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Cyber Risk and Resilience: Strategies, Policies and Frameworks for Central Banks

21–24 May 2019, Royal Berkshire Hotel, England

Course Chair

Chris Gale, former Senior Vice President, Federal Reserve Bank of Boston

Series Advisor

Charles Goodhart, Professor Emeritus, London School of Economics

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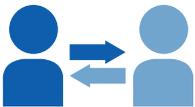
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Central Banking Publications

For over 25 years Central Banking Publications has been a trusted provider of independent, authoritative and relevant information, commentary and analysis to the central banking community. Central Banking's events division is the leading independent organiser of public policy seminars/training courses for the official sector. Since 1999, Central Banking has hosted roundtable seminars and training courses for over 6,000 senior policymakers from central banks, ministries of finance and financial regulatory agencies around the world. Senior officials from more than 140 countries have attended these meetings over the past decade and a half.

Dear Delegate,

In 2019, no central bank function is without a technological component. The technologically driven environment which central banks operate in provides a constant source of innovation, which has seen processes streamlined and greater efficiency. From email to real time gross settlement (RTGS), IT systems underpin the work of the modern central bank.

In spite of that, while technological innovations has brought undisputed benefits, a stronger reliance on more and newer systems can open central banks up to considerable risks. Cyber-attacks are becoming more frequent, complex and sophisticated and with reliance on IT systems heavier than ever, an attack is now more a case of 'when' rather than 'if'.

For this reason, cyber is increasingly acknowledged as a preeminent risk, as central banks are fully aware of the impact and fallout that a successful attack can bring to its institution's standing in markets, its credibility with supervisors and the public and above all, its reputation.

This seminar, "Cyber Risk and Resilience: Strategies, Policies and Frameworks for Central Banks" is designed to equip delegates with the tools to meet these challenges.

The panel of expert speakers will combine practical central banking experience and expertise in the technical aspects as well as views from private sector experts and leading thinkers from academia.

All discussions will be held in roundtable format to encourage participants to share their experiences and debate the pressing issues in their field.

This format, as more than 6,000 central bankers and regulators can attest, encourages delegates to quiz panellists, raise issues and discuss solutions to the specific challenges they face.

We look forward to welcoming you to Windsor on May 21.

Yours sincerely,

Chris Gale, Course Chair
former Senior Vice President
Federal Reserve Bank of Boston

Learning outcomes:

By the end of the training course, participants will have gained new knowledge and a more comprehensive understanding of:

- Opportunities and risks of innovative technologies for central banks
- Challenges in the integration of new cyber security practices into existing risk management frameworks
- Effective identification, management and containment of cyber risks
- DLT, Big Data analytics and Machine Learning: scope and limitations
- The roles and responsibilities IT departments take on in managing risks
- Cross-industry guidance and digital financial ecosystems: in focus
- Key features of effective cyber resilience frameworks, measures and strategies
- Case studies of cyber resiliency measures and responses to real life cyber attacks

Tuesday 21 May

Central Banking Cyber Landscape in 2019

Cyber resilience: current challenges and advancements

Led by the chair, **Chris Gale**, former Senior Vice President, Federal Reserve Bank of Boston

- Evolution of forces, trends and dynamics shaping the digital landscape in 2019
- Unavoidable risks, critical challenges and emerging opportunities of disruptive technological innovation
- Key features of effective cyber resilience frameworks, measures and strategies
- New roles and responsibilities of central banks, regulators and supervisors

Making the most of Cloud: capacity vs security

Pieralberto Deganello, Vice President, Customer Relations and Support Office (CRSO), Security and Risk Management Team, Federal Reserve Bank of Chicago

- The state of the art of cloud computing
- Overview of the technological foundations and building blocks
- Examples of uses and applications in the central banking and supervisory environment
- Tips for effective management of limitations and potential legal and security risks

What are the most significant cyber risks in 2019? (And which ones should you really worry about?)

Panel with **Chris Gale**, former Senior Vice President, Federal Reserve Bank of Boston ; **Pieralberto Deganello**, Vice President, Customer Relations and Support Office (CRSO), Security and Risk Management Team, Federal Reserve Bank of Chicago and **Tom Keating**, Senior Adviser and Head of Operational Risk Policy Group, Central Bank of Ireland (invited)

- Overview of local and systemic implications of different types of cyber risk
- Impact on financial, operational and regulatory frameworks
- Examples of successful as well as prevented cyber attacks
- *Discussion*: what risks do the cyber experts need to focus on as a priority?

**About the
course chair**



Christopher Gale is a retired senior vice president of the Federal Reserve Bank who has held leadership positions in the Federal Reserve for Information Technology, Financial Management, Strategic Planning, Facilities Management and Law Enforcement. From 2012–2014 he chaired the Fed’s Technology Services Council, the senior executive information technology steering committee for all 12 Reserve Banks. Before joining the Bank, he held management positions at large mutual fund, public accounting, savings and loan and commercial bank organizations. Chris received his BS in finance from Northeastern University in 1982 and his MBA from Northeastern in 1988.

