efinancelab
at the HOUSE OF FINANCE

The Uphill Challenge

Is Laissez-Faire Regulation Sufficient
to Protect Consumers?

Smart Contracts for the
Insurance Market

Blockchain and Financial Market
Infrastructures

DEUTSCHE BÖRSE GROUP

DZ BANK Gruppe

finanz informatik

IBM

360T DEUTSCHE BÖRSE GROUP

FACTSET

more security. usd

GOETHE UNIVERSITÄT FRANKFURT AM MAIN

TECHNISCHE UNIVERSITÄT DARMSTADT

Editorial

The Uphill Challenge

Christian Brauckmann

Dr. Christian Brauckmann
CIO
DZ BANK AG

With its new European Reporting Framework, the ECB has opened the door to a new dimension in the synchronization of banks data. It is an uphill struggle for banks to fulfil the ECB requirements not only on aggregated (risk) data but also granular data on single credits or payments. The logic of the banking supervisors is clear: full transparency in every bank from an aggregated view on balance sheet positions right down to the origin data of each contract. BCBS 239 (a regulation prepared by the Basel Committee on Banking Supervision that entails a substantial list of principles which are intended to strengthen banks' capability to aggregate risk data and to manage effective risk reporting) and AnaCredit (a project that aims at setting up a comprehensive dataset which is harmonized across all member states and which contains detailed information on individual bank loans) were just the beginning. The ECB initiative entitled BIRD (Banks' Integrated Reporting Dictionary) is the next big step into the new world of fully transparent banks within the European Reporting Framework. Any bank that is still thinking about starting a big data initiative will not be doing so for its own business purposes, but rather to support complete transparency for the ECB.

These regulatory drivers have become a catalyst also for infrastructure renewal. In fact, no bank with its hundreds and sometimes thousands of different IT systems and applications has the option to create a completely new IT and data infrastructure. Redesigning existing infrastructures and operating environments has become the most important challenge today and in years to come. The budgets and resources required for such immense infrastructure projects have increased sometimes threefold or fourfold. A crucial fact is that the requirements of the banking supervision for banks to invest very large shares of their "change" budgets in their data management restrict the scope for necessary business-driven investments in the banks' core segments and therefore future earnings.

How can banks get out of this vicious circle?

As always, there is no easy way out and, of course, it depends on each bank's individual situation. The first management task is to prioritize the supply of budgets and resources to fund internal infrastructure projects on the one hand, and to develop customer services and solutions on the other hand. The second – and probably more challenging task – is to combine digitization initiatives with the redesign of the IT infrastructure, data management, and often business processes. The so-called digitization of the customer interface should consequently lead to the digitization of internal processes. When discussing customers' journeys and defining new access channels and interfaces, it is also necessary to take a closer look at the customer journey a client takes "within" the bank.

Many internal processes could be redesigned and automated. This means finding a reasonable combination of reengineering based on highly-integrated systems and applications, which allow much better straight-through processing nowadays than in the early 1990s, when Michael Hammer promoted the business process reengineering approach. And such integrated systems usually allow much better data alignment and therefore data supply to the banks' controlling systems than systems with disruptions and higher shares of manual functions.

In the end, banks have three alternatives: First, focus on regulatory projects and leave the business processes mostly as they are; this might cause some efficiency problems sooner or later. Second, fulfil supervisory requirements at an absolute minimum level only and put all efforts into customer and processing projects to maximize profitability – not a realistic alternative for bankers under ECB supervision. And third, streamline and digitize internal processes to not only better fulfil customers' needs but also to reach improved data alignment which leads to more efficient and consistent data aggregation and reporting possibilities. This will not be easy but in the long run this is probably the only way to more transparent and more efficient banking.

Research Report

Is Laissez-Faire Regulation Sufficient to Protect Consumers?

UNDER LAISSEZ-FAIRE REGULATION, REGULATORS CHOOSE NOT TO INTERFERE BECAUSE THEY SEEK TO STIMULATE INNOVATION AND PROTECT ENTERPRISES FROM THE COSTS IMPOSED BY REGULATORY COMPLIANCE. YET, EMPIRICAL EVIDENCE REGARDING THE ABILITY OF LAISSEZ-FAIRE REGULATION TO ENSURE CONSUMER PROTECTION IS LACKING. THIS ARTICLE TESTS EMPIRICALLY WHETHER THE CURRENT LAISSEZ-FAIRE REGULATION OF PRICE ADVERTISING CLAIMS ON THE MOST POPULAR REWARD-BASED CROWDFUNDING PLATFORM, KICKSTARTER, IS SUFFICIENT TO PROTECT CONSUMERS.

