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Until now, the E-Finance Lab published a digital and a printed newsletter (this EFL Quarterly) alternating every six weeks. From 2016, we will merge these two newsletters to one newsletter per quarter. In order to implement the widespread digital communication also in the distribution of the EFL Quarterly and to reduce costs as well as CO<sub>2</sub> emissions, we decided to switch to a digital format of the EFL Quarterly.

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## Editorial

# Cyber Security and Compliance

Manfred Tubach

When it comes to everyday life, we instinctively recognize danger. People are alarmed and, for example, subconsciously start to walk faster. In the digital world, however, our senses and reflexes fail. Recognizing and defending threats in this digital environment requires awareness, knowledge, and effort.

Experts have long been warning us of ever new and increasingly dramatic threats under the catchphrase of "cyber security". A vast number of articles, standards, and laws address this topic. Depending on their intent, the various authors worry about public welfare, vital infrastructure, specific data, individual sectors, and – nine times out of ten – small and medium-sized enterprises. Security experts very often find such recommendations and regulations too vague and thus of little help. What are, for example, "appropriate state-of-the-art security measures" as required in contracts or insurance terms and conditions?

Managers with no expertise in IT have always had trouble making decisions in this field. It is even more difficult for them to decide about complex IT security measures, as costs are high and benefits vague. Imagine your company urgently needs a new corporate mobile app. Features, dates, and budgets are clear, security is of course requested but remains hazy regarding its contents. Which items will be cut when things get tight? Functionality? The cool design? Or the security concepts, vulnerability analyses, and security audits?

The payment card industry, which has been an attractive target for criminals for many years, solved these questions by creating the Payment Card Industry Data Security Standard or PCI DSS for short. All payment card organizations, be it VISA, MasterCard, American Express, CUP or Diners, require compliance with this standard which is defined and continuously updated by a



**Manfred Tubach**  
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usd AG, Neu-Isenburg

central council. Any company worldwide that comes into contact with payment card data has to be PCI DSS compliant. The standard precisely defines who has to do what, depending on size, role, and risk. The requirements, that amount to well in excess of 200 at the top end, concern technical, organizational, and awareness issues for employees. Security analyses and certifications may only be conducted by accredited and certified auditors whose suitability and results are continuously monitored. Companies that are PCI DSS compliant benefit from safe harbor rules, all the others pay risk premiums, bear existential risks, or are excluded from the market.

As a PCI Qualified Security Assessor, we provide consulting services to and certify thousands of companies world-wide, including online stores, large merchants, payment service providers, processors, and acquirers. Even though we make every effort to support

our customers, it is still challenging for them to sustainably fulfill the required actions. It is very helpful that the wording of the requirements is relatively practical and precise thus making decisions easier and improving the quality of solutions and services. As a result, companies don't only become "PCI DSS compliant", they also reduce their risks through increased security.

Many security managers who want to improve IT security or have to comply with only a few precise security requirements adapt the concepts, tools, processes, and trainings of the PCI environment. This enables them initially to save time and money. However, we find that it is more important that management, customers, and business partners intuitively understand and appreciate the message: "In the field of cyber security, we are aligned with the requirements of the payment card industry."

## Research Report

# Improving the Corporate Public Perception through Social Media

COMPANIES USE SOCIAL MEDIA IN GENERAL AND MICROBLOGGING IN PARTICULAR FOR DIFFERENT PURPOSES, SUCH AS REPUTATION MANAGEMENT. WE EMPIRICALLY IDENTIFY DIFFERENT SOCIAL MEDIA ACTIVITIES IN TERMS OF SOCIAL MEDIA MANAGEMENT STRATEGIES, ACCOUNT TYPES, AND COMMUNICATIVE APPROACHES. BY ANALYZING A DATA SET OF OVER FIVE MILLION TWITTER MESSAGES, WE FIND POSITIVE EFFECTS OF SOCIAL MEDIA MANAGEMENT TOOLS, BROADCASTING ACCOUNTS, AND CONVERSATIONAL COMMUNICATION ON THE CORPORATE PUBLIC PERCEPTION.