Wednesday 22 May

Resilience in Action: Cross-sectoral Case Studies

Testing, simulations and post-incident review: case-study analysis

Asif Mahmood, BCP Coordinator and **Shehzad Ali Sharif**, Deputy Director BCP, State Bank of Pakistan

- Case-study analysis of strategies and systems under stress tests simulations
- How to identify gaps and failures for reporting and effective post-procedures
- The roles and responsibilities of risk practitioners against cyber risks
- Application and implementation of new tools against evolving disruptions

Cross-industry guidance: strengthening resilience of digitalised financial ecosystems

Tom Keating, Senior Adviser and Head of Operational Risk Policy Group, Central Bank of Ireland (invited)

- Overview of key risks for infrastructures based on computer systems and digital information
- Examples of intelligence-led exercises against critical financial systems
- The role of cooperation and coordination between the regulator and the regulated
- *Case study*: design and implementation of the Central Bank of Ireland's initiative

Workshop: detection, investigation and prevention of DDOS attacks

Kimmo Soramäki, Founder and CEO, Financial Network Analytics and founding Editor-in-Chief, Journal of Network Theory in Finance

- Key features of Distributed Denial of Services (DDoS) attacks
- Implications for the work of central bankers, regulators and supervisors
- Applications of advanced technology in identification on DDoS attacks
- *Hands-on exercises*: detection of anomalies in cyber networks

Workshop: dealing with weaponization of AI and machine learning

Speaker to be confirmed

- The state of the art of Artificial Intelligence and Machine Learning
- Overview of the uses and applications in the cyber landscape
- Examples of AI and Machine Learning based cyber attacks
- Examples of AI and Machine Learning based defence measures

What are the cyber security implications of digital money?

Jermy Prenio, Senior Advisor, Financial Stability Institute, Bank for International Settlements (invited)

- Differences and overlaps between digital money and crypto assets
- Examples of frameworks helping to monitor and assess the wider impact on the financial system
- Implications for the work of cyber experts in central banks and regulatory and supervisory authorities
- *Discussion*: Should central banks issue their own digital money?



Windsor Training Series 2019:

Week One: NEW! Tech Week, 21st – 24th May



FinTech: Innovation in Payments and Settlements

Course Chair: Richard Heckinger, former Vice President and Senior Policy Adviser, Federal Reserve Bank of Chicago



RegTech and SupTech: Disruptive Technology in Reporting, Regulation and Supervision

Course Chair: Kimmo Soramäki, Founder and CEO, Financial Network Analytics and founding Editor-in-Chief, The Journal of Network Theory in Finance



RiskTech: New Opportunities in Treasury, Risk and Compliance Technology

Course Chair: Eric Wolfe, former Deputy Managing Director, Funds Management and Banking Department, Bank of Canada



Cyber Risk and Resilience: Strategies, Policies and Frameworks for Central Banks

Course Chair: Chris Gale, former Senior Vice President, Federal Reserve Bank of Boston



Big Data: Applications in Economic and Statistical Analysis

Course Chair: Per Nymand-Andersen, Adviser, European Central Bank

Week Two: Mandates and Functions in Focus, 28th – 31st May



Strategic Planning and Management: Delivering Change and Meeting Objectives

Course Chair: Janet Cosier, former Adviser on Strategic Planning and Risk Management, Bank of Canada



Central Bank Board: Good Governance, Resilience and Enhancing Performance

Course Chair: John Jussup, former General Counsel and Corporate Secretary, Bank of Canada



Communications, Media Relations and Engagement

Course Chair: Marek Petruš, Communications Director at Institute for Economic Education (INEV), and former Director of the General Secretariat, Czech National Bank



Macro-prudential Policy: Implementing the Financial Stability Mandate

Course Chair: Maria Nieto, Advisor in the Directorate of Financial Stability, Regulation and Resolution, Bank of Spain



Good Practice in Banknote and Currency Management

Course Chair: Antti Heinonen, Chairman, Banknote Ethics Initiative

Thursday 23 May

Resourcing, Governance and Performance

Workshop: budgeting, strategy and performance management

Led by the chair, **Chris Gale**

- Overview of “traditional” resourcing for cyber and related risks
- Managing needs of competing departments to develop an across-the-bank view
- Generating buy-in from leadership groups and the board
- *Hands on exercise*: performance review of a central bank’s cyber strategy and budget

Attracting, retaining and incentivising technology talent

Mugur Tolici, Director, Human Resources Department, National Bank of Romania

- Overview of the staffing needs of the technology function, now and in the future
- Local labour pool: how to maximise the potential
- How to bring flexibility to hiring, contracts and working practices
- *Hands on exercise*: review and critiquing of remuneration and incentivisation schemes

Good practice cyber governance: an expert view

Roland Wettstein, Head IT Banking Applications, Deputy Director, Swiss National Bank

- Challenges for the board in cyber risk management: balancing competing demands
- Key components of the risk management framework for cyber security
- Examples of security awareness strategies and new developments in 2019
- Accountability in enforcing security awareness strategies

What delegates say about us

“It is a wonderful experience, the course topics are very much relevant to present context. The speakers are very good. Good learning experience. Thanks.”

