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EFL 2.0 – The Data Science Institute

Smoking Hot Portfolios?
Self-Control and Investor Decisions

Artificial Intelligence: How to
Develop Organizations to Succeed

Distributed Ledger Technology (DLT)
and Blockchain for Securities Markets

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Editorial

EFL 2.0 – The Data Science Institute

Oliver Hinz

Prof. Dr. Oliver Hinz
Chair of Information Systems and
Information Management
Goethe University Frankfurt

In 2008, I started my academic career with a junior professorship in E-Finance & Electronic Markets at the Goethe University in Frankfurt. Back then, my junior professorship was one of three junior professorships sponsored by the E-Finance Lab (EFL). This position gave me the opportunity to successfully establish and expand my independent research so that after a relatively short time, I was offered a W3 professorship in Information Systems and Electronic Markets at the TU Darmstadt. My career path is only one of the many success stories of the EFL program.

In September 2017, I rejoined the Goethe University to continue the chair of Sen.-Prof. Dr. Wolfgang König. As the EFL is ideally positioned to further expand into new topical areas, I decided to become more engaged in the EFL again with my return to Frankfurt. Furthermore, I see challenging opportunities for the future positioning of the EFL against the background of the structural changes in the financial industry and imminent personnel changes in the EFL team.

As part of my commitment to the EFL research group, EFL's principal investigators and I have worked over the last few weeks of 2018 on a concept to develop the EFL further. In January 2019, this concept was presented in detail to the Executive Board, who adopted it unanimously.

The new concept envisages transforming the E-Finance Lab into "efl – The Data Science Institute". Traditionally, our expertise lies in quantitative analyses, which have, thus, far been used exclusively to answer questions related to the financial industry. Over time, however, we have seen a decline in the number of potential and actual sponsors from the financial sector, while the demand for our quantitative expertise from other industries has grown permanently.

Correspondingly, after 16 years of successful research exclusively for the financial industry, the research program needs to be readjusted to reflect the new demand circumstances. In fact, the challenges of the current circumstances give us the opportunity to reflect upon our strengths and reposition the EFL program for a promising future.

As of July 2019, the EFL will be engaged as a Data Science Institute in following three main areas:

- Together with our sponsors, we will continue to pursue interesting **research questions**. However, in the future, the EFL will be more agile by embracing hot research topics which will be identified by a scientific advisory board on an annual basis.

- The EFL will offer **certificate courses in Data Science** to students of the Goethe University Frankfurt and the TU Darmstadt. Sponsors can, based on the available capacities, also send their employees to these courses. This way, we seek to establish a platform to bring together young talents and firms in a "natural" manner.

- Data Science expertise is increasingly in high demand among both the private and public sector. In the future, the EFL research group will act as a **catalyst for Data Science related topics in the Rhine-Main region** and, for instance, become also involved in requests for proposals for public funding.

The new framing of the EFL research group generated a very positive response from existing and new potential sponsors. Accordingly, there have already been a number of discussions with potential new sponsors.

In the future, Prof. Dr. Carsten Binnig, Chair of Data Management at TU Darmstadt, will be supporting the work of the EFL research group. We are looking forward to working with Prof. Dr. Binnig and his team!

Research Report

Smoking Hot Portfolios?
Self-Control and Investor Decisions

INDIVIDUALS WITH LOWER SELF-CONTROL OFTEN FAIL IN STICKING TO THEIR PLANS WHEN FACING STRONG TEMPTATIONS. ARE THEY ALSO PRONE TO EXHIBIT INVESTMENT BIASES AND SHOW A MORE IMPULSIVE TRADING BEHAVIOR WHILE FORFEITING POTENTIAL PERFORMANCE IN A FINANCIAL CONTEXT? WE USE CIGARETTE ADDICTION, IDENTIFIED THROUGH CHECKING ACCOUNT TRANSACTIONS, AS A PROXY FOR LOW SELF-CONTROL AND COMPARE THE INVESTMENT BEHAVIOR OF SMOKERS TO THAT OF NON-SMOKERS TO ADDRESS THIS QUESTION EMPIRICALLY.

Charline Uhr

Andreas Hackethal

Steffen Meyer

Introduction

Using drugs, smoking cigarettes, or eating unhealthy food are the most prominent examples of habits usually explained by a disability to resist, often labeled as a self-control failure. Self-control is defined as the individual ability to break bad habits and overcome first impulses, and to control one's emotions and performance whereas self-control failure results in individuals acting in a non-optimal way. The self-control failure, which might be the major social pathology of the present, appears in helplessness against individual's impulses and is even more likely to take place in the absence of standards, monitoring, or the capacity to alter the self. Higher self-control predicts positive outcomes, beneficially affects individuals' ability to resist temptations in the long-term, and, therefore, presents a stable and powerful aspect of personality (Baumeister et al., 1994).