Marten Risius

### Introduction

Over the past decade, Social Media platforms such as Twitter or Facebook have experienced an unprecedented growth in user numbers, which subsequently caused a proliferation of data in form of information, opinions, and relations. Companies use Social Media in general and microblogging in particular for different purposes, such as market research, recruiting, public relations, and reputation management. The underlying commonality of Social Media activities, however, is to improve and exploit user relationships. Considering the current reputational impairment of the financial industry as a whole, successful reputation management to build strong brand-centric communities has become very important. Successfully

Roman Beck

addressing these purposes requires effective Social Media management strategies to include both a Social Media analytics enabled monitoring of the public data stream as well as the active participation through interaction. Up to date, however, research has not provided any insights regarding the success of different Social Media strategies (Aral et al., 2013). Therefore, in this study we addressed the research gap by empirically identifying different corporate Social Media behaviors and comparing their efficacy in improving the company's public perception on Twitter.

### Corporate Social Media Activities

Following the framework for Social Media research from Aral et al. (2013), we distinguish

and analyze corporate Social Media management activities on different hierarchical levels (see Figure 1). Specifically, we assume that the company's public perception is a result of the message characteristics immediately apparent during the interaction (content features) and – on a higher structural level – of a company's overall Social Media management strategy and the manageable account characteristics. A company's *public perception* is assessed through its word of mouth (message sentiment, share of voice, and emotionality of messages) and the attitudinal loyalty of the users (number of followers, retweets, and favorites).

Regarding the *Social Media management strategy*, companies can follow two different primary engagement approaches to manage their Social Media appearance: Like every other user they can either use the web-front-end client to manually enter messages through their corporate account and monitor user interactions. Alternatively, they can apply more sophisticated, professional Social Media management tools (SMMTs), which provide additional Social Media analytics features to monitor interactions, sentiments, or trends in real-time that support corporate relationship management.

*Context characteristics* comprise characteristics of the Twitter account sending the message. Here, we consider the account characteristics that companies can immediately manage and which users directly experience when engaging with the company: account

verification, amount of messages sent (status), and number of friends. Accounts with a relatively higher status and more friends are referred to as "Broadcaster", who are associated with a larger number of followers and retweets. In this study, we adopt the typology and refer to the alternative type in terms of the semantic opposite as "Receiver" which is characterized by fewer friends and messages.

*Content features* include all aspects of a tweet that are related to its written text: number of hashtags, URLs, retweets, and user names as well as message sentiment. Based on the message content, we differentiate between a more bidirectional conversational approach and an information redistributing disseminative approach.

In general, we expect higher corporate relationship investment in form of the application of a Social Media management tool, a broadcasting account type, and a conversational communicative approach to translate into an improved public perception.

### Empirical Findings

To test our research model, we conducted a multilevel analysis of approximately five million tweets regarding the main Twitter accounts of 28 large global companies.

Our analysis supports the assumptions regarding beneficial effects of relationship investment on Twitter in form of message content, account context, and Social Media

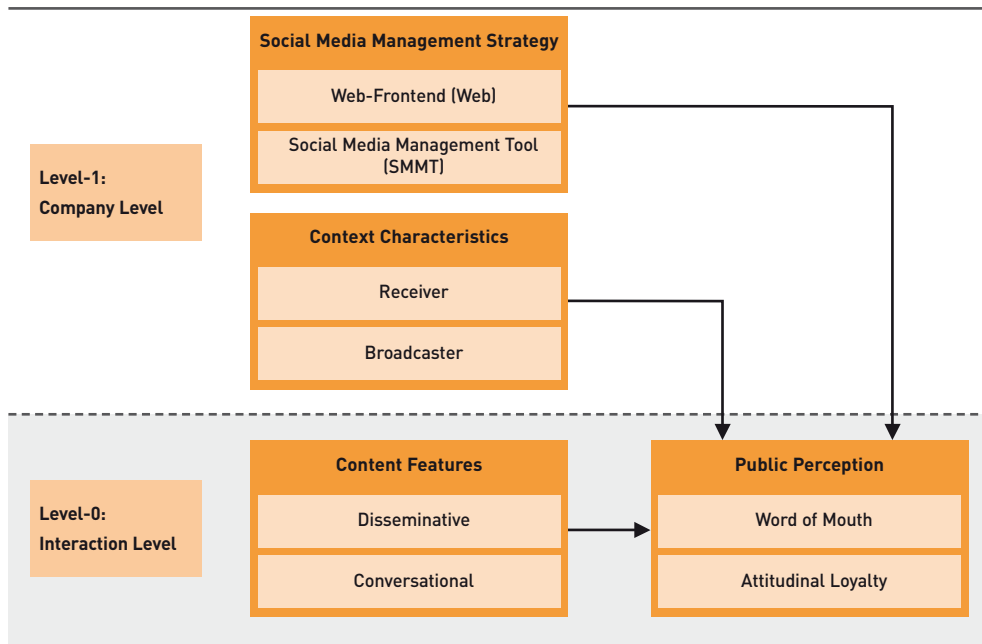


Figure 1: Research Model for Analyzing the Efficacy of Different Social Media Activities to Improve the Public Perception

