AI: Unleashing its potential in finance

1. Uptake of Artificial Intelligence in the financial sector

The Chair noted that the view of Omar Selim, founder of an AI firm called Arabesque, is that AI may become the most important driver of the digitalisation of finance. Finance has been ahead of other industries in the adoption of AI. This is driven by the wide availability of structured data sets that facilitate the training of algorithms and the fact that the prevailing tasks in the financial industry are information intensive and often repetitive.

1.1 AI use in the financial sector is increasing

An industry representative highlighted the importance of considering the uptake of AI with both a long and short term view. The speed of the uptake of generative AI in particular is impressive, with ChatGPT reaching 100 million users in three months, while mobile phones took 16 years and Facebook four and a half years to reach that level. A recent study indicated that 98% of executives in financial services believe that AI including generative AI will be part of their three to five-year strategy, which is the timeframe that tech providers such as Microsoft are considering in discussions with their own customers.

A regulator noted that insurers collect data then assess, price and underwrite the risks. Insurers have therefore been data analysts for decades. An EIOPA survey in 2018 revealed that 35% of the European insurance industry is using AI and another 25% is engaged with it in a proof-of-concept mode. EIOPA is conducting a new survey now and the expectation is this number will go up significantly. Numbers of AI use by insurance may be underestimated, since some models used by insurers that are not labelled as AI systems could also be included in that categorisation. Developments in AI are however not yet moving at a disruptive speed in the insurance industry.

A second regulator noted that there has been a significant progress in the uptake of AI in the French financial sector. Surveys have indicated that, while four or five years ago most banks and insurance companies were engaged in projects with AI, last year all respondents had real AI use cases implemented in their organisations.

1.2 Use cases of AI in the financial sector and related opportunities

An industry representative noted that the opportunities from AI use in the financial sector are at present very much related to efficiency improvements at employee level and in the context of customer satisfaction, but a movement towards operational efficiency in the middle and back-office processes is expected.

A regulator observed that in the insurance sector AI is still primarily being used in the back office area to make processes more efficient, improve data quality and support the transition from legacy to new systems. However, AI use is moving slowly to the consumer interaction and front-office side. For example, new tools supported by AI are being developed to facilitate the submission of simple claims by customers, speed up and improve the answers received and optimise the pricing of insurance. The handling of claims is the area where AI applications seem to have most potential. At present, consumers have to first call the insurer, then send pictures and have someone come to their house to assess the risk. In the future a consumer might send a picture to an AI-based system that will assess the risk and organise a payout. Prevention based on AI and data analysis is another area for potential development. Consumers could be warned of adverse weather events and advised on steps to take to protect their property.

A second industry representative noted that their organisation, as an exchange, is trying to improve price discovery and price formation in securities and derivative markets by developing tools supported by AI. The introduction of a new AI-powered order type was recently approved by the US SEC. A matching engine ensures that there is sufficient liquidity to enable traders to trade as much as needed, considering 140 different parameters every millisecond to decide the best moment for the order to go into the market. More and more applications of this type are going to be seen in the financial sector, as it learns how to use large language models to drive efficiencies. Learning will also be shared across industries.

The critical factor for success in AI and machine learning is talent, including an organisation's data scientists, and its access to models, the industry representative considered. Breakthroughs around large language models are driving progress on the talent side. An organisation can also be more or less data rich depending on its access to data and how well it organises its data. In addition, access to sufficient computing power is needed, which has been facilitated over the last decade by the uptake of cloud computing.

A regulator stated that there has been an increasing use of AI for customer relationship chatbots, fraud and anti-money laundering (AML) detection and claims settlement in insurance in the French financial market in recent years. Generative AI such as ChatGPT, which is a second generation of AI, should support new use cases. The central banks and supervisory authorities are also evaluating the potential of AI for their own activities. AI use in the supervisory space is expected to increase in the coming years. The ACPR for example has developed a tool for AML risk detection based on transaction clustering that is used for identifying

suspicious transactions in the banking and insurance sectors. This tool is sometimes more efficient than traditional processes and tools used by financial institutions. A predictive tool is also available to assist supervisors in their day-to-day supervision. In addition, a whole set of more generic tools used by supervisors, such as speech-to-text or translation tools, include AI and machine learning components.

2. Challenges and risks associated with the use of AI in finance

An industry representative commented that the key issues raised by AI are explainability and privacy. Explainability is lacking in the case of ChatGPT for example, because only the result is provided, not the information on which the output was based or how it was provided. This is a problem. The technique of embedding can address this. ChatGPT's knowledge base is from September 2021, which means that subsequent information and developments are not taken into account in its responses. However, if a more recent document is copied and pasted into the prompt, it will be taken into account in the context of the response. It is therefore possible to build an additional and more specific knowledge database by introducing documents into the AI system through the embedding process. This can also be used for improving explainability, since the most relevant documents in the database can be selected for each prompt and the response can be asked to be provided taking into account those documents.

