Monday, December 3, 2018

Top 10 risk and compliance related news stories and world events that (for better or for worse) shaped the week's agenda, and what is next

Dear members and friends,


When I downloaded the paper, I was excited. I had already in my mind a list of people that should read something like that. When I read the paper, I was not sure any more. Who can understand it? Security practitioners with a PhD in philosophy, for example?

The paper starts with the paragraph: “Industry 4.0 is rapidly becoming a reality, making use of intelligent, interconnected cyber-physical systems to automate all phases of industrial operations, spanning from design and manufacturing to operation, supply chain and service maintenance.

With a great impact on citizens’ safety, security and privacy due to its cyber-physical nature and the inherent autonomy, the threat landscape concerning Industry 4.0 and IoT is extremely wide.”

So far, so good. So, it is also about Industry 4.0. Or not? Before reading a document, I always want to have a better feeling of the content, so I use frequency analysis. No, this is not a ciphertext where I want to reveal the message, I just use a descriptive statistics approach. In 118 pages, the ENISA paper used the phrase “Industry 4.0” exactly 145 times.

Next step – how ENISA defines Industry 4.0? In page 12 we read that ENISA defines Industry 4.0 as “a paradigm shift towards digitalised, integrated and smart value chains enabling distributed decision-making...”
in production by incorporating new cyber-physical technologies such as IoT”.

Let’s continue:

“Contrary to the traditional approach to industry in which a hardware-based structure with a clear communication hierarchy was prevalent, Industry 4.0 introduced flexible systems whose functions are not bound to hardware but distributed throughout the network.

In these new systems internal communication can now be observed across an organisation’s hierarchical levels. New types of interactions have been introduced and external interactions between organisations have changed significantly and become more flexible.

Industry 4.0 connects production to information and communication technologies. It merges end user data with machine data and enables machines to communicate with each other.

As a result, it has become possible for components and machines to manage production autonomously in a flexible, efficient and resource-saving manner. Its benefits include, among others, higher product quality, greater flexibility, shorter product launch times, new services and business models.

It is important to note that the flows depicted in the figure refer to physical goods and data (e.g. exchange of digital twins). Data flows are bidirectional at least, e.g. customers may provide feedback to the production/manufacturing process.”

Figure 4: Industry 4.0 and Smart Manufacturing capabilities
It took me some time to understand the details. I really wonder, who is going to read this paper? Penetration testers, for example?

We read: “The aim of the study is to serve as a reference point to promote collaboration on Industry 4.0 and Industrial IoT security across the European Union and raise awareness of the relevant threats and risks with a focus on “security for safety”.”

Carl von Clausewitz believed that although our intellect always longs for clarity and certainty, our nature often finds uncertainty fascinating.

Read more at Number 2 below. Welcome to the Top 10 list.

Best regards,

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Number 1 (Page 9)

Implementation of Basel standards
A report to G20 Leaders on implementation of the Basel III regulatory reforms, November 2018

This report updates G20 Leaders on progress by the 27-member jurisdictions of the Basel Committee on Banking Supervision (BCBS) in implementing the Basel III regulatory reforms. It is the ninth such report, and summarises the outcomes of the Committee’s Regulatory Consistency Assessment Programme (RCAP).

Number 2 (Page 14)

Good Practices for Security of Internet of Things in the context of Smart Manufacturing

Industry 4.0 is rapidly becoming a reality, making use of intelligent, interconnected cyber-physical systems to automate all phases of industrial operations, spanning from design and manufacturing to operation, supply chain and service maintenance.

Number 3 (Page 17)

Department of Justice, U.S. Attorney’s Office, Eastern District of New York
Two International Cybercriminal Rings Dismantled and Eight Defendants Indicted for Causing Tens of Millions of Dollars in Losses in Digital Advertising Fraud

Global Botnets Shut Down Following Arrests
A 13-count indictment was unsealed in federal court in Brooklyn charging Aleksandr Zhukov, Boris Timokhin, Mikhail Andreev, Denis Avdeev, Dmitry Novikov, Sergey Ovsyannikov, Aleksandr Isaev and Yevgeniy Timchenko with criminal violations for their involvement in perpetrating widespread digital advertising fraud.

**Number 4 (Page 23)**

**The consequences of Brexit for the French and European financial sectors**
François Villeroy de Galhau, Governor of the Bank of France and Chairman of the Autorité de contrôle prudentiel et de resolution (ACPR), at the ACPR conference, Paris.

“I am delighted to welcome you along with Bernard Delas to this new conference organised by the ACPR, which this morning will focus on the consequences of Brexit for the financial sector.

This issue is admittedly constantly evolving in line with current events... I welcome the agreement that was reached between the European negotiators and their British counterparts last week and we all hope that it will pass through the stages to come and ultimately be finalised.”

**Number 5 (Page 29)**

**Climate change and central banking**
Yves Mersch, Member of the Executive Board of the European Central Bank, at the Workshop discussion "Sustainability is becoming mainstream", Frankfurt am Main.
“Grey, dear friend, is all theory,  
And green the golden tree of life.


This quote from “Faust” by Frankfurt-born Johann W. Goethe is already 210 years old. But it aptly sums up the current public debate on “green finance” – financial instruments that support solutions for climate change.”

**Number 6 (Page 38)**

**From construction to maintenance - patrolling the ring-fence**


“Nowadays, we don’t discuss the corporate veil so much as the banking ring-fence, and that is the focus of my speech tonight.

A decade on from the financial crisis, one of the largest ever reforms to the structure of the UK banking industry is coming into force.”

**Number 7 (Page 42)**

**Ten years after the Great Financial Crisis - where do we stand?**

Agustín Carstens, General Manager of the BIS, at the People's Bank of China, Beijing.

“When the BIS Asian Office opened its doors in July 1998, the world was quite a different place, only just emerging from the tail end of the emerging market crises of the 1990s.
The 20 years since then have seen a marked rise in the economic weight of emerging market economies (EMEs). China, in particular, expanded rapidly as its share in global GDP (measured in PPP dollars) rose from around 7% to about 19%.

At the same time, the economic resilience of EMEs improved significantly through the pursuit of prudent policies. This enhanced resilience became visible during the Great Financial Crisis (GFC) 10 years ago. At the time, EMEs, especially China, made an important contribution to global economic growth, buffering the negative shocks that came from the financial crisis.”

**Number 8 (Page 45)**

Harvard Law School
**Ames Moot Court Competition 2018**

Associate Justice of the Supreme Court of the United States Sonia Sotomayor was at Harvard Law School on Nov. 13 to preside over the 2018 Ames Moot Court Competition.

**Number 9 (Page 46)**

**The role of the renminbi in international payments**

Burkhard Balz, Member of the Executive Board of the Deutsche Bundesbank, at the 5th European-Chinese Banking Day as part of the Euro Finance Week, Frankfurt am Main.
“There's an ancient Chinese proverb which reads: "Don't be afraid to be slow. Be afraid only of staying still." And indeed, tenacity and staying power often do pay off.

Patience and perseverance are also called for when it comes to anchoring the renminbi in the group of key international currencies. I am pleased to be able to highlight this topic - the role of the renminbi in international payments - in my keynote speech here today, at what is already the fifth European-Chinese Banking Day.”

White Cat Hair on Black Pants: International Study Measures Stability of Precision Masses to Benefit Trade

When are two nominally identical kilogram masses no longer identical? When each goes to a different place and adsorbs varying amounts of moisture and contaminants.
Implementation of Basel standards
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This report updates G20 Leaders on progress by the 27-member jurisdictions of the Basel Committee on Banking Supervision (BCBS) in implementing the Basel III regulatory reforms.

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The RCAP:

(i) monitors members’ progress in adopting the Basel III standards;

(ii) assesses the consistency of domestic (national or regional) banking regulations with the Basel III standards; and

(iii) analyses the prudential outcomes of those regulations.

Overall, further progress has been made since last year’s update to the G20 Leaders in implementing the Basel III standards in a full, timely and consistent manner.

In addition, banks have continued to build capital and liquidity buffers while reducing their leverage.

The Basel III standards for capital, liquidity and global systemically important banks (G-SIBs) have generally been transposed into domestic regulations within the time frame set by the Basel Committee.

The key components, including the risk-based capital standards and the Liquidity Coverage Ratio (LCR), are now enforced by all member jurisdictions.
Further, member jurisdictions continue their efforts to adopt other Basel III standards, including those relating to margin requirements for non-centrally cleared derivatives, the Net Stable Funding Ratio (NSFR), the leverage ratio, revised securitisation framework, standardised approach for measuring counterparty credit risk exposures (SA-CCR), capital requirements for bank exposures to central counterparties (CCPs) and revised Pillar 3 disclosure requirements.

However, challenges remain, in particular regarding the timely regulatory adoption of these standards.