Daniel Blaseg

Bernd Skiera

Christian Schulze

Introduction

Consumer protection is the primary goal of regulation. Regulators seek to prevent avoidable reductions in consumer welfare, which could stem, for example, from a lack of competition or result from inaccurate information in the marketplace. Ultimately, regulation can stifle or choke innovation. As such, regulation can be particularly harmful to young and innovative enterprises by creating barriers to entry. These enterprises often lack the necessary resources to bear the costs of regulatory compliance. Also, they find themselves at a disadvantage over incumbents, when regulation negatively affects the innovations upon which their business model depends.

In response to this apparent trade-off between consumer protection and innovation, academics, policy makers, and enterprises have proposed a laissez-faire approach to regulation. Under laissez-faire regulation, regulators choose not to interfere, which means that they neither apply existing regulation nor create new regulation. The motivation for doing so is that regulators suspect a lack of economic injury to consumers in these contexts (i.e., regulation is not needed), or favor self-regulation as a means of ensuring consumer protection.

Self-regulation has been proposed as a faster, cheaper, and more effective approach to regulation more than 45 years ago (Stern, 1971), but has recently gained again in popularity, as regulators have favored a laissez-faire approach to regulation for the FinTech sector, ride-hailing services, and short-term rentals (Haslehurst and Lewis, 2016). Despite the relevance of self-regulation in policy making, there is no consensus on its merits and limitations in the literature. Proponents argue that regulation by the authorities is superfluous, if not detrimental, as enterprises themselves have sufficiently strong incentives to protect consumers in many cases. Others claim that prioritizing their profits over consumer protection severely limits enterprises' potential to self-regulate and protect consumers effectively.

Despite the popularity of laissez-faire regulation and its advantages for fostering innovation, empirical evidence on its ability to ensure consumer protection is still lacking. The aim of this article is to investigate whether laissez-faire regulation is sufficient to ensure consumer protection. For this to be true, at least one of the following four criteria must be met as laid out in Figure 1.

Price Advertising Claims on Kickstarter

To investigate these four criteria empirically, we study a type of regulation that is relevant in the market and permits for investigating economic injury experienced by consumers. One such type of regulation are price advertising claims (PACs). PACs are a form of advertising used in the sale of products whereby current prices are compared with a suggested reference price. PACs are widely regulated around the world and regulators, such as the Federal Trade Commission, have promulgated specific guidelines to determine the conditions under which a PAC is deceptive. For example, if a seller makes a PAC such as "Sold for USD 25 only today, 50% off the regular retail price", regulation requires an immediate price increase after the end of the promotion, an actual price increase to the stated amount, and maintenance of the stated amount for a reasonable time.

Such PACs are widely used in pre-orderings of products, such as video games and technology hardware, to induce consumers to purchase the new product and to advance an amount of money for the enterprise to finance the production.

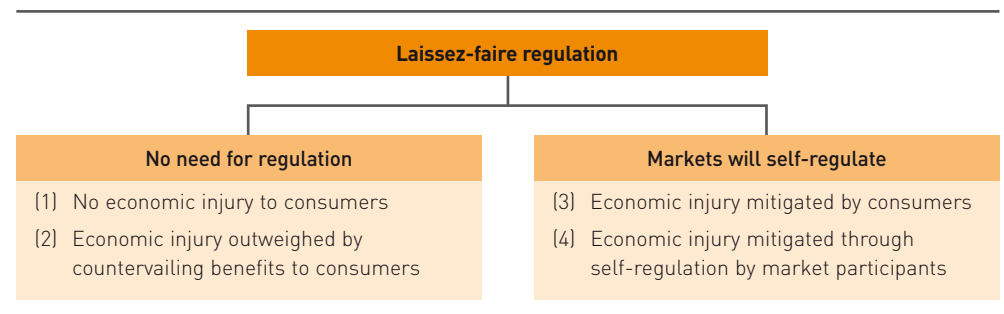| Laissez-faire regulation	
No need for regulation	**Markets will self-regulate**
(1) No economic injury to consumers	(3) Economic injury mitigated by consumers
(2) Economic injury outweighed by countervailing benefits to consumers	(4) Economic injury mitigated through self-regulation by market participants

Figure 1: Criteria to Evaluate Whether Laissez-Faire Regulation Ensures Consumer Protection

The regulation of such PACs is widely applied, including online retailers and platforms, such as Amazon.