In addition to the behavioral life-cycle hypothesis with individuals facing an ongoing conflict between the planner, caring about the long run, and the doer, caring about the current situation, self-control is a necessary resource for financial decision making (Shefrin and Thaler, 1988). Although attributes related to self-control are essential determinants of decision making, we still know surprisingly little about the impact of self-control and its failure on household finance and investor behavior.

While it is relatively easy to see the self-control failure when counting calories or trying not to smoke, the self-control issue for an investor is more a sum of "should nots" in the face of critical financial decisions. A straight-forward, yet under-researched conjecture to make would be that investors with low self-control are more prone to engage in investment mistakes: they over-spend – which results in under-saving and over-indebtedness – and they forfeit usual wealth accumulation.

Measuring Low Self-Control

As no empirical study outside the experimental lab so far has investigated whether securities trading decisions can be empirically linked to self-control, we introduce the individual's decision to smoke as an indicator of low self-control. We infer smoking from their account transactions of tobacco product purchases. This is possible because of a specific tobacco tax law in Germany. Cigarettes of the same brand and quantity are obliged to have the same price across all retail outlets. In addition, prices are set at ten-cent increments. Thus, prices are set at EUR 5.50, EUR 8.40, or EUR 9.20, for example, while retail prices are typically set just below the next ten cent mark, leading to prices such as EUR 5.49, EUR 8.95 or EUR 9.99. This allows one to identify smokers relatively clearly and to, then, measure the impact of low self-control on individual investor's decisions using their trading records. We end up using the trading records of clearly identified smokers (N = 5,370) and non-smokers (N = 14,001) and analyze their trading behavior, portfolio allocation, and performance between 2012 and 2018. The data on private investors originate from a German online brokerage and includes information on every single trade that took place during that period. Comparing the data to federal statistics reveals that the socio-demographic data is comparable to the average German stock market participant.

Empirical Findings

We run cross-sectional or pooled cross-sectional regressions to test the differences between investors in trading behavior, asset allocation, and portfolio performance with (smokers) and without (non-smokers) self-control issues. Smokers are prone to trade more and they also trade in large lots. Against the background of this result, we also find that lacking self-control is positively related with portfolio turnover. In fact, the turnover of smokers is higher compared to non-smokers. The magnitudes for smokers and male investors are about the same sizes. This indicates that self-control as proxied by smoking as well as over-confidence as proxied by being male have about the same impact on trading volume. Whereas smokers are found to trade more, they somewhat surprisingly are better diversified, hold a lower stock share, have no significant preferences for lottery stocks, and achieve higher returns. Does that mean that smoking is hazardous to their health but not so much to their wealth? In fact, the answer is: no. Smokers being better off in terms of decisions requiring self-control tends to be a direct result of their significantly higher demand for delegation on financial decision making. Smoking strongly and significantly predicts investors taking on financial advice and/or maintaining a higher
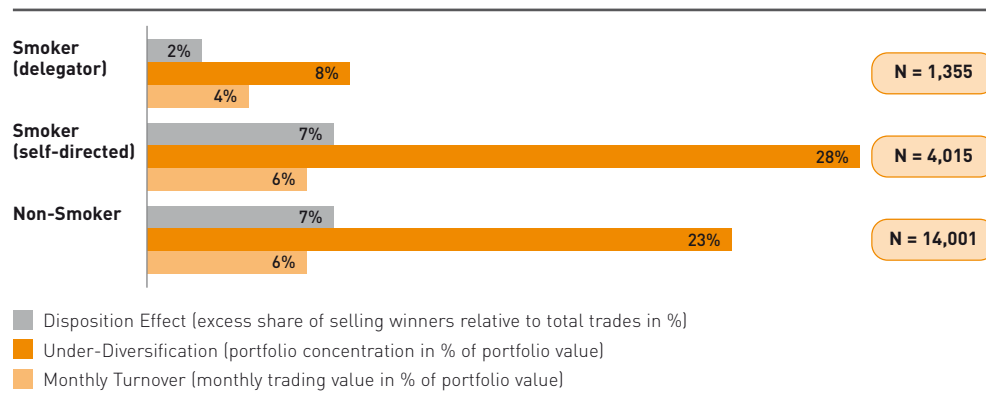
Figure 1: Investment Biases and Monthly Portfolio Turnover for Smokers and Non-Smokers

fund share. When we account for these factors and run the same regression for smokers with and without delegation, we find that self-directed smokers tend to overtrade more. The monthly turnover for self-directed smokers is higher compared to non-smokers or delegating smokers (Figure 1). Self-directed smokers are also less diversified, exhibit more investment biases, and show lower returns. Untreated self-control issues lead to a significantly lower propensity for gambling, an increase in volatility, and a general higher risk-aversion. This lower demand for lottery stocks and higher risk-aversion is in line with findings of Strömbäck et al. (2017), who show that investors with a lack in self-control may become aware of their respective predisposition and are anxious about self-control failures affecting their financial wealth.