management strategy on users' word of mouth as well as attitudinal loyalty (see Table 1). We find positive effects of Social Media management tools on the share of voice as well as on the numbers of followers and retweets compared to the simple web-based approach. Moreover, a broadcasting account type positively affects the average message sentiment compared to receiver accounts. Lastly, a bidirectionally oriented conversational communicative approach improves the emotionality of messages, while it negatively affects the number of favorites. Regarding this last unexpected finding of beneficial effects for disseminative communication on attitudinal loyalty, we have

reason to believe that the observed effect can be ascribed to the selection of the company's main account in this study. It seems likely that a consideration of differential effects of relationship investment in terms of different company account types would find conformably differential effects. Furthermore, seeing that none of the outcome variables is simultaneously affected by all predictors shows the necessity for considering multiple outcome variables and deliberately choosing appropriate outcome measures in Social Media analytics research. Our results show that neither action on Social Media platforms serves as a silver bullet to build strong brand-centric communities but

Public Perception	Word of Mouth			Attitudinal Loyalty		
	Sentiment	SoV	Neutrality	Follower	Retweets	Favorites
Level-0						
Intercept	0.083*** (0.019)	3.404** (2.113)	0.572*** (0.025)	42.509 (141.357)	0.181 (0.229)	0.139 (0.116)
Content	0.003 (0.008)	0.372** (0.172)	-0.014** (0.006)	-0.096 (0.714)	-0.071 (0.101)	-0.101* (0.057)
Level-1						
Context	0.055* (0.032)	0.691 (3.369)	-0.067* (0.04)	207.549 (225.527)	-0.435 (0.366)	-0.106 (0.185)
Strategy	0.002 (0.028)	5.641* (3.144)	0.023 (0.037)	361.211* (210.653)	0.578* (0.33)	0.216 (0.166)
Intercept Variance						
Level-0	0.136	0.026	0.096	0.074	0.162	0.094
Level-1	0.061	0.077	0.088	0.051	0.071	0.034
N <sub>company</sub>	28	28	28	28	28	28
N <sub>day</sub>	605	606	605	606	606	606

Notes: standard errors are in parentheses below unstandardized coefficients; share of voice (SoV) figures depicted in thousands; p-values: \*\*\* p < 0.01; \*\* p < 0.05; \* p < 0.1 (two-tailed significance); Likelihood ratio test statistic: -2ln (likelihood null model) + 2ln (likelihood alternative model)

Table 1: Results of the Hierarchical Linear Modeling Estimations Regarding the Public Perception

that different approaches have distinct effects on relational outcomes.

### Conclusion

The goal of our study was to apply Social Media analytics tools and theory to investigate the effect of Social Media relationship investment on public perception on Twitter. We analyzed data of approximately five million user and company tweets concerning the Twitter accounts of 28 large global companies. Thereby, we distinguish the companies' amount of relationship investment within different Social Media management strategies, manageable context characteristics, and content-related communicative

approaches. The results commonly support our hypotheses of increased relational outcomes in terms of better word of mouth and attitudinal loyalty attained through a higher relationship investment in form of the Social Media management tool strategy, broadcasting account type, and conversational communication.