However, PAC regulation has not been applied to Kickstarter – a popular, reward-based crowd-funding platform. Founded in 2009, the platform has attracted more than 13 million consumers that have spent more than USD 2.8 billion on the platform. Consumers fund the final development and production of a new product and in return receive the product a few weeks or months later. Despite similarities to the online shopping experience at retailers such as Amazon, the crowdfunding platform follows a different model. On Kickstarter, consumers fund unfinished and unproven products and hence risk receiving a product of poor quality, experiencing substantial delays, or even getting nothing at all. At retailers such as Amazon consumers could simply ask for a refund in such cases. On Kickstarter, however, regulators' laissez-faire approach currently leaves consumers without such protection.

We use the specific example of non-regulation of PACs on Kickstarter to investigate whether regulators' laissez-faire approach is sufficient to ensure consumer protection.

To investigate whether consumers get the price advantage that was promised, we analyze Kickstarter campaigns started between April 2009 and September 2016. To analyze the four criteria laid out above, we must augment the detailed data available on Kickstarter with information from various outside sources:

overall, we combine data from twelve different sources via extensive matching of information with Kickstarter campaigns. In total, we analyzed 34,745 Kickstarter campaigns, 4,279,494 consumer comments, 233,701 campaign updates, 1,705 blog articles from Kickstarter, 18,488 news articles regarding Kickstarter from 500 publishers, 94,569 consumer reviews, and 4,432 pages of consumer complaints filed with official authorities.

Empirical Results

Our analyses provide the following main results:

1) We establish the existence of greater economic injury to consumers from Kickstarter campaigns that use (vs. do not use) PACs. All else equal, consumers funding campaigns that use PACs on Kickstarter do not receive the promised discounts. Products from PAC campaigns that are later offered on the retail platforms Amazon and Steam on average command a lower retail price upon product launch than promised by the Kickstarter campaign. More strikingly, the retail price is even lower than what these consumers paid on Kickstarter. Different from what campaigns promise, backers of PAC campaigns pay more, not less than the retail price. In addition to not receiving the promised discount, consumers funding campaigns that use (vs. do not use) PACs also have lower likelihood of ever receiving the product, experience longer delivery delays, and receive products of lower quality.

2) We show that the economic injury experienced by consumers of campaigns using

PACs is not outweighed by countervailing benefits. All else equal, consumers funding campaigns that use (vs. do not use) PACs on Kickstarter have a greater probability of filing consumer complaints. Also, these consumers are unhappier, as indicated by lower sentiment in backers' comments on the Kickstarter platform.

3) We do not find evidence of successful self-regulation through consumer learning. All else equal, campaigns that use (vs. do not use) PACs on Kickstarter do not experience a relative decrease in funding likelihood over time.

4) We do not find evidence of self-regulation by the campaign managers. Only 34 out of 34,745 Kickstarter campaigns engage in self-regulatory activities. We also do not find evidence of successful self-regulation by the platform. Our analysis reveals no positive effect of a major policy change on savings over the retail price, delivery likelihood, delivery delay, or product quality for PAC (vs. NoPAC) campaigns.

Conclusion

In summary, we do not find evidence that current laissez-faire regulation regarding price advertising claims is sufficient to ensure consumer protection on reward-based crowdfunding platform Kickstarter. We arrive at this conclusion after (1) establishing the existence of economic injury among backers of PAC (vs. NoPAC) campaigns, (2) finding no evidence that other countervailing benefits for backers

of PAC (vs. NoPAC) campaigns exist, (3) finding no evidence of consumers learning about the economic injury associated with PAC (vs.NoPAC) campaigns and adjusting their expectations and behaviors, and (4) finding no evidence of effective self-regulation mitigating economic injury associated with PACs, neither by campaign managers nor by the Kickstarter platform.

Our study provides first empirical evidence to the primarily theoretical and conceptual literature on self-regulation. It adds to the ongoing high-profile discussion among policy makers about the merits of laissez-faire regulation in solving the innovation vs. consumer protection trade-off. We show that laissez-faire regulation can lead to substantial economic injury experienced by consumers and that regulators cannot count on consumer learning or self-regulation to mitigate this economic injury. Thus, regulators must carefully weigh this injury experienced by consumers against the (societal) benefits of laissez-faire regulation.

References
Stern, L.:
Consumer Protection Via Self-Regulation.
In: Journal of Marketing, 35 (1971) 3, pp. 47–53.

Haslehurst, R.; Lewis, A.:
We Don't Need a Whole New Regulatory Regime for Platforms Like Uber and Airbnb. Harvard Business Review, 2016, https://hbr.org/2016/04/we-dont-need-a-whole-new-regulatory-regime-for-platforms-like-uber-and-airbnb (retrieved July 15th, 2017).

