

Opportunities and challenges of AI in the economy, finance and supervision

Helsinki, 13 November 2024

Good morning, ladies and gentlemen. It is my great pleasure to warmly welcome you all to this very topical seminar. Whether you are physically here in Helsinki or online, thank you for giving us your time.

The aim of this seminar is to explore the potential impact of artificial intelligence, AI, on the economy, the financial sector and financial supervision.

Like you, I am curious to know more about the potentially transformative effects of AI on our sector and industry in the near and more distant future. The opportunities are and will be innumerable. I probably also share with many of you a feeling of slight unease, perhaps a fear of the unknown. There are, after all, many things we have yet to learn, not least how we will best be able to benefit from the innovations brought by AI.

But above all, I share the excitement that something big is happening. Something that can give us a much greater understanding about different circumstances in the financial sector, something that may bring completely new products that will help us and inspire us. I'm sure a great many of you who have gathered here today want to be at the forefront, among the first, actively shaping what AI will look like in our sector.

Many of us have backgrounds in economics - or law, like myself. AI will obviously bring great benefits to other sectors too, beyond finance. Healthcare is perhaps the sector where people's expectations of AI are at their highest. Even so, there is concern whether human contact will disappear from healthcare when machines take over. After all, when we are vulnerable, we want the care and comfort of human contact.

For some reason though, I don't hear this same yearning for human contact in the financial sector. Maybe we should be offended by this?

But seriously, returning to the matter at hand ... Let me start by elaborating somewhat on the concept of AI and its potential effects on the economy, the topic of the first session.

The significance of AI has been compared with breakthrough advances in other general-purpose technologies, such as electricity and the Internet. What these have in common is that they offer applications across countless fields and have substantially transformed societies and economies. AI, for its part, is widely expected to have a major impact on labour markets and productivity, and possibly also on income distribution and economic growth.

The concept of AI as a field of science originated in the 1950s, but it was only with the significant increase in computer capacity and availability of high-quality data that a new leap in AI development became possible. The concept of AI has, of course, evolved over time, and it has often been associated with machine learning. A significant step more recently, as we know, has been the proliferation of generative AI and large language models powering solutions such as ChatGPT and Copilot.

The International Monetary Fund, the IMF, notes that the impacts of AI may vary by country depending on factors such as the country's readiness to utilize AI. Advanced economies are best positioned to leverage AI, but they are also the most exposed to AI-driven structural changes in the labour market, including the disappearance of some jobs and the creation of others. While the least developed economies are less exposed to these changes in the labour market, they are also less prepared to leverage AI, risking the creation of a new technological divide.

The race for AI supremacy is already on. Mario Draghi's recently published report on the future of European competitiveness argues that the world stands on the brink of a new digital revolution driven by the

proliferation of AI. The report expects AI to be a key factor in Europe's future productivity growth. The report also emphasizes the importance of increasing AI investments in Europe, including data centres and supercomputers, in order to avoid falling behind the United States and China. Importantly, it also recommends education and retraining programmes to help the workforce adapt to changes brought about by AI.

Let's turn now to the impact of AI on finance, the topic of the second session.

AI systems have been present in the financial sector for over a decade.

As in many other sectors, the use of AI is already improving productivity. AI-powered systems can process large volumes of data in real time, allowing faster decision-making. Tasks like loan approvals, which once took days, can now be completed in minutes. So, what else can we expect? Additional automation in tasks such as customer service, fraud detection and regulatory compliance can further help drive down costs and minimize risks of human error.

Beyond operational gains, AI is also bringing new tools to risk management and improving both service quality and customer experience. AI tools can monitor market trends, spot risks and detect anomalies in real time, enhancing an institution's ability to manage risks effectively. On the customer side, AI allows for personalized financial services based on individual behaviours, improving satisfaction and engagement through tailored recommendations and solutions.

New technologies always come with risks, however. Let me briefly mention a few of these.

One important risk is the lack of transparency and explainability. For example, AI models can hallucinate outcomes, and their decision-making process can be black boxes or simply too complex for humans to understand. We need to ensure there are necessary ethical guardrails in place, and human oversight of AI.

Cyber risks are also very relevant in the financial sector. As a concrete example, deepfake videos and images create issues in trust and reliability. The increasing use of AI systems also involves the risk of malicious contamination or poisoning of the underlying data or processes.

Rules governing various aspects of AI are also evolving. The EU's new regulation on artificial intelligence – the AI Act, which is in the process of being implemented – is set to significantly impact the development and use of AI across society, including the work of financial supervisors. In addition to the EU AI Act, numerous other EU-level legal instruments, national laws and soft law – guidelines, recommendations and so on – already govern AI in the current landscape.