Our findings show that smokers, as examples of investors with lower self-control, seem to be aware of their predispositions and are,

hence, more likely to deploy pre-commitment devices and, thus, delegate their financial decision making to a professional financial advisor or fund manager. While individuals normally prefer several options and follow the more-is-more thought, constraining the own choice and remaining with fewer opportunities might be sensible if the individual benefits from fewer options. This might happen if fewer choices improve the ability to resist by excluding otherwise desirable choices and/or by avoiding an overload of options. For example, smokers are willing to use costly contracts as a pre-commitment device and pay monthly deposits into a savings account which returns the money after six months if they successfully quit and donates the money accumulated in the savings account to a charity if they fail (Giné et al., 2010). Smokers often pre-commit in several ways helping them to overcome unwanted consequences of limited self-control in their investments and to sometimes even overcompensate the negative

consequences of lacking self-control by delegating decisions.

We also find evidence for a habit of pre-committing by smokers when analyzing their saving plans. Low self-control investors have a significantly higher probability to use saving plans (7.5%) but experience difficulties sticking to them.

A widely discussed topic in psychological research about self-control strength is self-control depletion, where self-control is seen as a limited resource resembling a muscle (Muraven and Baumeister, 2000). We analyze the consequences of self-control depletion caused by investors trying to stop smoking and find no significant effect (disposition effect) or even a significant negative effect (trading activity) for quitting smokers. Obviously, trading does not represent an easy-to-reach substitute drug like eating over as we do not find any particularly interesting differences compared to regular smokers. Trading is rather being avoided the way smoking is avoided too.

Conclusion

This article shows that a lack in self-control also affects human's financial well-being. Smokers who self-direct their investments trade more frequently, exhibit more biases, and achieve lower portfolio returns. We also find that smokers, some of which might be aware of their own self-control failure, have a higher propensity than non-smokers to delegate decision making to professional advisors and fund managers instead of acting on their own. First applied in ancient time by Homer's Ulysses, who ordered to be tied to the ship's mast to avoid being lured to

death by drowning due to the singing of the sirens, we also find that such pre-commitment strategies work successfully for today's investors. Instead of self-directing, they strongly tie themselves to a professional advisor or fund manager and, therefore, participate in financial markets without taking the risk to jump into the wild sea of investment mistakes.

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Research Report

Artificial Intelligence: How to Develop Organizations to Succeed

DIGITAL TRANSFORMATION COUPLED WITH THE SIMPLIFIED AVAILABILITY OF DATA BRINGS ARTIFICIAL INTELLIGENCE (AI) CLOSER TO COMMERCIAL USE. FOR THE DATA-DRIVEN FINANCIAL INDUSTRY, AI IS OF INTENSIVE INTEREST WITHIN PILOT PROJECTS. STILL, FEW AI APPLICATIONS HAVE BEEN IMPLEMENTED SO FAR. THIS STUDY ANALYZES DRIVERS AND INHIBITORS OF A SUCCESSFUL AI ADOPTION IN THE FINANCIAL INDUSTRY BASED ON PANEL DATA COMPRISING 22 SEMI-STRUCTURED INTERVIEWS WITH EXPERTS OF AI IN FINANCE, INCLUDING INTERVIEWEES FROM LEADING SOFTWARE PROVIDERS SUCH AS SAP, IBM, SALESFORCE, AND MICROSOFT. FOR APPLYING AI SUCCESSFULLY, THE GUIDELINES REVEAL SEVERAL DATA CONDITIONS, AI-SPECIFIC ROLE MODELS, AND OVERCOMING MORAL CONCERNS AS CRUCIAL BEFORE TRAINED ALGORITHMS WILL HAVE REACHED A QUALITY LEVEL TO OPERATE WITHOUT HUMAN INTERVENTION.

Luisa Kruse

Roman Beck

Nico Wunderlich

Introduction

Recent technological developments and the emergence of big data have led to an increasing interest in AI worldwide. Some even propagate "AI first" as a mantra and symbol for a massive disruption of business models: Internet giants, such as Google, Amazon, Apple, or Facebook, invest millions in AI to provide AI-based applications and services. Google, Amazon, Tesla, and Facebook are regularly publishing their AI libraries, forcing their accessibility to a broad mass of developers.

The popularity of AI is a direct response to the ever increasing amount of "big data", that asks for expanded ways of data analytics to capture value for businesses. Huge amounts of structured and unstructured data are a significant leap forward to harvest the potential of AI for business applications. AI allows for pattern recognition and smarter ways of data utilization in an automated way, leading to an improved intelligence about, e.g., customer needs and markets. In addition, tools for integrating AI are now offered by many major software vendors, e.g., Salesforce Einstein, IBM Watson, or Microsoft LUIS, which allow first steps to take AI out of the labs and into production.

