

Gesamtbanksteuerung 2018

Business Models | Finance & Risk Management | Digital Innovation

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Banking 4.0: Dealing with Disruption

How banks can tackle digital transformation despite low interest rates and challenging regulatory requirements

The banking industry has been through ten years of regulation and faces even greater challenges today: Weak earnings and high costs are forcing banks to automate processes and become more efficient. At the same time, the number of new competitors is growing and the banking business is undergoing fundamental changes. Will banks continue to be perceived as central service providers in the financial industry? How will the demands of the generation of the now 20 year olds shape banking in the future? And how can the industry adjust to those challenges despite weak earnings?

These questions were discussed by approximately 180 representatives of financial institutions, the European Central Bank, and the national banking supervisory authority at the 6th annual conference "Gesamtbanksteuerung 2018," which was organized by the Frankfurt School Verlag in cooperation with SAS®. The conference held lots of interesting talks by industry representatives, supervisors, and scientists, which also looked at current topics such as requirements for internal models or stress testing. "Ten years of regulation – how does that affect business models?" asked **Prof. Thomas Heidorn**, moderator of the conference and Director of the Center for Practical Quantitative Finance of the Frankfurt School of



Prof. Thomas Heidorn

Finance & Management, right at the beginning. Heidorn noted it would be interesting to see how a beneficial intersection of necessary supervision and the idea of a profitable business model could look like. Accordingly, Heidorn asked: "If digitalization makes the world faster, how can banking supervision adapt to it?"



Raimund Röseler

In his keynote speech, **Raimund Röseler**, BaFin's Executive Director of Banking Supervision, gave an answer to those questions and an overview of current developments in supervision and regulation. He did not recommend a comprehensive deregulation, but called for a "clean review in order to avoid this vicious circle of overregulation and deregulation." According to Röseler, the Basel framework had been focused on big banks. He therefore called for greater proportionality, which would mean that the regulatory requirements a bank has to fulfill would be adjusted according to the size and complexity of the bank's business model, its interconnectedness, and the risk it poses to financial stability. With 1,500 less significant banks, Germany's banking industry was particularly affected by the Basel framework in this regard. "We had to realize that many of the new rules are not relevant for the smaller banks, but still have to be applied," Röseler said. "What we need is a European regime that can scale down the Basel framework for smaller banks and suspend unnecessary rules." At the same time he emphasized the banks' responsibility: "Regulation may be costly, the current



interest rate landscape may be hard on earnings, but as long as a bank is managed reasonably and has a viable business model, even those adverse conditions would not throw it into financial distress.” However, the banking landscape was facing structural change. The market, and the way banking is done, was about to change radically. “This development will demand more from the banks than many people would imagine today,” Röseler said. Innovative and creative solutions would be needed, but at the same time the business relationships with long-standing customers would have to be maintained: “It’s a technical and personal challenge for every bank employee.”

In the past, the industry slogan had been “Banking is People.” Today the motto was “Banking is Technology.” It would not be sufficient to prop up existing IT infrastructure. BaFin had reacted to the technological change and founded a group for IT supervision, and Röseler announced more IT audits at banks. The frequency and intensity of those audits was supposed to increase significantly in the coming years. Röseler also called on banks not to forget their customers. Customer behavior was about to change radically: banks would have to focus more on performing efficiently at the interface with the customer. “The customers that are profitable for banks today are the traditional long-standing ones. However, the target group that is supposed to be the basis for the banks’ future earnings is still unprofitable today.” Very few banks would earn money with the customer group of today’s 20 year olds, “but they will make new demands regarding banking services in the future.” They might not perceive banks as central service providers in the financial sector any longer. “No one can know exactly what banking will look like in the future, but it will certainly look different to today,” Röseler concluded.

