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Principles for a European Capital Markets Union

Pricing the Cloud – A User Perspective

Forecasting News-Related Liquidity Shocks:
Extracting Signals from Unstructured Data

No Country Can Afford
Economic Ignorance



Deutsche Bank



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IBM



Systems



ESOT
TRADING NETWORKS



Interactive Data



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Editorial

Principles for a European Capital Markets Union

Alexandra Hachmeister

European financial integration has been ongoing for a number of years, with the Customs Union, Monetary Union, and more recently the Banking Union already established. The Capital Markets Union, a vision of the President of the European Commission, J. C. Juncker, can be seen as the next step towards the objective of European financial integration, across not only the Euro-countries, but crucially across all 28 EU-member states.

The main goals of the Capital Markets Union can be distilled as follows: to finance jobs and stimulate growth by increasing capital markets funding, to reduce reliance and dependence on the banking system, to provide longer-term stable funding through increased cross-border investment, to encourage long-term investment and innovation, and to remove the possibility of regulatory arbitrage through harmonization.

Financing is needed to drive economic growth and employment in Europe. Bank funding has been decreasing in response to higher capital requirements. Intensified banking regulation has forced banks to clean up and strengthen

their balance sheets, building up liquidity and capital buffers. To achieve this, many banks have looked to deleverage by reducing lending to businesses with the consequence of reducing their exposure to risk. Capital markets funding will provide alternative channels to help companies of various sizes obtain access to capital. Efficient capital allocation is ensured by channelling the wealth of savers towards those who can put it to productive use, such as companies or governments making long-term investments. This can play a significant role in addressing the intermediation gap between supply and demand for financing given the many different funding sources available at varying costs of capital. In addition, related derivatives markets can assist companies further in hedging and minimizing risks that arise from price fluctuations. The European Capital Markets Union should develop the broader picture for growth generation, not only focusing on Small and Medium Sized Enterprises (SMEs) but also stimulating efficient capital allocation.

After first discussions, experts agreed on *six*



Dr. Alexandra Hachmeister
Head of Regulatory Strategy
Deutsche Börse Group

core principles – with each principle including key elements – that should be at the heart of achieving the objectives of the Capital Markets Union:

1. Revive investor trust

Restore trust and confidence to revive investor demand and stimulate growth. Key elements are financial education and balanced investor protection.

2. Improve alternative, non-bank funding

Given the reduction in bank funding, new sources are needed to fill the gap and lead to growth. Key elements are the creation of an “ecosystem” for SMEs, pre-IPO, and securitization.

3. Promote financial stability

A prerequisite for increasing investment activity and growth. Key elements are risk management and reduction of systemic risks.

4. Increase transparency

Price discovery and information transparency are a prerequisite for increasing stability.

Key elements are the reduction of unregulated trading and dark pools.

5. Foster harmonization

Reduce costs/complexity, promote cross-border activities, and stimulate growth. Key elements are single rule books, implementation of TARGET2-Securities, and reducing other cross-border barriers.

6. Create a supporting regulatory environment

Proportionate and efficient regulation is a prerequisite for increasing investment activity and growth. Key elements are regulatory reconciliation, avoidance of regulatory arbitrage, and efficient supervision.

We are looking forward to discussing a wide range of initiatives with the combined aim of deepening existing markets and developing non-bank funding sources to allow the free flow of capital across all 28 EU member states. To realize a broad Capital Markets Union, it is important to bring the views of all interested stakeholders together and discuss their ideas.

Research Report

Pricing the Cloud – A User Perspective

CLOUD COMPUTING PROMISES ENHANCED FLEXIBILITY AND SUBSTANTIAL ECONOMIC BENEFITS THROUGH THE ON-DEMAND LEASE OF IT RESOURCES. THESE TWO ASPECTS ARE STRONGLY INFLUENCED BY THE PRICING OF CLOUD RESOURCES. BASED ON A SAMPLE OF 48 INFRASTRUCTURE PROVIDERS, WE EXAMINE CURRENT PRICING SCHEMES IN THE CLOUD MARKET FROM A USER PERSPECTIVE.