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## Research Report

# Rate Dispersion and the Role of Bargaining Power in the German Mortgage Market

THIS STUDY DOCUMENTS THE ROLE OF BARGAINING POWER IN THE DETERMINATION OF MORTGAGE RATES BASED ON A UNIQUE ADMINISTRATIVE DATA SET COMPRISING 20,000 MORTGAGE LOAN CONTRACTS. WE USE VARIATION IN THE COMPETITIVE ENVIRONMENT TO IDENTIFY THE EXTENT TO WHICH DIFFERENTIAL PRICING IS DUE TO RELATIVE BARGAINING POWER. OUR IDENTIFICATION STRATEGY SEPARATES MARKET POWER FROM OTHER SOURCES OF PRICING DIFFERENTIALS, SUCH AS CREDIT RISK, PRODUCT DIFFERENTIATION, OR OTHER COSTS. THE RESULTS INDICATE THAT BARGAINING POWER DETERMINES THE EXTENT OF PRICE DISCRIMINATION ON OBSERVABLE BORROWER CHARACTERISTICS. A REDUCTION IN LENDER BARGAINING POWER REDUCES THE DISADVANTAGE SUFFERED BY BORROWERS WHO REFINANCE THEIR LOAN AND REDUCES THE ADVANTAGE FOR THOSE WHO HAVE THEIR MAIN BANKING RELATIONSHIP AT ANOTHER BANK. SIMULTANEOUSLY, IT INCREASES THE ADVANTAGE FOR BORROWERS FALLING IN THE WEALTHY/HIGH-INCOME SEGMENT. FURTHER ANALYSES POINT TO SEARCH INCENTIVES AS AN IMPORTANT DRIVER OF THE DIRECTION OF THE EFFECT OF BARGAINING POWER.

Konrad Braun

### Introduction and Data

Mortgage markets comprise an important segment of retail financial markets. For most households, the purchase of real estate is by far the largest financial investment of their lifetime. The decision of how to finance their

Tobias Waldenmaier

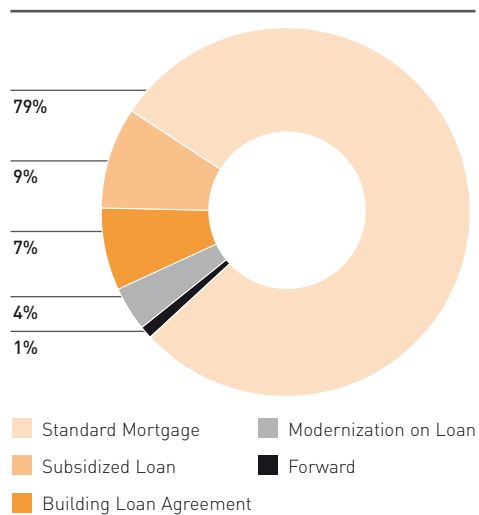
home, therefore, has enormous financial consequences. However, the vast number of mortgage providers and financing instruments as well as product features that are available in the market make the choice of the optimal product complex and time-consuming. This

paper shows that variation in the effective mortgage rate can be significant even within similar mortgage products. We document significant pricing differences as large as 30 basis points on a 10-year standard mortgage loan even among customers of the same bank. These can result in an average difference of EUR 2,100 in present value terms for a EUR 104,000 mortgage (based on the interquartile range of individual interest rate discounts for 10 year fully amortizing standard mortgage loans with a loan-to-mortgage lending value ratio (LTM) below 60% and an average effective interest rate of 3.8% p.a.).

The study introduced here aims at identifying bargaining power as an important source of pricing differences. To establish that, we analyze a unique data set of circa 28,000 newly issued and refinanced mortgage contracts held by a regionally active retail bank drawn from a comprehensive data set of more than 133,000 retail loans of different types and purposes from the years 2007 to 2014. We focus on mortgage contracts and further narrow the data set down to the years 2008 to 2013 because of availability of market competition data. Also excluding non-performing loans, we take 27,815 loans into consideration. Figure 1 shows a breakup by loan type of these contracts. For most of our analyses, we further narrow the sample down by focusing on collateralized loans and on those for which we are able to match pricing information by maturity and loan-to-value ratio (LTV). Last, we discard subsidized and modernization loans as their

pricing is highly regulated (subsidized) or the lending procedure as well as the pricing is different from those of standard loans (modernization). The remaining two loan types – standard mortgage and building loan agreement type – yield 19,976 loans amounting to EUR 1.6 billion held by 14,301 households.

We benefit from the fact that borrowers' credit scores do not play a role in mortgage loan pricing at our sample bank. In particular, the lender posts a mortgage rate schedule that depends on the product features of the mortgage, but the borrower may be able to negotiate a discount. Effective mortgage rates are thus determined through a negotiation process between the prospective borrower and the loan officer. The loan officer's business objectives, and therefore her bonus, depend on the overall lending volume, the effective interest rate margin and cross-selling potential, but are not impacted by borrower default. In a separate analysis, we verify that risk considerations do indeed not play a role in loan pricing in our data. However, we observe credit scores only for a small subset of borrowers. Therefore, we have not included it into the main specifications. For this subset, we show that sign and magnitude of the coefficients on personal characteristics do not change significantly after including credit score as an additional explanatory variable. Furthermore, our data allows the observation of both the posted rate schedule and the effective individual interest rate actually paid by the borrower.