Subsequently, **Dr. Cornelius Riese**, Member of the Board of Managing Directors and Chief Financial Officer of DZ BANK, gave an overview of current market consolidation developments in the banking industry. Riese also shared recent

experiences with the merger of DZ BANK and WGZ Bank. According to his analysis, the European as well as the German banking sector were in need of greater structural changes and consolidation, but “this has been notably absent, although it has been considered and demanded for decades.” There was one exception, however, namely the cooperative banking groups: During the past 20 years, the mutual savings banks and cooperative banks have significantly reduced the number of banks and bank branches. He emphasized that in market segments other than the cooperative banks, it was also the right time for more consolidation and there was approval from both the supervision and the capital markets. However, he argued that state ownership could be an obstacle. “States and public institutions often have an interest in having access to banks,” Riese said. It would also be difficult to realize synergies in European cross-border mergers, especially in retail business,



since the European markets were very different after all. “A merger needs courage and planning certainty,” Riese said. The merger of DZ and WGZ Bank had been the largest project of its kind under the Single Supervisory Mechanism (SSM). It had been challenging to realize a transaction of that scale at a time when the Basel III framework had still been in the final stages of negotiation. Each new consultation paper could have affected the entire assessment. “A stable regulatory framework is an important prerequisite, but we have not achieved that yet,” Riese said. He saw an important challenge for such



transactions on the finance front, because in the international accounting framework, a merger of major banks is actually deemed a purchase. "In other words, DZ Bank has purchased around 600,000 single transactions from WGZ Bank, which needed to be reviewed and revalued by the reporting date. The complexity of a process like this must not be underestimated," Riese said. Overall he confirmed that the regulators and supervisors had been supportive and helpful throughout the process, but he also pointed out that the bureaucratic effort that had come with the merger had been immense. He warned of what he described as an over- bureaucratization of supervision in many places, "which needs corrective action."

Dr. Johannes-Jörg Riegler, CEO of BayernLB and President of The Association of German Public Banks (VÖB), made the case for a pragmatic approach in banking supervision, particularly in view of the current competitive landscape. "The ECB did a lot of right things during a difficult period," Riegler said. However, he pointed out that competitors in the United States were enjoying a more business friendly environment, since their regulators and supervisors benefited from a decade long routine as well as the absence of language barriers and national differences. Riegler said that in the US the authorities had done a good job handling the financial crisis in a pragmatic way and after forced mergers and forced recapitalizations, the banks had quickly returned to making money again. In the European environment, banks were



facing a more difficult situation. The regulatory requirements, low interest rates, and a competitive market were in fact weakening European banks year after year. Like Dr. Cornelius Riese, he did not expect market consolidation in the European banking sector to step up notably in the near future. He also cautioned the banks not to forget the customer. "Add to that the customer," Riegler said. "There will be completely new challenges regarding flexibility, agility, and the way we handle banking." He pointed out that banks needed to increase investment in digital infrastructure. "We see how much the public banks in Germany invest in the fulfilling of regulatory requirements," Riegler said. He estimated the range of regulatory investment to be 50 to 75 percent. This was not a black-and-white issue, Riegler emphasized, because much of the investment was used to improve data infrastructure and risk management. "But we see a regulatory wave there, which has gone out of balance," Riegler said. He called on the supervisors and regulators to develop and pursue a common idea of what the European banking sector should look like in five years. He also appealed to politicians: "I think it would be a good idea if regulators, politicians, and banks came to an agreement to work together for a competitive European banking sector."

Fredun Mazaheri, Chief Risk Officer and Member of the Management Board at HSBC Germany, focused his speech on the new opportunities that big data, analytics, and technologies like machine learning hold for the banking industry. He pointed out that a look at the number of use cases that are already functioning would reveal that this is only a fraction of what is offered or discussed in the market. He said there were fascinating use cases out there, after all. He highlighted, for example, Alipay, an online payment system with QR code offered by the Chinese Alibaba Group, as well as recent progress made in image recognition. In order to find the right applications for banking, he said it was important to understand which applications were promising and which