Ulrich Lampe

Ronny Hans

Marco Seliger

Introduction

Information collection, processing, and dissemination – in various forms – constitute the foundation of most business activities in the financial services industry (Berger, 2003). Hence, this sector has been among the most intensive users of information technology for many decades. Nowadays, information technology is among the top cost factors in the financial services domain, and has been estimated to account for about 15 to 20% of a bank's overall administrative expenses (Moormann and Schmidt, 2007). A major driver of IT costs is the need of a continual overprovision of capacities, such that peaks in resource demand can be met by corresponding supply. In a competitive environment, such as the financial services domain, the reduction of such costs is a constant aim.

Cloud computing promises to alleviate the problem of resource overprovisioning; it allows users to flexibly lease resources – such as virtual machines (VMs) or storage – whenever the need arises. Hence, capital expenditures can be transformed into operational expenditures, rendering the use of information technology more flexible and economically efficient. Naturally, a main feature that determines flexibility and the resulting economic benefits of cloud computing is pricing. Traditionally, cloud computing has been associated with a pay-per-use (or pay-as-you-go) pricing scheme, which permits the short-term lease of resources whenever they are required (Mell and Grance, 2011). In recent years, however, different schemes, such as subscriptions and auctions, have also been introduced. They promise additional cost savings, but also

require a more precise forecasting of future demands. Furthermore, commitment periods constitute an implicit minimum on prices, since resources will always be billed for a certain discrete period (for example, one hour), regardless whether they have been used during that period or not. Hence, they are also referred to as minimum billing periods. In our work, we aimed to empirically examine these two aspects – pricing schemes and commitment periods – from a user stand-point, based on a comprehensive study in the cloud computing market.

Methodology

In our study, we focused on the *Infrastructure as a Service* (IaaS) market, since it exhibits a relatively high degree of homogeneity with respect to the available types of resources and comparatively little lock-in effects. Our focus was not on the actual prices for specific resource types, but on the pricing schemes and commitment periods that are applied. For the study, we initially determined a set of 48 different IaaS providers using Google, based on common search terms such as “cloud”, “cloud computing”, “IaaS”, and “provider”. For each provider, we identified and stored any artifacts that contained statements on pricing, such as Web pages or terms of service.

It should be noted that our study focused on publicly available pricing information; hence, providers may offer different pricing schemes as part of bilateral negotiations with (major) customers. Since our sample includes a large number of providers – both major players and small- and medium-sized companies – we believe that it constitutes a representative picture of the IaaS

market. Nevertheless, limitations may arise from our previously described search procedure: First, Google's index may be incomplete, i.e., certain providers may not be (prominently) listed. Second, our search terms may be inadequate to identify all providers of interest.

Summary of Findings

Figure 1 shows the *pricing mechanisms* that were found among the considered providers. As can be seen, pay-as-you-go pricing is the dominant scheme and used by essentially all providers in our sample. However, subscription and freemium models are also widely applied, usually as a complement to pay-as-you-go pricing. The first commonly requires the payment of a certain up-front fee, which subsequently permits to lease resources at a reduced rate – compared to a pay-as-you-go price – over

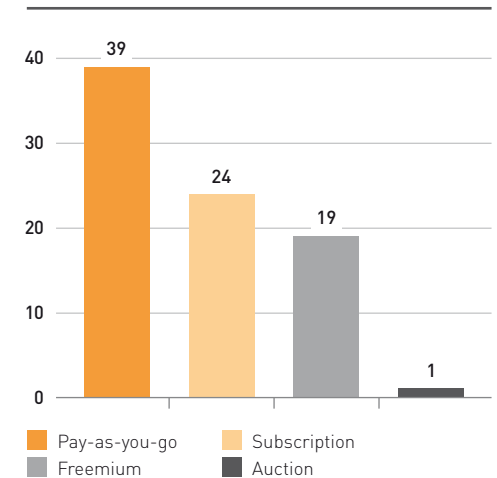


Figure 1: Applied pricing mechanisms among the considered IaaS providers (sample size n = 48; multiple options may apply for a single provider)

a certain period of time. With the second pricing scheme, providers usually offer a free version with limited functionality and charge for an enhanced version. A prominent example for the combination of multiple pricing schemes is Amazon Web Services' Elastic Compute Cloud, which offers a freemium-style *Free Tier*, pay-as-you-go *On-Demand Instances*, subscription-based *Reserved Instances*, and auction-based *Spot Instances*. Interestingly, Amazon is also the only provider in our sample to apply an interactive pricing scheme, i.e., auctioning.