In finance, Deutsche Bank, for instance, operates a digital asset manager called "Robin" (abbreviation of robo-invest). The financial industry shows great potential for AI since data – more specifically customer and transaction data – is the main resource which banks and insurance companies collect, sort, process, and link every day. In principle, the business models of financial institutions are completely digitizable; the emergence of 21st-century digital-born financial technology companies (FinTechs) as well as increases in customer demands pressure the incumbent finance sector. Thus, in this study, we are interested in how financial institutions deal with the need for adapting and adopting AI and how they are coping with related challenges.

Sample and Methodogy

To analyze drivers and inhibitors for AI adoption, we interviewed a panel of AI experts from the German financial industry and supporting sectors. The qualitative empirical data was collected through 22 semi-structured expert interviews. The interviews covered experts from leading software providers in the finance industry, such as SAP, IBM, Salesforce, and Microsoft, supplemented by interviews with experts at CxO level, e.g., the CEO or CIO level. Three different target groups were taken into account (Figure 1). (1) The first group consists

1 Expert Interviews

- 22 semi-structured expert interviews in the FS industry
- 708 minutes of interview data

Banking & Insurance | Industrial / technology experts | Software Vendors

2 Transcription and Codification

- qualitative content analysis
- deductive category formation
- adapting categories during the data analysis

Interview Data → Coded Categories

3 Assignment to TOE Dimensions

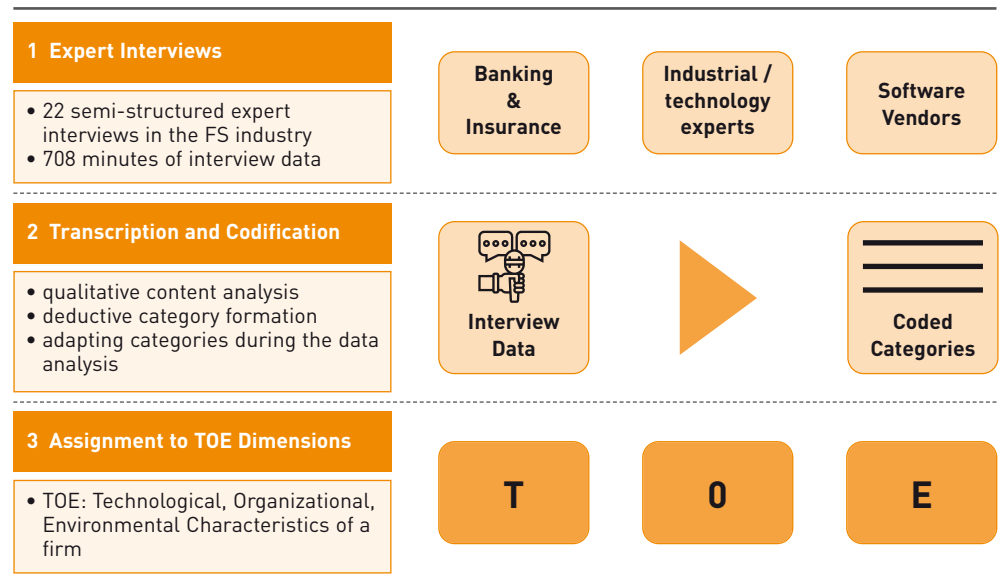- TOE: Technological, Organizational, Environmental Characteristics of a firm

T   O   E

Figure 1: Three-Step Exploratory Procedure

of leading banks and insurance companies, representing important players in the German financial industry. The interviewed experts were predominantly project leaders with specific working experience in the field of AI or with an IT background. (2) SAP, Microsoft, IBM, and Salesforce, four of the world's largest software manufactures represent the second group. Specialized in offering AI products or platforms, participants of these companies were predominantly digital advisors and specialists familiar with the company's own AI product offerings. (3) The third group consists of industrial and technology experts in the field of AI derived from the consulting service provider PwC.

A semi-structured interview is a useful instrument in explanatory research since it offers the opportunity for an open exchange with the participants. In total, about 708 minutes of interview were transcribed and further analyzed by procedures of a qualitative content analysis. As theoretical lens, we structured our results using the technology-organization-environment (TOE) framework. This organization-level theory presents the three elements technology, organization, and environment, influencing the process to adopt and implement innovations within a firm (Tornatzky and Fleischer, 1990).

Empirically Derived Challenges and Guidelines for AI Adoption

In the following, main challenges and respective guidelines associated with the adoption of AI within the German financial industry are extracted from the executed data collection. Based on the TOE framework, the results are structured into the three dimensions technology, organization, and environment. To follow the entire procedure, please consider the complete study of this article (Kruse et al., 2019).

