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## **UNDERSTATED OR OVERRATED? REFLECTIONS ON SCIENCE ADVICE FOR POLICY IN TIMES OF CRISES - PREFACE**

TANJA BRÜHL, GEORG KRAUSCH, ENRICO SCHLEIFF

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*Enrico Schleiff has been President of Goethe University Frankfurt since 2021, where he has held the professorship of Molecular Cell Biology of Plants since 2007. Within the university's governance structure, he most recently held the position as Chairman of the Board of the Frankfurt Institute for Advanced Studies (2018-2020), and before that (2012-2018) served as Vice President of Goethe University, where he was responsible for researchers in the earlier stages of their careers, equal opportunities and academic infrastructures.*

The Covid-19 pandemic has highlighted the importance of scientific research. Over a very short period of time, researchers around the world rallied to analyse the issues arising from the pandemic. Areas of research included the structure and spread of the SARS-CoV-2 virus, the effectiveness of masks, air purification devices, lockdowns and other measures, in addition to the impact of the pandemic and governmental measures on policymaking, society, the economy, education and health care. Vaccines and medicines to be used to combat Covid-19 were also developed at an unprecedented speed. Decades of research and funding conducted by and provided to excellent scientists served as the basis for these success stories. Many researchers provided their scientific expertise to policymakers.

Researchers achieved unprecedented attention in the media. As a result, the public was able to follow developments in scientific research and get up to speed on the latest scientific findings in what felt like real time. At the same time, the influence of scientists on political processes was also heavily debated. The spectrum of opinions ranged from criticism of the presumed domi-

nance of the researchers (buzzword “expert rule”) to criticism of decisions taken that presumably weren’t scientifically founded, or that even ignored the science (buzzword “Listen to science!”).

The Covid-19 pandemic was the most significant crisis of the past two years. Crises, however, are a normal part of everyday political life. Let us recall the financial and economic crisis from 2007 onwards, or the global refugee movements, which have received a great deal of media attention in recent years. The climate crisis has been looming on the horizon for decades and will continue to grow in existential importance in the years and decades to come.

With the Mercator Science-Policy Fellowship Programme, the Alliance of the Rhine-Main Universities (RMU), comprising Goethe University Frankfurt, the Technical University of Darmstadt and Johannes Gutenberg University Mainz, has been promoting interdisciplinary dialogue between the scientific community, policymakers, administration, civil society and the media since 2016. The importance of scientific expertise in times of crisis was and is a very central topic in the meetings between our researchers and policymakers. With this publication, our objective is to continue and stimulate this dialogue. The interviews with researchers, policymakers and journalists deal with questions surrounding the interdependencies between scientific research, policy advice and science communication.

The first interview offers an assessment of how scientific expertise can influence political decision-making processes and features contributions from political scientists Nathalie Behnke and Markus Lederer in conversation with State Secretary Fedor Ruhose (Ministry of Labour, Social Affairs, Transformation and Digitalisation of the State of Rhineland-Palatinate) as a representative from politics. In the second interview, Nina Janich (German Studies), Marcus Maurer (Political Communication) and Wulf Schmiess (ZDF) discuss the challenges associated with science communication in times of crisis. In addition, there are two further interviews with Ferdinand Gerlach (Medicine) and Jan Pieter Krahn (Economics). Drawing from years of experience as political advisors, both professors reflect on the opportunities and limitations of scientific expertise when it comes to political decision-making processes. The final article by Uwe Schmidt (Sociology) examines how the Covid-19 pandemic has impacted scientific institutions and scientific research.

The interviews for this publication were conducted in late 2021 against the backdrop of the Covid19 pandemic. We completed this publication a few days before Russia’s attack on Ukraine. The dramatic situation in Ukraine is another example for the public demand for expertise. We did not address the war in Ukraine in this publication, but we will do so in other formats when furthering the dialogue on academic expertise in times of crises between policymakers and scientists in the future.

It is our hope that our interviews and articles provide readers with some food for thought, and we look forward to receiving feedback from scientists, policy-makers and journalists on the topics and opinions discussed herein.





## THE IMPACT OF SCIENCE ON POLICY IN TIMES OF CRISES

INTERVIEW WITH NATHALIE BEHNKE, MARKUS LEDERER, FEDOR RUHOSE

*Nathalie Behnke works as a professor and heads the Department of Public Administration, and Public Policy within the Institute for Political Sciences at the Technical University (TU) of Darmstadt. Her work focuses on the areas in which empirical research on public administration and comparative research on federalism and multilevel governance intersect. She is currently involved in a research project on corona regulations within German federalism.*

*Professor Markus Lederer is a political scientist specializing in international politics and heads the Department of International Relations at the TU Darmstadt. He conducts research on global environmental, climate, and development policy issues, with a focus on institutional developments and multi-level dynamics in the Global South.*

*Fedor Ruhose has been the State Secretary of the Rhineland-Palatinate Ministry of Labour, Social Affairs, Transformation and Digitalization since May 2021. Prior to that, he served in the Rhineland-Palatinate state parliament for seven years as executive director of the Social Democratic Party of Germany (SPD) parliamentary group, and held various positions on a state-level within the Ministries of Labour, Social Affairs, Health and Demography, and Economics, Transport, Agriculture and Viticulture. He is a policy fellow in the Mercator Science-Policy Fellowship Program of the Rhine-Main Universities.*

Let's get started with the debate. Are better political decisions made when scientists are involved? Are we witnessing the erosion of democratic processes so that scientific experts can lead us out of the pandemic? Or do politicians rather rely on scientists to legitimise their own decisions?

**Behnke:** You mentioned both extremes of the debate. On the one hand, we have a republic of experts, "the philosophers have become the politicians" as Plato says. On the other hand, science is serving as a fig leaf for politicians. As always, the reality lies somewhere in between. It is however challenging to always strike the right balance between science and politics. In terms of the pandemic, the impression that I've gotten is policymakers have, in fact, sought the advice of scientists to a greater extent than in "normal times". To be clear, I'm referring to that of doctors, virologists, and epidemiologists. In academic circles, what we're seeing today is considered by many as the new, golden age of evidence-based policymaking. On the whole, the pandemic has raised awareness for the relevance of scientific knowledge, and how it can be harnessed by policymakers. That being said, we as scientists must be careful not to believe that what we produce in terms of knowledge should or could be directly

adopted by policymakers. On the contrary, policymakers and scientists as "systems" have their own ways of doing things. Thus, an effort needs to be made to translate between the two systems because, in their own ways, they both deal with knowledge, a lack of knowledge, changes in knowledge, and uncertainty.

**Lederer:** I'd like to chime in with three minor points here. First, we need to look at the past. Evidence-based policy-making has been common for a relatively long time, especially in certain fields. Take environmental policy, for example, where, since the beginning, there has always been a certain tension between the fig leaf and the philosopher king. We've learned many lessons from this. Secondly, evidence-based policymaking is currently at its peak. When it comes to this, we can observe all three of these things. For starters, there have been repeated attempts at fig leafing, and there have also been individuals who have been hyped up as philosopher kings, and who've managed to cleverly evade this role time and time again. And then, there were the periods during the crisis where we felt a return to "normality", the usual back-and-forth, a struggle between both sides, so to speak. I believe that this will continue to keep us busy for a long time. Finally, if I may add, we weren't just dealing with the medical disciplines as we know them. Instead, we were able to gain an understanding of science as an interdisciplinary discourse. This is something that gives us the most hope for the future of evidence-based policymaking, as it shows that information between the disciplines needs to be shared more and more. In addition, the public is increasingly becoming aware of the difficulties and complexities inherent to this process, which, to a certain extent, impacts the public's acceptance for it.

**Ruhose:** One thing we have learned from this unparalleled pandemic is dynamism that exists between science and policymaking. Take the whole "do masks make a difference debate". This public discussion took place and now within society there is a consensus on the efficacy of masks. At the very beginning, this was also debated in the scientific community. Now, in terms of the logic behind some of these policies, we must of course take regional differences into account. Germany is a federal state, after all. This is why balancing or aligning the positions between the states and the federal governments has been so crucial to our collective success. Therefore, one could say that an evidence-based approach to policymaking has always been pursued, and this approach has always been informed by scientific institutions. Nevertheless, it is crucial that we continue to tolerate the tension arising from science-based policymaking because we are dealing with measures that are deemed necessary from a scientific point of view, which also need to be communicated to society at large.