Figure 2 depicts the results of our study with respect to *commitment periods*. As can be seen, in conjunction with a pay-as-you-go pricing scheme, most IaaS providers seem to follow the example of Amazon Web Services, arguably one of the pioneers in the cloud mar-

ket, which uses a one-hour commitment period for its On-Demand Instances. However, a small number of providers also offer more fine-granular commitment periods in the order of magnitude of minutes or even seconds. Such shorter periods may be advantageous to users when resources are only leased for very brief time periods, e.g., in order to handle burst loads. In contrast, many providers also use longer commitment periods in the order of magnitude of months or years, mostly in conjunction with subscription models. As the previously mentioned example of Amazon Web Services' Reserved Instances demonstrates, such models may be advantageous to a user if he/she continuously requires and actually exploits resources. However, it also contradicts the initially stated notion of high elasticity that is commonly associated with cloud computing

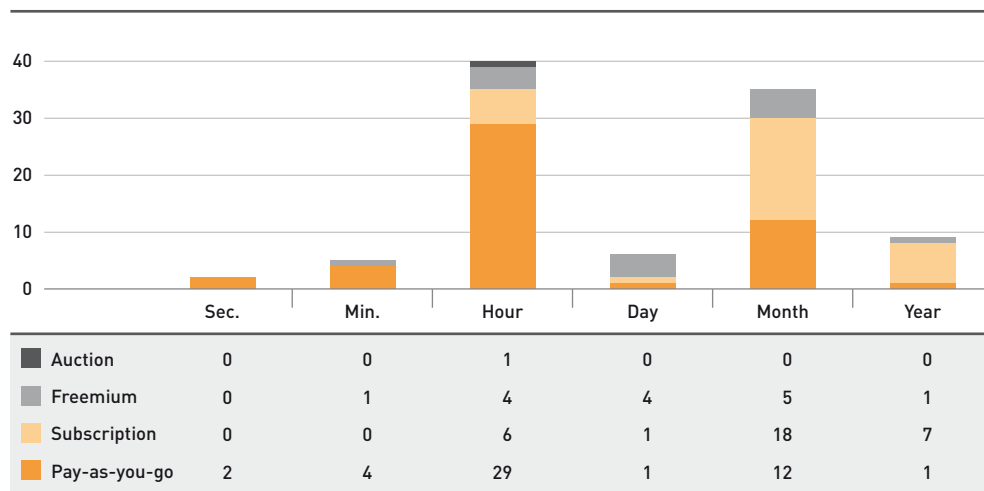


Figure 2: Minimum commitment periods by order of magnitude across all pricing mechanisms among the considered IaaS providers (sample size n = 48; multiple options may apply for a single provider)

(Mell and Grance, 2011), because costs will accrue even if instances are *not* actively used by the consumer.

Discussion and Conclusion

In summary, our study shows that pay-as-you-go and subscription models are the pre-dominant pricing scheme in the IaaS market today. Thus, the empirical evidence largely supports the literature view, which commonly associates cloud computing with pay-as-you-go pricing. In contrast, market-oriented pricing schemes – such as auctions –, which have been a prominent field of research in recent years, play a negligible role. This indicates that users prefer the guaranteed resource availability of pay-as-you-go or subscription pricing models over the potential cost savings of interactive pricing models – a notion which is also supported by past research (Agmon Ben-Yehuda et al., 2011).

In any case, due to the prevalence of commitment periods – most commonly in the order of magnitude of hours with pay-as-you-go models and months for subscription-based models –, pricing does not scale perfectly linear with the actual resource usage. This limits the flexibility of cloud computing in situations where resources are required only for very brief periods of time, e.g., to handle load bursts. Nevertheless, cloud computing may offer substantial economic benefits compared to on-premise IT and traditional outsourcing. Both models usually require a long-term commitment in the order of magnitude of years – either in the form of capital expenditures for hard- and software or constant operational

fees –, which is commonly not required in the cloud computing market.