Amar Josh Ddungdung, Assistant General Manager, Department of Information Technology, Reserve Bank of India

Friday 24 May

New Opportunities and Key Risks for 2020

What is the true capability of DLT, Big Data analytics and Machine Learning in cyber resilience?

Panel discussion with **Roland Wettstein**, Head IT Banking Applications, Deputy Director, Swiss National Bank and **Chris Gale**, former Senior Vice President, Federal Reserve Bank of Boston

- Overview of current approach to cyber resilience: scope and limitations
- Practical examples of disruptive technologies adding to cyber resilience
- Tips for trialling technologies and integrating them with existing defences
- *Hands on exercise*: evaluating security strategies and resiliency measures implemented in central banks

Will a cyber-attack cause the next financial crisis?

Closing panel with speakers from FinTech and RegTech seminars

- Causes of previous crises: what can be learned from the past
- Overview of today's financial system and discussion of potential weak points
- Examples of cyber-attacks and their impact on financial systems
- *Hands on exercise*: drafting business resilience plan for central bank and its financial system

Delegate action points and course conclusion

Led by the chair, **Chris Gale**

- Summary of the sessions' content and key takeaways
- Discussion of the observed trends and case studies
- Application of learning points in the delegates' home organisations
- Preparation of action points

Past attendees include:

Banco De La Republica, Colombia • Bangko Sentral ng Pilipinas • Bank For International Settlements • Bank Indonesia • Bank Negara Malaysia • Bank of Algeria • Bank of Canada • Bank of Finland • Bank of Ghana • Bank of Haiti • Bank of Italy • Bank of Jamaica • Bank of Korea • Bank of Mexico • Bank of Mozambique • Bank of Portugal • Bank of Thailand • Bank of Uganda • Bank of Zambia • Bermuda Monetary Authority • Cayman Islands Monetary Authority • Central Bank of Aruba • Central Bank of Bahrain • Central Bank of Barbados • Central Bank of Belize • Central Bank of Brazil • Centrale Bank van Curaçao en Sint Maarten • Central Bank of Estonia • Central Bank of Ireland • Central Bank of Kenya • Central Bank of Lesotho • Central Bank of Liberia • Central Bank of Luxembourg • Central Bank of Malaysia • Central Bank of Nigeria • Central Bank of Oman • Central Bank of Republic Turkey • Central Bank of Sri Lanka • Central Bank of Swaziland • Central Bank of the Philippines • Central Bank of the Republic of Turkey • Central Bank of the UAE • Central Bank of Trinidad & Tobago • Deutsche Bundesbank • Eastern Caribbean Central Bank • European Banking Authority • European Central Bank • European Investment Bank • Federal Reserve Bank of Philadelphia • Federal Reserve Bank of Richmond • Federal Reserve Bank of St Louis • Hong Kong Monetary Authority • International Monetary Fund • Magyar Nemzeti Bank • Maldives Monetary Authority • Monetary Authority of Singapore • National Bank of Belgium • National Bank of Cambodia • National Bank of Poland • Norges Bank • Norwegian Ministry of Finance • Palestine Monetary Authority • Reserve Bank of India • Saudi Arabian Monetary Authority • South African Reserve Bank • State Bank of Pakistan • Swiss National Bank

Booking details

4-Day (3 nights) residential course

Course fee includes: accommodation at the Royal Berkshire, meals, refreshments, course documentation and a complimentary copy of the most recent issue of the Central Banking journal. Substitute delegates can be accepted should the registered delegate be unable to attend; please let us know prior to the event.

How to book

There is a booking form overleaf. Please use one of the following methods to book your place:

Online: <http://events.centralbanking.com/windsor>

Call: George Johnson on +44 (0)207 316 9136

Email: training@centralbanking.com

Fax: Attention of Central Banking Training to +44 (0)207 681 3401

Post: Central Banking Publications
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SW1Y 4RX, UK

The venue

Central Banking's 2019 Windsor Training Series will take place in the heart of Berkshire, the royal county with a history spanning over 1,000 years. Amidst its countless historical monuments, ancient forests and stunning horticultural displays, the Royal Berkshire Hotel is one of the historical seats of the Churchill family and, since 1971, the home to a traditional British country hotel. The venue (located less than 30 minute from Heathrow airport) is fully equipped for modern events and occupies a relaxed location offering guests the opportunity to step back from their day-to-day work, to think strategically and to learn from their peers in central banks around the world. It is also near to the sights of the Windsor Castle and the Great Park, the independent school of Eton College, and Runnymede – where the Magna Carta was signed.