**Can policymakers afford to categorically rule out sweeping measures, such as vaccine mandates or lockdowns?**

**Behnke:** In situations characterised by a high degree of uncertainty and dynamism, which describes the situation we've been in for the past two years, politicians would be well advised not to commit themselves too firmly to any one position. This past year, there were a lot of elections. The federal elections took place, along with a number of state and local elections. That put pressure on politicians to make promises and commitments that are difficult to back-track on later. Now that we are facing the fourth wave of the pandemic, it was certainly wrong to make promises they knew they couldn't keep – out of deference to the “Querdenkers”, Corona deniers, conspiracy theorists, and the increasingly radicalised political party, the Alternative for Germany (AfD). So, it's not just about making decisions based on empirical evidence, it's about being politically strategic. If politicians were to say today, “well, we didn't know that three months ago”, the entire republic would laugh at them, and with good reason.

**Lederer:** If I may add, it's certainly worth turning our attention away from Germany, and taking a brief look at Great Britain, where we've seen an interesting experiment unfold, which was based on a certain amount of empirical evidence – how herd immunity was achieved so swiftly. At first, politicians, including Prime Minister Johnson, were hesitant to jump on board, but changed course relatively quickly. Instead of committing political suicide, Johnson embraced the latest empirical findings, and recognised that other countries (with a different set of measures) were better able to cope with the crisis. And instead of holding this against him, the British people saw that he was able to learn and adapt.

**Ruhose:** Looking back, there have been many points in time where policymakers have changed course. Sometimes this was because certain decisions didn't work out as they had expected. In politics, errors and missteps are always difficult to navigate. However, societies will always undergo learning processes, and it's up to politicians to learn from them, to respond to the latest scientific findings, and to realign their positions accordingly.

**Mr. Ruhose, politicians in Rhineland-Palatinate sought advice from a variety of different researchers. What were their fields of expertise?**

**Ruhose:** The experts needed to be from a wide range of fields because the effects of the pandemic were felt on many different levels. In fact, we were the first federal state to address the Covid-19 pandemic in our enquete commission. This is where our state parliament discusses issues with the scientific community going beyond ordinary political issues. We're dealing not just with disruptions to the economy and the labour market, but also mental health problems and the impact on children, families, people in nursing homes and their relatives. We've spent a great deal of time talking about the measures

from the infectious disease field, but these aren't the only measures policy-makers have implemented, as there are many different issues to address. That shouldn't fall by the wayside. Indeed, the federal and state governments were very quick to allocate large sums of money to compensate for economic losses to businesses and entrepreneurs. Counselling and other support services were also provided to families during the various phases of the lockdowns.

**Professor Behnke, was any consideration given to the advice from other academic disciplines, such as the social sciences and economics? Or were virologists and epidemiologists the only ones to be asked to weigh in on the issue?**

**Behnke:** The Chancellor of Germany herself has been criticised in the media for being very one-sided and only listening to the chief virologists. And, yes, doing so would certainly be too one-sided. Nevertheless, I got the impression that on a state-level the range of voices being listened to was much broader. At any rate, it's clear that states and the federal government have different approaches to the issue. The federal and state governments regularly met to confer. While the federal government prioritised mitigating the most immediate consequences of the pandemic and reducing the spread, the states focused on the social, economic and psychological consequences of the pandemic. This is why there were so many different opinions as to the adequacy of certain measures.

Mr Ruhose, you brought up a salient point. Little was communicated to the public regarding the finances (or rather debt) required to fund the measures and fight the pandemic. Most economist and finance experts I've conferred with believe governments were right to act swiftly and take on the debt. Considering how incredibly intense the debate on complex pharmacological issues like mRNA vaccines has been, and how, all of a sudden, everyone thinks they know more than the experts, it's absolutely astonishing to me that there has been no public debate whatsoever on whether the debt strategies chosen were the right ones.

**Did policymakers rely on the advice of scientific experts more so during the Covid-19 pandemic than in other crises, like the 2007 financial crisis, the 2015 refugee crisis, or to address climate change?**

**Lederer:** No, I don't think so. In past crises, a number of economic mechanisms were put to use straight away. And if I may say, I think these mechanisms, such as raising the debt ceiling and lowering the VAT rate, were highly effective. I would also argue that these strategies weren't devised using input from a large and diverse group of experts. Policymakers merely resorted to long-standing and well-honed government mechanisms that have proven effective in the past. However, what the Corona virus has, say, over the climate crisis, is that its effects are felt more immediately and directly by a far larger group of people. In comparison, the long-term effects of climate change are somewhat hazier and will be felt more slowly, and affecting individual countries quite

differently. As a result, the public is made aware of its impacts much more slowly than we're experiencing now during the pandemic. And we see this in terms of how visible climate scientists have been over the past two years compared with the number of virologists and epidemiologists we're seeing today.

**Ruhose:** As an economist, I'm tempted to say that this has been quite the learning process within the academic debate in Germany. We now have a number of top-notch, internationally trained economists who are very present in the media and focused on solving imminent problems. We're not seeing much in the way of the long-standing and, to a certain extent, dogmatic debates dominating the economic scene in Germany in recent decades. How to tackle climate change, for example, is a political debate whose outcome will be strongly determined by research and science. And rightly so. We need to carefully monitor which measures have which effects, at least in our models. So, scientific expertise will always play a major role.

**Thinking back on the experience gathered over the past two years from the Corona pandemic, and daring to make predictions regarding climate change, would you say that you are more optimistic or pessimistic about our ability to manage the climate crisis?**

**Lederer:** Much can be learned from problems that unfold over time, such as the "dynamic developments" I referred to earlier. By now, most people know what the term "exponential" means. The pandemic has taught us this rather quickly. Well, the term exponential can be applied to environmental issues as well. My other point is that when the house is on fire, so to speak, policymakers are quick to call the fire department, who then takes over the situation from there. It remains to be seen whether this approach will ultimately suffice when it comes to climate change. The good news is that there's a high level of acceptance among politicians and within society for some rather far-reaching measures. This is progress. The problem, however, is that the crises will ultimately end up being so different from each other. And when it comes to the climate crisis, the house isn't on fire just yet, although some are definitely starting to smell the smoke. And if the house were on fire, we would need to massively invest in the fire department. Executing this is far more difficult for politicians to do once the house is actually on fire.

**Ruhose:** I believe that there is a large social consensus that we are facing an enormous challenge, which has to be tackled. The important thing is for us to come together as a society and put ourselves on a path that enables us to meet the challenges of climate change. I don't mean ruling out measures a priori, but considering which measures are effective and what their social impacts are. Climate change will also have social impacts. But I believe we are a smart democratic society. By working together, we will find effective ways of combating climate change, while at the same time keeping an eye on and balancing out the distributional effects. This is the challenge facing policymakers today.

**When it comes to dealing with future crises, do we need more institutional structures to better facilitate the dialogue between the scientific community and policymakers?**

**Behnke:** I must admit that after watching how political decisions have been made over the last few months, I have started to have doubts as to whether our electoral democracy will continue to function. Even though, as a political scientist, I firmly believe in the idea of democratic legitimacy, I have the impression that the way in which democratically-elected policymakers respond to this crisis hasn't often led to very common-sense and targeted measures being taken. And therefore, I believe it would be a good thing to have more institutional structures facilitating this dialogue!

In my opinion, the German Ethics Council, which gained enormous public prominence as an advisory body during the pandemic, is a positive example of one such structure. The Council's Chair, medical ethicist Alena Buyx, has repeatedly introduced the beautiful concept of foresight into the debate. This is a very important point. We can counter the institutionally induced short-sightedness of politics, without sacrificing the advantages of our electoral democracy, by seeking the advice of the scientific community over the long-term and implementing the right corrective measures. Triage is one such example of this. We have smart strategies developed by smart people over a long period of time. And ultimately, policymakers can use them if they need to.

**Lederer:** I don't think we need yet another committee for environmental or climate issues. The real issue is how existing knowledge informs the political process. I think we need to find a new way of bringing knowledge for which there is a consensus to the institutions, and achieving more of a lock-in effect. Regarding the environment, we also could serve to benefit from more of a technocracy, in some form or another. Particularly when it comes to CO<sub>2</sub> budgets, for example. However, this can only be successful and legitimate when it is politically accepted. And for this we need the tough debates and arguments that Professor Behnke has mentioned. In other words, the issue first needs to be debated before being tackled using a solution drawn up via some sort of institutionalised technocratic instrument. The term institutionalised is important, as I assume nobody wants to shift to a total technocracy.