The second session will also look at the balance of benefits and risks by considering questions such as: “What role will AI play in surveillance and risk management?”, “How can regulators ensure a level playing field for financial market participants when it comes to the use of AI?” and “In what ways can AI help institutions better predict market trends, mitigate risks and respond to financial crises?”.

Finally, the third session will concentrate on the impact of AI on financial supervision. How will AI change the work of financial supervisory authorities and central banks?

Central banks and supervisors all over the world are already investigating or implementing AI to improve everyday work. This is also the case here in Finland. Last year, the Bank of Finland and the Finnish Financial Supervisory Authority, the FIN-FSA, launched a data economy initiative. This strategic initiative aims to greatly improve our ability to use data analytics for making better decisions, creating innovations and improving operational efficiency, and to be a frontrunner in leveraging new technologies and data in our daily work. Although the challenge is great, we are in a good position to move forward at this point, as this

is already up and running.

The Bank of Finland and the FIN-FSA have a long tradition of working with data. A huge amount of data is collected for both statistical and supervisory purposes, and our Analytics Center of Excellence – ‘ace’ for short – incorporates a lot of experience of working with cutting-edge technologies like the large language models. On top of this, our new dedicated data strategy function provides a solid foundation for data governance and management practices, ensuring that the data we use is accurate, reliable and secure.

This provides an excellent foundation for building new capabilities to leverage AI. But if we want to create more value from data and AI, we must ensure the close alignment of technology with business objectives and requirements. This is why we are working closely with business interests and have already identified close to 100 potential AI use cases in our organization. The FIN-FSA has been especially active in testing some of these ideas, and you can hear more about these experiments tomorrow morning.

What then are the key drivers for this data analytics work? Most important perhaps is efficiency. The workload is ever increasing and the need for fast and accurate decisions is key. Put simply, with the help of AI tools it is possible, for example, to analyse a greater number of documents with the same human resources as before. Potentially, we can also achieve even better quality. But it is important to underline that AI is a virtual assistant, not a decision-maker. Indeed, human oversight and critical assessment are now more important than ever. For instance in writing this speech, AI has merely been a servant, not the master.

Events like this are also a great opportunity to share best practices and lessons learned from working with the technology. Both microprudential and macroprudential authorities need to develop new monitoring tools, and in the third session we will hear about many supervisory technology initiatives from around Europe.

To conclude, I would like to highlight some key points.

High-quality data, new technologies and human capital are undoubtedly the key drivers of the AI age. But the interplay between data, technology and human capital presents significant challenges. The exponential growth of data necessitates robust frameworks for collection and analysis.

The technologies are evolving rapidly, creating skills gaps that can leave many workers behind, emphasizing the need for continuous education and training. Moreover, the reliance on AI systems requires not only a workforce that can adapt to these tools but also understand their implications.

Why then are we particularly excited about using AI?

While we need to carefully manage the risks involved with these new technologies, we see great potential in them. Not only can we enhance our work efficiency through automation, but new technologies and large datasets promise new insights that can help drive forward our understanding of the functioning of our economy, and improve supervisory work.

The role of us humans in all this is – and will be – crucial. It is important that we fully utilize the deep expertise and various perspectives of our different organizations to meet the rising challenges of AI, data proliferation and analytics. Only by fostering an open culture of innovation and investing in human capital and technology can we ensure that we keep pace with the evolving landscape around us.

The AI and data revolution must be harnessed to improve Europe’s competitiveness and stability, as well as

to enhance the resilience of the economy and financial system.

Thank you for your attention. Once again, a warm welcome to all of you. I wish you a very beneficial, inspirational and thought-provoking seminar!

Opening remarks at the Conference on AI and Systemic Risk Analytics

Helsinki, 6 June 2024

Good morning, ladies and gentlemen.

It is my great pleasure to welcome you all to today's conference on AI and Systemic Risk Analytics. I am especially happy to see so many of you here in Helsinki. I would also like to warmly welcome all of you who are participating online.

The topic of this year's conference, AI and Systemic Risk Analytics, is very timely and, of course, highly interesting. AI and data centricity have developed rapidly in recent years and the pace is picking up. Increasing use of AI also means a paradigm shift in the use of data – more data is constantly needed for AI.