were not. "Many input variables and few output variables are a good starting point for artificial intelligence," Mazaheri said. He said pictures were a good example: they consist of many pixels, meaning many input variables. "The output variable is then, for example, just one question: is that a gorilla in the picture or not?" He explained that artificial intelligence needs a lot of annotated training data as a basis. "The key to the recent success of machine learning has been the huge annotated data sample that people have created and which can be explored," Mazaheri said. Customer behavior and the digital traces left by humans were like a research environment for machine learning that would lead to the development of tools and techniques. Mazaheri also pointed out that banks still had to catch up in this area: "The mindset needed for these new processes and mechanisms is not widespread in the industry." There were areas in which banks were ahead of other industries, Mazaheri said, for example, when using statistics in order to forecast loan defaults: "For decades, the necessary information has been collected, stored, and used to forecast defaults." In other areas, banks did not make use of such advanced forecasting techniques, for example, with operational risk: "Of course it would be interesting to analyze all processes digitally and then use the data to calculate probabilities and generate forecasts for specific operational risks." But banks were still lagging behind in many areas: "If I asked the legal department of a bank what the ideal contract handling backlog is, many people would probably

be puzzled by that question," Mazaheri said. Other industries would precisely calculate the workload of such processes and therefore be able to control or automate them. There were law firms in the United States that supported paralegal work processes massively by software, "but in banks, the idea is not widespread that these are the processes you need in the future," Mazaheri said. "This only happens if the bank's management can spread the spirit that the corresponding skills are core competences of a bank."



"How does banking regulation fit into the digital world?" was the question **Dr. Marcus Chromik**, Member of the Board of Management and Chief Risk Officer of Commerzbank, focused his speech on. He pointed out that regulation needed to watch and supervise technological change more closely. In that context, he presented a number of suggestions: First, he explained why risk model approval needs to become faster and more flexible. The banks' ability to acquire new data and the obligation to also use this data for risk model recognition meant that banks wanted to realize this added value immediately in a regulatory sense, too. If the regulators' approval procedures did not adapt, "there is a risk that those two worlds diverge," Chromik said. He recommended increasing the frequency of approval procedures as well. "We have to keep in mind that not only changes in risk models need to be approved, but also changes in related processes," Chromik said. The speed with which banks were now able



to realize material process changes was unprecedented. He shared an example of Commerzbank's Intensive Care Unit. In the past, defaulting customers had been called up by customer service. Meanwhile, Commerzbank had automated the process: Defaulting customers would be dealt with by e-mail, in case they were self-healing. Customers would find it much more comfortable to be contacted by e-mail or SMS. This process was controlled by an algorithm. "If there is no self-healing, a second algorithm comes into play and suggests an Intensive Care strategy," Chromik explained. "This allows organizations to elevate operations." In the private customer segment, 83 percent of Intensive Care cases would largely be handled without human interference by now. Chromik explained that the bank had only needed roughly half a year from the development of this process until it was rolled out. He also suggested that stochastic probabilities should be recognized by regulation, for example, with money laundering screening: "The screening is costly, but here, too, we can automate with the help of advanced analytics, and we can make the screening faster and perform better," Chromik explained. In the past, when money laundering screening was done by employees, the error had been a clerical one. Now, with advanced analytics, the bank needed to settle for an error in advance, which was of major importance. "Now we base our analytics on past data and accept a specific error ex ante. And I think we need regulators to take it into account," Chromik said. "The bottom line is we need a 'Basel 4.0' in order to tackle new technologies and in the meantime we need more flexibility in regulation."

After the talks, **Prof. Thomas Heidorn** moderated a panel discussion with all five speakers. The most pressing topic discussed was the need for change that was felt by the industry and that the panelists said was increased tremendously by regulation and digitalization. The panel also looked at opportunities and risks that this change was holding for the banking industry. **Dr. Cornelius Riese** emphasized



that low margins, which were not even close to covering risk and capital requirements, would pose a future risk in the first place. Moreover, new regulation frameworks (IFRS9, Basel III) would lead to pro-cyclical risk provisioning in days to come, according to Riese. "That gives rise to concerns." In the event of an economic downturn, the industry would face enormous challenges. BaFin's Executive Director **Raimund Röseler** emphasized that regulation could not make the world safer in every respect, "but it is safer now regarding the risks that caused the financial crisis ten years ago." Risk management was better now, which Röseler highlighted as extremely important for the future. "If a downturn comes, the instruments we have developed will be helpful in that situation." In addition to risk management, the panelists also discussed the future of banks' business models, particularly in view of new competitors.