**Ruhose:** I have a different opinion regarding the logic behind the political system. On the one hand, politicians always appeal to an electorate that has similar long-term priorities as they do, as evidenced by the decisive results from the most recent state and federal elections. Climate change is clearly a top priority. Moreover, our climate protection laws and sector regulations have strict targets that are not directly aligned with the legislative periods in the German Bundestag. These laws and targets also have evaluation clauses. This is not a bad thing. In fact, it's similar to how science is subject to constant review and re-evaluation. We engage in scientific discussions in a variety of contexts - and

the contents of our discussions aren't always public knowledge. It is easy to be annoyed when such good scientific advice is not fully taken into account, or sometimes only to a very small extent. But it's being discussed in politics, and at least there's that. Whether in the public or political arena, someone is always ready to draw attention to new perspectives and issues, and to force the other side to explain their positions or actions.

*The interview was conducted by Tome Sandevski.*





## **SCIENCE COMMUNICATION IN TIMES OF CRISES**

### **INTERVIEW WITH NINA JANICH, MARCUS MAURER, WULF SCHMIESE**

*Nina Janich studied German studies, philosophy and journalism in Marburg, Mainz and Regensburg. In 1997, she obtained her PhD in German philology/ German linguistics and completed her habilitation in 2003 at the University of Regensburg. Nina Janich has been a professor at the Technical University of Darmstadt since 2004.*

*Marcus Maurer has been Professor of Political Communication at the Institute of Journalism at Johannes Gutenberg University Mainz since 2014. From 2010 to 2014 he was Professor of Empirical Methods at the Friedrich Schiller University Jena. His research and teaching focuses on the content, use, and effects of political communication, science and risk communication, empirical methods, and nonverbal communication.*

*Dr. Wulf Schmieese has directed the "Heute Journal" at ZDF since 2017. "Heute Journal" is Germany's most successful news show with almost 4 million viewers on an average night. Prior to that, after working for ten years as a FAZ correspondent, as the capital city and TV correspondent for ZDF, Schmieese became well known as the main anchor of the ZDF morning show, which he moderated for four years. He is a fellow of the Mercator Science-Policy Fellowship Programme of the Rhine-Main Universities.*

Right at the beginning of the pandemic, scientists displayed disagreement on the effectiveness of certain measures like mask mandates, school closures, or the limitation of contact between people. Recommendations as to which population groups should be vaccinated with which vaccine were continually updated, and this often led to uncertainty among the general public. Should the media have communicated more clearly that updating or even revising research findings is a core aspect of doing science?

**Janich:** Yes, that would have helped, but not in a generalised way, but rather in relation to specific cases, to the epistemological interest, and to the specific research context. Journalists could have also done their part by not just asking virologists and epidemiologists about the latest scientific findings, but by also asking them how the data and findings were actually obtained, and how valid and reliable they are. Take "vaccine development", for example. In light of the recent developments in vaccine research, it would have been better to report on research methods, vaccine production and testing in more detail. Had that been done, the scientific significance of the uncertainties and risks involved in the research and development process could have been addressed and put into context.

**Maurer:** We conducted a very extensive empirical study on the quality of the German media coverage of the pandemic and found indeed that the media has rarely revealed the uncertainty of scientific findings, models, and prognoses. At the same time, however, they were often critical afterwards for the failure of these scientific prognoses to materialise. Of course, this is very unfortunate because both give the impression that science claims with certainty to know everything but is always getting it wrong. Similar patterns can also be found, for example, in the media coverage of climate change. Of course, one of the tasks of the media is to distinguish between reliable facts and tentative prognoses. But the media may find it difficult to leave consumers in the dark or to explicitly communicate this uncertainty because they feel the need to provide recipients with clear information.

**Schmiese:** It was fundamentally and also repeatedly stated in the media that research into which measures were effective or not was still going on. It was always clear that no finding is final. The partially opposing studies into measures, especially in the early phase of the pandemic, were also reported. That is indeed the task of the media. It should not be their job per se to prevent uncertainty and to wait for conclusive research results. Their job is to report on developments, and that is also true in this case.

**Do you see a politicization of science in this crisis as the result of a strong media presence? Were scientists equated with certain political decisions or could scientists contribute to the objectification of debates?**

**Janich:** Yes, absolutely. We are currently working on a research project on this very topic together with researchers from Magdeburg University, which is being funded by the Klaus Tschira Foundation this year as well as in the coming year.<sup>1</sup> Our impression so far is that the media has driven and, to a certain extent, even forced research to be politicised by asking researchers to comment on necessary political decisions rather than focussing on the data and scientific findings (we see this on an almost weekly basis on major political talk shows in Germany). During the initial weeks of the pandemic, it was often the case that interviewees were asked questions that put them between a rock and a hard place; either they would have to take a political stance, or face consequences for refusing to answer the questions.<sup>2</sup> The degree to which such questions are objectified and discussed on a meta-level depends, of course, on

<sup>1</sup> "Between an ivory tower and a rough sea – on the precarious relations between science and politics and how both are portrayed by the media. A closer look at the Corona pandemic", moderated by Prof. Dr. Kersten Sven Roth (Otto-von-Guericke University (OvGU) Magdeburg; speaker) and Prof. Dr. Nina Janich (TU Darmstadt), assisted by Dr. Sina Lautenschläger (OvGU Magdeburg) and Dr. Lisa Rhein (TU Darmstadt). More information can be obtained in the following interview with Kersten Sven Roth: <https://www.klaus-tschira-stiftung.de/zwischen-elfenbeinturm-und-rauer-see/>

<sup>2</sup> See Sina Lautenschläger/Lisa Rhein (accepted): Der geordnete Rückzug. Sprachliche Grenzziehungen von Virolog\*innen in Polit-Talkshows (English: "Orderly retreat. How virologists draw linguistic boundaries on political talk shows"). To be published in the Zeitschrift für Angewandte Linguistik (ZfAL) 01/2022.

the medium and genre. It is certainly easier to provide objective and informative content in newspapers or podcast interviews, or even in op-ed pieces in national newspapers, than it is to generate similar content on political talk shows, which, after all, often resort to confrontational and provocative strategies to entertain viewers.

**Schmiese:** It is not science that was politicised, but the reverse: politics became, so to say, scientised. Those in government relied on the scientists you found especially convincing, appealed to them, and made their findings the guide for political action. Because of that, some scientists became well known in the media. Others again, such as Meyer-Hermann, attracted the attention of politicians through their statements in the media. Most scientists have, as a rule, always emphasize that they communicate their findings but could not demand political implementation.

**Maurer:** In principle, it makes sense for scientists to have their say in the media in such a crisis because they know the facts and the state of research and can objectively assess the situation and present it objectively. It becomes problematic, however, when they are interviewed less for their scientific expertise than as crown witnesses for specific positions, such as harsher or less harsh measures to combat the pandemic. The media also often rely on scientists as experts because the case for or against certain positions seems more credible if they make it than if someone else says precisely the same thing. But scientists then appear as public advisors for some people, and many people get the impression they have a decisive influence on political measures. So, they have to be careful not to be instrumentalised by the media and politics. But to come back to our research results: since the second wave of the pandemic, fewer and fewer scientific experts have been quoted in the media. The SPD politician Karl Lauterbach took on the role of being virtually the only explainer of the pandemic in the media. That certainly didn't make the coverage any better.

**Various scientists have become famous because of this crisis. Anthony Fauci was, for example, parodied on Saturday Night Live. In other countries as well, scientists were partly given the same coverage that is given to celebrities, and the media also reported on their private lives. Doesn't that mean that science loses some of its seriousness as a result?**

**Schmiese:** Scientists are not taken less seriously because of their fame in the media. Rather, it is through that that the profundity of their work emerges. This is not a new phenomenon in this time of the corona pandemic. Einstein, Curie, and probably also Copernicus and Galileo were stars in their time – which does not detract at all from their seriousness as scientists.

**Janich:** If by credibility you mean trustworthiness, which, according to psychological research on trust, is based on expertise, goodwill and integrity, then my answer is yes; there is always a risk that the public will lose its trust in science

when it falls short of these standards, when it strays from its mission to purvey knowledge, or mistakenly crosses over into the realm of politics “in the name of science”. When scientific knowledge is popularised in such a way, it’s no surprise that certain individuals come into the spotlight. As irrelevant as the origin of scientific findings actually is within science (theoretically and ideally!), so much care is taken outside the scientific community to create proximity, clarity, and tangible points of reference, for instance by getting to know individual researchers more or less “personally” via reports on them and their backgrounds. Of course, it is not the researchers’ fault that they are being parodied. This is likely brought about by the fact that they are always in the media, and that they have certain characteristics, or a way of communicating or speaking that makes them an easy target. At any rate, I wouldn’t blame science for this.