**Figure 1: Newly Issued Fixed Rate Loans by Loan Type 2008 to 2013**

Ours is not the first study to look at the role of bargaining power in mortgage markets, although it is the first one to assess the phenomenon in the German market. Allen et al. (2014), for example, explain price differentials in the high loan-to-value segment of insured Canadian mortgages. The authors use quantile regression to identify unobserved bargaining ability. Gary-Bobo and Larribeau (2002) used a structural model of price discrimination and find that the price discrimination patterns found in the data best match a structural model where lenders have a significant degree of market power. We employ a more intuitive approach to study a data set that is both rich in number of products and personal

characteristics and representative of the population of German mortgage borrowers.

In the mortgage market, lenders generally have an incentive to base their pricing on signals about the customer's type. This is true for markets where the profitability of a customer depends not just on a one-time purchase but also on the customer's behavior during the life of the contract (see for example, Einav et al. [2012] making similar statements about the car loan market in the US). In general, profitability can be determined by both observed and unobserved factors. Knowing that individual credit score is not used for pricing at our sample bank, we show that the bank's pricing depends on observable factors that can be interpreted as the borrower's propensity to switch lenders, cross-selling potential, or effort costs to the loan officer in processing of the loan application. However, consumers may have different unobserved bargaining power, i.e., they may also differ in their ability to negotiate rate discounts (Allen et al., 2014).

Separating the cost-based pricing differentials from rent extraction that is due to unobserved relative bargaining power is the objective of this paper. Stole (2007) states that price discrimination exists whenever price variations between groups of customers cannot be explained by variations in marginal costs. It arises when "(i) firms have shortrun market power, (ii) consumers can be segmented either directly or indirectly, and (iii) arbitrage

across differently priced goods is infeasible." Bargaining power is a relative measure that can be higher for specific consumers in some circumstances or higher for the lender in some other circumstances. Cost-based pricing differentials have been distinguished from bargaining power-induced rent extraction by studying differences in the competitive environment. We follow Dafny (2010) in arguing that, as a competitive market would be pricing at marginal cost, any difference in rent extraction across branches characterized by different competitive environments indicates a shift in – and hence the presence of – bargaining power.

### Methodology

In a first step, we estimate the extent to which certain factors relate to the effective mortgage interest rate. In particular, we use regression analysis to estimate the impact of observable borrower characteristics on the difference between the effective rate paid by the borrower and the posted rate in the lender's pricing schedule, which we call the rate premium. By controlling the mortgage product features, we find strong evidence of differential pricing along our four variables of interest: higher discounts for borrowers where the annuity payments are made from an account held at another bank, wealthy customers with higher income and borrowers who are born in our sample bank's business district. In contrast, borrowers pay higher rates on loans where the interest rate has been renegotiated after expiry of the previous fixed rate tenor.

In our second step, we distinguish between cost-based differential pricing and price differences that arise from the presence of bargaining power by taking advantage of different competitive environments. To that end, we construct a measure of competition by counting the number of banks who have a branch presence within a 5-km driving distance from each of our sample bank's branch offices. This measure is then interacted with each of the variables of interest in turn. The identifying assumption is that an increase in competition shifts bargaining power from the bank to the customer. Significant coefficients on the interacted variables thus provide evidence for the presence of bargaining power.

### Results

Our results show that, in line with standard theory, a reduction in the bank's bargaining power lessens the extent of differential pricing in the dimensions of whether a loan is refinanced or whether the customer has her main banking relationship at another bank. All respective coefficients in the applied regression models are statistically and economically significant. A borrower's premium on the posted rate is on average 9 basis points higher when a loan is refinanced at the end of the fixed rate period. On average, the interest rate is lower by about 6 basis points if the annuity payments are made from an account held at another bank. The customers who were born in the bank's business district do not prove to have a better bargaining power than others. Even though the coefficient is

statistically significant the effect of only two basis points can be neglected from an economic point of view. Interestingly, while the extent of price discrimination along the earlier mentioned dimensions may be reduced by competition, competition actually increases the price advantage for the wealthy/high-income borrowers relative to the standard retail segment even more. These borrowers – who were identified by being a customer in the private banking and wealth sector – enjoy a discount of almost 11 basis points on average. One interpretation may be that the pricing differential between the private/wealth and the retail segment is not the result of bargaining power lying with the bank. Instead, it may be the result of a strong bargaining position of the private/wealth group vis-à-vis the bank, which in turn has a strong bargaining position against the group of retail customers. As a consequence, the bank may be forced to compensate lower mortgage interest rates for the wealthy with higher mortgage interest rates for the segment of “normal” retail customers, who may eventually end up being the ones paying for competition.