Research Report

Smart Contracts for the Insurance Market

THE RECENT EVOLUTION OF SMART CONTRACTS AND THEIR FAST ADOPTION ALLOW TO RETHINK PROCESSES AND TO CHALLENGE TRADITIONAL STRUCTURES. THEREFORE, WE INTRODUCE THE UNDERLYING TECHNOLOGY AND RECENT IMPROVEMENTS. FURTHER, WE PROVIDE AN OVERVIEW OF HOW THE INSURANCE SECTOR MAY BE AFFECTED BY BLOCKCHAIN TECHNOLOGY AND SMART CONTRACTS. WE SHOW AN EXEMPLARY USE CASE AND EMPHASIZE CURRENT CHALLENGES AND LIMITATIONS IN THIS AREA.

Ronny Hans

Amr Rizk

Hendrik Zuber

Ralf Steinmetz

Introduction

Blockchain provides an open and decentralized platform technology that allows the creation of a transparent, secure, and robust data record. It is designed to be a flexible, transparent, and efficient decentralized database. Thus, it may be employed to replace centralized systems that organize and administrate information (Davidson et al., 2016). Second-generation blockchains, like the Ethereum platform, additionally offer Turing-complete programmability for the integration of smart contracts (Wood, 2014). Thereby, the implementation of terms of an agreement between various parties can be enabled based on predefined, i.e., programmed, rules. These rules can be realized in self-executing code and are triggered automatically. As a consequence, there

are many different applications, such as finance, insurance, smart energy systems, governments, and the Internet of Things.

In our work, we show the potential of smart contracts and blockchain technology and how it may fundamentally alter the world-wide insurance sector (Hans et al., 2017).

Blockchain and Smart Contracts

It is worth noting that the main purpose of the first introduced blockchain has been to obtain a system that is publicly governed by participants in their network without depending on any credible parties. The clients within the network use a consensus protocol to protect the information records.

In general, a blockchain is a decentralized and trustful database that contains all records of events or transactions that have been executed and shared between participating parties (Shrier et al., 2016). In addition, the blockchain incorporates a full, unaltered, and verifiable history of every single transaction providing a high level of transparency (Wood, 2014). The blockchains' generic structure consists of a chain of connected blocks including ordered transactions. Each transaction is linked to the previous one to maintain an ordered structure. As a consequence, transactions can be traced back in time. To guarantee security for the information on the blockchain, every transaction must be approved by the network. Here, no external authentication measures are necessary. Instead, different consensus mechanisms can be used to achieve a consistent state at participating parties.

A blockchain can possess different characteristics in terms of accessibility:
- *Public/Private:* Submitting transactions is not limited or limited to a predefined list of entities.
- *Permissionless/Permissioned:* All identities or a predefined list of identities can process transactions.

Note that a permissioned design with known identities makes a consensus model unnecessary but decreases the degree of data transparency.

Consensus protocols are used to protect the system against malicious participants. These

protocols achieve a consistent and universal picture of the system state. Contemporarily, the proof-of-work (PoW), proof-of-stake (PoS), and Byzantine fault-tolerant (BFT) protocols are the most widely applied consensus protocols and possess completely different scalability characteristics (Davidson et al., 2016). In brief, a blockchain based on PoW provides favorable node scalability paired with a deficient performance which makes it highly cost-intensive due to considerable energy consumption – whereas PoS exhibits significantly lower costs and also a high scalability. The PoS consensus protocol processes significantly more transactions per second compared to other protocols. In contrast, a blockchain that uses BFT exhibits a good performance and restricted scalability. Here, every node must know all of its peer nodes that are engaged in the network to achieve consensus (Vukolić, 2015). As a consequence, a trusted and centralized administration is needed to emit identities and cryptographic authorization to nodes making this algorithm suitable for permissioned blockchains.

A smart contract can be defined as an event- and state-driven program that may run on a blockchain platform to administer assets that are included in the blockchain (Luu et al., 2016). Further, the scripting attributes of blockchains can be utilized to create cryptographic contracts that execute predefined agreement obligations by using self-enforced scripting languages. This type of contracts needs an unbiased mediator to take decisions and actions on the agreement. Consequently,

blockchains are perfectly suitable to run smart contracts as they provide incentives for the mediator to decide honestly. The verification process of such contracts is the same as used for blockchain technology.

A main challenge for smart contracts is to achieve sustainability and to prevent malicious usage. In Ethereum, this is resolved by requiring a "fee" (ether) that is consumed by the nodes to compensate for contract execution. The amount of "ether" for a contract execution depends on its complexity. In addition, smart contracts need external data input for the evaluation process. Oracles, i.e., trusted third parties, deliver validated external data to a smart contract that can be logically evaluated to make a decision. To guarantee that the information has not been manipulated, signature concepts, such as "three out of five", are installed.

