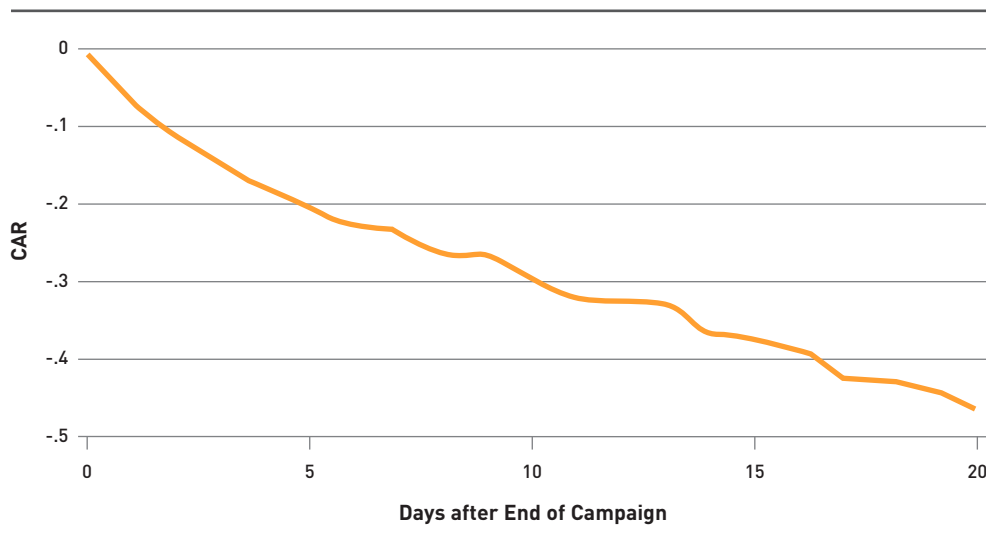


Figure 2: Time series of average cumulative abnormal returns (CAR) after the end of the campaign

into account campaign characteristics including the sentiment of the related messages to explain the cumulative abnormal return during the campaign.

The results indicate that a high number of messages sent or an increased number of promoters publishing suspicious stock recommendations have a positive influence on the contemporary capital market reactions (Hypothesis 1). Taking into account the number of days the advertising campaign lasts, no significant influence on the following capital market reaction is found, although the coefficients are positive in every case (Hypothesis 2). In case of the sentiment expressed during the advertising campaigns, results indicate that the more positive the sentiment is, the higher the cumulative abnormal returns during the event window are (Hypothesis 3).

Results also show that Social Media are actually used to distribute pump and dump market manipulations. A search for the ticker symbols of the advertised stocks in the micro blogging service Twitter revealed that 41.67% of the campaigns analyzed are also accompanied by recommendations of the related stocks in Twitter. However, the question of whether a stock is also recommended in Twitter has no significant influence on the capital market reaction.

Conclusion

The research confirms that pump and dump campaigns can still be effective and should thus still be seen as a risk for investors, although different countermeasures have been applied to prevent them from losing substantial parts of their investments.

This study has implications for market surveillance authorities, retail investors, and software vendors. Market surveillance authorities shall still be aware of such forms of market manipulation and foster activities for monitoring the Web and especially Social Media to investigate whether deceivers try manipulating the market by distributing false positive information. Market surveillance authorities and retail investors shall especially take care of messages which express a very positive sentiment or avoid negative sentiment. Finally, software vendors can incorporate the results of this study in order to detect suspicious contents. In this context, fraud detection systems might incorporate message sentiment related to a certain stock to detect suspicious behavior.

Within future research, it is worth to explore whether different presentation forms used in pump and dump messages have an influence on the following market reactions. Therefore, the layout of the corresponding website including images displayed or fonts used can be taken into account. Furthermore, it could also be analyzed whether suspicious stock recommendations are also spread and discussed by private investors in Social Media and whether this influences the effectiveness of the related campaigns.

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Insideview

“The Planned Financial Transaction Tax is Untenable”

INTERVIEW WITH THOMAS RICHTER, GERMAN INVESTMENT FUNDS ASSOCIATION

The European financial transaction tax (FTT) remains on the political agenda. After plans for an EU-wide FTT had been scuppered by the UK, eleven member states led by France and Germany entered into an “enhanced cooperation”. A second proposal put forward by the Commission is currently subject of protracted negotiations.