We include personal attributes of the borrowers in our regression models and find that more independent customers (“single”) receive larger discounts. Moreover, customers who arrange their loan through a broker pay up as well as those borrowers who have other loans outstanding with the sample bank at the beginning of the loan. As we can rule out a role for personal risk considerations in the pricing

process, the results are not confounded by the exclusion of credit score from the regressions. We can therefore conclude that personal characteristics do matter in bilateral interest rate negotiations. Loans taken out when the sample bank’s advertized interest rate is above the average rate offered by the ten cheapest mortgage lenders in the market tend to receive a higher discount on the posted rate.

To sum these results up, the findings suggest that the bank has to deal with switching costs of potential customers (and more independent customers) and would like to attract and retain high-income and wealthy clients, as their cost-income relationship is more favorable due to scale economies and cross-selling potential. The discount customers receive for taking a mortgage at another bank is consistent with Allen et al. (2014), where borrowers switching financial institutions receive lower rates than do borrowers who stay with their main bank.

We also provide evidence consistent with the hypothesis that differences in bargaining power between customer groups along some dimensions are likely to drive the direction of the effect of competition. We use changes in shopping incentives as potential shifters of bargaining power between customer groups. Shopping incentives are measured by the dispersion of mortgage interest rates offered by other banks in the market, which is based on the assumption that customers may form beliefs about the likely benefits of shopping for better interest rates by researching online, and

then act on these beliefs within the competitive environment they face in the offline world. The identifying assumption is that a borrower with a higher unconditional propensity to shop for better alternatives, such as one who takes out a mortgage at a bank that is not her main bank, will be more responsive to changes in the price distribution of the market than her counterpart who takes out a mortgage with her house bank. The results of triple interaction estimates suggest that the higher the mortgage rate dispersion in the market, the more likely is an increase in competition leading to a widening of the pricing differential between groups. The research-online-purchase-offline (ROPO) effect might therefore be one reason for interest rate dispersion between lenders and the way it interacts with the differential pricing within one lender.

### Conclusion

Our results indicate that competition may have ambiguous consequences in the mortgage market. While on the one hand, it may reduce a lender’s capability of extracting consumer surplus by reining in its ability to discriminate on price, it may, on the other hand, have quite the opposite effect under certain circumstances. The fact that high shopping incentives lead to a widening of price differences between certain factors suggests that an increase in competition may increase cross-subsidization of sophisticated customers by the naïve (Heidhues and Koszegi, 2010). This has important implications for the optimal design of regulation. In the realm of consumer protection in particular,

increasing the level of information and product comparability in a market should be addressed along with market power considerations.

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## Insideview

# The Perspective of Stock Exchanges on the Capital Markets Union

INTERVIEW WITH RAINER RIESS

**The financial crisis has shown that Europe's financing structure does not efficiently serve its purpose for businesses: financing investment in order to create jobs and wealth, and boosting economic growth. As a result, in 2014, the Capital Markets Union (CMU) was launched by the European Commission to further integrate capital markets and mobilise capital in Europe, in essence making it easier for businesses across the 28 member states to access the funding they need to innovate and expand.**

### What role will 'stock exchanges' have within the CMU?

Europe is over-reliant on credit and there is too little equity to act as a buffer against external shocks or to finance entrepreneurs with innovative growth ideas. While non-bank funding finances more than 75% of the US and more than half of the Asian economies it is less than 25% in Europe. In an environment where Europe needs to reduce its dependence on bank lending, a greater share of financing needs to be provided by capital markets. There is a need for action (both legislative and non-legislative) at European

level to facilitate this by addressing the issues faced by issuers, investors and intermediaries when accessing capital markets. FESE and its Members have long been advocating a fundamental re-orientation of Europe's policies and therefore welcome the CMU. It is a hugely ambitious project that should have the European equity markets at its heart in order to achieve its goal.