While some member jurisdictions have implemented the standards based on the agreed timelines, others have faced delays so that, in many jurisdictions, rules have yet to be finalised or put into effect.
Further, some jurisdictions have reported that their implementation of certain standards has been or will be delayed, compared with the implementation dates agreed by the Committee, because of their concerns over the pace of implementation in other jurisdictions.

This is notably the case for the NSFR, with only 10 member jurisdictions having final rules in force.

Consistent with last year’s report, limited progress has been also observed in the implementation of capital requirements for equity investments in funds.

Further, a considerable number of Basel standards remain due to be transposed into domestic regulations over the next few years, including the requirements for total loss-absorbing capacity (TLAC) holdings and disclosure, the supervisory framework for measuring and controlling large exposures (LEX), and the final Basel III reforms.

In December 2017, the Group of Governors and Heads of Supervision (GHOS) finalised these reforms and members reaffirmed their expectation of full, timely and consistent implementation of all elements of the package that includes the following elements:

• a revised standardised approach for credit risk, which will improve the robustness and risk sensitivity of the existing approach;

• revisions to the internal ratings-based approach for credit risk, where the use of the most advanced internally modelled approaches for low-default portfolios will be limited;

• revisions to the credit valuation adjustment (CVA) framework, including the removal of the internally modelled approach and the introduction of a revised standardised approach;

• a revised standardised approach for operational risk, which will replace the existing standardised approaches and the advanced measurement approaches;

• revisions to the measurement of the leverage ratio and a leverage ratio buffer for G-SIBs, which will take the form of a Tier 1 capital buffer set at 50% of a G-SIB’s risk-weighted capital buffer; and

• an aggregate output floor, which will ensure that banks’ risk-weighted assets (RWAs) generated by internal models are no lower than 72.5% of RWAs as calculated by the Basel III framework’s standardised approaches.
Banks will also be required to disclose their RWAs based on these standardised approaches.

The revised standards will take effect from 1 January 2022.

The output floor will then be phased in over five years.

As the implementation of these standards will make the capital framework more robust and improve confidence in banking systems, it is critical to maintain momentum.

Delayed implementation may have implications for the level playing field, and puts unnecessary pressure on jurisdictions that have implemented or plan to implement the standards based on the agreed timelines.

A concurrent implementation of global standards is all the more important, as many jurisdictions serve as hosts to internationally active banks.

The Committee urges member jurisdictions to complete the implementation of standards whose implementation date has already passed and to start the process of transposing the final Basel III reforms into their domestic (national or regional) banking regulations.

In order to maximise the benefits of these reforms, the Basel Committee will continue to closely monitor the implementation and impact of its standards and report to the G20 on progress.

Regarding the consistency of regulatory implementation, the Committee has published its assessment reports on all 27 members regarding their implementation of Basel risk-based capital and LCR standards.

Further, assessments of implementation of the Basel G-SIB framework were published in June 2016, covering the five jurisdictions that were home to G-SIBs at that time.

These reviews have shown that the domestic regulations are generally consistent with Basel III standards, while further consistency may be achieved in some jurisdictions.

Importantly, most member jurisdictions have actively rectified observed deviations by amending their domestic regulations in the course of the assessment.

In 2018, the Committee has started assessing the consistency of implementation of the NSFR and the LEX framework.
The first such assessment was of the Kingdom of Saudi Arabia.

Overall, the NSFR regulations and the LEX framework in Saudi Arabia were found to be “compliant” with the Basel standards.

The Basel Committee plans to complete its review of the implementation of the NSFR and the LEX framework for most member jurisdictions by end-2020.

Regarding the analysis of regulatory outcomes, the Committee has published five reports on the regulatory consistency of RWAs in the banking book and in the trading book.

Further, the Basel III monitoring exercises show that, in the last five years, the international banking system has made substantial progress in building capital and liquidity buffers.

All internationally active banks continue to meet the fully phased-in risk-based minimum capital requirement and the target Common Equity Tier 1 (CET1) capital requirements.

To read the paper: https://www.bis.org/bcbs/publ/d453.pdf
Good Practices for Security of Internet of Things in the context of Smart Manufacturing

Industry 4.0 is rapidly becoming a reality, making use of intelligent, interconnected cyber-physical systems to automate all phases of industrial operations, spanning from design and manufacturing to operation, supply chain and service maintenance.

With a great impact on citizens’ safety, security and privacy due to its cyber-physical nature and the inherent autonomy, the threat landscape concerning Industry 4.0 and IoT is extremely wide.

Following a methodological approach, ENISA has developed this study on Good Practices for Security of the IoT in the context of Industry 4.0 and Smart Manufacturing.

The study makes a series of contributions, most notably the following:

- Defines relevant terminology (i.e. terms such as Industry 4.0, Smart manufacturing, Industrial IoT) to promote common understanding of relevant cybersecurity scenarios.
- Categorizes in a comprehensive taxonomy the Industry 4.0 assets across the manufacturing process and value chain.

- Introduces a detailed Industry 4.0 threat taxonomy based on related risks and attack scenarios.

- Maps the identified threats to assets, thus facilitating the deployment of security measures based on the customized requirements of interested stakeholders.

- Lists security measures related to the use of IoT in Smart Manufacturing and Industry 4.0 and maps them against the aforementioned threats.

In conducting this study, ENISA identified and extensively analysed the current state of available documentation on security in IoT, Industrial IoT, Industry 4.0 and Smart Manufacturing.

ENISA also collected input from a number of security experts through a structured questionnaire and a series of interviews.

ENISA considered the security of Industry 4.0 devices and services throughout their lifecycle (from conception to end-of-life and decommissioning) and paid close attention to issues that are particular to the requirements of Industry 4.0.

Accordingly, the study highlights security measures in three dimensions:

- Policies

- Organisational measures

- Technical measures

One additional noteworthy element of this study is the mapping to existing security initiatives, standards and schemes.

ENISA reviewed more than 150 resources on Industry 4.0 and IoT security and mapped them against the security measures proposed in this study.

This mapping facilitates stakeholders, who are nowadays faced with a fragmented field, to have a common basis of understanding.
The guidelines and security measures listed in this study aim at improving the cybersecurity posture of Industry 4.0 organisations that have adopted or plan to adopt Industrial IoT devices and solutions that enhance automation in industrial operations.

These security measures apply to a wide audience spanning Industrial IoT operators and manufacturers/vendors, which can utilise these measures and recommendations as a checklist against which to examine their Industry 4.0 security solutions.

The aim of the study is to serve as a reference point to promote collaboration on Industry 4.0 and Industrial IoT security across the European Union and raise awareness of the relevant threats and risks with a focus on “security for safety”.

![Chess pieces](image-url)
A 13-count indictment was unsealed in federal court in Brooklyn charging Aleksandr Zhukov, Boris Timokhin, Mikhail Andreev, Denis Avdeev, Dmitry Novikov, Sergey Ovsyannikov, Aleksandr Isaev and Yevgeniy Timchenko with criminal violations for their involvement in perpetrating widespread digital advertising fraud.

The charges include wire fraud, computer intrusion, aggravated identity theft and money laundering. Ovsyannikov was arrested last month in Malaysia; Zhukov was arrested earlier this month in Bulgaria; and Timchenko was arrested earlier this month in Estonia, all pursuant to provisional arrest warrants issued at the request of the United States. They await extradition. The remaining defendants are at large.

Also unsealed in federal court in Brooklyn were seizure warrants authorizing the FBI to take control of 31 internet domains, and search warrants authorizing the FBI to take information from 89 computer servers, that were all part of the infrastructure for botnets engaged in digital advertising fraud activity. The FBI, working with private sector partners, redirected the internet traffic going to the domains (an action known as “sinkholing”) in order to disrupt and dismantle these botnets.

Richard P. Donoghue, United States Attorney for the Eastern District of New York, William F. Sweeney, Jr., Assistant Director-in-Charge, Federal Bureau of Investigation, New York Field Office (FBI), and James P. O’Neill, Commissioner, New York City Police Department (NYPD) announced the charges and domain seizures.

“As alleged in court filings, the defendants in this case used sophisticated computer programming and infrastructure around the world to exploit the digital advertising industry through fraud,” stated United States Attorney Donoghue. “This case sends a powerful message that this Office, together with our law enforcement partners, will use all our available resources to
target and dismantle these costly schemes and bring their perpetrators to justice, wherever they are.” Mr. Donoghue thanked the FBI Cyber Division for its extraordinary efforts in carrying out the multi-year investigation.