Do you think the latest proposal will be more successful than the first attempt?

No. The proposed tax would still be economically damaging and legally untenable.

Can you explain why?

According to the proposal, the FTT will apply if at least one party to the transaction is established in a participating member state. This so called residence principle has already provoked disagreement. The British and Americans in particular have little enthusiasm for it. Their financial institutions would be treated as

resident in the participating member states. They would have to pay tax simply because they enter into transactions with other financial institutions located in a participating country. They would have to make tax declarations in all eleven countries and establish the infrastructure for meeting those tax liabilities. The UK has already lodged a challenge at the European Court of Justice. The residence principle may infringe the international law principle of territoriality.

Would this be the only legal issue raised by the proposal?

No. The second pillar of the draft directive is the issuance principle. It would apply if a financial instrument issued in a participating member state is traded outside the eleven participating member states. This raises questions not only regarding the principle of territoriality. How is Germany to go about collecting the tax if you have a bank in China selling German equities to a bank in Australia? In Germany, tax



Thomas Richter
CEO
German Investment Funds Association

laws are unconstitutional, if they are unenforceable. The German focus, therefore, will not be on the issuance principle.

France, however, introduced a FTT based on this exact principle in 2012 ...

The French model is proving to be problematic. Citing the principle of territoriality, some German banks are refusing to pay the tax to France. If they pay, the situation will be absurd. Since the tax is imposed on the transaction, German taxpayers dealing in French equities could set the tax against their German tax liability. Germany's exchequer would effectively be acting as a source of revenue for the French government!

Besides the legal issues: How would the FTT impact the fund industry?

For German financial institutions the competitive disadvantages would be considerable. Hubs, such as Luxembourg, would benefit by

attracting new fund business away from German supervisory control. As the tax would be levied on fund assets, it would directly affect private investors. If we look at pensions, the result would be a striking paradox. On the one hand, the state provides billions of Euros in subsidies for pensions, while on the other the tax would take a hefty slice out of investors' savings. A FTT on repo transactions and market making would also make it harder to ensure the required liquidity for banks and the financial market as a whole.

Looking ahead, what do you expect will happen?

Most voters are in favor of the FTT because they do not realize that they would end up paying it, too. According to a representative survey conducted by BVI once this misunderstanding is clarified most say they are against the tax. Let us see, whether common sense returns now that the election campaign is over.

Thank you for this interesting interview.

Infopool

News

Successful Disputations

Dipl. Wirtsch.-Inform. Dieter Schuller (layer 1) has received his doctoral degree on July 17th, 2013 with his dissertation on "QoS-aware Service Selection – Optimization Mechanisms and Decision Support for Complex Service-based Workflows". Congratulations!

ECB holds conference on Household Finance and Consumption

On October 17th and 18th, 2013 the European Central Bank holds a conference on Household Finance and Consumption. Most of the studies, which will be discussed, are based on the recently launched panel "Household Finance Consumption Survey".

Get in Touch – Meet the Best Students of the E-Finance Lab

On November 5th, 2013 the E-Finance Lab invites all industry partners to a "Get-in-Touch" event with the best students from Frankfurt and Darmstadt. All professors invite last year's best bachelor and master students from the areas of finance, marketing, informatics, and information systems.

Master Student of Layer 2 wins Paris-Europlace Award

Mr. Jędrzej Mazur (Master student and student assistant at layer 2) was awarded the Paris-Europlace Award in the context of the 29th International Competition of Master's Degree Theses on Economics and Finance. In his thesis "Economic Analysis of Stock Exchange consolidation", Mr. Mazur investigated the micro and macro effects of exchange consolidation on long term value creation for investors. The award ceremony took place on June 27th, 2013 at the CONGRES 2013 du Centre des Professions Financières in Paris.

Prof. Dr. Bernd Skiera Nominated Runner-Up for MSI H. Paul Root Award

Prof. Dr. Bernd Skiera (layer 3) and his coauthors Prof. Dr. Christian Schulze and Dr. Thorsten Wiesel were nominated runners-up for this year's MSI H. Paul Root Award with their paper "Linking Customer and Financial Metrics: The Leverage Effect in Customer-Based Valuation". Co-sponsored by the American Marketing Association and the Marketing Science Institute and given since 1990, the MSI H. Paul Root Award is one of the most prestigious prizes in marketing and is awarded to a paper that has made a significant contribution to the advancement of the practice of marketing. Congratulations!