**Maurer:** This question has been discussed for decades in relation to other areas of society, such as politics, and there are usually two sides to this: On the one hand, scientists reach parts of the population who cannot do much with science in other respects. People who avoid dry scientific information in the media can also be informed through the stylistic device of entertainment and be motivated to act in a certain way. On the other hand, this is possibly achieved by shifting the focus from the matter itself, such as the research results, to the scientists as humans. In my opinion, as a scientist, you have to be careful not to take yourself too seriously as a person. In any case, I would rather advise against telling a “homestory” that includes family and the like.

**Do you see a connection between the expressions used in the crisis and the political measures for combatting the pandemic? Do you find such expressions especially noteworthy?**

**Schmiese:** No, there are partly martial metaphors in every crisis – for example, a wave of refugees. The objective concepts “pandemic” and “corona” will remain after this crisis.

**Maurer:** Every public debate is also determined by the struggle for terms and labels. This is a very simple form of so-called framing, i.e., the attempt to establish a certain perspective on what is happening through word choice. Sometimes, individual terms are sufficient. In the immigration debate, for example, whether someone speaks of “refugees” or “migrants” will almost certainly reveal what that person thinks, because only the first term implies that those arriving need protection. Something similar can be seen of course in connection with the pandemic. The term “Vaccine refusers” clearly has negative connotations and implies that everyone should be vaccinated. Someone who does not want to be vaccinated speaks of “forced vaccination” or “vaccination racism” in order to present himself as a victim of inadmissible public pressure. In general, however, I do not believe that this phenomenon has occurred more in the pandemic than in other social crises or conflicts.

**Janich:** In times of political crisis, we almost always see a revival of certain metaphorical frames that either contextualise the crisis in terms of war and struggle (invasion, fighting, etc.) or in terms of natural disasters (wave, avalanche, flooding, etc.). This is nothing new. Still, people should be made aware that these are all metaphors, which serve a political function (such as to generate acceptance for measures, or to improve one's image during an election campaign, like in this summer's federal election in Germany). The most striking thing for me in the context of the Covid-19 pandemic is how the virus variants were given their names (most famously Delta, and more recently Omicron). Initially, these variants were named after the countries in which they first appeared (i.e., the South African variant or the Italian variant). Now, a new naming system has been deliberately created with the purpose of counteracting discrimination and the temptation to stereotypically assign blame to the countries of origin.

**Were certain topics too complex for media coverage? The coverage of vector vaccines, for example, often showed they were less effective than mRNA vaccines. Scientists have time and again pointed out that different study designs mean that the effectiveness of various vaccines cannot be compared that straightforwardly. Could the unintentional "maligning" of certain vaccines in the media coverage have been avoided?**

**Janich:** Yes, I believe so. Some issues are indeed quite complex. They need to be researched, reported on, read, and digested over a longer period of time than one usually devotes to the mainstream media. And the bad press could certainly have been avoided if, for example, fewer reports had been made on some of the serious side effects or, of course, on the dramatic deaths that ensued after being vaccinated. Instead, it would have been more useful to report on the risks of the vaccines versus the benefits, and to shed light on some other risks that we take on a daily basis, with no fear whatsoever. A vaccine like Astra Zeneca, which has been approved and is widely available, could have been given, which in turn would have majorly sped up our vaccination rates in 2021. But it's our duty to obtain as much broad and accurate information as possible.

**Maurer:** In principle, comparisons are very useful because they help people to arrange facts and figures. The number of deaths from the pandemic or the hospitalization rate alone says nothing to most people. There has to be a comparison value: How many people die from other viruses? What is the hospitalization rate for other diseases? What is the R value in other countries, etc.? Such classification comparisons were done too infrequently in the media. With regard to the case referred to in the question, it is of course unfortunate that such a comparison was made precisely where it does not apparently make sense. But it seems clear to me that it's too much to expect journalists themselves to compare the study designs of different vaccine manufacturers and to recognize that the efficacy rates conveyed by them are not comparable. This

calls for vaccine manufacturers and scientists to communicate this at an early stage before misconceptions take root in the population. If I were to speak not as a scientist but as an ordinary citizen, I would expect comparable information to be provided here as well.

**Schmiese:** It is the essence of journalism to present complex issues in a simple way without distorting them. That was also successful by and large in the explanation of vaccines. The quality of the vaccines has been constantly assessed by experts, which the media simply passed on. To that extent, the alleged “maligning” in public of AstraZeneca in Germany was the consequence of the hesitation of STIKO (Standing Committee on Immunization) to recommend this vaccine.

**Why were scientists more visible in the Covid-19 pandemic than in the earlier crises like the financial crisis, the refugee crisis, or the climate crisis, which has been intensifying for decades?**

**Maurer:** I’m not at all sure that’s true about the climate crisis. In that crisis, too, there are around half a dozen scientists who for years appeared frequently in the media, but their names are probably less familiar to the public because the climate crisis has never been covered as intensively over long periods of time. The special thing about the pandemic is that it has been the central topic of media coverage for a year and a half now. Due to the high frequency of reporting over long periods of time, the names of the experts are more likely to remain in our minds than in normal cases in which we usually forget media content relatively quickly. But it is true in any case that in crises that display a high degree of uncertainty and a profound threat to life and limb, as in the case of the climate crisis and the pandemic, experts in the (natural) sciences are more in demand in the media than, for example, during the financial or refugee crises. In journalism, one obviously also attributes sufficient expertise to oneself and to politics in cases like that.

**Schmiese:** The financial and refugee crises were primarily originally political in nature. The first involved safeguarding the banking system by the state, bank supervision, and finally state finances. With migration, because of questions about borders, it concerned European, foreign, and domestic politics. Experts were given the same chance to speak alongside political specialists – but in smaller numbers than during the corona pandemic. Researchers were more present during the pandemic in the media because the sheer number alone of non-state institutions like clinics and research institutions was greater, the general interest was greater, and the need for explanation was higher.

**Janich:** I believe this is due to how quickly these dramatic developments unfolded, and the degree to which our physical integrity is directly affected (or, to put it differently how deadly the virus is). When compared with the climate crisis, which, despite urgent pleas from researchers over many decades, has

yet to receive the attention it deserves from the media, the effects of the pandemic are felt by everyone much more immediately and in the short term than, say, global warming. This, in turn, increases the pressure on politicians to take action and thus the need for scientific evidence to inform decision-making.

**Is the impression correct that predominantly scientists from virology and other life sciences were given a voice and scientists from the social sciences and humanities played a subordinate role?**

**Maurer:** This impression is absolutely correct. Let`s take the example of Germany: Our research data shows, for example, that, between January 2020 and April 2021, the virologist Christian Drosten alone appeared in the German media about three times as often as scientists from the fields of psychiatry and psychology combined. Other social sciences were hardly in view either. Since this is a pandemic caused by a virus, it is of course very reasonable initially to let scientists from virology and medicine have the floor because they are obviously closest to the topic. But when it comes to deciding on measures to combat the pandemic, which for many people are associated with harsh economic, psychological, and physical consequences, it would have been necessary in accordance with the notion of the diversity of media coverage to let scientific experts be heard more on the unintended side effects of the measures. Virologists naturally have little to contribute to this different perspective.

**Schmiese:** In the case of an until then barely researched disease, the media will of course be mainly interested in research into causes. The consequences of the pandemic will be processed by social sciences and the humanities only afterwards and with certainly far less reporting in the media.

**Janich:** Well, yes, that's the impression that I have gotten, although this has not been systematically verified. Nevertheless, this can be confirmed by the fact that, for the first time and over a very short period of time, many different virologists and epidemiologists were and to this day are still very prominent in a wide variety of media and formats. They are certainly the most competent people to talk to when it comes to how viruses spread, much in the same way that medical professionals are the most competent people to talk to when it comes to treatment. However, with regard to how to contain the pandemic, it would have been useful and vital to hear from researchers from the social sciences and humanities early on (for example, on the link between society, community, and culture, or between infection control policies and democracy); it would also have been useful to hear from economists (for example, on the cost of lockdowns, testing strategies, vaccination campaigns, etc., relative to their ability to contain the virus).

**What consequences will the pandemic have for scientific communication? Should scientists attempt to be proactive in making their findings available to the public and politicians?**

**Schmiese:** Scientists ought to be proactive in giving to the media their research results that are of general benefit, for instance with respect to environmental policy or health policy.