“As alleged, these individuals built complex, fraudulent digital advertising infrastructure for the express purpose of misleading and defrauding companies who believed they were acting in good faith, and costing them millions of dollars. This kind of exploitation undermines confidence in the system, on the part of both companies and their customers,” stated FBI Assistant Director-in-Charge Sweeney. “Thanks to the hard work of our legal attachés and law enforcement partners overseas, with the cooperation of our international and U.S.-based private sector partners, the defendants will face justice for their alleged crimes.”

“This investigation highlights public- and private-sector collaboration across the globe, and again confirms the absolute necessity for interagency information-sharing. Criminals – especially those operating via the internet – do not concern themselves with jurisdictional boundaries, so it is critical that the law-enforcement community works together to achieve our shared goal of protecting the people we serve,” stated NYPD Commissioner O’Neill. “I thank and commend the U.S. Attorney for the Eastern District, and all the investigators with the FBI Cyber Division and the NYPD. Together, we are ensuring that the vital systems and technologies of our economy are kept safe.”

The Criminal Scheme

The internet is, in large part, freely available to users worldwide because it runs on digital advertising: website owners display advertisements on their sites and are compensated for doing so by intermediaries representing businesses seeking to advertise their goods and services to real human customers.

In general, digital advertising revenue is based on how many users click or view the ads on those websites. As alleged in court filings, the defendants in this case represented to others that they ran legitimate companies that delivered advertisements to real human internet users accessing real internet webpages.

In fact, the defendants faked both the users and the webpages: they programmed computers they controlled to load advertisements on fabricated webpages, via an automated program, in order to fraudulently obtain digital advertising revenue.
The Datacenter-Based Scheme (Methbot)

As alleged in the indictment, between September 2014 and December 2016, Zhukov, Timokhin, Andreev, Avdeev and Novikov operated a purported advertising network (“Ad Network #1”) and, with Ovsyannikov’s assistance, carried out a digital ad fraud scheme.

Ad Network #1 had business arrangements with other advertising networks whereby it received payments in return for placing advertising placeholders (“ad tags”) on websites.

Rather than place these ad tags on real publishers’ websites, however, Ad Network #1 rented more than 1,900 computer servers housed in commercial datacenters in Dallas, Texas and elsewhere, and used those datacenter servers to load ads on fabricated websites, “spoofing” more than 5,000 domains.

To create the illusion that real human internet users were viewing the advertisements loaded onto these fabricated websites, the defendants programmed the datacenter servers to simulate the internet activity of human internet users: browsing the internet through a fake browser, using a fake mouse to move around and scroll down a webpage, starting and stopping a video player midway, and falsely appearing to be signed into Facebook.

Furthermore, the defendants leased more than 650,000 Internet Protocol (“IP”) addresses, assigned multiple IP addresses to each datacenter server, and then fraudulently registered those IP addresses to make it appear that the datacenter servers were residential computers belonging to individual human internet users who were subscribed to various residential internet service providers.

As a result of this scheme, Ad Network #1 falsified billions of ad views and caused businesses to pay more than $7 million for ads that were never actually viewed by real human internet users.

The Botnet-Based Scheme (3ve.2 Template A)

As also alleged in the indictment, between December 2015 and October 2018, Ovsyannikov, Timchenko and Isaev operated a purported advertising network (“Ad Network #2”) and carried out another digital ad fraud scheme.
In this scheme, the defendants used a global “botnet” a network of malware-infected computers operated without the true owner’s knowledge or consent to perpetrate their fraud.

The defendants developed an intricate infrastructure of command-and-control servers to direct and monitor the infected computers and check whether a particular infected computer had been flagged by cybersecurity companies as associated with fraud.

By using this infrastructure, the defendants accessed more than 1.7 million infected computers, belonging to ordinary individuals and businesses in the United States and elsewhere, and used hidden browsers on those infected computers to download fabricated webpages and load ads onto those fabricated webpages.

Meanwhile, the owners of the infected computers were unaware that this process was running in the background on their computers.

As a result of this scheme, Ad Network #2 falsified billions of ad views and caused businesses to pay more than $29 million for ads that were never actually viewed by real human internet users.

**The Botnet Takedown**

Following the arrest of Ovsyannikov by Malaysian authorities, U.S. law enforcement authorities, in conjunction with various private sector companies, began the process of dismantling the criminal cyber infrastructure utilized in the botnet-based scheme, which involved computers infected with malicious software known in the cybersecurity community as “Kovter.”

The FBI executed seizure warrants to sinkhole 23 internet domains used to further the charged botnet-based scheme or otherwise used to further the Kovter botnet.

The FBI also executed search warrants at 11 different U.S. server providers for 89 servers related to the charged botnet-based scheme or Kovter.

In addition, as part of its investigation, the FBI discovered an additional cybercrime infrastructure committing digital advertising fraud through the use of datacenter servers located in Germany and a botnet of computers in the United States infected with malicious software known in the cybersecurity community as “Boaxxe.”
The FBI executed seizure warrants to sinkhole eight domains used to further this scheme and thereby disrupt yet another botnet engaged in digital advertising fraud.

Finally, the United States, with the assistance of its foreign partners, executed seizure warrants for multiple international bank accounts in Switzerland and elsewhere that were associated with the schemes.

The charges in the indictment are merely allegations and the defendants are presumed innocent unless and until proven guilty.

The government’s case is being prosecuted by the Office’s National Security and Cybercrime Section. Assistant United States Attorneys Saritha Komatireddy, Alexander F. Mindlin, Michael T. Keilty and Karin K. Orenstein are in charge of the prosecution.

The Justice Department’s Office of International Affairs, the FBI’s Legal Attachés abroad and foreign authorities in multiple countries provided critical assistance in this case.

The Office extends its appreciation to the Attorney General’s Chambers of Malaysia, the Royal Malaysian Police, the Malaysian National Central Bureau of Interpol, the Supreme Cassation Prosecution Office of Bulgaria, the Regional Prosecution Office of Varna, the Cybercrime Department of the Bulgarian General Directorate for Combating Organized Crime, the Bulgarian Ministry of Interior Regional Directorate of Varna, the Office of the Prosecutor General of Estonia, the Estonian Police and Border Guard Board and the FBI’s Legal Attaché Offices in Malaysia, Bulgaria and Estonia for their assistance in apprehending defendants in this case.

The Office also extends its appreciation to the German Bundeskriminalamt Cybercrime Intelligence Operations Department and Polizei Sachsen Polizeidirektion Zwickau Criminal Investigation Department, the Dutch National Police, the United Kingdom National Crime Agency, the French Police Cybercrime Central Bureau, the Swiss Federal Office of Justice, FBI’s Legal Attaché Offices in those countries, and Europol for their assistance in various aspects of the investigation and botnet takedown.

Multiple private sector organizations also provided critical assistance in this case. The Office extends its appreciation to White Ops, Inc. and Google LLC for their assistance in the investigation and botnet takedown.

The Office also extends its appreciation to Microsoft Corporation, ESET, Trend Micro Inc., Symantec Corporation, CenturyLink, Inc, F-Secure Corporation, Malwarebytes, MediaMath, the National Cyber-Forensics and
Training Alliance and The Shadowserver Foundation for their assistance in the botnet takedown.

For technical details on the malware and botnets referenced in this case, you may see US-CERT Alert TA18-331A: https://www.us-cert.gov/ncas/alerts/TA18-331A

To read more: https://www.justice.gov/usao-edny/pr/two-international-cybercriminal-rings-dismantled-and-eight-defendants-indicted-causing
The consequences of Brexit for the French and European financial sectors
François Villeroy de Galhau, Governor of the Bank of France and Chairman of the Autorité de contrôle prudentiel et de resolution (ACPR), at the ACPR conference, Paris.

Ladies and gentlemen,

I am delighted to welcome you along with Bernard Delas to this new conference organised by the ACPR, which this morning will focus on the consequences of Brexit for the financial sector.

This issue is admittedly constantly evolving in line with current events... I welcome the agreement that was reached between the European negotiators and their British counterparts last week and we all hope that it will pass through the stages to come and ultimately be finalised.

However, in a context that remains uncertain, we must be cautious: even if we hope to avoid it, we must also be ready for a possible no deal scenario.

The ACPR and the Banque de France are preparing for this eventuality to ensure the smooth functioning of the financial system.

That will be my first point and for that reason I will discuss it using the conditional. I would then like to look beyond Brexit to see how we can transform some of today’s difficulties into opportunities for the future and build a more integrated "financial Eurosystem".

I. In the short term, effectively manage the risks of Brexit

As part of their tasks, the ACPR and the Banque de France closely monitor two main types of risk associated with the prospect of Brexit: those that could threaten financial stability and those that could undermine customer protection.
It is important to avoid the cliff-edge that would arise from a No Deal Brexit. The economic consequences would naturally be far more serious for the United Kingdom than for the rest of the European Union.

At this stage, our analysis, like that of the ECB, which as you know jointly carried out an in-depth technical study with the Bank of England, has not identified any major risks to financial stability.