Dr. Marcus Chromik highlighted banking secrecy as a competitive advantage: "This is one reason why not every large company wants to become a bank." If a social media company such as Facebook became a bank, there would be difficult questions as to which customer data would then be subject to bank secrecy. For a social media company, this could mean disadvantages for the business model. "I hope that bank secrecy remains in force; I consider it an asset to our industry," Chromik said. With regard to new technologies, the panelists agreed that despite all the hype, the risks should not be overlooked. **Fredun Mazaheri** explained that he expected a sudden awakening in machine learning. Machine learning could come with certain risks, particularly in a bank's risk management, if a machine was not trained properly, or if there was misbehavior of some sort. That could even happen inadvertently and lead to dangerous problems: "That's why I



always stress how important the organization's mindset is," Mazaheri said. An organization should only build and use tools that would fit its capabilities. **Dr. Johannes-Jörg Riegler** added that by now a new type of banker was at the helm, "people who know what went wrong and who know what we need to make up to." Banking used to be capital and people; today it is capital, people, and IT. Riegler emphasized that banking as a profession needed to be attractive again, if the industry wanted to win the war for the best talent, also in view of much needed digital skills.



Troy Haines, Head of Risk Research & Quantitative Solutions at SAS, addressed another cultural and technological challenge the industry is tackling: that of integrating a bank's finance and risk function. He stated that risk was no longer seen as defensive or merely a compliance function. It was now expected to contribute to the profitability of the bank. "We see this across many of the more progressive larger banks; they are making sure risk is part of the discussion of the banks' bottom lines." Another trend was that banks wanted their investments to be potentially usable across different use cases and multiple functions. He said one example was IFRS9, most of the banks were not only looking at IFRS9, but wanted to also use the same fundamental technology investments for stress testing, even pricing. "This is fairly forward-thinking. Of course, you need the analytics to make those decisions, but this is an example for multiple use cases." He stressed the need for a common platform across those functions. In order to realize efficiency gains, banks needed to integrate finance, risk, treasury, and accounting. "This is not easily done; it doesn't happen overnight," Haines said. Another trend he emphasized was that banks were embracing more and more scenario-based risk management capabilities: "CFOs love this. The value is in the discussions, not in the numbers. It's in the discussions that the risk committees are having around the range of potential outcomes." Regarding risk culture, Haines said banks needed to prop up their foundation, meaning the technical infrastructure as well as the processes. He said the



transformation of risk and finance was a journey: "There's a lot of hard work." In re-architecting the risk and finance function, Haines said it was key to build a specific roadmap for the long run around how this transformation was to work out. He expected this to trigger a cultural change, too: "Banks need to get more agile. My interpretation of agile is being aware, being curious, being able to adapt, and to change, where necessary."



Prof. Andreas Igl

Subsequently, the attendees of the conference split into two parallel forums. **Prof. Andreas Igl**, Professor of Banking Management at the University of Applied Sciences of the Deutsche Bundesbank, moderated **Forum I**, which discussed the EBA and ECB stress tests as well as the impact on overall bank management. **Dr. Gernot Stania**, Head of Quantitative Risk Analysis Section, Micro-Prudential Supervision IV of the ECB, provided an overview of recent stress tests and of their relevance for banks' management.



Dr. Gernot Stania



Dr. Erik Lüders

He emphasized that stress tests, an important tool for the supervisory and bank-internal risk analysis, require continuous further development. He underlined that the development and execution of stress tests require resources that should serve not only the compliance with supervisory requirements but also contribute to the improvement of banks' risk management and the strengthening of a consistent and comprehensive bank-internal risk culture. Subsequently, **Dr. Erik Lüders**, Partner at Deloitte, proposed optimization approaches for the bank balance sheet and the business model. He presented a case study, a Franco-German merged bank, and emphasized that a holistic top down view was crucial to cover all aspects of the business model. Moreover, business model optimization should be based on parallel considerations of the base and the stress scenario. Prof. Igl then moderated the panel discussion with Dr. Gernot Stania, **Robert Stindl**, Director Risk Solutions North-EMEA at SAS, **Frank Müller**, Partner Financial Risk at Deloitte and **Ronny Hahn**, Head of Risk Controlling at Aareal Bank. Against the background of this year's ECB and EBA stress tests, the discussants elaborated on the balance between a higher resolution of banks' risk profiles and the corresponding higher data volume and execution effort, as well as between continuity of technical models and necessary adaptations, for example, in the context of the introduction of IFRS9. It was welcome to collect best practices across the industry to enhance transparency. The round concluded with