**Maurer:** First of all, it is to be hoped that scientists will continue to play an important role in media coverage in the future, precisely in crisis situations. In my opinion, two aspects must be distinguished. First, many public debates in the sense of objectification can benefit from media reporting on relevant research in these areas. Here, scientists can take a proactive approach by spreading their research via press releases or social networks. But this will by no means always lead to reporting. Second, scientists are cited by the media in different contexts as credible experts in their fields of expertise, even if they themselves cannot contribute their own current research results. Nonetheless, scientists should be able to separate their scientific role from political activism. One's credibility advantage should not be used to establish certain points of view in society if they are scientifically controversial. Unfortunately, scientists who publicly comment on socially controversial topics now also have to expect that they will encounter hostility, especially in social networks. If you publish research findings that do not fit the worldview of certain social groups, you are often publicly attacked for it. Conversely, of course, it also happens that research findings are then instrumentalised by the same groups for propaganda when they (supposedly) confirm their worldview. Both are of course unpleasant, but that must not become a reason not to convey such findings to the public.

**Janich:** It already has had affected scientific communication in a profound way. In the meantime, there are numerous conferences, lectures, publications and projects in every major discipline, including the humanities and social sciences, dealing with scientific communication on the subject of Covid-19. It has also become a major issue in the field of science policy and among third-party funders. What is and remains interesting is how the pandemic will affect the public's confidence in science over the mid and long term. But irrespective of this and as a matter of principle, I can only say that of course researchers should proactively communicate their findings to society! At a recent conference, philosophy professor and former minister Julian Nida-Rümelin emphatically quoted one of his former teachers by saying, "if you're not spending at least 10% of your working time explaining to people what you're doing, you're not doing your job".

*The interview was conducted by Tome Sandevski.*



## **MEDICAL RESEARCH DURING A PANDEMIC: A BALANCING ACT BETWEEN THE PRESSURE TO PRODUCE RESULTS, POLICY ADVICE, AND SCIENCE COMMUNICATION?**

### **INTERVIEW WITH FERDINAND GERLACH**

*Ferdinand Gerlach is Professor of General Practice and Director of the Institute of General Practice at Goethe University Frankfurt. His research interests include quality promotion in outpatient care, evidence-based medicine, digitalization, practice epidemiology, error prevention, and risk management. Since 2007, he has been a member – and since 2012 chairman – of the Advisory Council on the Assessment of Developments in the Health Care System appointed by the German Federal Ministry of Health. The council is charged with presenting a comprehensive report every two years and identifying possibilities with regard to the further development of the health care system.*

**Professor Gerlach, when did you first have to deal with the new SARS-CoV-2 virus?**

So, less with the virus in the narrow sense, but more with the consequences. I can remember that the committee on a modern remuneration system, which is a government committee, presented a report to Minister of Health, Mr. Spahn, and immediately afterwards, 20 minutes later, he held his first press conference on the topic. That made it a bit more real to me than before. The first cases in Germany had just appeared then; up until then it was “far away.” Somewhere in Wuhan, in a city that we all now know about, but that nobody had heard of before. It was about then that it became clear that a pandemic was coming. We were at the beginning of a potentially drastic development. But I am not a virologist, so I did not deal with the virus as such in the narrow sense anyway, but with the enormously far-reaching consequences of course.

**Were you aware at the beginning how hard the pandemic would hit Germany and other countries? If you had been told in January 2020 that there would be a shortage of masks, protective equipment, and disinfectants within a few weeks, would you have believed that at the time?**

Nobody said it at the time because no one suspected it – including me. Indeed, there was this famous report, which – I think even as a parliamentary document – virtually planned for a pandemic. I can also remember that I once spoke about this with the Minister of Health at the time, Mr. Gröhe. The European ministers of health also constructed a simulation that showed what would happen in Europe if there were a pandemic. But I personally did not expect that it would actually happen as dynamically as it did. Nor do I think that there are many who actually expected it to happen that way.

**During the corona pandemic, the global public was able to follow the progress of scientific research in real time. Often, research results were seized on before the external review by the scientific community and the media. Did you have the feeling that scientists were under pressure to communicate research results to the outside world as quickly as possible?**

I have noticed this pressure with others, not with me. From the very beginning of the crisis, as we had discussed in the Advisory Council on the Assessment of Developments in the Health Care System, I limited myself to commenting only on things that I can judge, on questions we ourselves have worked on and where our expertise lies. I have resisted the temptation to comment on things that are outside my area of expertise. Unfortunately, this has not been the case with many others. Obviously, as you can see in all the preprints and online first publications, this pressure has been felt. Partly because, of course, they wanted to share results at an early stage to speed up the management of the crisis. But it is striking that there was a very strong trend in this direction. Right now, we cannot do anything more than speculate on the motives; in any case, it is a problem. You mentioned the main problem before: for the first time, the public and politicians as well actually saw in real time how science works, how scientific results are produced, how they are discussed, how discourses are conducted, how new results have thrown previous assumptions or certainties into disarray.

**How did this problem become apparent during the pandemic?**

That has been a very important problem in this crisis because the understanding of how scientists work, how insights are generated has been absent. It was then insinuated that the scientists did not agree, that they obviously did not know what they wanted, that they spoke in different languages, that nothing could be relied on because the science itself was not in agreement either. That is quite fatal. Explaining how science works was not successful – for whatever reason – and this clearly led to excessive demands on the media, the public, and unfortunately politics as well in understanding and dealing with these processes.

**You are in close contact with politicians or ministries. Have you been able to point to this problem?**

Yes, I have done that on several occasions. Here the contact is not that close. Also, I am not a government adviser on call who is involved in operational decisions. I don't want to do that either. I am very glad that the Advisory Council on the Assessment of Developments in the Health Care System can maintain a certain neutral, independent distance and that we do not allow ourselves to be drawn into the day-to-day business of politics. I have been asked of course, but I have only commented on those topics I understand something about, on which I myself or the Advisory Council on the Assessment of Developments in the Health Care System are experts. We have dealt with the topic of digitaliza-

tion, and we have repeatedly commented on this with regard to crisis management. In an international comparison, digitalization in Germany is very poorly developed in society as a whole, and in the healthcare sector in particular.

**Where do the shortcomings in digitalization appear?**

We are far behind in almost all important areas. In the corona crisis, for example, we are benefiting from data from Israel and Scandinavia. For example, it concerns the questions: Are vaccinations effective? How long does the vaccination last? When do vaccination breakthroughs occur and where? How do the various vaccines work? Which patients become symptomatic, which end up in the hospital, which in the intensive care unit, and what are the chances of survival? Germany doesn't provide us with the answers here. We don't have any useful data at all; we don't even know how many are vaccinated. Nor do we have a consistent strategy, and there is, we have to admit unfortunately, a cacophony on this subject. For example, the Standing Committee on Vaccination, which is responsible for this, carries out careful examinations on the basis of data and studies. The politicians rush past right and left and at this point also disavow the advice of the vaccination committee, partly also through faulty communication. This is an example of how scientific policy advice is going completely wrong at the present time and contributing to general uncertainty.

**Do you have the impression that the topic of digitalization in the German healthcare system has a more important place now so that positive developments will occur in the foreseeable future because the crisis has shown that this data is necessary?**

Yes. First, there was already a push in digitalization during the crisis. For example, we now have a corona warning app that, which, however – we could talk about that another time – is wrongly designed and falls far short of its possibilities. We have now gradually implemented an electronic transmission system for laboratory results (DEMIS). We didn't have it before. Until then, everything was done by fax. We are now gradually establishing a digital contact management system within the health authorities (SORMAS). For the first time, we now have, based on the initiative of a private association, an intensive care register, i.e., the German Interdisciplinary Association for Intensive Care and Emergency Medicine. Before that, we didn't even know how many intensive care beds we have, who occupies them, how many patients are receiving oxygen, how many Covid patients there are in them, etc. So, we have seen a certain push, but we are still very far behind many other European countries.

**How do you deal with it when politicians do not follow the scientific recommendations of the Advisory Council on the Assessment of Developments in the Health Care System? Will these recommendations be conveyed to politics again at a later time?**

The Council is working from a long-term perspective. Every two years, after international analysis and consultations, it presents very well-founded, com-

prehensive expert opinions. We communicate these results to the Bundestag and Bundesrat. As stated expressly in the law, they are our main target groups. I then also go to the health committee of the Bundestag, discuss the results with the deputies, and I am also invited by the parliamentary groups. We talk with health insurance companies, medical associations, hospitals, and many other organizations. Our experience is that few things are implemented immediately, many things only after five to ten years, and some not at all. On the occasion of the Council's 30th anniversary in 2015, we conducted a retrospective analysis and looked at how many of the Council's key recommendations had been implemented by politicians, and it was more than half.