In the words of Mr Draghi: "It would really take an extraordinary amount of lack of preparation to materialise the financial stability risks that might come from a hard Brexit.

The clearing of interest rate derivatives nevertheless deserves particular attention, as the UK clearing houses have a virtual monopoly in the sector.

In the event of a No Deal Brexit and without taking any specific measures, this could represent a systemic risk.

Therefore, should it unfortunately be necessary, we support the solution adopted by the European Commission to temporarily recognise the equivalence of the UK legislative framework under EMIR 1 and to authorise the United Kingdom's clearing houses to continue providing clearing services to European financial institutions until EMIR 2 comes into effect.

But this would obviously have to be a temporary solution, for a period of no more than a year or so, and would also have to be tied to a strict timetable for the adoption of EMIR 2.

We now hope that the European institutions manage to finalise this "security clause" as soon as possible.

Our primary focus of attention today would then concern the protection of customers that have taken out contracts with UK firms, particularly in the insurance sector.

It is of course the responsibility of the insurance industry itself to actively prepare for the consequences associated with the loss of EU passporting rights.

And the majority of the major players have taken the necessary steps.

Some of them have already been granted authorisations by the ACPR which is also currently assisting more than 50 institutions from all sectors with the relocation of their activities.
But we are keeping an especially close eye on the small and medium-sized players, particularly the smaller investment firms, as well as electronic money and payment institutions.

An ACPR study conducted in July 2018 found that only 24% of investment firms and 22% of electronic money and payment institutions operating under the freedom to provide services regime wished to obtain authorisation by the end of 2018.

We must therefore be ready to deal with situations where UK firms may not have already transferred their activities.

In this respect, it would clearly be preferable to have European legislation to ensure that every relevant issue is dealt with in a harmonised manner.

However, if need be, and as a backstop, the enabling legislation adopted by the Senate and coming before the National Assembly on 10 and 11 December would allow us to take the steps in France to secure legal protection for households and companies.

We would therefore suggest the introduction of a tailored transition regime that, for the run-off management of contracts, allows UK firms to continue the activities they initiated under the European passport, provided that they submit a liquidation plan to the ACPR.

We hope that these transitional rules will be incorporated into the ordinances and that they will confer similar powers to those existing under EU passporting rights upon the ACPR. This would be the trade-off for the continuity thus provided.

II. Beyond Brexit, building a financial Eurosyste

Clearly, Brexit is, and will remain, bad news not only for the United Kingdom, but for Europe as well. But to a certain extent it can also represent an opportunity to restructure the European financial system.

We have an effective monetary Eurosyste

However, as yet we do not have a "financial Eurosyste

International Association of Risk and Compliance Professionals (IARCP)
Let's be clear: there will not be a single City for the continent, but rather an integrated polycentric network of financial centres, with specialisations based on areas of expertise.

A polycentric system of this nature can function, as illustrated by the United States: New York's financial centre is favoured by corporate and investment banks, Chicago's financial centre handles futures, while Boston specialises in asset management.

Paris is well qualified to become the "market hub" of this new European constellation.

Our capital hosts four of the euro area's eight global systemically important banks, the top life and non-life insurance sector and asset management industry, one of the leading bond markets and the largest continental commercial paper market with NEU-CP.

It is also the biggest private equity investor in continental Europe.

In addition, the French financial authorities, including the Banque de France and the ACPR, are working together to facilitate the dissemination of sound and safe financial innovations and to foster the scaling up of sustainable finance.

Moreover, Paris offers the leading source of highly qualified financial services personnel. Consequently, many global banks have already decided to transfer the majority of their market activities to Paris.

This new system will require a single rulebook implemented in a harmonised manner. And we are close to achieving it in the banking sector, but we are not quite there in the insurance sector.

It is thus necessary to further strengthen the role of the European supervisory authorities, and France supports - although it remains a little too alone in doing so - the Commission’s proposed reform of the ESAs.

For example, EIOPA must be allowed to create, at its own initiative, cooperation platforms to better supervise entities whose activities mainly involve cross-border transactions performed under the freedom to provide services regime.

EIOPA's role as a neutral mediator in the internal model approval process at group level must also be reinforced, without giving it direct power in the approval process, which would undermine its neutrality.
This "financial Eurosystem" will also require shared infrastructures within the Union capable of offering services beyond the confines of the euro area: examples such as T2S and TIPS, the new interbank instant payment settlement system, both multi-currency services, show us that it is possible.

We must also deal with the question of private monopolies in the clearing sector. We must ensure that critical key players do not become "too big to fail".

Of course, by its very nature clearing is an activity that generates major economies of scale, and thus encourages concentration. But greater competition is absolutely necessary to stimulate financial innovation. Fortunately, LCH SA will centralise repo transactions at the beginning of 2019.

More generally, we would like to see the development in Paris of an enhanced and extended clearing services offering in the area of interest rate derivatives.

More broadly, Brexit represents an opportunity for Europe to effectively transform its own savings, in order to enhance its ability to finance the real economy: what I call the Financing Union for Investment and Innovation. This involves better steering the euro area’s abundant savings to absorb shocks within the euro area more effectively and to meet investment and innovation needs in fields such as digital technology, energy transition and the equity financing of SMEs.

In practice, the creation of a true Financing Union requires the acceleration of the Capital Markets Union and the completion of the Banking Union.

The second pillar on the resolution of failing banks is more important still than a possible common deposit guarantee scheme. And it is essential to remove barriers for pan-European banks.

This was the policy agenda of the Franco-German declaration in Meseberg in June 2018: but I insist on the urgent need to make it a reality today.

The response to Brexit should be the economic and financial strengthening of the euro area: if we remained mired in technical nit-picking with self-satisfaction from some, disparagement from others, and distrust on all sides, we would not only have missed an opportunity, we would, collectively, have failed in our duty.

I would like to conclude on that note.
The unity demonstrated by the EU27 in their Brexit position, behind their negotiator, Michel Barnier, who has done a remarkable job, has been impressive.

And everyone now better appreciates - at least in the sense of what they would miss - all the advantages offered by our Europe and our common market.

This political desire to "protect" must now unfold into an ambition to "construct", to build a more effective Europe. Thank you for your attention.
**Climate change and central banking**

Yves Mersch, Member of the Executive Board of the European Central Bank, at the Workshop discussion "Sustainability is becoming mainstream", Frankfurt am Main.

“Grey, dear friend, is all theory,
And green the golden tree of life.”


This quote from “Faust” by Frankfurt-born Johann W. Goethe is already 210 years old. But it aptly sums up the current public debate on “green finance” – financial instruments that support solutions for climate change.

Indeed, governments, companies, banks and public bodies have been coming under mounting pressure from interested sections of the public to transform their strategies and make them more climate-friendly, a process sometimes disrespectfully referred to as “green washing”.

So it is hardly surprising that loud demands are also being made for central banks to contribute towards solving the identified problems.

By no means do I want to be the “spirit, ever, that denies”.

But in this concrete instance, the situation is clear: finding – or financing – the solution to the problems of climate change appears, at first glance, somewhat remote from the primary mandate of a central bank.

But let’s turn to the present to explain this verdict in more detail.

**Macroeconomic effects**

It is not enough to link to newspaper reports, nor to quote a World Economic Forum report, that has ranked climate risks as both high-impact
and high-likelihood events in order to create a new mandate or objective for a central bank.

Is there convincing evidence for us to adjust our monetary policy strategy because increased risks of more frequent and more devastating future climatic events could influence economic dynamics in the medium term, the monetary policy horizon?

The non-quantified increased probability and causality in such events may only hold implications for short-term developments, which do not influence the conduct of monetary policy.

One can also establish the general assumption that climate change may have more longer-lasting impacts on potential output and relative prices, but these will also have less bearing on the conduct of policy.

The economic literature on the impacts of climatic shocks is relatively new and less developed than for other types of economic shock. Does it contain useful insights?

Conclusions that while the short-term impact on output is generally negative, the overall impact in the medium and longer term is less certain, suggest that climatic events are hardly relevant for monetary policy as the monetary policy impacts are similar to those associated with other major shocks like wars or disruptive technological innovation.

Climate events can affect both supply and demand in the economy. Destruction in the near term can affect production and weigh on aggregate wealth over the longer term.

Was the cold weather at the start of this year solely responsible for the temporary fall in investment and consumption across the northern hemisphere?

But the rebuild period can also lead to a demand surge that puts upward pressure on activity.

Effective institutions and legal frameworks, including solid building codes, the quality of governments and access to credit and insurance, can all influence the ultimate impact, while even slight differences in geographic location can play a significant role.

Overall, the impact of climatic disasters on inflation in advanced economies appears relatively limited. While storms and droughts may increase food prices in the near term, the effect is short-lived and is typically reversed
within a year. Moreover, inflation in other parts of the index can fall, offsetting the overall impact.