### Exchanges clearly have a pivotal role. What, in your view, are the main issues that need to be tackled within CMU?

Exchanges today are highly efficient in supplying financing as well as price discovery for listed companies. They perform a vital role for companies and the economy at large, however entry barriers to equity finance for small and medium sized enterprises (SMEs) are too high. Policies of the future need to take into account SMEs which are crucial to increasing innovation and economic growth. The immediate issues to be tackled should include:

Firstly, reducing the regulatory barriers and burden companies face when seeking capital;



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secondly, improving the market ecosystem to better serve companies at different stages of growth through a funding escalator offering financing options from different types of investors; thirdly, easing constraints that restrict investors' access to public equity markets and encouraging investments in equity funds; and finally, creating an equity culture in Europe, through education and other initiatives to raise awareness of the benefits of equity.

### Can CMU provide a quick fix to raising funds and attracting companies to public markets?

There is no single quick fix in my view, but many small steps and measures need to be taken. I in particular welcome the proposed new lighter prospectus regime for SMEs. If designed in the right way, such a "Pro-SME regime" should help SMEs that in the past were often barred from offering securities to the public merely due to the amount of paperwork involved and the high costs incurred by preparing a prospectus. In summary, the Prospectus Regulation proposal is an important first step to reduce frictional costs and to deliver a more unified European capital market,

improving funding choices for issuers and investment opportunities for investors.

### What is your vision? How - from the perspective of the European exchanges - would a successful CMU look like?

Ultimately the areas with most potential for delivering an integrated CMU, would be the harmonization of accounting, taxation and insolvency rules across the 28 countries. This may be far away, but it certainly would remove a major barrier that companies seeking to finance cross-border face today. Also the idea of a framework to establish European personal pensions would help to unlock new funding sources and allow Europeans to better invest for their retirement. Financial literacy is another key pillar, where Europe needs to act!

Capital markets are crucial to finance growth, but as stated above, today equity markets only finance one quarter of the European economy. The CMU will be a success, if Europe is able to significantly increase the financing share of its economy via equity markets.

## Infopool

### News

#### E-Finance Lab Spring Conference 2016

The E-Finance Lab cordially invites you to its annual Spring Conference. The event will be held on February 16<sup>th</sup>, 2016, at Campus Westend of Goethe University Frankfurt and is organized by Prof. König and his team (layer 1). Participants have the chance to discuss the demand for, solutions from, and applications of identifiers in the financial world with speakers from science and practice. In this context, we are proud to announce Prof. John Leslie King, University of Michigan, USA as our keynote speaker. Please find further information on our website [www.efinancelab.de](http://www.efinancelab.de) (→ Spring Conference 2016), where you can also register for the event. As always, the participation is free of charge.

#### New Newsletter Concept of the E-Finance Lab / EFL Quarterly Becomes Digital

Until now, the E-Finance Lab published a digital and a printed newsletter (this EFL Quarterly) alternating every six weeks. From 2016, we will merge these two newsletters to one newsletter per quarter. In order to implement the widespread digital communication also in the distribution of the EFL Quarterly and to reduce costs as well as CO<sub>2</sub> emissions, we decided to switch to a digital format of the EFL Quarterly. For receiving our digital EFL Quarterly in the future, please subscribe on our homepage [www.efinancelab.de](http://www.efinancelab.de) (→news →sign up / off newsletter) as we need your e-mail for sending the EFL Quarterly to you in the future. If you were already receiving our digital newsletter via e-mail in the past, this subscription is not necessary.

#### Successful Disputation

Konrad Braun (layer 3) has received his doctoral degree on November 26<sup>th</sup>, 2015, with his dissertation on "Investment and Borrowing Behavior in Retail Financial Markets". Congratulations!

#### Dr. Emanuel Bayer Receives Paul-H.-Replinger-Award 2015

Dr. Emanuel Bayer (layer 3) receives the Paul-H.-Replinger-Award 2015 for his dissertation "Why Investors and Analysts Should Care About Customer Metrics and Marketing Managers About Firm Values", supervised by Prof. Bernd Skiera. The "Institut für empirische Wirtschaftsforschung an der Universität des Saarlandes" assigns the prize to the best academic research concerning marketing and finance research. Congratulations!

#### Two EFL Professors Awarded for Best Lectures

Prof. Hackethal (layer 3) and Prof. Gomber (layer 2) were awarded for best lectures by the Faculty of Economics and Business Administration of Goethe University at the Dies Academicus 2015. Prof. Hackethal was awarded for the best Bachelor lecture ("Finanzen 2") and Prof. Gomber was awarded for the best Master lecture ("Trading and Electronic Financial Markets").

#### Presentation at IBM Technical Expert Council

Melanie Holloway presented her research results about cloud applications in the financial industry (QoS Requirements and SLA Monitoring) at the IBM TEC Interconnect Fall 2015.