It should be acknowledged, however, that factors other than pricing also play a crucial role, specifically for users in the financial services sector. These factors include, most notably, non-functional requirements such as availability and security of IT resources. Hence, despite its potential economic benefits, cloud computing will likely remain a complement, rather than substitute for traditional IT in years to come.

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Research Report

Forecasting News-Related Liquidity Shocks: Extracting Signals from Unstructured Data

TO DERIVE OPTIMAL ORDER EXECUTION STRATEGIES THAT STRIVE TO MINIMIZE TRANSACTION COSTS, INVESTORS AS WELL AS AUTOMATED TRADING ENGINES MUST BE ABLE TO ANTICIPATE CHANGES IN THE AVAILABLE MARKET LIQUIDITY. BASED ON AN EVENT STUDY ON THE LIQUIDITY IMPACT OF AD-HOC DISCLOSURES, WE PROPOSE A NOVEL IT ARTIFACT THAT ALLOWS AUTOMATED TRADING ENGINES TO APPROPRIATELY REACT TO NEWS-RELATED LIQUIDITY SHOCKS. FURTHERMORE, WE PROVIDE A SIMULATION-BASED EVALUATION THAT SHOWS ITS ECONOMIC RELEVANCE.

Sven S. Groth

Michael Siering

Peter Gomber

Introduction

Financial markets are characterized by high levels of complexity and non-linearity, whereas information systems play a crucial role in supporting human and computer-based decision-makers alike. Due to the far-reaching electrification of the securities trading value chain, computer-based automated traders (often referred to as "algorithmic trading engines") generate a large amount of the trading activity on major European markets.

They "emulate a broker's core competence of slicing a large order into a multiplicity of smaller orders and of timing these to minimize the market impact" (Gomber and Gsell, 2006). The decision on the investment or portfolio allocation itself is performed by the respective portfolio manager at a fund management company, and the primary task of automated traders is to execute the orders that are received from these fund management companies or institutional investors at the best available conditions.

To determine an optimal execution strategy for a pre-defined execution time period, i.e., to achieve the best available conditions, automated traders must handle the trade-off between the different transaction cost components in the order's execution. First, there are explicit costs, such as commissions, fees, or taxes. Second, there are implicit costs, such as market impact, timing costs, or opportunity costs (Bikker et al., 2006). Especially for large trades, implicit transaction costs mostly are much larger than explicit transaction costs. Liquidity constitutes the main determinant of implicit transaction costs: if the number of shares that other market participants are willing to trade at a given limit is reduced, then the market impact of an order is increased. The higher the liquidity, the lower the implicit transaction costs, and vice versa (Schwartz and Francioni, 2004). Therefore, to derive an optimal execution strategy and to minimize the associated transaction costs, the ability to forecast future liquidity levels is very important.

Bikker et al. (2006), however, conclude that "forecasting market impact costs appears notoriously difficult and traditional methods fail". Domowitz and Yegerman (2005) find that the execution quality of automated traders is inferior to the executions that are handled by brokers. One reason for this observation might be the fact that the employed models are solely based on purely quantitative input data and largely neglect one of the most important sources of information, which is unstructured qualitative data. If, for example, a listed com-

pany issues an unanticipated regulatory ad-hoc disclosure, then automated traders cannot react sufficiently fast because they cannot analyze the content of that disclosure. Because unanticipated news, by definition, is very unlikely to be reflected in quantitative time series data prior to its publication date, automated traders can respond only to other (human) market participants' reactions.

Against this background, we investigate whether and how unstructured qualitative data can be used as input for automated trading engines. We are especially interested in whether useful information can be extracted automatically from qualitative data to predict future levels of liquidity after the publication of corporate disclosures. For extracting such information, data mining techniques are utilized.

Research Approach

Data mining aims at discovering useful patterns in data that can serve for predictions. However, for a successful application of machine learning techniques, additional steps such as domain and data understanding as well as data reduction and pre-processing are crucial, too (Han and Kamber, 2006).

In our study (Groth et al., 2014), we acquire a dataset that is composed of ad-hoc disclosures, stock prices, and order book data. We perform an event study on the liquidity impact of ad-hoc disclosures. Support Vector Machine as an appropriate data mining algorithm for classification is selected. Finally, the results of

the data mining phase are analyzed by means of a simulation-based evaluation.