Concerning privacy, there are two paradoxes, the industry representative observed. The first is that models are often trained with personal data, but the AI Act only mentions privacy twice. The second is that, even though there is no AI regulation yet approved in any jurisdiction, companies have already been fined for the use of AI systems in connection with the General Data Protection Regulation (GDPR) rules and therefore for privacy reasons. A further issue is that the European Parliament stated in July 2020 that the process of training a model is a new processing activity. This means that consent will need to be gathered for the data used to train AI models, but it will be very difficult for companies to obtain this new consent. The solution to this is moving towards an adequate anonymisation of the data, meaning that it is not personal and not subject to GDPR or a pseudonymisation, which is halfway.

A second industry representative commented that while there is a sense of urgency around the need to embrace AI, it is important for financial institutions to balance the value propositions and opportunities that they perceive with the complexity of the implementation of AI systems. Discussing this is a priority for all boards of financial services organisations. Important considerations concerning the complexity of implementing AI include the complexity of organisations' data estates, the level of process maturity and the current and expected regulatory landscape. Another consideration is how much of the information that is provided by customers for using AI applications can be shared. AI is currently often used in an advisory or contact centre role by banks and customers provide information for receiving a reply to a question in real time. Restrictions around sharing this data externally are clear, but how this data may be shared internally should also be considered to ensure that customers' data is safeguarded within the organisation.

Data and the design of models raise further challenges, the industry representative emphasised. Using the wrong data will produce the wrong AI model. Having a well-managed data estate is very important and has been a challenge in the financial industry for some time. It is crucial that the models used are well designed with an appropriate structure to avoid disinformation or approximation. The model should also be used for what it is intended and approved to be used for. There is a need to not only be compliant with requirements but also build customer trust and have an ethical approach. Financial firms should start to explore and test the technology and progressively learn how to use it best. A dialogue is also needed with regulators and within banks, with the recommendation for banks to establish an AI ethical board to guide the organisation on these issues.

3. Main objectives of the AI Act and expected impacts

The Chair observed that the main purpose of the AI Act is to balance the advantages of AI with the need to ensure that AI systems used in the EU are safe and respect fundamental rights, but it will not address financial risks from the use of AI in finance. It must be ensured that these different objectives can be achieved with the matrix structure of regulation that is emerging, combining horizontal measures such as the AI Act with sectoral financial regulation and supervision.

A regulator explained that the horizontal nature of the AI Act means that all AI systems used in all sectors in the EU will fall under this Act. This makes sense because AI is a technology, so the same rules should apply in all industries. The AI Act follows a risk-based approach, creating three categories of AI use. The 'forbidden' category concerns uses such as facial recognition on the street for prosecution. AI use in the 'high-risk' category will need to comply with specific requirements, notably in terms of human oversight, documentation and risk assessment, and will be supervised by a newly created AI Board. At present, two use cases are considered as 'high-risk' in the financial sector – AI-based risk assessments and pricing in life and health insurance and credit scoring and creditworthiness assessment systems – in order to avoid the exclusion of certain categories of customers by AI-based profiling. The remaining AI systems, such as chatbots, will also have to comply with some rules, particularly in terms of transparency. Specific transparency requirements for generative AI have also been included in the AI Act, with a mandatory disclosure for content generated by AI, measures for preventing the generation of illegal content and the required publication of summaries of copyrighted data used for training.

The AI Act is well suited for insurance generally, the regulator felt. It addresses the main issues posed by AI in the sector including transparency, explainability, non-discrimination, fairness, risk management, human in the loop, recordkeeping and data quality. In addition, insurance and banking activities are already highly regulated and many aspects that are relevant for AI, such as data processing and sharing, data quality and fairness, are already supervised. The risk-based approach that has been adopted is also relevant, because not all uses of AI pose a high risk and in some cases AI systems are just a model enhancing data analysis. The European Supervisory Authorities (ESAs) may also propose additional guidelines for AI systems that are not considered high risk, if needed.

4. Issues to further consider in the regulatory and supervisory approach to AI

4.1 Articulation between the AI Act and financial regulation and supervision

A regulator stated that the AI Act sets out appropriate principles that will support progress of AI use. A cross-sectoral approach to AI regulation is relevant, provided it is well articulated with sectoral regulation and supervision at two levels in particular. First, the existing financial supervisors will need to integrate AI use and the rules of the AI Act in their scope which includes consumer protection and financial stability. Secondly, while the AI Act focuses on risks for citizens, particularly via the 'high-risk' categorisation of certain AI systems, there are critical aspects of AI use in models used for AML or consumer relationships for example that also need to be supervised. It is therefore necessary for the principles of the AI Act to progressively diffuse into the different areas of application of AI.