Selected E-Finance Lab Publications

Dernbecher, S.; Beck, R.; Tönker, M.:

Cloudifying Desktops – A Taxonomy for Desktop Virtualization.

In: Proceedings of the 19th Americas Conference on Information Systems, Chicago, USA, 2013.

Haferkorn, M.; Zimmermann, K.:

Securities Transaction Tax and Market Quality – The Case of France.

In: Proceedings of the 40th European Finance Association Annual Meeting, Cambridge, UK, 2013.

Hans, R.:

Selecting Cloud Data Centers for QoS-Aware Multimedia Applications.

In: Proceedings of the 2nd European Conference on Service-Oriented and Cloud Computing Malaga, Spain, 2013.

Lampe, U.; Kieselmann, M.; Miede, A.; Zöller, S.; Steinmetz, R.:

A Tale of Millis and Nanos: Time Measurements in Virtual and Physical Machines.

In: Proceedings of the 2nd European Conference on Service-Oriented and Cloud Computing Malaga, Spain, 2013.

Ruffing, P.; Siering, M.; Bassemir, M.:

Corporate Disclosure Policies: Evidence from Open vs. Closed Conference Calls.

In: Proceedings of the 6th International Workshop on Accounting & Regulation, Siena, Italy, 2013.

Schmittmann, J.; Pirschel, J.; Meyer, S.; Hackethal, A.:

The Impact of Weather on German Retail Investors.

In: Proceedings of the 20th Annual Meeting of the German Finance Association, Wuppertal, Germany, 2013.

Schmittmann, J.; Meyer, S.; Hackethal, A.:

Information Diffusion in Financial Markets – Evidence from Retail Investors.

In: Proceedings of the 20th Annual Meeting of the German Finance Association, Wuppertal, Germany, 2013.

Seebach, C.; Beck, R.; Denisova, O.:

Analyzing Social Media for Corporate Reputation Management: How Firms Can Improve Business Agility.

In: International Journal of Business Intelligence Research, 4 (2013) 3, pp. 50-66.

Slamka, C.; Skiera, B.; Spann, M.:

Prediction Market Performance and Market Liquidity: A Comparison of Automated Market Makers.

In: IEEE Transactions on Engineering Management, 60 (2013) 1, pp. 169-185.

Wenge, O.:

Application of Stable Marriage Algorithms and the Cooperative Game Theory to the Building of Cloud Collaborations.

In: Proceedings of the 2nd European Conference on Service-Oriented and Cloud Computing, Malaga, Spain, 2013.

For a comprehensive list of all E-Finance Lab publications see

<http://www.efinancelab.com/publications>

Infopool

RESEARCH PAPER: IQ AND STOCK MARKET PARTICIPATION

The study examines the influence of IQ on participation in stock market investing. Main finding of the research is that IQ influences participation and diversification in stock markets to a larger proportion than income and even overrides educational influences. That is, higher IQ results in higher Sharpe ratios and higher returns. The insights are drawn on the basis of a very rich data set comprising intelligence assessment of applicants for military service in Finland in the year 2000, supplemented by related data on wealth, occupation, demographics, relatives and geographical data from the tax department. The authors are thus able to control for the majority of known problematic influences stemming from wealth, income or gender in order to increase the robustness of their results.

Grinblatt, M.; Keloharju, M.; Linnainmaa, J.

In: *The Journal of Finance*, 66 (2011) 6, pp. 2121-2164.

RESEARCH PAPER: TWITTER MOOD PREDICTS THE STOCK MARKET

This article investigates the connection between the general mood states expressed in Twitter feeds and the closing value of the Dow Jones Industrial Average (DIJA) over time. The authors assessed the sentiment of almost ten million Tweets from February 28th to December 19th, 2008 on seven different mood scales applying the Opinion Finder and Google-Profile of Mood States tools. Using a Self-Organizing Fuzzy Neural Network analysis, the authors find an 87.6% accuracy in predicting daily closing value changes of the DIJA. It is noted, however, that there is no claim of causality or theoretical explanation for the correlation.

Bollen, J.; Mao, H.; Zeng, X.-J.

In: *Journal of Computational Science*, 2 (2011) 1, pp. 1-8.

Electronic Newsletter

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