I think this result is actually very good because here we are talking about scientific advice on policy and not about politics itself. I would not expect politicians to implement all the Council's recommendations completely. With regard to some of the recommendations, we already know very well that it's too soon for them, that they are not currently feasible for certain reasons – such as majorities, costs, political preferences, opinion-forming in Parliament, etc. We assume, however, that many recommendations – and we have observed this in the past – will be implemented later. At the moment, we are even extremely satisfied: there has never been a coalition agreement in which so many recommendations of the Advisory Council on the Assessment of Developments in the Health Care System were contained as in the one now presented by the new federal government.

**How did you perceive the exchange between the media and different scientific disciplines during the pandemic? There was the accusation virology was dominant – a key term was “virological republic” – did you also see it this way? That individual disciplines were too present?**

In principle, yes. This changed a bit over time, but it was very pronounced at the beginning. Then they said: “Ah, a new virus, let's ask the virologists.” It was not until much later that epidemiologists and infection epidemiologists were added, who are still given too little attention to this day, as are the communication sciences and psychology. We also have a huge problem because we are not reaching parts of the population: either in terms of measures or specifically with regard to vaccination. This has something to do with the fact that we and politicians in particular have done a poor job of communicating the measures, sometimes quite counterproductively. There has also been not enough discussion with public health researchers or their expertise sought, and it has also been something of a trend that certain factions or points of view in science have been particularly asked for or been dominant. I wouldn't speak of a “virological republic” now – this is exaggerated for the sake of polemics – but the word points to the problem of strong disciplinary narrowing, which in my view actually exists.

In general, we urgently need to learn from the failures and problems of this

crisis because now, in the winter of 2021, after almost two years of the pandemic, we are again facing a situation that could have been largely avoided – and which was also predicted by science. We have to ask ourselves: What is the reason for this and what part does science itself play in it? Why haven't we managed to convey certain things in politics? What will the structures have to be like in the future for this to work better?

**Do you think communication could have gone better in some places during the crisis? Especially when it comes to terms such as the “long-term consequences” of vaccinations, which are understood differently by parts of the population than by science?**

Yes, this is a nice example of better explaining vaccine reactions and “long-time consequences.” People say: “Yes, I will not get vaccinated for the time being, I will wait and see if there are long-term consequences.” First, as a rule, the consequences of vaccination become apparent very quickly. The second is that we have now vaccinated billions of people in the world and have extremely good data – except in Germany. We know that infection by the wild virus causes long Covid in a relevant number of patients, and we also know that mortality is very high, roughly as a rule of thumb about 20 times as high for unvaccinated people than for vaccinated people. There is also another point, and I can still remember the precise moment: at the very beginning of the crisis, Chancellor Merkel said that there would be no vaccination mandate in Germany, she gave her word or something like that. I said then: “That will come back to bite us.” For example, I am deeply convinced that we must now urgently enforce an area-specific vaccination requirement in all proximal sectors, such as nursing homes, in order to protect vulnerable patients. This is quite clear from a legal point of view, it is medically very clear, and I think that this is also a civic duty and an act of solidarity so that we do not risk tens of thousands of deaths in nursing homes and old people's homes again due to unvaccinated staff, unvaccinated visitors, etc. To avoid going into an endless lockdown spiral every year, we will not be able to avoid a universal vaccination mandate. Politicians know that we must not exclude something from the outset in such a crisis. To exclude something as important as vaccination in a pandemic from the outset was a very serious mistake. There was this political pressure – I understand that – but it was a mistake. The second fundamental mistake is that data protection and informational self-determination are repeatedly given greater weight than the right to health and life in particular. We harm many, many people and their health through excessive data protection – and there are many examples of this – and endanger their lives unnecessarily.

**What lessons should we learn for future crises – climate change and the danger of numerous victims of heat waves in particular, for example? What are the health problems that are emerging in Germany?**

There are several. On the one hand, there is excess mortality among older people during heat waves in summer. Empirical calculations tell us that more than 20,000 additional deaths have already occurred during heat waves in Germany; it ranks third in the world after China and India, much larger countries, in absolute numbers. Such excess mortality already existed previously, I think in 2003, in France. They have responded to this, developed so-called heat protection plans and now no longer have such distinctive excess mortality.

The second issue is that a shift in infectious diseases is taking place. Pathogens and vectors are migrating to Germany that were previously only present in the Mediterranean or even further south. So, we have to prepare for that.

*The interview was conducted by Tome Sandevski.*

## **LESSONS LEARNED? FROM THE FINANCIAL CRISIS TO THE COVID-19 PANDEMIC**

### **INTERVIEW WITH JAN PIETER KRAHNEN**

*Jan Pieter Krahnén is a Professor of Finance at Goethe University's House of Finance and the Scientific Director of the Leibniz Institute for Financial Research SAFE, where he serves on the executive board. His current research interests focus on the causes and effects of the financial crisis, with an emphasis on structured finance, systemic risk, and establishing a sustainable architecture for financial markets.*

Professor Krahnén, in addition to your research on financial markets, you have been active as an expert or member of committees advising on policy since the 1980s. Since 2008, you've been advising on several expert committees dealing with the financial crisis, including the "Issing Committee." What was your role within this committee?

The "Issing Committee" was a small informal group around the former ECB chief economist Otmar Issing, who became president of the Center for Financial Studies in Frankfurt after his time at the ECB. There, I served as one of the directors. Issing himself was charged with putting together a small team to advise the Chancellery, and more specifically the then Chancellor Merkel and Minister of Finance Steinbrück, on the G20 talks that were beginning at that time.

These meetings of the G20's heads of government in November 2008, a few weeks after the collapse of the investment bank "Lehman Brothers," sought joint solutions to the obvious problems in terms of financial stability. The financial crisis had quickly developed into a transatlantic, in parts even a global challenge, but there was no suitable format to reach an unbureaucratic agreement on actions between the major economies in dealing with the banking crisis. The G20 meetings were thus an attempt at the time to achieve such an institutionalised meeting. The biannual meetings had to be prepared and together with Otmar Issing, we planned these talks as a small team. We would identify the most important topics for the upcoming meetings from a German point of view and the most appropriate courses of action. This involved drafting and writing position papers and then presenting them in person to the Minister of Finance and the Chancellor. Chancellor Merkel incorporated our input as she deemed appropriate.

**In 2012 you were a member of the “Liikanen Committee”, a high-level expert group on reforming the EU banking sector, established by the EU Commission.**

Yes. The G20 meetings were ongoing, but as the financial crisis became increasingly less important, the work of our team was no longer required to the same extent. However, based on our research, it was concluded that a more comprehensive, pan-European regulatory policy was needed, starting by creating an insolvency and liquidation regime for larger banks. At the time, there was no such thing because banks, like all other companies, were dependent on national insolvency regimes that differed from country to country. This significantly increased the risk of instability for the entire financial system. Since the impact of the crisis was not just felt by the larger banks, but also their subsidiary branches and networks in other countries, the large pan-European banks needed to have new, straightforward, sensible, and plannable procedures in place.

One of the key lessons that we've learned from the 2007-2008 financial crisis is that banking crises can have enormous (and quite dire) ramifications within a very short period of time. Since large banks provide a significant amount of financing on a daily basis, banks run the risk of having their lending abilities called into question. In other words, a house will collapse if you remove too many bricks. And once it reaches the point of collapse, it's too late to make use of the procedures for replacing bricks. In such a case, you're going to need a lot more than new bricks.

**Is that also perhaps why the SAFE institute, which you later co-founded, included “architecture” in its name?**

Yes, that's one of the reasons. The term "architecture" refers to the fact that any financial system is more than just a set of pillars situated next to each other and managed separately. Financial systems can be highly interconnected, and usually are. But it's not just a matter of banks being interconnected; markets, stock exchanges, insurance companies, investment funds, and capital aggregators, or shadow banks, also play a role. During the financial crisis, there were hardly any reliable or robust databases. The situation has slightly improved since. We are witnessing an increasing interest in observing new developments in the financial system, for instance in the areas of digitalisation and sustainability.