Monetary policy certainly has sufficient tools to stabilise inflation over the medium term, i.e. a few years. But it may bring a greater degree of short-term volatility in output and inflation.

The relatively localised impact of climatic events or other shocks might have implications for fiscal policy, with revenues typically falling and spending rising.

This can worsen debt sustainability. But making strong assumptions based on the empirical evidence so far, particularly given the uncertainty, would be hazardous.

Yet the ability of fiscal policy to mitigate the impact plays an important role in the region’s long-run recovery. It would be prudent policy to advise countries to prepare themselves for a potential future increase in climatic events by reducing public sector debt and creating greater fiscal space.

But are other risks like demographic change not better identified? How are they related to climate change? And how should a central bank with a limited geographical remit respond to events affecting the planet as a whole? Where does endogeneity end and exogeneity begin?

If understanding the effects of climate change – which occurs over countless decades or centuries – on economic developments over a horizon of three to five years is complex, anticipating its long-term effects on monetary policy is harder still.

Some observers anticipate reductions in the productive capacity of the real economy. Firms shifting production because higher temperatures or rising sea levels render their current locations uninhabitable could represent a significant industrial change. But simplistic assumptions do not reflect the reality of multiple equilibria.

Each change also creates opportunities and unleashes creative thinking. Will productivity growth suffer if firms divert a greater share of their investment towards repair and replacement of existing capital rather than towards research and development? Should this capital allocation be in public or private hands?

One can accumulate a large number of one-sided assumptions and conclude that these would together depress the trend growth rate of the economy. And weak long-term growth expectations could in turn lower the
natural rate of interest, pushing down the rate at which monetary policy is accommodative. We should remain open to all information and assumptions but also not underestimate the uncertainty of our knowledge.

Looking at inflation, the debate tends to centre on the effects of energy price inflation on the overall index, although other prices may well be affected by climate change too.

The EU reference scenario of 2016 suggests that household electricity prices will rise over the coming decades. Others have suggested that the low marginal cost of renewable energy could lead to falling energy prices in the longer term, with lower volatility than at present.

None of these relative price changes have impeded the ECB’s ability to deliver on its price stability mandate. Nor is it reasonable to assume that changes in relative energy prices – in either direction – will do so in the future. Credible monetary policy, conducted by an independent central bank, anchors overall inflation expectations.

The bigger threat to price stability over the long run does not lie in relative price changes, but rather in a loss of independence by central banks following a situation in which they have ventured far into a political agenda with distributional consequences.

Financial stability

Let me now look at the channels through which climate change can impair financial stability. The work done by the Financial Stability Board’s Taskforce on Climate Related Financial Disclosures, the European Systemic Risk Board and various central banks within the Eurosystem and elsewhere endeavours to identify potential risks and vulnerabilities.

The analysis identifies three principal sources of risk: first, the physical risk from exposure to climatic events; second, the sharp adjustments in asset prices arising from discretionary policy interventions; and third, investors being so caught up in the euphoria over “green” financial assets that they fail to adequately price in their risks.

The absence of any agreed definition or standard about what is “green” and what is “sustainable” is however the biggest shortcoming so far.

The first risk mainly falls on insurers, who need to continuously monitor and assess risks to ensure capital adequacy. The ECB is, however, explicitly excluded from supervising insurance firms under the Treaty on the Functioning of the European Union.
The banking sector may also be affected, to the extent that climatic events affect the physical collateral underpinning lending. Where individual banks have loan portfolios concentrated in particular geographic locations, the risk of failure is increased. Moreover, the overall economic impact of that failure could be magnified by any remaining interlinkages between banks and sovereigns.

Transition risk occurs because the path to a low carbon environment is not smooth. City-wide bans on diesel cars and the fallout from Dieselgate have driven down car makers’ equity prices while also reducing the prices for second-hand diesel cars, detracting from their collateral value. In this case we need to assess social responses such as the recent street protests in France.

Third-quarter GDP growth in Germany was negative following the sharp slump in production as car makers adapted to new emission tests. While this episode appears to be short-lived, it illustrates the impact that regulation can have on activity and asset values.

Third, undervaluation of risks in new green financial products could lead to price bubbles. I call this channel the Ponzi risk of green finance. We never know exactly where – but the next bitcoin mania is always lurking somewhere around the corner.

Experience has taught us that you can only properly identify an asset price bubble once it has burst. And certainly a central bank should not try to prick an inflating speculative bubble with the blunt sword of monetary policy – the collateral damage to the economy and inflation could be too severe. By the same token, central banks must not contribute to inflating such a bubble.

**Mitigating risks through green financing**

But combating the potential economic disruption from climate change goes beyond reacting to events once they occur. Taking steps to reduce carbon emissions and investing in infrastructure can help limit their future impact.

Economic theory points to a role for public policy to intervene to correct market failure in cases where the private sector does not fully take into account the social cost of its activities.

A carbon tax incentivises the private sector to find efficient ways of reducing pollution. However, the issue of how to distribute the burden associated with this incentive is socially divisive.
From a socially optimal perspective, green investments may also be underfinanced if market participants make investment decisions based on excessively short horizons.

Moreover, scale, liquidity and reliable benchmarks can considerably improve market functioning. Public sector intervention at the creation of such markets can provide the right framework to help kick start private-sector involvement.

The European Investment Bank issued the world’s first green bonds in 2007, listed at the Luxembourg stock exchange. Further issuance has provided volume to the market. Today, more than 160 green bonds list on the LuxSE. Certification and incentives are also in place, but the issue of international recognition is still unresolved.

As a AAA-rated issuer, the EIB helps provide a benchmark for calculating yield curves and spreads in the green bond market. The European Commission’s work on standardised definitions, classifications and reporting requirements should help increase transparency, discourage “green-washing” and improve market pricing. These initiatives now appear to be bearing fruit, with the private sector issuing more green bonds in recent years.

But while there may be a role for such public sector initiatives at the European level, the ECB’s narrow mandate curtails its ability to contribute – a fact that, I think, is not always well understood by our critics on the subject.

There are two ways in which some people say that we could contribute: first, through our asset purchase programme (APP) and second, through our role as banking supervisors.

The Treaty has granted us independence in choosing the best monetary policy instruments to use in fulfilling our mandate for price stability. But that independence is not a carte blanche to act arbitrarily.

Our use of monetary policy tools needs to be necessary, suitable and proportionate to achieving our aim, while respecting the principles of an open market economy with free competition.

Going beyond these strict conditions would erode our legitimacy, which could in turn threaten our future independence and reduce our ability to achieve our mandate over the long term.
So where do green bonds fit into the APP? Purchases and reinvestments under the APP are temporary and are undertaken to preserve price stability.

As such, purchases have to be calibrated to achieve the maximum impact on output and inflation, which means purchasing bonds issued by a wide range of economic sectors without distorting the relative asset prices.

Carbon-intensive sectors accounted for nearly half of the bonds eligible for the corporate sector purchase programme (CSPP) at its inception. Excluding these bonds would have limited the CSPP’s coverage, making it less effective. In other words, the exclusion of these sectors would limit the tool’s suitability for its primary purpose of ensuring price stability.

Moreover, focusing purchases on green bonds would run counter to the requirement to respect the workings of an open market economy and be tantamount to industrial policy.

The APP is a tool for macroeconomic stabilisation, not for microeconomic reallocation. Deviating from market neutrality and interfering with economic policy risks exposing the ECB to litigation.

It is not up to the central bank but to elected governments to decide which industry is to be closed and when. As central bankers, we have to respect and implement legitimate decisions in this context.

And the effectiveness of monetary policy has been bolstered by abstaining from normative judgments on the morality of markets and industries.

Of course, under the principle of market neutrality, we have also purchased green bonds. We currently hold around 24% of eligible publicly-issued green bonds and around 20% of private sector green bonds. In both cases, the proportion is in line with our share of holdings in the total CSPP-eligible universe.

Beyond our primary mandate for price stability, it is worth remembering that we are not regulators, neither for financial markets nor for banks.

The ECB carries out banking supervision within the Single Supervisory Mechanism (SSM) under the Capital Requirements Regulation and Directive, adopted by the Council of the EU and the European Parliament, with further regulations set by the European Banking Authority.

We are not free to vary the capital requirements of supervised banks to take into account their climate risks, or to encourage climate finance. Indeed, when ECB Banking Supervision, acting within its supervisory mandate,
issued guidance on non-performing loans earlier this year, this generated tensions with regulators, who felt the guidance strayed into the territory of legislation.

But we are ready to bring in our experience if so requested, in particular if it were suggested to strengthen or broaden disclosure obligations, for example.