a mutual offer of close collaboration between supervisory authorities, science, and banks.



Forum II was moderated by **Prof. Thomas Heidorn** and dealt with "Model Risk Management as an instrument of overall bank management in the context of TRIM (Targeted Review of Internal Models) and other new developments." In his keynote, **Dr. Carsten Wehn**, Head of Model Validation at DekaBank, explained how the risks that come with models can be taken into account within the ICAAP (Internal Capital Adequacy Assessment Process). "The SREP (Supervisory Review and Evaluation Process) distinguishes whether models are misused or wrongly implemented or whether

there is a potential underestimation of the bank's capital requirements," Wehn said. Particularly with risk models applied for Pillar I purposes, the regulator was concerned that capital requirements could be underestimated. This was reflected accordingly in regulation. However, Wehn saw some reasonable latitude as to how to account for model risk in the ICAAP: "There's leeway that can be used meaningfully." Wehn presented different approaches for how to deal with model risk: "The big picture is not to design the model of the models, or to develop a risk model about model risk. We chose a qualitative approach instead," Wehn said. The approach was to split a model into certain components. The appropriateness of those components could be evaluated and validated, which would then result in a score. "This allows us to assess model





uncertainty,” Wehn said. This uncertainty could then be made transparent by treating it as a separate risk type, or as part of existing risk types, or by reducing the risk appetite. “As soon as it is made transparent, some of the major goals of model risk management are already met. That means you acknowledge that the models come with an uncertainty and you would take that into account in the risk you are willing to take,” Wehn said. None of the approaches he had presented had yet become market standards as the discipline is still evolving. Wehn emphasized that because the scope of the models’ use was constantly growing, model risk management also needed to continuously improve.



Ansgar Finken

Ansgar Finken, Head of Group Risk Control at Postbank, presented his take on digitalization’s impact on modeling and model risk. “As banks, we’ve gone through five ‘biblical trials’, but we also had five epiphanies,” Finken said. The trials had been TRIM, BCBS 239, Ana Credit, IFRS9 and SREP. “Some of the lessons learned: we have eliminated a lot of paper-based processes and finally the risk and financial function work well together, also with regard to the coherence of data.” The infrastructure has been completely renewed: “We have better access to all the data.” Postbank now uses one integrated Business Intelligence Solution, Finken said: “We can build consistent models and, beginning with the result, drill down to each single transaction. That is something we have not been able to do so seamlessly before.” The entire technology has

been updated: “We were able to run the entire EBA stress test overnight, including IFRS9 effects, and deliver everything the next day in a snapshot to our parent. That’s something we are proud of.” The bank also needed to change the way it works. “Often there is not enough time to go through the waterfall process, step by step, from development to rollout to the validation; instead everything needs to happen in parallel,” Finken said. He highlighted the quality of the data as a key factor: “It’s costly and time-consuming to make sure the quality of the data is good, but if it is not, it can cause great damage.” At the same time, he pointed out that in his opinion, the new regulatory frameworks came with a large portion of model risk. He highlighted IFRS9 as a particular concern and said it could become a bombshell for banks’ balance sheets: “Currently the general situation is good, but if you switch everything to ‘bad’ in the models, there is a near certainty of unwanted effects.” In his opinion, model risks are often ‘unknown unknowns’ by nature; it often is simply not possible to exactly quantify model risk. In short one could say: “As soon as you quantify a model risk, it becomes a model and is no longer a model risk.”