### Selected E-Finance Lab Publications

#### Clapham, B.; Zimmermann, K.:

Price Discovery and Convergence in Fragmented Securities Markets.

Forthcoming in: International Journal of Managerial Finance.

#### Drasch, B.; Huber, J.; Panz, S.; Probst, F.:

Detecting Online Firestorms in Social Media.

In: Proceedings of the 36<sup>th</sup> International Conference on Information Systems (ICIS 2015), Fort Worth, Texas, USA, 2015.

#### Gomber, P.:

Cash Equity Markets in Germany.

In: Journal of Applied Corporate Finance, 27 (2015) 4.

#### Janze, C.; Siering, M.:

"Status Effect" in User-Generated Content: Evidence from Online Service Reviews.

In: Proceedings of the 36<sup>th</sup> International Conference on Information Systems (ICIS 2015), Fort Worth, Texas, USA, 2015.

#### Risius, M.; Pape, T.:

Developing and Evaluating a Readability Measure for Microblogging Communication.

In: SIG e-Business Workshop at 36<sup>th</sup> International Conference on Information Systems (ICIS 2015), Fort Worth, USA.

#### Skodda, C.; Benthaus, J.:

Investigating Consumer Information Search Behavior and Consumer Emotions to Improve Sales Forecasting.

In: Proceedings of the 21<sup>st</sup> American Conference on Information Systems (AMCIS 2015), Fajardo, Puerto Rico.

#### Wiesel, T.; Skiera, B.:

Customer Equity Reporting

In: Kumar, V.; Shah, D. H. (eds.): Handbook of Research on Customer Equity in Marketing, pp. 466-482, Edward Elgar, Cheltenham, UK, 2015.

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

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

## Infopool

### RESEARCH PAPER: TRADING FAST AND SLOW: COLOCATION AND LIQUIDITY

In today's markets, speed plays a crucial role for market participants in order to trade profitably. Many exchanges provide colocation services, i.e., proximity to the physical location of the exchange and speed access, for a fee. Colocation reduces latency for subscribers. However, it is unclear if it benefits the overall market. The authors analyze an optional colocation upgrade at NASDAQ OMX Stockholm to assess how speed affects market liquidity. They find that liquidity improves for the overall market and even for slower trading entities without colocation access. Especially participants who engage in market making pursue the colocation upgrade and use their enhanced speed to reduce their exposure to adverse selection and to relax their inventory constraints. Furthermore, the results indicate that increasing the speed of these traders benefits market liquidity in terms of lower bid-ask spreads.

Brogaard, J.; Hagströmer, B.; Nordén, L.; Riordan, R.:

In: *Review of Financial Studies*, 28 (2015) 12, pp. 3407-3443.

### RESEARCH PAPER: ADVERSE INCENTIVES IN CROWDFUNDING

Crowdfunding markets, in which retail investors lend to borrowers without intermediaries, are growing substantially. However, critics argue these markets allow sophisticated investors to take advantage on unsophisticated investors. Through an event study, the authors analyze the perverse incentives in crowdfunding. They find that bids of a group leader, in presence of rewards for group leaders, for new listings are wrongly perceived as a signal of good loan quality and results in lower interest rates but higher default rates. Investors can achieve lower default rates on issues by elimination of the rewards for group leaders.

Hildebrand, T.; Puri, M; Rocholl R.:

In: *Management Science*, Forthcoming.

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Alternatively, you can mail your business card with the note "EFL Quarterly" to the subsequent postal address or send us an e-mail.

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Further information about the E-Finance Lab is available at  
[www.efinancelab.com](http://www.efinancelab.com).



The E-Finance Lab is a proud member of the House of Finance of Goethe University, Frankfurt.  
For more information about the House of Finance, please visit [www.hof.uni-frankfurt.de](http://www.hof.uni-frankfurt.de).

THE E-FINANCE LAB IS AN INDUSTRY-ACADEMIC RESEARCH PARTNERSHIP BETWEEN FRANKFURT AND DARMSTADT UNIVERSITIES AND PARTNERS DEUTSCHE BANK, DEUTSCHE BOERSE GROUP, DZ BANK GRUPPE, FINANZ INFORMATIK, IBM, 360T, INTERACTIVE DATA MANAGED SOLUTIONS, AND USD LOCATED AT THE HOUSE OF FINANCE, GOETHE UNIVERSITY, FRANKFURT.

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