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Big Data: Applications in Economic and Statistical Analysis

21–24 May 2019, Royal Berkshire Hotel, England

Course Chair

Per Nymand-Andersen, Adviser, European Central Bank

Series Advisor

Charles Goodhart, Professor Emeritus, London School of Economics

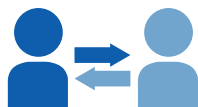
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Central Banking Publications

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, Big Data is established itself as a value-adding tool for central banks and supervisors – in both policymaking and broader research.

Around the world policymakers acknowledge the insights Big Data brings to areas including nowcasting of price levels trends, text mining for monitoring of systemic risk build-up, and the effective resourcing and institutional organisation of the Big Data function.

If used effectively, Big Data has the potential to provide an even greater depth and breadth of understanding: strengthening the decision making process in central banks, and thus, making for better policy formulation.

And this, as central banks acknowledge, is only the beginning. Yet, as with any new technique, risks abound. And for a central bank, whose stock in trade is its reputation, these must be managed carefully.

The challenge for central bankers now is how best to use these new technologies, to understand their limitations, and to communicate their findings to the public.

This seminar, “Big Data: Applications in Economic and Statistical Analysis” 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,

Per Nymand-Anderson, Course Chair
Adviser
European Central Bank

Learning outcomes:

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

- Key statistical and computational technology behind the rise of Big Data
- Implications for central banks, regulators and financial services industry
- Building blocks, approaches and techniques of Big Data analytics
- Big Data as a pillar of regulatory and supervisory technology
- Case studies of the analytical application of Big Data from the internet as well as financial, commercial and administrative sources
- Examples of strategies and frameworks for effective resourcing and institution organisation of the Big Data function
- Motivations behind and expectation from the emerging role of the Chief Data Officer (CDO)

Tuesday 21 May

Big Data in 2019: Opportunities and Challenges for Central Banks and Regulators

Operating in the new landscape: key dynamics and trends in focus

Aurel Schubert, former Director General Statistics, European Central Bank and Vice-Chairman, Irving Fisher Committee

- Key forces and dynamics shaping the work of economists, statisticians and data analysts in central banks
- Evolution of data needs for monetary and macro-prudential policy making
- Opportunities and challenges related to new international standards and initiatives
- *Discussion:* how do central banks need to change to make the most of innovation?

Big Data and FinTech: digital transformation in finance and economics

Jyri Hokkanen, Head of Statistics, Sveriges Riksbank

- Overview of recent trends and developments in disruptive technological innovation
- Key statistical and computational technologies behind "the rise of Big Data"
- The impact of Big Data on financial services industry and the world of economics
- Implications for information architecture and statistical methodology in central banks

Big Data analytics in central banking and supervision: building blocks, approaches and techniques

Jens Mehrhoff, Expert, Statistics Department, Deutsche Bundesbank

- The state of the art of Big Data analytics in 2019
- Overview of building blocks in the fields of data creation, storage, retrieval and analysis
- Examples of frameworks, approaches and techniques for successful application in the central banking and supervisory environment
- Tips for effective management of issues preventing a development of a coherent and sustainable Big Data strategy

About the course chair



Per Nymand-Andersen is an adviser to Senior Management in Directorate General Statistics at the European Central Bank (ECB). He has developed his expertise in financial markets, securities settlement systems, statistics, big data and communication. Mr Nymand-Andersen is the key editor of the ECB's Statistics Working Paper Series and a lecturer at the Goethe University in Frankfurt am Main in Central Banking Policy and Transparency. He has an MBA in Economics and Management Science from Copenhagen Business School, Denmark. Prior to joining the ECB, Mr Nymand-Andersen provided market research consultancy services for Eurostat, Luxembourg. He is author of several articles and publications regarding financial markets, statistics and communication.

Wednesday 22 May

New Tools and Instruments for Macro-prudential and Monetary Policy Making and Analysis

Making the most of Big Data in risk-based reporting

Allan Kearns, Head of Function, Prudential Analytics, Central Bank of Ireland

- Key features of effective risk-based supervision frameworks and strategies
- The impact of Big Data based APIs (Application Programming Interface) and software platforms on regulatory value chain
- The role of Big Data in market surveillance and risk prediction
- Tips for effective management of sensitive issues in the areas of security standards and confidentiality

Using Big Data for nowcasting macro-economic indicators: the ECB-Google case study

Per Nymand-Andersen, Adviser, European Central Bank

- Overview of emerging trends in regulatory Big Data
- Opportunities and challenges of Big Data applications for financial stability and systemic risk analysis
- Examples of good practice in combining Big Data from the internet, administrative and commercial sources
- Case study: European Central Bank's use of Google search data in autoregressive now-casting models

Identifying core-periphery structures through administrative Big Data: the Internal Revenue Service case study

Rodrigo Cifuentes, Senior Advisor, Financial Policy Division, Central Bank of Chile

- Examples of analytical applications of large amounts of granular data from the Internal Revenue Service
- Overview of tools and frameworks for identifying the structure of a financial network and its transition over time
- Tips for effective management of methodological issues and challenges
- Discussion: What are the key features of effective inter-institutional data sharing and cooperation?