Technological Dimension

Two-thirds of the interviewees state a lack in the *availability and quality of training data* as prohibiting further AI adoption. This phenomenon derives from an imminent AI characteristic: the way an AI system fulfills its purpose is trained, which means that the algorithm learns from exposure to known examples of input and output data. The immense benefit from an AI system is highly depending on its prior training. Therefore, AI requires a sufficient amount of available data for training the system. To correspond to this challenge, companies need to make sure the data needed is digitally available and provides a level of quality and complexity where it can be used to draw value-adding conclusions.

Some of the experts claim a *lacking market overview* as prohibitor in enhancing data quality. This is more surprising since today AI engines are offered by large software providers, such as Microsoft LUIS, IBM Watson, Amazon Lex, SAP Leonardo, or Salesforce Einstein. Our guidelines recommend to achieve an extended market overview on AI providers to gain the ability to evaluate solutions.

The interviews reveal that the *existing IT architectures* often form a legacy ballast which is difficult to reform and which limits digital transformation and, therefore, the use of AI. With regard to a companies' entire IT infra-structure, these changes imply an IT of two speeds ("2-speed IT"): The traditional IT infrastructure keeps operating, designed for security and stability of the core banking/insurance system – complemented by a second infrastructure supporting fast and flexible application development and deployment, e.g., for AI.

Referring to the factor of technological characteristics, the study finds that the *lack of transparency* into the AI "black box" is often met with reserve and leads to a slow AI transition. Since one core element of AI is training, products and processes with AI components will act differently over time. This also implies specific risks for businesses since the generated output may not be aligned with ethical standards. Still, it is desirable that AI results are transparent and comprehensible. Banks and insurance companies need to ensure a system that is trustable and explainable. The analyzed risk complex demands for AI-adapted risk management, possibly embedded in specific mechanisms of AI governance and control. Furthermore, the compliance requirements need to be fulfilled especially for systems operating "live" and direct in customer interaction.

Organizational Dimension

Most importantly, the experts state that organizations are facing a severe knowledge gap regarding *digital skills* of their workforce. Job profiles such as data scientists or so-called requirement engineers are desperately needed. Thus, internal skill development as well as technology enablement among existing employees plays a major role with regard to successful AI adoption. Hiring additional employees with professional expertise in AI or bordering fields appears appropriate. In order to make the interaction between humans and machines a success, firms and society need to massively invest in digital education and information literacy to fulfill the demand of changing process competencies.

Many of the surveyed experts outline that, in the future, it will be less a question of hard skills but, instead, of the mindset and the employees' *willingness to change*. Within the existing traditional top-down hierarchy, there is small room for employees to change: Considering constellations such as in the incubator model will provide a protected space to develop AI skills and roles, resulting in digital labs or AI units ideally. Especially reflecting the AI-specific data quality of training algorithms, many interviewees, for instance, consider the position of an "AI trainer", who would be involved in the development and improvement of an AI system during ongoing operations.

Some participants state that as long as digital natives have not yet reached top management positions, upcoming technologies will continue to collide with old ways of thinking and existing structures. *Top management support* is, therefore, identified as an important factor for successful AI adoption. The role of the Chief Digital Officer (CDO) is of particular importance; and, as a "next step", expanding the role of the AI trainer towards a chief artificial intelligence officer (C"AI"O) is increasingly being discussed amongst large enterprises.

Environmental Dimension

The surveyed experts underlined that the finance industry is still concerned about losing control on their own data, even more since this data is the core value of their business. While AI requires massive data analysis, this can only be realized by managing large data volumes flexibly, for instance, using decentralized data centers, namely "the cloud". Overcoming *traditional data protection* may serve as key to open the "gold treasure" of proprietary data for further analysis that have been collected over the years (Figure 2). Expectation management is essential to understand that AI is neither a miracle cure nor a killer robot. While companies should focus on making AI trustable, explainable, and valuable, politicians should focus on defining ethical standards, such as an "AI code of conduct" to answer *moral concerns*.

On the other hand, the *market pressure by FinTechs* functions as accelerating AI adoption within the financial industry. The emergence of FinTechs and their products force established players to change since these digital-born companies especially benefit from their leanness, agility, and innovation strengths. FinTechs pressure the established firms to optimize their processes, systems, and products. In this field of high competition, desensationalized discourses around the topic of AI may be one more argument to overcome traditional data protection since the focused utilization of the large amounts of proprietary data may forearm traditional banks and insurance companies against FinTechs.

In addition to the previous findings, the surveyed experts further outline that especially traditional financial providers are confronted with a huge number of regulatory requirements. *Regulatory requirements* shall leave companies enough space for creating innovation with AI. Over-regulation binds financial resources and leads to organizational inertia instead of stimulating for innovation.