Dataset Analyzed

The news dataset analyzed is composed of ad-hoc disclosures that are published by Deutsche Gesellschaft für Ad-hoc-Publizität (DGAP) on behalf of the companies admitted to trading on an organized market in Germany. To fulfil the legal requirements, these companies must publish immediately any insider information or other information that is highly relevant to investors. We concentrate on this news type because the disclosures are expected to primarily contain new information and event studies have shown that these are often followed by abnormal stock returns (Muntermann and Guettler, 2007). The final dataset comprises 415 ad-hoc disclosures. Furthermore, in order to be able to determine the liquidity impact, the dataset at hand contains high-frequency (level-2) order book data, i.e., it allows insights into the order book breadth and depth, including the best ten bid and offer limits and the respective order quantities at those limits. The order book data were extracted from Thomson Reuters Tick History.

Liquidity Impact of Ad-hoc Disclosures

By means of an intraday event study, we determine the impact of ad-hoc disclosures on stock liquidity. First, it can be observed that there are no significant abnormal liquidity levels prior to the publication of corporate disclosures. This finding provides evidence that the chosen event type actually contains new

and previously unknown information that has not been widely anticipated by market participants. It is therefore expected that forecasting of such liquidity shocks is especially challenging for models that are based solely on historical quantitative data.

Second, we find strong empirical evidence that transaction costs increase subsequent to the publication of corporate disclosures. This finding is most likely due to the fact that the disclosures' contents persuade traders to adjust their valuations of the respective company and adjust their existing limit orders in the order book accordingly. During the adjustment process, fewer limit orders (or limit orders with a lower volume) remain in the market, and therefore, the cost of execution increases (i.e., the liquidity decreases).

Given these results, one might typically assume lower liquidity levels (i.e., higher implicit transaction costs) subsequent to the publication of corporate disclosures. Therefore, the simplest strategy to avoid high implicit transaction costs would be to either execute orders immediately at the disclosure (and thereby prior to the negative liquidity impact) or wait for execution until the liquidity reverts to normal levels. The latter case would, however, incur timing costs.

If we, however, take a closer look at the distribution of the abnormal levels of liquidity, we note that certain corporate disclosures are followed by better levels of liquidity (about 25% of

all cases). We are especially interested in identifying those corporate disclosures that are associated with implicit transaction costs that are below historical levels and, consequently, liquidity levels that are above historical levels.

As a result, forecasting this liquidity impact by means of data mining methodologies appears to be promising because investors as well as automated trading engines must adjust their strategies according to the expected liquidity impact to reduce the implicit transaction costs. Therefore, we use the ad-hoc disclosures for training a Support Vector Machine classifier that is able to distinguish between ad-hoc

disclosures followed by higher or lower levels of liquidity.

Simulation-Based Evaluation

To evaluate the Support Vector Machine classifier, we introduce a novel domain-specific simulation-based evaluation approach that aims at acting on the discovered knowledge. In general, a simulation-based model evaluation allows for additional statistical analysis and provides insights into the results' robustness. Previous applications of text mining techniques in the financial industry have highlighted the need for domain-specific evaluation metrics (Groth and Muntermann, 2011).