Nonetheless, climate risks have been identified in ECB Banking Supervision’s risk assessment for 2019 and will be among the topics covered in the qualitative discussions held with banks on an individual basis.

The ECB will continue to carry out our democratically delegated functions as set out in the Treaty.

Should a greater groundswell of support for environmental action cause bank regulators to modify the regulatory framework under which the SSM operates, supervisors must of course adjust their actions and implement the legal requirements accordingly.

Conclusion

Let me conclude.

Climate change poses the risk of considerable social costs and economic disruption. The challenges of climate change are social issues.

The analysis and choice of possible solutions, including suitable instruments and their financing, require rigorous political debate.

And no matter which path a society takes, the potential changes can have serious effects on sectors, regions, the distribution of income and wealth, and generations over time.

Economically, there will be relative winners and losers. It is therefore the responsibility of elected representatives to decide on the best solutions.

Central banks are explicitly excluded from such political debates. In view of the central banks’ almost limitless financial power, politicians would come under too much temptation to use monetary policy to achieve short-term political goals, a situation that could undermine the task of preserving the purchasing power of money.
That is why, in most jurisdictions, monetary policy has been transferred to technocrats who are independent of politics and are bound to fulfil a strict and unambiguous mandate to guarantee price stability.

In the case of the ECB, this “de-politicisation” has constitutional status.

At the same time, even an independent central bank does not operate in a vacuum. Technological progress, innovations, geopolitical tensions and, of course, regulatory requirements by legislators influence the environment in which monetary policy operates.

However, monitoring and analysing the extent to which climate change or other shocks may affect the transmission of monetary policy, the economic cycle, the soundness of individual banks and financial stability as a whole, and how they interact, is part of our forward-looking approach.
Introduction

It is a great pleasure to be here again at the Cass Business School, and I am very grateful to the Associate Dean for inviting me. In fact, Andrew and I have quite a lot in common.

We share a birthday, for a start, and a home county (Hampshire). For a while, we also used to share an office, back in the far off days before the financial crisis, when – as young(ish) economists – we used to debate the relevance of the ‘corporate veil’ for determining macroeconomic outcomes.

Nowadays, we don’t discuss the corporate veil so much as the banking ring-fence, and that is the focus of my speech tonight.

A decade on from the financial crisis, one of the largest ever reforms to the structure of the UK banking industry is coming into force.

By 1 January 2019, the largest UK banking groups must have implemented the ‘ring-fencing’ – or separation – of their UK retail business from their international and investment banking operations.

This means that the core banking services on which retail and small business customers depend should not be threatened should things go wrong in wholesale financial markets or the global economy.

We do not expect most people to notice significant change day-to-day once the new regime goes live.

But should we experience again the sort of threats to the financial system we saw during the crisis, ring-fencing will help ensure banking groups are easier to sort out if they get into trouble, and can fail with less impact on the economy and taxpayers.
Banks have now largely completed the ring-fencing of their retail operations, and have done so with little disruption to their customers and counterparties.

The PRA’s supervisory focus will turn to ensuring the ring-fences that have been established are effective in practice, and remain so.

Ring-fencing both broadens the range of regulatory requirements, and increases the intensity of supervision, for the groups in scope.

As such, ring-fencing will remain a focus for the PRA – as well as for the banks themselves – in the coming years.

How will the next crisis be different?

Financial crises generate significant and persistent costs. The Bank of England has estimated that the costs of crises amount to 75% of GDP on average.

The previous crisis resulted in the Government providing £65 billion of capital to RBS and Lloyds to prevent them failing and disrupting the provision of vital banking services to their customers.

Since then, a comprehensive regulatory reform package was developed – which in large part has now been implemented – to reduce the likelihood that such a crisis could happen again.

In 2010 the Government established the Independent Commission on Banking (ICB) to make recommendations to improve financial stability and competition in the banking sector.

The ICB recommended that the core retail banking operations of UK banking groups should be ring-fenced from any international or investment banking activity in their groups.

The ICB argued that if retail banking operations had been ring-fenced prior to the crisis, this would have reduced the likelihood that the banks would have needed Government support.

The ICB’s recommendations formed the basis of the banking reform legislation passed by Parliament in 2013.

This set out the core banking activities which must sit in a ring-fenced bank, as well as the ‘prohibited’ activities that must be separated from the ring-fenced bank or stopped altogether.
The legislation also specified the degree of separation required.

Ring-fenced banks must have the capability to make decisions independently of their groups and should not be operationally dependent on group entities which undertake prohibited activities.

Ring-fenced banks must also have sufficient financial independence and have their own capital and liquid resources.

Any exposures to the rest of the group must be limited and on commercial terms.

All large UK banking groups – defined as those with ‘core’ retail deposits greater than £25 billion – are required to implement ring-fencing by 2019.

Currently, seven banking groups cross this threshold. Between them, these groups have around £5 trillion of assets, both in the UK and overseas.

The ring-fencing regime is designed to be consistent with the other parts of the post-crisis regulatory framework.

The most systemically-important ring-fenced banks will be held to higher capital requirements.

The Systemic Risk Buffer will be applied to ring-fenced banks to ensure they are adequately capitalised and resilient to shocks.

We expect ring-fenced banks to have, on average, around 1.5 percentage points more high-quality ‘Tier 1’ capital than non-systematically important banks.

And a ring-fenced bank will not be able to be capitalised by debt raised externally by its group, which would give rise to so-called ‘double leverage’.

Overall, the Bank estimates that ring-fenced banks’ total loss absorbency will be, on average, around 27% of their risk-weighted assets, higher than the 17% recommended by the ICB.

Ring-fencing also helps improve the resolvability of the big UK banking groups. The resolution strategy for groups including ring-fenced banks will typically involve a bail-in at the level of the holding company.

Bail-in would recapitalise the relevant entity by passing losses up to the holding company to be borne by shareholders and debt-holders.
This should stabilise the group. Structural separation then provides authorities with additional options as part of any subsequent restructuring.

To read more:
https://www.bis.org/review/r181127g.pdf
Ten years after the Great Financial Crisis - where do we stand?
Agustín Carstens, General Manager of the BIS, at the People's Bank of China, Beijing.

Good afternoon, everyone. I want to thank Governor Yi Gang and the staff at the People’s Bank of China for hosting me today.

One month ago, Governor Yi came to the BIS Representative Office for Asia and the Pacific in Hong Kong to join the celebration of its 20th anniversary.

When the BIS Asian Office opened its doors in July 1998, the world was quite a different place, only just emerging from the tail end of the emerging market crises of the 1990s.

The 20 years since then have seen a marked rise in the economic weight of emerging market economies (EMEs).

China, in particular, expanded rapidly as its share in global GDP (measured in PPP dollars) rose from around 7% to about 19%.

At the same time, the economic resilience of EMEs improved significantly through the pursuit of prudent policies.

This enhanced resilience became visible during the Great Financial Crisis (GFC) 10 years ago.

At the time, EMEs, especially China, made an important contribution to global economic growth, buffering the negative shocks that came from the financial crisis.

The GFC has been a defining moment for today’s macroeconomic and financial landscape and sets the stage for monetary policy going forward, both in advanced and in emerging market economies.
In my remarks today, I would therefore like to focus on the question of where we stand 10 years after the onset of the GFC.

What were the policy responses, particularly with respect to monetary policy?

What has been accomplished? Were there unintended consequences? What are the challenges going forward? And what are the policy implications at the current juncture?

Policy responses: accomplishments and unintended consequences

After the outbreak of the GFC, authorities in the economies directly affected undertook forceful policy actions.

The effective management of the fallout by central banks played a critical role in halting the crisis; additional monetary stimulus in subsequent years helped nurture the recovery.

Central banks slashed policy rates and kept them at very low levels for many years, in some cases right up to the present day.

In addition, they developed a new set of policy instruments, unconventional monetary policy (UMP), with its three main components: quantitative easing, forward guidance and negative interest rates.

Another key factor for stabilising financial systems and economies was far-reaching public guarantees for tumbling banking systems – assurances that were critical in avoiding default spirals and bank runs.

Moreover, in the wake of the crisis, authorities took decisive action on the regulatory and supervisory front, which helped to restore trust in the financial system and to build resilience for the future.

In particular, banking authorities overhauled the regulatory framework and delivered Basel III.

In addition, in order to strengthen the systemic perspective of financial regulation and supervision, many countries developed or enhanced macroprudential policy frameworks that complemented the established microprudential ones.

These measures played a key role in avoiding a financial meltdown and economic depression in the wake of the GFC.
The major advanced economies experienced a Great Recession, the **sharpest economic contraction** in postwar history.

But economies stabilised rapidly, so that a repeat of the Great Depression of the 1930s, which some had feared at the time, was avoided.