Privacy concerns paired with the vast amount of necessary data required for smart contracts lead to new structured approaches for the development of blockchain designs, e.g., creating parallel working blockchains which permit the transfer of assets and data between them. The concept of using various blockchains resulted in a scheme consisting of the following blockchains: identity chains, transaction chains, and content chains (Mainelli and Smith, 2015). First, the identity chains are responsible to grant authorization for participants to a transaction chain. Second, transaction chains keep track of the executed transactions and store solely the corresponding hashes for optimized performance. Third, content chains are

decentralized storages that secure the data and guarantee accessibility. This structure allows having a public and permissionless identity chain and private transaction chains.

Blockchain and Smart Contracts in the Insurance Industry

Emerging initiatives and innovation strategies address key challenges of the insurance industry and focus on improvements in more individual pricing schemes, increasing profitability, and retaining clients (Mainelli and Smith, 2015). Major insurance companies started to put effort into evaluating possible ways of adopting blockchain technology to support and enhance their core businesses. Using smart contracts, several processes that are currently spread across numerous systems and databases can be streamlined. They automatize authentication and computation processes or similar tasks which may exhibit a high incidence of errors or abuses. Hence, smart contracts may strongly change the insurance industry as insurance policies can often be translated directly to computer code due to their "if-then" structure.

The blockchain technology has generated promising opportunities for disruption due to the following reasons (Deloitte, 2016):

■ decreasing the need for trust and financial exposure in already existing agreements and provide legal clarity,

■ facilitating the deployment and maintenance of internal or inter-organizational infrastructures,

■ enhancing uptime and overall security, and

■ reducing costs of running services, error-proneness, and the organization's reputational risk.

The prevention of fraud continues to be a top priority for the insurance industry. The underlying goal is to apply blockchain technology to streamline the payment and claims handling process to reduce the risk of fraudulent claims. Further, consumer insurance policies are often distributed by brokers that use third-party software platforms. They are regularly implemented in entirely independent and different code schemes due to an individual realization of the insurer's pricing model. As a consequence, several intermediaries might become dispensable by a shift to blockchain technology (Mainelli and Smith, 2015).

Example Use Case: Smart Contracts Based on Trusted Data Feeds

In 2013, the worldwide market for wholesale insurance and reinsurance summed up to a gross written premium of more than USD 520 billion (Hearn and Tischhauser, 2014). Insurance against natural catastrophes plays

an important role in this sector. Such catastrophes may cause instantaneous large costs for insurers. Therefore, reinsurers apply various approaches such as prefunding and risk-sharing by selling, e.g., "cat bonds", which can easily be expressed as smart contracts with simple contractually agreed conditions.

A promising proof of concept for such natural catastrophe swaps was recently piloted by Allianz Risk Transfer and Nephila Capital to facilitate and improve their contract management process.

In more detail, the process consisting of four main tasks is presented subsequently and its mode of operation is illustrated in Figure 1 (Alonso et al., 2015).

Contractual agreements: Contract terms are translated to executable code that can be evaluated automatically and independently.

External information: A third party serves as external and trustful data source to provide necessary and secure input information.
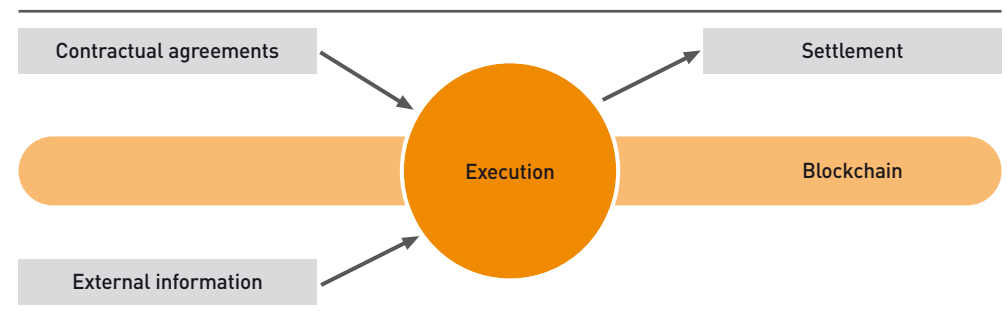

Figure 1: Basic Principle of a Smart Contract (adopted from Alonso et al., 2015)

Execution of smart contract: The receipt of information triggers the validation whether the predefined conditions are met, followed by the execution of the corresponding smart contract.

Settlement: In case that the criteria are met, the value transfer process is automatically initiated as imposed by the contract terms and payouts are determined between the participants. Also off-chain asset settlements can be performed by tracking account modifications on the block-chain to guarantee a creditworthy system.