Savings by proposed strategy
in percentage points

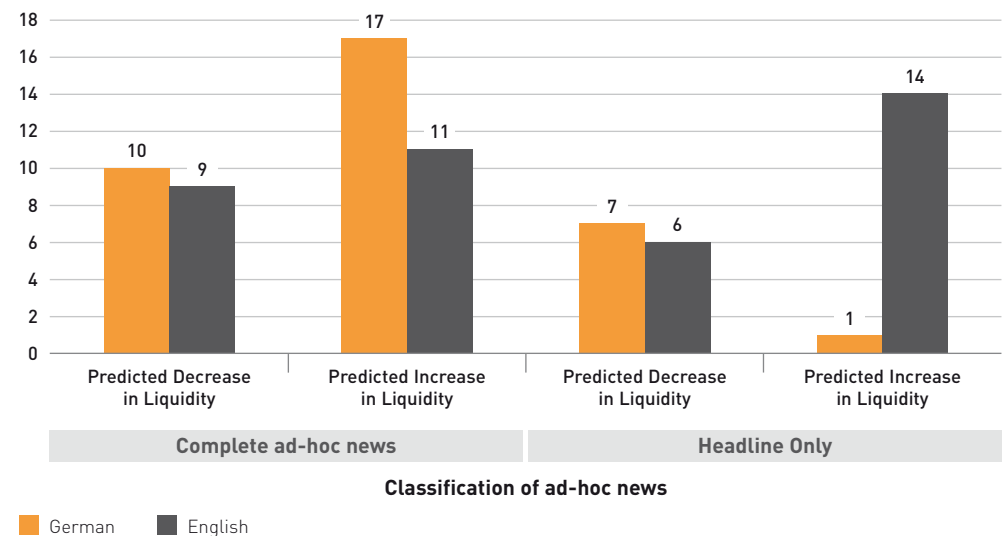


Figure 1: Simulation-based evaluation results of the proposed IT artifact

The proposed simulation setup constitutes an automated trading engine use case. This simulation allows to quantify the economic value of the text mining system. Within the simulation, an automated trader receives the task to execute an order during a specified time interval. The goal is to minimize the implicit transaction costs. To achieve this goal, an optimal execution strategy must be determined. Therefore, each corporate disclosure is classified by the above proposed text mining approach.

If it is predicted that the liquidity of the underlying security decreases during the time interval, the automated trader should prefer to execute at the very beginning of the interval, i.e., immediately after the release of the news but prior to the liquidity impact or at the end of the interval (naïve strategy). In this way, the automated trader can make use of the available (high) level of liquidity before other traders (human traders) change their bids and offers in response to the news disclosure.

In contrast, if the liquidity of the underlying security is expected to increase – or at least not to decrease – during the time interval, a liquid strategy is followed. Therefore, the volume is split into different orders that are executed step-by-step. For each of these cases, we calculate the implicit transaction costs as well as the relation to the opposite strategy which was not followed. The cost savings in percentage points by following the recommended strategy are presented in Figure 1 for different input languages (language of the ad-hoc news) as

well as different disclosure components (complete ad-hoc news versus headline only).

Overall, it is shown that the proposed approach is of value since the cost savings are positive in all cases. If the trading signal that is produced by the proposed text mining approach is followed, then the liquidity levels can be forecasted correctly in order to decrease the implicit transaction costs. In the case of, e.g., complete German ad-hoc disclosures, a trader who follows the proposed liquid strategy (i.e. the recommendation of our text mining system) would have to bear implicit transaction costs that are 17% lower compared to the naïve approach, i.e., the execution of the whole volume at the time of publication. These findings provide evidence that our proposed text mining system works well and that the proposed approach can be seen as economically relevant.

Conclusion

Text mining techniques are already applied in various research projects and practical applications to electronically classify financial news. However, most research is focused on the prediction of future price changes of a security. Given that liquidity constitutes one of the most important determinants of implicit transaction costs, we investigate whether text mining allows to predict future levels of liquidity.

Following a structured domain-specific knowledge discovery process, it is possible to extract useful information from unstructured qualitative data to predict future levels of liquidity.

This study contributes in terms of both methodology and practical relevance. Being a highly relevant group of traders and despite their technical capabilities, automated traders require an appropriate decision support system as well.

In this research project, we proposed and successfully tested different ways of enhancing automated trading engines to address news-related liquidity shocks in a timely manner. Future work will concentrate mainly on solving the current limitations of this research, i.e., the proposed forecasting approach shall be compared to existing quantitative forecasting approaches. Because this paper's proposed IT artifact is not intended to replace existing systems (and is instead intended to complement them), future work will concentrate on the integration of our trading signal into existing execution models.

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Insideview

No Country Can Afford Economic Ignorance

INTERVIEW WITH MICHAEL KEMMER

At the 20th German Banking Congress in Berlin last April, German President Joachim Gauck bemoaned the lack of basic financial and economic knowledge. He said anyone wanting to understand the source of our prosperity, make use of personal opportunities and evaluate risks needed to keep themselves informed and become more knowledgeable about financial matters. Economic apathy and ignorance were dangerous. Dr. Kemmer, do you agree with him?