Discussion of the Results

Modern technologies like AI do not provoke change on their own – this study demonstrates that AI adoption still faces great demands in the financial industry. Applying the TOE framework to structure the results, the analysis of the conducted expert interviews shows that AI adoption is subject to critical success factors. The derived guidelines demonstrate how employees and organizations as a whole must be prepared to integrate AI technologies in the financial sector in order to draw value-adding conclusions from AI in daily operations.

Numerous derived challenges and guidelines are related to data issues, since – more specifically – customer and transaction data are the main resource gained, processed, and maintained in the financial industry. The study reveals that (mainly traditional) financial institutes still find it difficult to take advantage of this "gold treasure": In contrast to FinTechs, the study finds a majority of companies as still trapped in analogical mindsets. Role definitions supporting AI ("AI trainer") or even a C"AI"O have to be introduced to extant IT job descriptions in order to take advantage of AI applications. Moral concerns prohibit the use of flexible cloud solutions instead of analyzing a huge amount of proprietary data. Specified AI governance, e.g., AI risk and compliance management, helps to contain the feared damage of degenerated "black box" computed AI results. As some interviewees imply, the flood of financial regulations serves as welcome excuse to stay in traditional structures rather than facing the opportunities and necessities serving from the all-encompassing digital transformation.

Environmental Context		Challenges derived from coded interview data	Practical Guidelines for AI Adoption	Environmental Implications
	Industry Characteristics	• **Traditional data protection** as part of core business • Lacking support of customers and community driven by **moral concerns** and uncertainty • Competitive **environmental pressures (FinTechs)**	• By making **AI trustable and explainable** within firms, companies will overcome traditional data protection • As an ethical framework, **"AI code of conduct"** serves to build trust in AI. This may influence and desensationalize public discourses around moral concerns about AI • Utilize **extant proprietary data** resources to compete with FinTechs and understand internal data as competitive advantage	
	Governmental Regulations	• **BCBS239** or MiFID require investment in documentation and regulatory reporting • Competitive pressures as government regulation opens up for **market entries (PSD2)**	• Achieve **space for innovation** within working environment and despite governmental regulations • Achieve **space for innovation** and utilize extant proprietary data resources to answer market entries	

Figure 2: Study Results, Environmental Dimension

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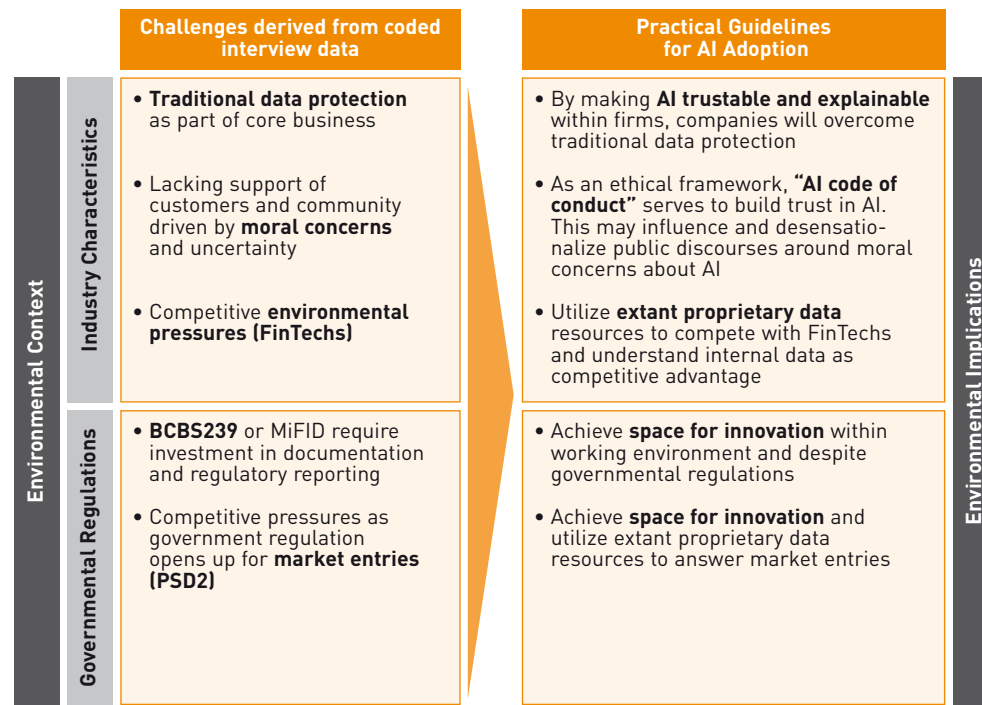
Insideview

Distributed Ledger Technology (DLT) and Blockchain for Securities Markets

INTERVIEW WITH JENS HACHMEISTER

Jens Hachmeister
Managing Director, DLT, Crypto Assets
and New Market Structures
Deutsche Börse AG

After the extreme hype on DLT and blockchain in the last years, there seems to be more realism and pragmatism now. What is your perspective on this development?