Economies returned to growth – some more quickly than others, of course – paving the way for a long-lasting economic expansion which was, however, less dynamic than those observed during previous rebounds.

At the same time, the crisis response gave rise to a number of unintended side effects that pose challenges going forward.

Persistent low interest rates facilitated deleveraging in those countries and sectors that were at the epicentre of the crisis – in particular household and banking sectors in major advanced economies.

However, easy financing conditions also fuelled further debt accumulation in countries and sectors outside that epicentre, notably in some smaller advanced economies and in EMEs, as well as in the corporate sector.

In addition, sovereign debt surged in both advanced and emerging market economies, reflecting a combination of fiscal authorities’ crisis response measures and the borrowing incentives created by low bond yields.

To read more: [https://www.bis.org/speeches/sp181123.pdf](https://www.bis.org/speeches/sp181123.pdf)
Harvard Law School
Ames Moot Court Competition 2018

Associate Justice of the Supreme Court of the United States Sonia Sotomayor was at Harvard Law School on Nov. 13 to preside over the 2018 Ames Moot Court Competition.

Justice Sotomayor was joined on the bench by Judge Jennifer Walker Elrod ’92 of the 5th Circuit Court of Appeals and Judge Susan Carney ’77 of the 2nd Circuit Court of Appeals to hear the fictitious case, Groves v. Gallant, a constitutional dispute over the right of a convicted criminal to “keep and bear arms” and the right to publish instructions for 3D-printing guns on the Internet.

The two teams of 3Ls—the Grace Murray Hopper Memorial Team for the petitioner and the Clarence Earl Gideon Memorial Team for the respondent—clashed over the constitutionality of two revised statutes, specifically whether one violates the Second Amendment as applied to the petitioner, and whether the other violates the Free Speech Clause of the First Amendment.

You may visit: https://www.youtube.com/watch?v=o1dFqTqv3Fo
1 Introduction

Ladies and gentlemen,

There's an ancient Chinese proverb which reads: "Don't be afraid to be slow. Be afraid only of standing still." And indeed, tenacity and staying power often do pay off.

Patience and perseverance are also called for when it comes to anchoring the renminbi in the group of key international currencies.

I am pleased to be able to highlight this topic - the role of the renminbi in international payments - in my keynote speech here today, at what is already the fifth European-Chinese Banking Day.

2 The internationalisation of the renminbi: the story so far

The internationalisation of the renminbi is certainly a less prominent topic in current debate than it was a few years ago. On the other hand, the political influences that impact on the renminbi today feature somewhat more strongly.

The spectre of a trade war between the United States and China is omnipresent, and accusations of currency manipulation and of a currency war as a result haven't quite died down yet. In my speech today I would like to look more closely at these and other topics.

For quite some time now, the Chinese government has been pursuing the long-term aim of bringing the use of the renminbi in international payments, amongst other things, into line with the importance of the
Chinese economy. Moreover, the Chinese want to strongly increase the influence of the renminbi as a trading and investment currency. Yet developments surrounding the renminbi in the individual areas are not always synchronous.

A look at the statistics will give you an idea of why I speak of patience and perseverance in the context of the renminbi’s role in international payments.

Whereas the share of global economic output accounted for by China in 2017 was just over 17%, the renminbi's share in international payment flows in August 2018 was a mere 2.12%.

The US dollar and the euro find themselves in a different position. The share of global economic output for the US in 2017 was 15%, and that for the euro just over 16%. By contrast, commanding a share of just over 39%, the US dollar undisputedly remains the world's most often used currency in payments, followed by the euro with just under 34%. As a payments currency, the renminbi currently ranks fifth (behind the US dollar, the euro, the pound sterling and the Japanese yen).

Still, this is a sign of its ascendancy, since it came in at only sixth place last year. Use of the renminbi as a global trade currency has gained momentum again after a negative trend in 2016 and 2017. However, it has not yet returned to 2.45%, which was its share in September 2015.

This development is probably due in part to the fact that the Chinese economy has experienced weaker growth than in earlier years. This has also had an impact on trading activities and the underlying payment flows.

There are signs of a similar picture with regard to the renminbi and foreign reserves. According to a recent survey of central banks and sovereign funds on their plans for the management of their foreign currency reserves, the present weighting is not expected to change greatly in the near future.

Although the renminbi was among the biggest winners last year, the US dollar remains the standard currency for new investments of reserve assets. This makes it all the more important that the Chinese government demonstrates staying power in order to reach its objective in this respect, too.

Last year the renminbi took only a 1.7% share of global foreign exchange reserves, so that it ranked behind the Canadian dollar. This is due, not least, to concerns surrounding financial stability in China as well as to capital
restrictions. Progress will have to be made in this respect if the renminbi is to become more attractive as a foreign reserve currency.

As I have already mentioned, however, the strategy of internationalising the renminbi is geared for success in the long term. Phases in which use of the renminbi stagnates should not, therefore, come as a surprise. The Chinese government's objective is clear. It wants to see the renminbi established as a trustworthy and widely used international reserve currency, trade currency and payments currency.

The much needed patience I spoke of earlier paid off handsomely for China in October 2016. The renminbi was officially added to the International Monetary Fund's (IMF) basket for special drawing rights (SDR). Since then, it has occupied a place in this select group of currencies alongside the US dollar, the euro, the Japanese yen and the pound sterling. With that, the renminbi took its first formal step on its way to becoming an international key currency.

This was a step that crowned many years of political wooing and a process of cautiously opening up the Chinese capital markets, as well as a variety of programmes to give foreign investors access to China's capital markets. Use of the renminbi as a reserve and investment currency was gradually increased as a result.

The first milestone was reached in 2017, when Bond Connect, a joint venture of the China Foreign Exchange Trade System (CFETS) and Hong Kong Exchanges and Clearing Limited, was set up. Amongst other things, the idea behind Bond Connect is to make it easier for foreign investors to participate in trading in the Chinese fixed-income market.

Close to 400 foreign investors have so far joined the interbank bond market via Bond Connect. In March of this year, Daimler took advantage of the opening up of the Chinese capital market to international issuers to become the first large German enterprise to issue a renminbi bond.

Over and above that, foreign financial corporations in particular have, for the most part, had quite a hard time in China to date. But China's President and party leader, Xi Jinping, announced a new "opening-up phase" earlier this year. Foreign enterprises are now permitted to take majority shares in Chinese banks, brokers and insurers. Moreover, non-residents will in future be able to hold up to 51% of financial enterprises.

This is an important step towards the further opening up of the capital markets, given that foreign investors were barred in the past from engaging
in the Chinese financial markets independently. The only role open to them was that of junior partner holding a share of no more than 49%.

Although the markets’ response to this new opening-up process has so far been muted, this constitutes major progress. What’s more, the Chinese government has announced that it will completely remove the restrictions on participations in the coming years, thereby ending the requirement that foreign service providers enter into a joint venture with Chinese companies. That said, international investors will undoubtedly have to continue to demonstrate patience in the near future.

Bond Connect and the loosening of the joint venture requirement are just two further additions to a chain of measures designed to establish a modern market infrastructure in China.

For instance, the interbank payment system CIPS (Cross-border Interbank Payment System) makes the clearing and settlement of cross-border renminbi payments possible.

CIPS was launched in October 2015 with 19 direct participants. By August 2018, no less than 31 financial institutions were direct participants, with 750 financial institutions taking part indirectly.

CIPS clearly demonstrates the importance of international standardisation in an increasingly globalised economy, given that CIPS is based on what is known as the ISO 20022 standard, which is making great strides in European payments as well.

The more internationally operating institutions use this standard, the simpler it will be to make use of CIPS internationally, which will benefit the internationalisation of the renminbi.

Accordingly, the internationalisation of the Chinese currency will receive a boost from the use of the ISO 20022 standard in CIPS as more and more internationally active institutions apply this standard.

On top of that, 25 Chinese banks representing 86% of Chinese cross-border payments use the SWIFT Global Payment Initiative (SWIFT gpi).

SWIFT gpi offers more transparency through uniform standards and the payments tracking service, which ensures a fast, transparent and low-cost settlement of renminbi transactions, despite the time-consuming transformation costs that are incurred in transferring international payments into China’s national payments system.
3 Factors affecting the internationalisation of the renminbi

The successful implementation of the strategy to internationalise the renminbi rests on the interaction between two core elements.

- These are, first, the gradual liberalisation and international opening up of the capital markets, which I just described to you, and

- second, the global broadening of the user base of the renminbi.

The inclusion of the renminbi in the IMF's basket of currencies provides an element of support in China's internationalisation efforts.

Yet purely foreign exchange policy aspects are no longer to be made the sole point of focus. Politically realistic considerations are also being increasingly placed in the foreground.