A second regulator stated that cooperation and coordination will be necessary at the supervisory level. The AI Act provides for an AI Board, responsible for supervising AI use particularly for systems considered as high risk, to be appointed in every member state. However, there are already domestic supervisors in most member states who are dealing with these issues. Therefore, close cooperation will be needed between the AI Board and the existing supervisors.

4.2 Human-machine interaction

A regulator suggested that AI will change the relationship between the human and the machine. Mastering AI will require supervisors to strengthen their understanding of the complex interactions between machines and humans, whether the latter are in the position of customer, internal controller or external auditor. It is not sufficient to state that a human must be put in the loop, because if the human is in the wrong place of the loop they may not be useful. That issue remains to be addressed.

The ACPR recently tested, as part of a research project, customers' perceptions of explanations of investments in life insurance products given by an intelligent chatbot to identify whether people, first, were more convinced by the machine and, second, better understood the investment proposals. In addition, two versions of the robo-advisor were tested: one giving advice tailored to customers' profiles, the other providing wrong advice. The study concluded that the explanation of the machine does not significantly improve the customers' understanding of the products sold. Also, the explanations provided by the machine in the form of a human conversation wrongly increased users' confidence in incorrect proposals. This example illustrates the challenge ahead with AI: since it profoundly transforms processes, the use of AI will require regulators and supervisors to take into account the changes that algorithms will induce in human behaviour. The new generation of AI is raising the stakes in this regard, because machines can now speak like humans. People may trust them although they may be wrong.

An industry representative noted that an experiment in the healthcare system had concluded that a person understood ChatGPT better than a doctor in an explanation about a prescription, because ChatGPT explained as many times as required and took more time to reply, demonstrating that different aspects of human-machine interaction need considering.

4.3 Balance between risk mitigation and innovation

An industry representative stated that tech adoption requires clear rules of engagement. There should however be a balance in digital regulations such as the AI Act between providing guardrails and ensuring that innovation can develop, because it is important that Europe and companies in Europe can benefit from these innovations that are happening around the globe and stay competitive.

Data sharing is another important issue that needs addressing for the development of AI. Applications in the area of AML are an example of this. The fragmentation in the financial system at the international level is exploited by criminals to move funds between different entities. Performing AML analytics on only one entity in a network will never identify these problems. AI need to be used in the context of an adequate sharing of data across financial entities to be effective for fighting AML. For example, in the US, Nasdaq provides services to 2,400 banks and credit unions that have put in place a consortium data lake with anonymised data. AI is used on top of that shared data to identify not only what happens in one particular bank or credit union but across the consortium.

4.4 Implementation issues

An industry representative stated that the AI Act raises two issues in terms of implementation. First, it is a legal document that does not contain enough technical detail or requirements for a software engineer developing a new AI system. Secondly, its impact is not yet proven. To address the first issue, the Spanish Government, which has established AI as a priority, launched an initiative, with the support of an ethics observatory and Deloitte, to draft detailed and technical implementation guidelines for the AI Act. These will provide software

engineers with requirements for developing new AI systems, especially for the high-risk category. These guidelines have been drafted in Spain and further guidelines are expected at the EU level. To address the second issue in terms of impacts, Spain is establishing a regulatory sandbox where selected companies from different sectors will be able to test different AI use cases against the implementation guidelines in a safe environment and check whether they are compliant. This will also allow public institutions to better understand how close the industry is to complying with the AI Act and the implementation guidelines.

Wrap up

The Chair summarised that, although AI is still at an early stage of development, it is growing fast and may become a game changer in finance. AI has the potential to change the way many financial activities are managed and run. AI is not only about efficiency and improving customer interaction but also about decision making and risk management. AI also poses new risks that are different from traditional financial risks, including risks related to the technology itself, cyber risks, discrimination risks, risks related to the human-machine interaction and so-called hallucination with generative AI. The responsibility for addressing these risks is distributed across many different stakeholders involved in financial activities and in technology and algorithm development.

The AI Act is an important step for the EU, but does not solve everything. Supervisors cannot just rely on the AI Act to tackle all the risks from AI use in the financial sector and will need to conduct specific assessments. Lisa Caplan, director at Charles Stanley, a financial advice company in the UK, said that money is emotional and personal. In the same way, AI is a powerful tool but it remains in the hands of humans, both finance and tech specialists, who can hopefully 'tame the dragon' together with the support of the supervisors.