The pace of this technological change challenges our knowledge – novel technologies and use of data could profoundly change the functioning and structure of economies, finance and society in general. The key challenge is to keep pace with AI and to deepen our knowledge in order to produce relevant, reliable and well-targeted analysis, policies and regulation.

AI has the potential to transform transmission channels, interactions and amplification mechanisms in the financial system. As the operations in financial systems become more automated and complex, there is a need to understand how the truly systemic level of risks evolves with this change. To do this we need better and more granular data with wider coverage. Data should already be seen as a strategic priority. Similarly, as the environment gets more complex, understanding the key vulnerabilities requires more and more cooperation, for example between regulators and central banks as well as with data registries.

Identifying and understanding systemic risks is at the very core of designing effective and purposeful policies and regulation for the financial system. Understanding the novel risks underlines the need to ensure constant knowledge building and skill-set updating for policymakers and regulators. They need to understand how the financial system vulnerabilities are evolving and transforming. To do this, they should be able to use the same technologies in AI as the market operators, and they should have the ability to challenge any inaccurate and unexplainable output generated by AI.

In terms of risk management, the growth in the use of AI has sometimes been likened to the period preceding the global financial crisis. No wonder, as there are clear similarities.

During the global financial crisis a vast number of new risk managing methods emerged. They were widely used globally. However, their vulnerability was that they failed to capture the rapid growth in interdependencies, the hidden risk concentrations and complex interconnections, as well as the true nature of the risks and risk transfers, many of which were largely misunderstood and mispriced.

What I hope we have learned from the global financial crisis and subsequent crises is that 1) in order to maintain trust we need good visibility to determine how the interconnections, linkages and risks have shifted in the financial system and who ultimately carries the risks; 2) we need to preserve accountability and increase our understanding of AI technology, its limitations and uses – we cannot have too many black boxes in the financial system if we want to maintain trust; and 3) we need to understand what will be the impact of our own actions on policies or regulation.

In addition to relearning lessons from the past, there are also very novel features in AI-related risks. For example, AI enables and amplifies the successful execution of scams and cyberattacks, such as in the case of advanced deepfakes and the rapid spread of disinformation. This is particularly relevant now when geopolitical instability could increase the probability of cyber incidents.

As the use of AI increases, AI literacy also needs to be improved in order to effectively address and tackle AI-related crime and misinformation. Questions related to data protection, data privacy, data management and the ethical use of AI are all important too. The significance of data security, in particular, has increased in recent years. Data breaches have become more and more common. As the amount and use of data increases, it becomes more important to have some knowledge of data security and of how to securely control your own private data.

It is essential that we continue and further develop the assessment of risks caused by AI. As the world becomes increasingly digitalized, responses become faster and impacts are felt sooner. This can be both good and bad. Faster reactions occur in the market. As we saw in the case of deposit runs, this requires rapid stabilizing actions from regulators and central banks. The challenge is to ensure that the stabilizing regulatory and policy tools are fit for purpose and ready to be used.

Finally, the use of technology and AI could cause fragmentation in the financial system and in the distribution of economic resources. It can divide industries and operators in a new way, into those which are declining and those which are growing, depending on their knowledge and ability to use the new technologies. The same can happen in other areas of society. That is why it is important to have a majority of the public on board in the technological shift and to guarantee a certain level of technological literacy for everyone.

I would like to finish with a few words on the key topics of the conference.

First, I must congratulate the organisers for compiling such a topical and wide-ranging programme for this conference. I would like to warmly welcome the accomplished keynote speakers and all the presenters to the conference.

Over the coming two days we will cover various topics related to data and AI, concerning their role in shaping the economy, finance and banking. We will take a closer look to the role of AI in the securities markets, and we will look at phenomena such as decentralized finance (DeFi). We will also learn which are the hot cybersecurity topics for the year to come. And we will hear how quantum computing could change the risk outlook. Just to mention a few of the topics.

For financial stability and macroprudential policy makers like myself, this area of research offers invaluable insights.

Marja Nykänen: Rahoitusjärjestelmä osoittanut kestävyyttä riskien ristiaallokossa

Johtokunnan varapuheenjohtaja Marja Nykänen

Suomen Pankki

Euro ja talous -tiedotustilaisuus 14.5.2024

[Rahoitusjärjestelmä osoittanut kestävyyttä riskien ristiaallokossa \(pdf\)](#)

Acting Governor Marja Nykänen: Finland and Germany: latest developments, new opportunities and prospects for integration

Acting Governor Marja Nykänen, Bank of Finland
Speech at the German-Finnish Chamber of Commerce
30 January 2024
Presentation ([pdf](#))