Big Data as a facilitator for monetary policy analysis and implementation

Timur Hülagü, Deputy Executive Director, Statistics Department, Central Bank of the Republic of Turkey

- Case study on how Big Data is utilised for monetary policy-making
- Examples of Big Data applications for pattern spotting and trend analysis
- Risk and limitations of Big Data based softwares and analytical platforms
- Discussion: How will technological innovation affect monetary policy?

The emerging role of Big Data in central banking communication: the social media case study

Per Nymand-Andersen, Adviser, European Central Bank and **Bruno Tissot**, Head of Statistics & Research Support, Monetary and Economic Department, Bank of International Settlements (invited)

- Implications and opportunities of disruptive technological innovation for central bank communication
- Examples of applications in the areas of design, execution and evaluation of different communication strategies and frameworks
- Assessment of the analytical value of new tools – such as text-mining – based on Big Data and Machine Learning
- Case study: analysis of social media response to a monetary policy announcement

Thursday 23 May

Revolutionising Big Data Applications

Making the most of available technology: a case for combining Big Data and Machine Learning

Gareth Peters, Professor for Statistics in Risk, Heriott-Watt University

- Overview of methods and practices for combining available technologies and digital platforms
- Management of key operational and ethical risks and challenges
- Implications for institutional organisation and resources
- *Hands-on exercise*: combining Big Data and Machine Learning for systemic risk identification and containment

New opportunities for effective financial crime management

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

- Overview of key financial crime risks of the digital era
- Examples of Blockchain and Machine Learning applications in KYC and KYCC
- The role of international and public-private cooperation and coordination
- *Hands-on exercise*: automated vs. manual Fraud and AML investigation

The role and potential of Big Data in cyber security and resilience

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

- Overview of key cyber risks and challenges in 2019
- Implications for the work of central bank statisticians, economists and data analysts
- Applications of Big Data based frameworks, tools and methods for identification and containment of cyber attacks
- Examples of success stories and steps to be avoided

What delegates say about us

“A great experience. Different from other seminars I’ve participated in – in a good way.”

Rasmus Mansberg, Economist, National Bank of Denmark

Friday 24 May

Operational Arrangements and Institutional Organisation

The emerging role of the Chief Data Officer (CDO)

David Hardoon, Chief Data Officer, Monetary Authority of Singapore (invited)

- Overview of motivations behind the position of the Chief Data Officer
- Examples of key roles and responsibilities
- Implications for resourcing and institutional organisation
- *Discussion:* What are the key expectations from and to the CDO?

Enabling and resourcing the Big Data function

Juri Marcucci, Economist, Bank of Italy

- Examples of frameworks and indicators to assess suitability and needs of the Big Data function
- Implications for institutional strategies and inter-departmental cooperation
- Tips for selection and coordination of in-house technology solutions with the outsourced ones
- *Discussion:* What does it take to attract, train and maintain the best talent?

Delegate action points and course conclusion

Led by the chair, Per Nymand-Andersen, Adviser, European Central Bank

- Summary of the training course
- Discussion of the observed trends and case studies
- Application of learning points in the delegates' home organisations
- Preparation of action point

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:

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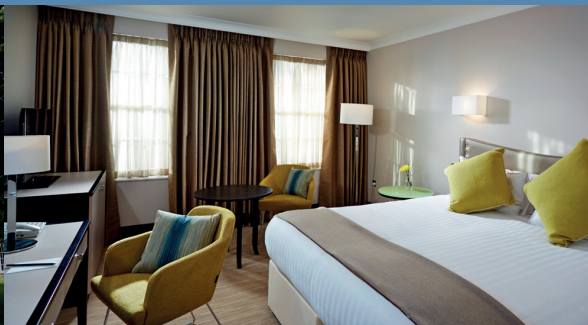
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The venue

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.



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Early Bird Offer (Ends 22nd February 2019) Course fee: £3,100

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