2017 was the year of cryptocurrencies and especially Bitcoin. 2018 was the year of ICOs with almost 900 ICOs and over USD 6 billion (up to USD 20 billion according to some sources) raised. Currently, we experience a crypto winter with falling prices and only few successful ICOs. Many of the projects struggle to proof that DLT is adding value and I expect to see a further consolidation in the crypto space. However, I am also convinced that 2019 will be a great year for shifting towards actual value-adding initiatives. I don't see cryptocurrencies – at least in an unregulated and non-transparent environment – attract institutional-grade financial market participants to a substantial extent. But I think that the tokenization of assets, the next major phase of asset digitization, has the potential to reshape global financial markets. In the future, we will be able to tokenize all kinds of assets, such as industrial goods or real estate. The tokenization increases the fungibility and flexibility especially of less liquid asset classes, and portfolios will be more differentiated and personalized.

For which type of applications is DLT a real game changer?

The expectations are high – but DLT and blockchain technology is not the answer to all questions. In order to create new market structures, to add new products onto present structures, and to enhance existing offerings, a multi-technology approach is needed. I think that DLT and blockchain technology can create real value whenever a common view on a shared set of information is beneficial to foster reconciliation, transparency, and liquidity. The collateral management solution that we developed together with HQLAx is a perfect example for a value-adding service based on DLT.

What are the goals and key benefits of HQLAx for the market?

HQLAx is a collateral lending platform aiming to increase collateral mobility and decrease capital costs for financial institutions. Technically, a DLT-based tokenization of security baskets takes place, which is fully integrated in our established value chain. At the trading level, the DLT layer connects to Eurex Repo, an electronic trading system on which OTC financing transactions are being agreed. The DLT layer is also connected to another Deutsche Börse entity, the so-called Trusted Third Party (TTP), which links to multiple custodian locations, where the securities are deposited. The TTP's role is to ensure that relevant securities are safely locked away. HQLAx is a great example how the legacy and DLT world can interconnect to create value for market participants. We are confident that HQLAx will go live in the first half of 2019. The solution will support financial institutions to better manage and monetize their HQLA portfolios, which many of them have to hold due to regulatory requirements.

What are your predictions for the future and what are your plans?

In order for DLT to fully unfold its potential for the financial markets, it needs a comprehensive regulatory-compliant infrastructure. This should be an open platform or ecosystem enabling an easy integration of third-party services to foster innovation, co-creation, and scalability. This is what we aim for with our strategic partnership with Swisscom and Sygnum. This cooperation aims at building a trusted and regulatory-compliant financial market infrastructure for digital assets. The core elements will include issuance, access to liquidity, banking services, and a custody solution – all based on DLT in a regulatory-compliant environment. We start to build the infrastructure today that is needed for the financial markets of tomorrow.

Thank you for this interesting conversation.

Infopool

News

E-Finance Lab Spring Conference 2019
For the first time, this year's Spring Conference took place at TechQuartier in Frankfurt. On February 26th, about 200 international experts, high-profile representatives of key industry players, and academics joined us to discuss the topic "Artificial Intelligence in the Financial Services Industry". At the conference website, you can rewatch the conference livestream and download the slides of the speakers: https://efl-spring-con-2019.de/. Thanks again to everyone who participated!
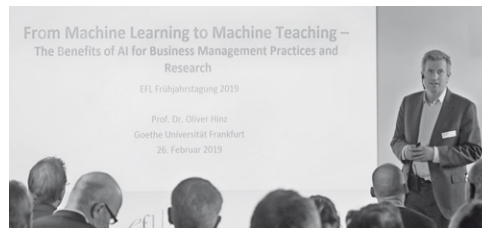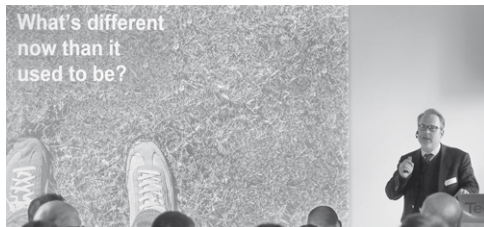
Prof. Hinz and Prof. Skiera in Wirtschaftwoche Ranking
The Wirtschaftwoche ranking compares the research outcomes of more than 2,500 researchers in economics. Our congratulations to Prof. Oliver Hinz and Prof. Bernd Skiera who were ranked 23 and 29!