Dr. Christopher Lotz

After the two talks, Prof. Heidorn moderated a lively discussion between industry representatives, supervisors, consultants, and the attendees, in which **Dr. Christopher Lotz**, Head of Quantitative Risk Modeling at BaFin, and **Matthias Piston**, Business Expert Risk Management at SAS, also participated.



Dr. Carsten Wehn emphasized that regulation had set impulses, strengths and weaknesses of models took more room in discussions now, and they had become more transparent and hence banks had become more aware of them. This was considered an added benefit. Matthias Piston said banks might want to free themselves a bit from the term model risk because it suggested the only challenge was quantifying the risk – something that could be solved by metrics. He emphasized the importance of qualitative aspects, such as monitoring processes along the model lifecycle, model governance, and data governance, and the combination of qualitative and quantitative aspects like model validation. **Ansgar Finken** pointed out that banks had to keep in mind whether a model was developed for the bank or for the supervisor. “We think the use test is important and we would like to see a reasonable compromise, meaning models that serve both the supervisor’s requirements and internal management.” This was becoming more difficult, according to Finken, as supervisors put less priority on use cases than on criteria such as stability or comparability. **Dr. Christopher Lotz** added that model risk management was already reasonably widespread. “I would like the banks to show us, as supervisors, how this can work effectively, so that model supervision can benefit,” Lotz said. As a consequence, it could be incorporated appropriately into regulation.

After the panels, all attendees came together again and **Gregory Wheeler**, Professor of Philosophy and Computer Science at the Frankfurt School of Finance and Management, discussed the rise of artificial intelligence and gave reasons for its current hype. Wheeler stated that machine learning had significantly been transforming business for five years now; Amazon, for example, was using machine learning techniques for recommendation systems, as well as Google and other internet giants. Wheeler showed a wider variety of domains where these methods have spread: the health-care industry, where it can be used for imaging, precision agriculture, or even construction, where drones can use machine learning to map construction sites a lot faster than humans could do. Wheeler said the clearest way to explain machine learning





is to think of it as the intersection of two subjects: “One is statistics, with the basic question being: What can we infer from data and how reliable are those inferences? The second is computer science, which finds answers to the question: How can we design an algorithm that will run on a machine to solve problems, and which problems are tractable and which intractable?” The reason why machine learning had gained momentum was because much more labeled data existed now. “That’s the kind of thing that’s used in feeding the machine, in order to extend its predictability capabilities.” It had turned out that more data had been necessary for driving the recent explosion in machine learning, but Wheeler also emphasized the necessity of computation. Still, he said, there was reason for some skepticism. There were things that machines were not good at, for example, playing video games. “It is this intuitive sense, background concepts, and knowledge that humans have that AI doesn’t have,” Wheeler said. Humans bring a lot of representation knowledge; they recognize pixel representations that resemble the world and transfer a lot of this knowledge into other domains. “Machines are terrible at this,” Wheeler said. He explained that those are still limitations machine learning was facing on the technical side, despite all the fascinating progress that had already been made.



In his closing remarks **Prof. Thomas Heidorn** summarized the takeaways of the conference and gave an outlook. “Our world is becoming more and more model-driven,” Heidorn said. “Who can know now what a model-driven future holds for us?” He also pointed out that banks were increasingly outsourcing risk to other players, “but that did not mean risks were being eliminated, on the contrary.” Banks should keep an eye on the overall risk framework. “The creation of risks is not the problem. What we have to make sure of is that they are managed.”



Food for Thought

Which trend do you think will be most disruptive for the banking industry, Mr. Riese?

"Of the three megatrends that currently shape the banking industry – low interest rates, regulation, and digitalization – the latter will be the trend that will change our industry most sustainably. Everything that is transactional will be digitized; every bank that wants to sustain the change needs good digital skills. This will be disruptive, yes. The market will be divided among 'digital only' providers and multichannel banks. But even the target group of today's 20 year olds will mostly wish to talk to a human when they are interested in their first mortgage lending deal."

Dr. Cornelius Riese, Member of the Board of Managing Directors and Chief Financial Officer of DZ BANK

What's your message for the regulators, Mr. Riegler?