**Were economists criticised for not having predicted the financial crisis?**

Yes, on many occasions. It was around this time that the Goethe University first organised a series of events in Frankfurt called the Citizens' University, which was intended to facilitate dialogue between researchers and the public. The event on the financial crisis was attended by hundreds of people. Sometimes, the debates were quite heated but generally speaking, the atmosphere was calm enough to allow for a real dialogue to take place. I found these



events to be quite successful. Naturally, some Frankfurt residents asked us how we can claim to be experts in the field and not have predicted the crisis because, of course, with hindsight, the trajectory seems clear. To this question, one can only answer with the wisdom of life that several factors always interact for a crisis to occur - and one must know and be able to observe all factors in order to be able to make reasonably reliable predictions. Both, knowing all factors (theory) and being able to observe all factors continuously (empiricism) is rarely fulfilled - therefore we are surprised again and again.

**Could you illustrate this with an example?**

Some years before the financial crisis, some colleagues and I had been working on the topic of loan securitisation for the banking sector. In our valuation model, which we had basically rebuilt based on the assessments by rating agencies, we noticed a vulnerability in the risk models that could have helped us anticipate the onset of the 2007-2008 financial crisis, and perhaps been used to mitigate the impact of the crisis. At that time, certain market segments existed within the US bond market that bundled home loans together, i.e., into portfolios. Bonds were issued to finance these portfolios, which were sold worldwide. Then, as many people in numerous regions suddenly and unexpectedly started to default on their home loans, the prices of these securitised bonds plummeted. On top of that, many banks in Europe had already invested in these bonds. This in turn tore holes in the banks' balance sheets that could not be filled on their own. As a result, many banks were forced to restructure. Nowadays, it is difficult for us to imagine how banks could unilaterally place themselves in this way at the mercy of a financial product, particularly when they, as investors, often had very little knowledge of how US mortgages work.

There was also no sound information or experience with these products. Thus, the banks had entered new territory, both as issuers and as investors prior to the crisis in 2007/2008. Of course, without suspecting anything of a coming crisis, we had made some observations in the aforementioned research project on loan securitisations on the basis of the few available data, which then seemed strange to us because they contradicted the expectations we had based on theoretical considerations. However, we regarded these as individual cases and did not derive any further-reaching conclusions due to the limited data available.

**Did you share your research with the regulatory authorities?**

We went to the BIS in Basel, to the ECB, and to the Bundesbank. We shared our findings with everyone, and they were all very interested. Though after some time we realised that the central banks and international organisations did not have more precise data of their own. Nevertheless, we also observed that the institutions had a high degree of self-confidence, which, however, was based on assumptions rather than data. Once the financial crisis emerged, it

became obvious that the assumptions they had made were wrong. And then all of a sudden, our research was very interesting to them, as it showed they could address weaknesses on the securitisation market going forward. Thus, our research also laid the groundwork for addressing the architecture of the financial system as a whole.

**Were there any public accusations, i.e., from the regulatory authorities or from politicians?**

The regulators didn't accuse us at all; if anything, they only really had themselves to blame. What happened is that both the financial institutions and the financial markets recognised certain interdependencies, which had gone unnoticed for quite some time. The emergence of the derivatives market is very much a part of that. Today, this kind of interconnectedness of financial institutions, which is hardly recognizable as such on balance sheets, has been considerably mitigated by a smart regulatory intervention, the mandatory use of central counterparties.

**During the pandemic in 2020, the decision was very quickly made to provide economic support to companies and service providers. Do you feel the lessons learned from the financial crisis have been applied this time around?**

Well, for starters, the pandemic crisis is fundamentally different in its nature. The financial crisis was a crisis within the financial system and inherent to the financial system. In 2008, all the bailouts went to the financial sector. At no point during the Covid-19 pandemic was there a crisis in the financial sector. It was always a crisis that affected the real economy, i.e., businesses and service providers. This was recognised very quickly and, as a result, action was taken very quickly. This is certainly one of the lessons learned from the financial crisis. Furthermore, efforts were made to douse the flames where they started. We saw this primarily with companies and in the service sector, where sales suddenly plummeted. Given the concern about what could happen if the financial impact of the crisis were to spread to the financial sector and given how widespread this impact could become due to the mentioned interdependencies, many courageous and comparatively well-organised measures were taken. Therefore, the financial sector was largely left out of the fray at the beginning of the pandemic. At the same time, however, companies in the financial sector implemented many of the support programs. The fact that the financial sector has proven to be so stable throughout the pandemic can certainly be attributed to the new regulations introduced in the wake of the financial crisis of 2007/2008.

Stress tests were used to increase stability within financial sector after the financial crisis of 2007/2008. And during the pandemic, the medical community also argued that this approach could be applied to other areas, such as hospitals. How well do stress tests work in your opinion?

Stress tests are a relatively new and useful supervisory tool. For example, they prompt banks to closely monitor the possible consequences of risk situations, even if banks do not see or do not want to see these risks. In addition, the supervisory body learns how a single risk factor affects all institutions at the same time, for instance, what this type of risk means systemically. However, stress tests are not a panacea either, but primarily simulations for which a certain constellation of factors is assumed. They may never occur in this form and therefore may not resemble an actual crisis course at all. Therefore, one must also guard against a false sense of security. A regular stress test, with ever new scenarios, basically motivates the institutions "in house" to already be able to try out how the business can be set up to be resistant to all conceivable risk factors. And that is important and helpful.

You just mentioned a key term, "conceivable risk factor." You are also a member of the Scientific Advisory Board of the German Federal Ministry of Finance. Did you ever have any discussions within this body prior to 2020 about events such as possible pandemics, or natural catastrophes, or other similar events that could occur?

While such topics certainly didn't dominate our advisory board meetings, we have been thinking and writing about them rather extensively in various other circles, including the SAFE Policy Center. This pandemic is interesting for us because we need to think through what a pandemic actually means for the financial sector and how to respond to it in a meaningful way, also from the policy side. For instance, the question as to whether large-scale 'zombie lending' would take place came up very early on. This would mean that banks would have basically been forced to finance customers or to continue financing customers, who are no longer viable for loans, and thus maintain an economic structure that has no chance of recovery even after a crisis. After all, how could these customers be expected to pay back their loans after the pandemic is over? In the end, we would have likely been left with a sclerotic economy of sorts, which would have had negative repercussions on employment.

Do you ever consider the challenges that you've just mentioned through the lens of climate change, the effects of which will only increase in the years and decades to come?

Climate change is among the megatrends driving the political agenda today. As such, it will have an impact on regulatory discussions, for instance, ideas for how society as a whole should respond to the climate crisis, which is now suddenly perceived as a threat. On the one hand, this involves major investments,

for example in new technologies, housing, infrastructure, and so on. And on the other hand, it means that companies, in addition to consumers and households, will have to adapt or be restructured. The banking sector is both a vehicle for restructuring and change, as well as a victim of it. For instance, regulators are demanding that climate risks be taken into account; investors want their portfolios to be "green"; central banks are pondering about what role they can play in the process. But what this means in detail and how it can one day be implemented is still largely open - which is why intensive work is currently still being done on fundamental, conceptual issues such as a credible and feasible indicator system for sustainability and other ESG goals. As with all long-term and far-reaching decisions, there is a risk of making a hasty decision before the direct and non-intended consequences have been sufficiently considered. The current issue regarding globally harmonised standards for measuring climate risks, which the International Sustainable Standards Board (soon to be in Frankfurt) has been tasked with developing on behalf of the G-20, is one such example of this. A default election will influence the valuation of individual companies and entire industries, potentially triggering significant dynamics in the capital market.

**Looking back on the financial crisis, there wasn't any one specific scientist that was relied upon quite heavily for advice, like a Christian Drosten in Germany or an Anthony Fauci in the US. How would you assess the role played by scientists and researchers during the financial crisis?**

I primarily associate the 2007-2008 financial crisis with the unforeseen trickle-down effect we experienced. There was a sudden banking sector collapse, which started in the US as a local problem and then spread via an unprecedented number of "infection routes" to financial institutions all over the world, even affecting the solvency of countries. At the time, the most prominent economic advisors were all macroeconomists, which explains why it took years before a coherent explanation for the effects of the crisis could be offered. The crisis showed that detailed microeconomic knowledge is also needed - for example, on the design of derivatives markets, the vulnerability of interbank financing, and the incentive conflicts in loan securitisation - if the emergence of systemic risks such as those of the financial crisis of 2007/2008 is to be prevented. Microeconomically oriented financial researchers, such as the Max Planck Director Martin Hellwig in Bonn, provided decisive impulses for an overall regulatory draft of financial market regulation and supervision in Europe.

We are still working on the completion of the resulting regulatory structure, which is often collectively referred to as the banking union. For example, an adequate European deposit (re)insurance is under discussion for 2022, and also in the coalition agreement of the new German government, as is a strengthening of the pan-European resolution authority for major banks, the Single Resolution Board.