In this example, the blockchain technology allows improving auditability, reliability, and execution time of the contract management process of both cat swaps and bonds. Particularly, this is achieved because of fewer manual processing as well as less verification and authentication through intermediaries.

Potential, Challenges, Limitations

In the following, we focus on the potential, challenges, and limitations of blockchain tech-nology within the insurance sector.

An important driver of recent developments is the potential application of blockchains in daily activities such as identity authentication and validation, payment operations, as well as data management. Hence, more personalized insur-ance products can be offered at lower prices by simultaneously increasing transparency, auto-mating processes, and introducing the ex-change of individual customer's data (Mainelli and Smith, 2015). Further, new markets can be

accessed in regions that lack good data mainte-nance and exhibit high grades of corruption as blockchain technology provides a more reliable and inalterable alternative to current registries (Shrier et al., 2016). This leads to developing new concepts that face increasing attention, e.g., peer-to-peer and just-in-time insurance.

Rethinking the so far existing concept of cen-tralized insurance models, peer-to-peer mod-els to insure risk may arise as the overhead problem of collecting premiums and processing payouts can be resolved using the concepts of blockchain and smart contracts. Especially, the fast growing sharing community demands dif-ferent types of insurance and requires a higher degree of flexibility. For example, using car sharing, cars are available instantly and insur-ance policies may be hired per trip for which smart contracts guarantee a suitable integra-tion. The blockchain approach might become a core technology enabling the development of instant, economical decentralized systems (Mainelli and Smith, 2015). Blockchain and smart contracts may increase the consumer's confidence and diminish identity or claim fraud.

An important challenge is improving the cur-rently applied consensus mechanisms. The choice between the existing approaches is accompanied by a trade-off between scalability and the desired degree of decentralization, security, and performance, as well as energy consumption and costs (Vukolić, 2015). Smart contracts depend heavily on the quality of external resources provided by oracles. As a

consequence, it must be ensured that oracles provide trustful data.

Conclusions

The blockchain technology and smart con-tracts are in an early stage. To realize their full potential, these technologies still must over-come several challenges, such as scalability, incorporation of external information, underly-ing real assets, flexibility, privacy, as well as permissioning schemes. We expect that blockchain solutions will be heavily cost-effi-cient compared to centralized approaches as these technologies offer extraordinary poten-tial in all areas where trustful transaction records are needed.

References

Alonso, J.; Cámara, N.; Sebastián, J.; Tuesta, D.; Urbiola, P.; Vegas, I.:
Digital Economy Outlook.
In: Digital Economy Outlook, October 2015.

Davidson, S.; De Filippi, P.; Potts, J.:
Economics of Blockchain.
In: Proceedings of the Public Choice Confer-ence, Fort Lauderdale, US, 2016.

Deloitte:
CFO Insights – Getting Smart About Smart Contracts.
Press Release, 2016.

Hans, R.; Zuber, H.; Rizk, A.; Steinmetz, R.:
Blockchain and Smart Contracts: Disruptive Technologies for the Insurance Market.
In: Proceedings of the Americas Conference on Information Systems (AMCIS), Boston, US, 2017.

Hearn, S.; Tischhauser, P.:
London Matters: The Competitive Position of the London Insurance Market, 2014.

Luu, L.; Chu, D.-H.; Olickel, H.; Saxena, P.; Hobor, A.:
Making Smart Contracts Smarter.
In: Proceedings of the ACM SIGSAC Conference, Vienna, Austria, 2016.

Mainelli, M.; Smith, M.:
Sharing Ledgers for Sharing Economies: An Exploration of Mutual Distributed Ledgers (aka Blockchain Technology).
In: The Journal of Financial Perspectives, 3 (2015) 3, pp. 38–69.

Shrier, D.; Sharma, D.; Pentland, A.:
Blockchain & Financial Services: The Fifth Horizon of Networked Innovation.
MIT Blockchain Whitepaper, 2016.

Vukolić, M.:
The Quest for Scalable Blockchain Fabric: Proof-of-Work Vs. Bft Replication.
In: Open Problems in Network Security: IFIP International Workshop, 2015, pp. 112–125.

Wood, G.:
Ethereum: A Secure Decentralised Generalised Transaction Ledger, Ethereum Project.
Whitepaper, 2014.

Insideview

Blockchain and Financial Market Infrastructures

INTERVIEW WITH STEFAN TEIS

Dr. Stefan Teis
Senior Vice President
Deutsche Börse AG

Blockchain technology and distributed ledgers are attracting massive attention across multiple industries. Specifically, the financial industry is triggering various initiatives to make use of the (allegedly) disruptive potential of the blockchain technology. What is your view on this disruptive potential?