I absolutely agree with him. It's perfectly apparent that the financial education of young people is completely inadequate. In a youth survey, most recently conducted by the Association of German Banks in 2012, less than half of those who were questioned considered their knowledge of money and financial matters to be "good". Basic economic concepts are unfamiliar to many of them: not even 50% of young people can explain what inflation is. And 63% said they had little or no idea of what's going on in the stock markets. So it comes as no surprise that a lot of adults

have no understanding of these issues either. That many investors have lost sight of the relationship between risk and reward is a serious problem, as is the fact that a number of consumers are racking up huge debts without a thought for tomorrow and with no prospect of ever being able to pay them back. On top of that, expressions like economic data, central bank decisions, and foreign trade figures are a closed book to a lot of people. How are voters supposed to form an opinion about a party's economic and fiscal policies if key issues are alien to them? No country can afford widespread economic ignorance and irresponsibility.

How can we change this?

We need effective and efficient education in economics throughout Germany on a much larger scale than today. It's true that economics is already taught in German schools. But in most federal states, economics is just a tiny part of a far broader subject like civics or political science. That's nowhere near



Dr. Michael Kemmer
General Manager and
Member of the Board of Directors
Association of German Banks

enough. Economic causes and effects are too complex to touch on sporadically. We're not talking about something you can pick up as you go along. That's why the Association of German Banks has long called for economics to have a firm place on the school curriculum as a subject in its own right. Our aim is not to train a generation of young stock market experts or specialists who can make sense of complex macroeconomic models. No – this is about communicating basic knowledge. Students should know what private retirement provision means, understand the challenges facing Europe's currency union, and be familiar with the principles on which our economic order, the social market economy, is based. They should become responsible citizens and consumers who are in a position to make informed decisions.

What exactly is the Association of German Banks doing to help?

We've described to policymakers how economics might be taught as a subject in practice.

A report commissioned by the Association of German Banks and prepared by the Institute for Economic Education in Oldenburg puts forward a set of educational standards and suggests what an economics syllabus might contain. The report, entitled "Strategy for making economic education part of general education", also sets out some initial ideas about a bachelor and master degree course in teaching economics. The proposal covers all levels and can, in principle, be applied to all types of school. The Association of German Banks has also co-operated with other associations in the Joint Committee of German Industry and Commerce to issue a set of standards for economics education as well as standards for training teachers of economics. And in our SchullBank program, we run student competitions and make teaching material available to support teachers and students.

Thank you for this interesting conversation.

Infopool

News

E-Finance Lab Spring Conference 2015

The E-Finance Lab cordially invites you to its annual Spring Conference. The event will be held on February 10th, 2015, at Campus Westend of Goethe University Frankfurt and is organized by Prof. Gomber and his team (layer 2). Participants have the chance to discuss the topic "Liquidity, Transparency and Electronic Trading in Europe" with speakers from the academic and business world. In this context, we are proud to announce Hauke Stars, member of the executive board of Deutsche Börse AG, as our keynote speaker. Further confirmed speakers include Rodrigo Buenaventura (European Securities and Markets Authority), Prof. Albert Menkveld (VU University Amsterdam) and Remco Lenterman (FIA EPTA). Please find further information on our website (www.efinancelab.de), where you can also register for the event. As always, participation is free of charge.

Prof. Skiera (layer 3) ranks first in Handelsblatt's business studies ranking

Prof. Dr. Bernd Skiera (layer 3) takes the first place in the latest Handelsblatt business studies ranking for current research performance. The rating is based on publications in internationally recognized journals by researchers in the area of business administration in the German-speaking region during the last five years. The German business daily Handelsblatt publishes a business studies research ranking every two years. The ranking includes researchers in the area of business administration that come from Germany, Austria or Switzerland or conduct research in these countries. See also <http://tool.handelsblatt.com/tabelle/index.php?id=140>. Congratulations!

Prof. König hosted the conference on Global Legal Identifier (GLEIF)

This September, the GLEIF organization held its first conference regarding the implementation of the Legal Entity Identifier (LEI). The three-day event was hosted in Frankfurt by Prof. Dr. König (layer 1). Among the approximately 120 participants of financial industry agents, bank supervisors, and central bank representatives was also the Hessian minister of economics Tarek Al-Wazir.