## **UNIVERSITY RESEARCH AS A GAME CHANGER FOR PANDEMIC CONTROL? THE PANDEMIC AS A GAME CHANGER FOR UNIVERSITY RESEARCH?**

### **INTERVIEW WITH UWE SCHMIDT**

*Uwe Schmidt is Professor of Higher Education Research at the Institute of Sociology and head of the Center for Quality Assurance and Development both at Johannes Gutenberg University in Mainz as well as head of the office of the University Evaluation Network Southwest. His research and work is focused on empirical higher education research, evaluation in the science and education system, as well as the development of the science system. Among other things, he is a member of the Scientific Advisory Board of the Foundation for Higher Education Teaching, a permanent guest on the Accreditation Council and co-editor of the journals 'Qualität in der Wissenschaft', 'das Hochschulwesen', and the handbook 'Qualität in Studium, Lehre und Forschung'.*

**Professor Schmidt, your research subject is universities. What questions does the Covid-19 pandemic raise for higher education research?**

As in all areas of education, the pandemic posed a particular challenge for universities. This leads directly to questions that are relevant for university research. Two aspects should be mentioned in particular: On the one hand, it was shown that digitization has stimulated research into teaching and learning processes. Thus, we can observe a large number of international and national studies on the implementation and quality of digital teaching. Of interest here are forms of teaching such as the effects of synchronous and asynchronous courses, specific didactical concepts in the context of digital teaching, as well as the necessary effort required and dealing with the special situation of working at home for both teachers and students. Among other things, it is of interest how students adapt their working methods and organization, especially with respect to asynchronous teaching, in order to counter the decreased rhythm of teaching and learning through on-site courses.

The related second question that has occupied us over the past two years is that of the effects of the pandemic on student behaviour and academic success. The fact especially that they were not present at the university made it difficult for students to establish contacts with either peers or lecturers. This is important insofar as we know from research on dropouts that social and academic integration play an important role here, i.e., the more students are integrated into their peer group and the more they identify with their subject, the less probability there is of their dropping out. Social and academic integration, however, are essentially dependent on encounters, on discussions between students and between students and teachers; this was extremely difficult during the pandemic despite the technical advances of digital communication

platforms, especially with regard to random, informal exchange opportunities.

The sequence of the genetic code of the SARS-CoV-2 virus was already published in early January 2020. The development of vaccines began in the same month. Quick progress has also been made in research into the spread of the virus or in the analysis of the effectiveness of masks. Was it surprising how quickly scientists at universities around the world focused their work on the pandemic during the pandemic?

To describe this as surprising implies that universities respond to social challenges slowly. I would not share this diagnosis in this form. What the pandemic and the associated research activities have shown, in my view, allows three conclusions to be drawn:

First, immense resources were invested in vaccine research, which is unusual in research despite the growing amount of third-party funding of universities. This was also connected with the great interest of businesses to devote themselves to this task and to collaborate with universities and scientists.

The second observation is related to the special value of basic research. The demand that science must find answers to relevant social questions is unquestionably justified. But – and this was impressively demonstrated by the research on vaccine development – application was preceded by intensive basic research over many years that did not at first always reveal an immediate point for application. In this respect, the rapid response of research to the corona pandemic was largely due to basic research in the field of immunotherapy that was carried out not least of all in my hometown of Mainz, where Biontech has its headquarters.

Lastly, the corona pandemic has emphatically demonstrated how complex the issues involved are. Public discourse on the ambivalence of medical preferences and social and economic challenges has made it clear that science and politics sometimes do well not only to capitalise on the pace of implementation and application but to allow the reflections inherent in science to occur – sometimes at the expense of the speed of applying research results.

**Scientists have made their expertise available to the media and politics. Is this important social function of science rewarded in the science system itself?**

Communicating research results outside of the field of science has always been in the interest of science if it wants to be regarded as a relevant actor in coping with social issues. Looking at the perception of the public presence of individual scientists, this is not indisputable in the scientific community. There are various reasons for this. On the one hand, a media practice can be observed that, in the sense of so-called o-tones, focuses less on a differentiated presentation of scientific results and expects short statements that suggest unambiguity where differentiation and nuance seem necessary. This some-

times leads to it being less about the scientific character of the statement than about the authorization of statements by scientists. These sometimes seem banal and downright unscientific. On the other hand, it must be stated that not every scientist has the ability to properly translate or communicate research results for non-scientific purposes. There are certainly individual actors – and the German virologist Christian Drosten is, in my opinion, a good example of this – who engage in a balanced way of communicating and succeed in finding a balance between media requirements and scientific expertise. It is characteristic of him, however, to also use forms of communication – such as podcasts – in part that are to a certain extent outside the logic of everyday media. Looking at the influence of the media presence on scientific careers, this is certainly limited within the science system. Good research cannot be replaced by public presence but is a prerequisite for it. To that extent, career options in science are also genuinely linked to scientific achievements.

**During the pandemic, politicians and the media were able to experience scientific research in real time. Is it advantageous or disadvantageous for scientific research if interim results are already taken up by politics and the media, and research takes place under observation by politics and the public?**

The public perception of science undoubtedly benefits when science can build on current challenges. It is of little use if science presents solutions after the crisis is either over or can no longer be overcome. A high level of public interest is both a blessing and a curse for science. On the one hand, science is able to show its social relevance. On the other hand, the media's reporting on science and its reception in politics in real time undoubtedly represents a danger for scientific activity. This is essentially due to the fact that science, politics, and the media each follow their own logic of action and time, all of which are justified with regard to their different tasks. For example, politics must act directly in addressing social problems. The media are interested in timely reporting, which is also oriented towards a broad audience that is involved in individual subject areas in varying degrees. Science, on the other hand, depends on constant reflection on its results, which are always fraught with uncertainties. The latter conflicts with the clarity of decisions required in politics. When these systems, each with its own logic, come together – as happened in the pandemic – ambivalences arise that are more or less balanced by actors. The decisions of the Standing Committee on Immunization in Germany and the associated attempts at media and political influence are certainly prominent examples of how different systems and their logic create pressure to act. On the other hand, it was also observed in the pandemic that the permanent presence of the topic in the media subject to the participation of science certainly offers opportunities for a good mutual interpenetration of politics, media, and science. In this sense, it is important that not only science approximate the logic of politics and the media with respect to the transfer of knowledge, but that the media and politics are perhaps more open to how science operates than

before.

**Will the corona pandemic cause debates about the benefits of basic science versus applied science to erupt again?**

Basic science and applied science are not mutually exclusive paradigms but complement each other. Without good basic science, which addresses questions whose relevance for application cannot be certain at the time of research, there will be no adequate applied science. Conversely, basic science is of no use if it can't contribute to solving social problems or challenges. But there is a risk of an even greater shift in priorities towards the primacy of applied science, although I would not see this as an immediate effect of the pandemic. Rather, it describes a trend that has been increasingly observed in recent years. At the same time, it can be stated that the DFG, the German Research Foundation, is still the largest third-party provider of funding in German science, with a clear orientation to the needs of basic science. In this respect, one could also conclude that the demand to place science in a strengthened relation to application is justified and separates science from a possible self-referentiality. In this respect, the demand for practical relevance may also be helpful for science itself, provided it does not lead to a neglect of the funding of basic science.

***The Guardian* argued in late 2020 that the pandemic had changed science forever, given that research was now shared earlier and international collaboration had been strengthened. Do you share this impression?**

I consider this diagnosis to be exaggerated and inappropriate. It is not true that science did not respond to issues of the time before the corona period, especially since the speed of the response was certainly due to the scenario of a concrete threat but also to the available resources for vaccine development. There are also examples in which science was far ahead of socio-political discourse. The climate crisis is certainly an extremely current example of this. Even the early publication of research results is not unusual for science itself – on the contrary, there is a competition between scientists that prompts early publication in order to be the first to present or to be able to present research results. The difference with the corona pandemic was therefore not so much the early publication of research results as the early and rapid public consumption of research. One could also put this succinctly: it is not science that has fundamentally changed its mode, but the media processing of scientific findings changed during the corona pandemic. And in my opinion, science would also do well not to fundamentally change its premises for how it operates but preserve times for reflection. Finally, I do not see a paradigm shift with regard to the increase in international collaboration. International collaboration is not unusual in science and is not necessarily tied to preferences for political systems. In this respect, it may well be that the threat of the pandemic has reduced political obstacles to collaboration but has not significantly changed the



interdisciplinary and international willingness to collaborate with respect to increasingly complex issues.

*The interview was conducted by Tome Sandevski.*

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