The current discussion around blockchain is largely a hype as blockchain is generally attributed disruptive potential irrespectively of its use. I certainly expect continuous innovations as well as disruptive innovations driven by blockchain; however, always tied to a specific business model. Looking at current activities, I would classify its use in pure technology plays certainly with improvements in functionality, innovations improving existing business models, and finally disruption through the creation of new business models or through additions of truly new products and services to existing models.

What are – from your perspective – the potential application with respect to trading, clearing, or settlement functions?

The potential for blockchain applications in the area of settlement are most probable an increase of settlement efficiency, shorter settlement times, reduction of reconciliation efforts, more efficient asset servicing, etc. Further, in my opinion, it will be possible to realize clearing functionality via blockchain systems. However, I do believe that clearing houses will be necessary in the future as credit and counterparty risks are inherent in, e.g., derivative products and cannot be mitigated by new technologies but needs backing of a legal entity. Due to its large volume/throughput and low latency, I do not expect exchange trading like Deutsche Börse offers to move to blockchain in the near future. The evolution of blockchain-based trading applications will be an interesting topic for the future.

What are the main barriers of applying blockchain technology in a market infrastructure context?

Technological barriers are scalability and IT-security; and non-technological barriers are legal, regulatory, and tax treatment of blockchain-based business models as well as digitized assets within these models. I am confident that the scalability issues will be resolved through improved architectures, data sharding, and reduced data distribution. The later will also improve IT security as it reduces the vulnerability introduced through storing the same data across several instances. Observing the activities around legal and regulatory evaluation of blockchain business models and the involvement of central banks, regulators, and also governmental bodies increase my confidence in blockchain entering mainstream financial service business in the future.

Can you please provide us with some insights on what Deutsche Börse is doing with respect to blockchain technology?

At Deutsche Börse, we are currently pursuing three use cases.

(1) The settlement of digital securities against digital coins including asset servicing – a research project which we have been conducting with Deutsche Bundesbank since 2016.

(2) The movement of collateral across geographical borders. This is a project within the Liquidity Alliance with four participating CSDs (TMX, VPS, Strate, and Clearstream).

(3) "CollCo" – short for "Collateralized Coin", which enables the direct exchange of commercial bank money between peers. To achieve that, we plan to utilize the collateralization mechanisms of our clearing house Eurex Clearing.

What is your vision on the status of real business applicants of the blockchain technology in five years from now?

As said before, I do expect blockchain to enter mainstream financial service applications in five years from now.

Thank you for this interesting conversation.

Infopool

News

Dr. Daniel Ringel Appointed Assistant Professor at University of North Carolina (UNC)
After having succeeded in defending his dissertation in March, 2017, at the Chair of Prof. Skiera (layer 3), Daniel Ringel takes a faculty position as assistant professor for marketing at the University of North Carolina (UNC), Chapel Hill, US. We wish him all the best for his future career!

Best Paper Award at CEPR-Imperial-Plato Inaugural Market Innovator (MI3) Conference
The team of authors Benjamin Clapham, Peter Gomber, and Sven Panz (all layer 2) has received the best paper award of the CEPR-Imperial-Plato Inaugural Market Innovator (MI3) Conference on the "Evolving Market Structure in Europe and Beyond" in London, 2017, for their contribution "Coordination of Circuit Breakers? Volume Migration and Volatility Spillover in Fragmented Markets". Congratulations!

Best Paper Award at PACIS 2017
Christian Janze (layer 2) and Marten Risius (layer 1) won the best paper award of the 21st Pacific Asia Conference on Information Systems (PACIS), 2017, for their contribution "Automatic Detection of Fake News on Social Media Platforms". Congratulations!

New Colleague at the Chair of Prof. Hackethal (layer 3)
Thomas Pauls has joined the team of Prof. Hackethal as postdoctoral researcher. Thomas holds a Master's degree from Maastricht University and received a Ph.D. in finance from Justus-Liebig-University Gießen in 2017. Currently, he is working on a German dictionary for computer-aided quantitative content analyses and various topics in household finance.

Meet the Best Students!
On November 6th, 2017, the E-Finance Lab hosts together with its industry partners a "Get-in-Touch" event for the best students from Frankfurt and Darmstadt. For this event, the best Bachelor and Master students from the areas of computer science, finance, information systems, and marketing were invited. These students have the chance to personally meet representatives of our E-Finance Lab industry partners.