Two new Colleagues at the Chair of Prof. Hackethal (layer 3)

Annika Kasperek and Matthias Rumpf joined the team of Prof. Dr. Hackethal (layer 3) in October as Ph.D. students. Annika studied at the University of Tübingen and the University of Frankfurt. In between she worked in the banking industry. Matthias studied at the University of Frankfurt and worked in the areas of asset management as well as consulting.

Successful Disputation

Emanuel Bayer (layer 3, Prof. Dr. Skiera) has received his doctoral degree in September 2014. His doctorate thesis deals with research questions at the interface between marketing and finance. Congratulations!

Selected E-Finance Lab Publications

Gomber, P.; Haferkorn, M.; Zimmermann, K.:

Securities Transaction Tax and Market Quality: The Case of France.
Forthcoming in: European Financial Management (2015).

Reiner, J.; Natter, M.; Skiera, B.:

The Impact of Buy-Now Features in Pay-Per-Bid Auctions.
In: Journal of Management Information Systems, 31 (2014) 2, pp. 77-104.

Schlereth, C.; Eckert, C.; Schaaf, R.; Skiera, B.:

A Comparison of Six Self-Explicated Approaches.
In: European Journal of Operational Research, 238 (2014) 1, pp. 185-198.

Siebenhaar, M.; Schuller, D.; Wenge, O.;

Steinmetz, R.:

Heuristic Approaches for Robust Cloud Monitor Placement.
In: Proceedings of the 12th International Conference on Service Oriented Computing (ICSOC 2014), Paris, France, 2014.

Weber, M. C.:

Empirical Insights on Financial Intermediary Services – How Order Slicing and Modification impacts Order Executions Times.
Forthcoming in: Internationale Tagung Wirtschaftsinformatik (2015).

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Steinmetz, R.:

QoS- and Security-Aware Composition of Cloud Collaborations.
In: Proceedings of the 12th International Conference on Service Oriented Computing (ICSOC 2014), Paris, France, 2014.

Wenge, O.; Schuller, D.; Rensing, C.;

Steinmetz, R.:

On Developing Fair and Orderly Cloud Markets: QoS- and Security-aware Optimization of Cloud Collaboration.
In: International Journal of Organizational and Collective Intelligence, 4 (2014), 3, pp. 22-43.

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Infopool

RESEARCH PAPER:

TOWARDS A SECURITY SLA-BASED CLOUD MONITORING SERVICE

The security monitoring of the cloud and its service level agreements (SLAs), like workload, performance, or availability, offers cloud providers and cloud consumers the information necessary to implement mechanisms to prevent or recover from agreement violations. However, there are only a few SLA management systems which are deployable in clouds. Petcu and Crăciun identify concepts, mechanism, and available tools which can lead to a proper design and development of security SLA-based cloud monitoring services. The authors examine 38 open-source and commercial cloud monitoring tools with respect to the fulfillment and existence of security SLAs and obligations. Furthermore, the authors propose a coverage matrix that includes levels of technical implementation, application of deployment models, programming libraries, and legal aspects to identify technically conceivable and technically non-implementable properties of such monitoring tools.

Petcu, D.; Crăciun, C.

In: Proceedings of the 4th International Conference on Cloud Computing and Services Science (CLOSER 2014), Barcelona, Spain.

RESEARCH PAPER:

DO DARK POOLS HARM PRICE DISCOVERY?

Dark pools are trading systems that do not publicly display orders but import prices from other venues. They offer potential price improvements but do not guarantee execution. Zhu provides a model of dark pool trading and the effects of dark pools on price discovery and liquidity. He shows that under natural conditions the addition of a dark pool concentrates informed traders on the exchange and therefore improves price discovery. The results of this paper challenge the conventional wisdom that dark trading is by definition harmful for price discovery. Rather, through a self-selection mechanism, adding a dark pool can improve price discovery on the traditional exchange.

Zhu, H.

In: The Review of Financial Studies 27 (2014) 3, pp. 747-789.

Electronic Newsletter

The E-Finance Lab conducts two kinds of newsletters which both appear quarterly so that each six weeks the audience is supplied by new research results and information about research in progress. The focus of the printed newsletter is the description of two research results on a managerial level – complemented by an editorial, an interview, and some short news. For subscription, please send an E-mail to eflquarterly@efinancelab.com or mail your business card with the note “please printed newsletter” to

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