"Europe has eleven institutions that are in charge of banking supervision and regulation, and those authorities are still rivalling each other in some aspects of scope and responsibility. We would like to see a more pragmatic approach towards better coordination between

those supervisors and regulators and also a clear line between the responsibilities of these institutions, where necessary. Moreover, when we look at the interaction of national and international supervisors, we think it would be desirable to strengthen the general principle of subsidiarity because we think there are issues that can be adequately supervised and handled by the national supervisor, and which do not need further involvement of the ECB."

Dr. Johannes-Jörg Riegler, CEO of BayernLB and President of The Association of German Public Banks (VÖB)

Your take on stress testing, Mr. Stindl?

"We have seen that stress testing has become more challenging, both in terms of the nature of the scenarios as well as on the implementation front. The integration of IFRS9 has significantly increased the complexity of the recent stress test. The valuation of financial instruments is increasingly forward-looking, and incorporating that philosophy into the stress test was challenging with regard to the implementation and the methodology, and perhaps also when it came to interpreting the results. In the future, we will certainly see banks stepping

up their efforts to become more efficient in stress testing."

Robert Stindl, Director Risk Solutions North-EMEA at SAS

What excites you most about digitalization, Mr. Chromik?

"I'm excited about the possibilities we now have due to our new data and analytic capabilities to find answers to more complex questions. Problems that could previously only be detected with a watchful eye and good instincts can now be identified with our analytic skills. Our monitoring and identification of risks, for example, fraud risks, can be elevated to a new level. This presents us with extremely exciting use cases, because we can improve the business model of a bank in the best interest of customers."

Dr. Marcus Chromik, Member of the Board of Management and Chief Risk Officer of Commerzbank

Will there ever be a fully automated CRO, Mr. Mazaheri?

"That's not something I will live long enough to see. I think it's possible to forecast what's achievable in the foreseeable future, but honestly, what's achievable in twenty or thirty years is not as predictable for us. But



I would be surprised if management decisions were to be replaced by a machine someday. I rather believe that the professional profiles of bank executives and employees will change massively in the future. We will become data interpreters, a lot more than we are today. This does not only apply to leading executives. The skills needed in a bank will change: we will need more mathematical and IT skills than today."

Fredun Mazaheri, Chief Risk Officer and Member of the Management Board at HSBC Germany

What are the different requirements models have to fulfill, Mr. Wehn?

"Models are built for a vast variety of purposes and it is true that different stakeholders have different expectations of what they want models to do. There is certainly a difference between what banks want to use their models for in internal management and what supervisors expect of the bank's models. It will even become more difficult to reconcile those two perspectives as due to the upcoming Basel III

framework the consistency between internal models and models for regulatory purposes does not seem to increase."

Dr. Carsten Wehn, Head of Model Validation at DekaBank

What do you think the impact of IFRS9 is on banks' balance sheets, Mr. Finken?

"With IFRS9, we put a model on top of a model. If models already come with uncertainties, then of course those uncertainties become stronger if you go from the ten-year perspective into a perhaps 25-year perspective. Thus it reinforces procyclicality, because banks need to make few provisions in good times, while they have to increase capital buffers enormously during a crisis. That means banks are already weakened when they slip into a crisis. This could aggravate a downturn of the entire economy, because banks that are in crisis mode themselves could probably be less helpful for the economy because they have to look after themselves first."

Ansgar Finken, Head of Group Risk Control at Postbank

In your opinion, what are the difficulties in integrating finance and risk functions, Mr. Haines?

"Integrating the risk and the finance function is hard for a lot of different reasons, for example, on the technical front, but also from a background and experience perspective. If you grew up in the accounting or finance world, you don't have the same background as if you grew up in risk. The culture aspect is real but the reason why I am optimistic is that I think more and more CFOs are grasping the importance of integrating with risk and understanding what risk is actually doing. IFRS9 is a great example: CFOs depend heavily on the risk department to do much of the heavy lifting, so that requires much closer interaction. Having a common objective is crucial for this integration."

Troy Haines, Head of Risk Research & Quantitative Solutions at SAS