Successful Disputation
Ronny Hans (layer 1) has received his doctoral degree on September 7th, 2017, with his dissertation "QOS – aware Cloud Infrastructure Provisioning in Heterogeneous Environments". Congratulations!

Selected E-Finance Lab Publications

Glaser, F.; Panz, S.:
(Pro?)-Cyclicality of Collateral Haircuts and Systemic Illiquidity .
In: Proceedings of the 21st Annual European Conference of the Financial Management Association International (FMA Europe), Lisbon, Portugal, 2017.

Glaser, F.; Risius, M. :
Effects of Transparency: Analyzing Social Biases on Trader Performance in Social Trading.
Forthcoming in: Journal of Information Technology, 2017, online first article: https://link.springer.com/article/10.1057/s41265-016-0028-0.

Gomber, P.; Koch, J.; Siering, M.:
Digital Finance and FinTech: Current Research and Future Research Directions.
In: Journal of Business Economics, 87 (2017) 5, pp. 537-580.

Hans, R.; Zuber, H.; Rizk, A.; Steinmetz, R.:
Blockchain and Smart Contracts: Disruptive Technologies for the Insurance Market.
In: Proceedings of the 23rd Americas Conference on Information Systems (AMCIS), Boston, US, 2017.

Klose, P.; Eckhardt A.; Rohrdrommel, M.:
The Impact of Virtual Reality on the Effectiveness of Visual Cluster Analysis as a Method for Analyzing Big Data.
In: Proceedings of the 21st Pacific Asia Conference on Information Systems (PACIS), Langkawi, Malaysia, 2017.

Nofer, M.; Gomber, P.; Hinz, O.; Schiereck, D.:
Blockchain.
In: Business Information Systems Engineering, 59 (2017) 3, pp. 183-187.

For a comprehensive list of all E-Finance Lab publications see *http://www.efinancelab.com/publications*

E-FINANCE LAB SPRING CONFERENCE 2018

The E-Finance Lab cordially invites to its annual Spring Conference. The event will be held on February 1st, 2018, at Campus Westend of Goethe University Frankfurt and is organized by Prof. Skiera and his team (layer 3). Participants have the chance to discuss the topic "Data Science in the Financial Service Industry" with speakers from science and practice. In a few weeks, you will find further information on our website: www.efinancelab.de. Here, you will also be able to register for the event. As always, the participation is free of charge.

Infopool

RESEARCH PAPER: IT PAYS TO WRITE WELL

The analysis of the text contained in annual reports has gained increasing attention in the past years and has motivated a growing body of scientific research. Hwang and Kim contribute to this literature stream by drawing on a refined measure of readability to quantify the effect of readability on firm value. The study analyzes annual reports of closed-end investment funds and compares the market value of each fund against the market value of its underlying assets. The authors find evidence that firms that write annual reports with low readability trade at substantial discounts relative to the value of their underlying assets – their estimates suggest that a one-standard-deviation decrease in readability decreases firm value by 2.5%.

Hwang, B. H.; Kim, H. H.
In: Journal of Financial Economics, 124 (2017) 2, pp. 373–394.

RESEARCH PAPER: DOES RIVALS' INNOVATION MATTER? A COMPETITIVE DYNAMICS PERSPECTIVE ON FIRMS' PRODUCT STRATEGY

Signals sent out by competitors incorporate information which influences a firm's own action – this may especially be true to industries characterized by hyper-competition, such as in the financial sector. Focusing on Research & Development (R&D) activities, this research analyzed that a competitor's R&D intensity enlarges a firm's awareness of a rival threat and accordingly leads to intensified product actions. The frequency of these product actions of a firm will decrease if the rival is smaller (firm size) than the firm itself and further if the competitor shows a weaker firm performance. Managers may consider factors influencing competitors' awareness of their own R&D activities. Larger companies may be aware of temporary competitive advantage of smaller companies since they respond more quickly to competitive signals.

Chen, T.; Tribbitt, M. A.; Yang, Y.; Li, X.
In: Journal of Business Research, 76 (2017), pp. 1–7.

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.

For receiving our EFL Quarterly regularly via E-Mail, please subscribe on our homepage www.efinancelab.de (→ news → sign up / off newsletter) as we need your E-mail address for sending the EFL Quarterly to you. Alternatively, you can mail your business card with the note "EFL Quarterly" to the subsequent postal address or send us an E-mail.

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

Further information about the E-Finance Lab is available at 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.

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
Fax   +49 (0)69 / 798 - 350 07
E-mail   gomber@wiwi.uni-frankfurt.de

Press contact
Phone   +49 (0)69 / 798 - 338 62
Fax   +49 (0)69 / 798 - 339 10
E-mail   presse@efinancelab.com

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