In this respect, a key role is played by China’s Belt & Road strategy, developed by China and first presented to the public in 2013. The idea behind this is to reopen the ancient "Silk Road", which once led from China through Central Asia, the Middle East and central Europe to western Europe, and to supplement it by a maritime trade route.

Plans exist for the Chinese state and participating companies to make investments worth billions in various infrastructure projects along these routes, thus stimulating trade between countries situated along these routes as well as between them and China.

At the same time, the Chinese hope that the payment flows stemming from these trading activities will help them to encourage use of the renminbi in those countries. The Chinese government’s hopes not only concern the success of the projects in the various emerging markets along the Silk Road.

Rather, it is hoped that trade relations with Germany as Europe's largest economy will also be strengthened. In fact the German town of Duisburg, with the biggest inland port of its kind in Europe, represents the "western" end of the trade route often referred to as the "new Silk Road".

And in this context, the Frankfurt financial centre, given its position as a one of 23 renminbi clearing hubs worldwide, would be forming the link for payment flows between Germany and China.

Recently, however, China’s efforts have met with more and more obstacles. For example, the additional tariffs on Chinese goods and the threat of a trade war with the United States are damaging relations between the two
countries, with negative repercussions for global equilibrium. This can have an adverse effect on the entire world economy, as there are only ever losers in a trade war. Imposing tariffs and retaliatory tariffs undermines an important foundation of our prosperity.

However, at the recent meeting of the International Monetary Fund (IMF) in Bali, both the United States and China indicated that neither was interested in an escalation of the trade conflict. I very much hope that this proves to be the case.

In debate, the Chinese government is often accused of taking advantage of a depreciation of the renminbi, risking a downward spiral in the process. Yet studies to date show that China has no wish for an artificial devaluation.

At the meeting in Bali, Dr Yi Gang, President of the People's Bank of China (PBoC), also promised that China would not initiate a spiral of depreciation in the trade conflict. Rather than take part in a race to the bottom, China would like the market to continue to determine the exchange rate.

This stance is a most welcome one. Against the backdrop of loosened monetary conditions, the PBoC successfully implemented a number of measures to halt the downward trend of the renminbi, which persisted until the middle of August.

This is confirmed by the currency's slight upward tendency. Given the uncertainty surrounding economic developments, however, there is still palpable concern regarding a depreciation and renewed capital outflows, all the more as China is one of the last big economies that is continuing to loosen parts of its monetary policy.

4 The importance of the Frankfurt financial centre for German-Chinese cooperation.

Frankfurt has always been the mainstay of the good relations between our two countries.

The Deutsche Bundesbank is not just an onlooker with regard to promoting German-Chinese relations; it also makes its own active contribution.

One year ago, my predecessor Carl-Ludwig Thiele announced at this very location a joint study by the Bundesbank and the Academy of Internet Finance of Zhejiang University Hangzhou, the Sino-German Center and Professor Bernd Skiera of the Goethe University in Frankfurt, and supported by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) to examine consumers' payment behaviour in Germany and China.
The results have now been published. A number of parallels have been found to exist between our countries. In China, providers of innovative payment procedures such as Alipay and WeChat today play a dominant role in online trade and at points of sale, with market shares of up to 65%. Cash is still most commonly used in rural areas, however.

Innovative payment methods are increasingly gaining market shares in Germany, too, although many consumers still do not see the advantages of the new technology or view it with distrust. For this reason, preference is still given to traditional payment methods.

The study is one of numerous initiatives that have been launched to foster dialogue and promote mutual understanding.

In this context, the Sino-German Center of Finance and Economics I just mentioned, which is a research centre run jointly by the Goethe University in Frankfurt and the Renmin University in Peking, acts as a platform for the exchange of independent ideas and organises regular workshops in Frankfurt and Peking, amongst other things.

And interest in a close exchange of thoughts between China and Germany is likely to grow still further in the years to come.

Given the forthcoming Brexit, Frankfurt's role as a major financial centre within the European Union will grow more and more important. This means that, besides Chinese business representatives, representatives from the fields of politics and academia will increasingly seek to exchange thoughts on matters of business and finance with Frankfurt. Moreover, current geopolitical discussions could lead to us complementing our present transatlantic partnership with more strongly focussed cooperation with Asia.

5 Conclusion

Ladies and gentlemen,

In Germany we have a saying that roughly translates as: "Slow and steady gets you there."

The internationalisation of the renminbi was a success story for many years owing to China's impressive economic growth. The economic reorientation in China led to a phase of relative disillusion. However, the outlook gradually seems to be brightening up again.
In this context, we recognise the continued willingness of China's decision-makers in politics and business to help the renminbi assume a role in global economic activity that is commensurate with the importance of the Chinese economy.

This willingness shows that the renminbi has not yet reached the end of the road as regards comprehensive internationalisation. We therefore look forward to future developments.

On that note, let me wish you exciting discussions and fascinating insights.

And to everyone who is actively involved in the onward development of the renminbi, I wish you continued perseverance and patience. I am sure that both will pay off in the end.

Thank you for your attention.
White Cat Hair on Black Pants: International Study Measures Stability of Precision Masses to Benefit Trade

When are two nominally identical kilogram masses no longer identical? When each goes to a different place and adsorbs varying amounts of moisture and contaminants.

Exploring this issue, the U.S. National Institute of Standards and Technology (NIST) and the National Research Council (Canada) are collaborating with measurement laboratories in North, Central and South America to better understand how the masses of precision weights rise and fall over time.

They hope the results will benefit international trade, in which even small measurement inaccuracies can have significant impacts.

To ensure that a pound of potatoes at the grocery store really weighs a pound, a store’s balance must be calibrated regularly. For this kind of calibration, consumers ultimately rely on mass artifacts, pieces of metal whose mass has been precisely measured.

Scientists know the mass because each artifact has in turn been compared to other artifacts in an unbroken chain of comparisons that stretches back to the fundamental definition of mass itself.

Standards laboratories maintain a bevy of mass artifacts for comparisons such as these, which are ultimately used to calibrate everything from grocery balances to bathroom scales. From time to time, these labs require an additional or replacement mass artifact for their collection.

In the first few months of its life, however, the mass of a new artifact can change significantly as the freshly cut metal adsorbs molecules from its environment.

There is some disagreement about how long scientists must wait before they can be certain a new artifact’s mass is stable. So, NIST and NRC Canada designed the massive new experiment to help resolve this issue.
The experiment involves 60 nominally identical one-kilogram weights, ordered to be made from a single rod of high-quality stainless steel. About half of these 60 units have been distributed to 29 countries within the Inter-American Metrology System (SIM), a network of national metrology institutes (NMIs) located in North, South and Central America, as well as island nations.

For a year or more, the SIM representatives for each country will measure the mass of their artifact every few months and send NIST and NRC Canada the data. They will also monitor each mass’ environment, including the lab’s temperature, barometric pressure, humidity and volatile organic compounds (VOCs), a measure of air quality.

“The whole thing is going to be a massive stability study on a scale that no one’s ever done before,” said NIST physicist Patrick Abbott. “Because the masses are taken from the same rod of steel, you would expect that they might have the same long-term response.” However, the conditions in the different SIM laboratories are expected to affect the rate at which the masses change, depending on qualities such as altitude and the amount of salt in the air. For the first several months of their lives, the masses were kept in the U.S. and Canada. Now, half of them will be stored in laboratories near the equator and well into the southern hemisphere.

“So how are the masses going to change?” Abbott said. “Once they get down there, they’re not necessarily going to follow the same pattern as they do in North America.”

Cat Hair on Black Pants

A new artifact, freshly cut, is like a sponge: It collects molecules from the air, and this increases its mass slightly over time. The new artifacts used in this experiment are less than a year old and, therefore, in a stage of relatively rapid weight gain on the order of 7 micrograms (millionths of a gram) over six months. This might sound too tiny to matter, but even small changes—especially if they are unpredictable—can raise uncertainties in laboratory measurements.

“These weights are changing,” Abbott said. “They’re picking stuff up from the air—sort of like the black pair of pants in a house with a white cat.”

At some point, that process usually stops or slows down significantly. The question is, how long does a laboratory have to wait before it can be sure its mass has reached a stable phase? And how does that period change depending on the lab’s location and average environmental conditions?
Previous studies have tended to be small-scale, conducted in a single laboratory. Abbott and his NIST and NRC Canada colleagues wondered whether a larger-scale effort would help resolve discrepancies in earlier results.

“Right now, a lot of the studies that have been done have been very localized: one lab, one person, under one set of conditions,” Abbott said. “But another person in another lab might do the same study and say, ‘under these conditions, we got something completely different,’” he continued. So, who is right?

“Hopefully this study will be able to answer the question: If you buy a mass for your lab, what is a reasonable expectation of when you would actually be able to put it into service, and have confidence in it?” Abbott said.

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