EFL-Research Paper Among the Ten Most Downloaded Springer Journal Articles
The Paper "Digital Finance and FinTech: Current Research and Future Research Directions" by Peter Gomber, Jascha-Alexander Koch, and Michael Siering (2017) is among the ten most downloaded Springer Journal Articles on Business & Management. Over a period of less than two years, the paper has reached over 10,000 downloads on the Springer website. With this outstanding number of downloads, the paper has become the most successful paper of the Journal of Business Economics in 2018.

Selected E-Finance Lab Publications

Clapham, B.; Gomber, P.; Lausen, J.; Panz, S.:
Liquidity Provider Incentives in Fragmented Securities Markets.
In: 21st Annual Conference of the Swiss Society for Financial Market Research (SGF); Zurich, Switzerland, 2018.

Hinz, O.; van der Aalst, W.; Weinhardt, C.:
Blind Spots in Business and Information Systems Engineering.
Forthcoming in: Business & Information Systems Engineering, 2019.

Laudenbach, C.:
The Long-lasting Effects of Living Under Communism on Financial Risk-Taking.
In: American Finance Association (AFA); Atlanta (GA), US, 2019.

Luthra, M.; Koldehofe, B.; Steinmetz, R.:
Transitions for Increased Flexibility in Fog Computing: A Case Study on Complex Event Processing.
Forthcoming in: Informatik Spektrum, Special Issue on Fog Computing Reality, 2019.

Mihale-Wilson, C.; Kubach, M.:
Business Models for Open Digital Ecosystems of Trustable Assistants.
Forthcoming in: Open Identity Summit (OID); Garmisch-Partenkirchen, Germany, 2019.

Pfeuffer, N.; Benlian, A.; Gimpel, H.; Hinz, O.:
Catchword: Anthropomorphic Information Systems.
Forthcoming in: Business & Information Systems Engineering, 2019.

Scholz, M.; Brenner, C.; Hinz, O.:
AKEGIS: Automatic Keyword Generation for Sponsored Search Advertising in Online Retailing.
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Infopool

RESEARCH PAPER: THE LIQUID HAND-TO-MOUTH: EVIDENCE FROM PERSONAL FINANCE MANAGEMENT SOFTWARE

Using very accurate transaction-level account data from a personal finance management tool, the authors document that individuals exhibit strong spending responses to the arrival of both regular and irregular income. These payday responses are robust and homogeneous for all income and spending categories throughout the income distribution. In contrast to previous studies, the authors find that hand-to-mouth behavior is not limited to liquidity-constrained households by showing that non-liquidity-constrained households also exhibit hand-to-mouth behavior through various measures of liquidity constraints. The article further shows that peoples' spending responses are consistent with standard models without illiquid savings, in which neither present nor future liquidity constraints are frequently binding.

Olafsson, A.; Pagel, M.
In: Review of Financial Studies, 31 (2018) 11, pp. 4398–4446.

RESEARCH PAPER: INITIAL COIN OFFERINGS (ICOs) TO FINANCE NEW VENTURES

ICOs constitute a novel mechanism for funding highly innovative ventures that use distributed ledger technology (DLT). The most common type of DLT is the blockchain technology. In an ICO (also referred to as "crowdsale" or "token sale"), ventures raise capital by issuing and then selling tokens to a crowd of investors. Both the number of ICOs and the amount of capital raised have exploded since 2017. Still, little is known about the dynamics of ICOs. This initial study, therefore, assesses the determinants of the amount raised in 423 ICOs. The results show that technical white papers and high-quality source codes increase the amount raised. Exploring further determinants, the results indicate that some of the underlying mechanisms in ICOs resemble those found in prior research into entrepreneurial finance while others are unique to the ICO context. Importantly, the results enable investors to more accurately understand crucial determinants of the amount raised.

Fisch, C.
In: Journal of Business Venturing, 34 (2019) 1, pp. 1–22.

E-Finance Lab Quarterly

The E-Finance Lab publishes the Quarterly in the form of a periodic newsletter which appears four times a year. Besides a number of printed copies, the EFL Quarterly is distributed digitally via E-mail for reasons of saving natural resources. The main purpose of the newsletter is to provide latest E-Finance Lab research results to our audience. Therefore, the main part is the description of two research results on a managerial level – complemented by an editorial, an interview, and some short news.

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Prof. Dr. Peter Gomber
Vice Chairman of the E-Finance Lab
Goethe University Frankfurt
Theodor-W.-Adorno-Platz 4
D-60629 Frankfurt am Main

newsletter@efinancelab.com

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For further information please contact:

Prof. Dr. Peter Gomber
Vice Chairman of the
E-Finance Lab
Goethe University Frankfurt
Theodor-W.-Adorno-Platz 4
D-60629 Frankfurt am Main

Phone +49 (0)69 / 798 - 346 82
E-mail gomber@wiwi.uni-frankfurt.de

Press contact
Phone +49 (0)69 / 798 - 346 82
E-mail presse@efinancelab.com

or visit our website
http://www.efinancelab.com