SESSION SUMMARY - BERLIN SEPTEMBER 2020

Will AI be a game-changer in the financial sector and under what conditions?

1. Applications of artificial intelligence (AI) in the financial sector

A regulator stated that AI is a key driver for innovation and change, not just in the financial services industry but in many other sectors as well. In a data-driven industry like financial services, AI applications can potentially play a significant role, but there are still ongoing discussions as to whether AI is hyped or under-exploited and whether it is an opportunity or a threat in certain circumstances.

An industry representative explained that there has been a great deal of experimentation of AI in the banking sector. There are now applications across different parts of the sector such as retail and wholesale banking and different activities including product development, marketing and risk management (e.g. for anti-money laundering (AML), fighting financial crime…). Further due diligence of these different applications is however needed before full-scale deployment can be effective.

Another industry representative emphasised that their firm, a major insurance company, is looking at AI with a high degree of enthusiasm. While it is true that some AI uses can be detrimental to consumer protection, such as facial recognition technology, there are a number of applications that can improve the relationship with the customer and, ultimately, provide them with a better value proposition. Examples of this include AI systems using language processing and geo-localisation for accelerating roadside assistance, or the use of computer vision for identifying the damage to a car and the repairs and parts that are required and for evaluating the cost of repairs in a matter of minutes.

A third industry speaker added that AI allows the provision of customized services, such as individualised advice based on client data and their needs in a much more effective way, on average, than human-based advice which is very dependent on the knowledge of individual advisors.

The regulator concluded that these use cases show that AI applications are driven by a range of needs including client service and logistics improvement, which go far beyond more traditional back-office efficiency improvements.

2. Data access and sharing issues related to AI

2.1 Data quality challenges

Some speakers on the panel stressed that what is often labelled 'AI' is actually more like machine learning (ML), which is about processing large volumes of data in order to infer patterns or achieve certain outcomes such as identity verification or fraud detection.

An industry representative felt that consequently the quality of the data used is a key success factor for achieving appropriate use cases and outcomes. At present however, although data is the basis for conducting many financial activities, the financial industry does not have in most areas the high level of data quality that one might expect. In addition, financial data is generated in silos such as payment or credit activities and is hard to aggregate or combine across these silos, making it difficult to identify patterns on a wide scale and therefore limiting AI use cases. In comparison, 'modern' technology companies such as big techs, have built huge 'data lakes' from which they are able to draw insights more effectively.

Going forward, the industry speaker suggested that financial players need to adapt their data infrastructure in order to improve data gathering and management. This will allow them to improve the training of algorithms and the identification of statistical patterns and thus broaden the use of AI. Data quality, storage and management do not need to be perfect on a perfectly integrated infrastructure for progress to be made, but ultimately, the better the infrastructure, the better the data, the better the use cases and the higher the quality of the outcome is likely to be. If financial institutions do not develop the right data infrastructure, they will always be at a competitive disadvantage compared with the big tech companies, the speaker believed.

2.2 Data-related competitiveness and level playing field issues

A regulator noted that AI use and related issues regarding data flows raise questions in terms of competitiveness and level playing field. There are two dimensions of level playing field to be considered. One is between financial institutions and tech companies, and the other is between Europe and the rest of the world. The former issue that was already debated in the context of the second Payment Services Directive (PSD2) relates to whether access to data is asymmetric between financial and non-financial companies. The latter dimension is whether there is a risk that Europe could miss some opportunities because of overly stringent ethical standards, applying to AI models or the underlying data, that may hamper the speed of innovation.

Concerning the level playing field in terms of data flows, an industry representative considered that if data is not allowed to flow across organisations – i.e. not only from the financial sector to other sectors as provided by PSD2 but across industries – that means that there is no level playing field and there will always be certain players that have a significant competitive advantage because they can lock-in the data from clients. That is why access to data and how it is regulated is so important. Ant Financial, for example was able to become such a successful financial institution because it has preferential access to Alibaba's data and algorithms, the speaker claimed, and it is likely that some other financial institutions with the same access to Alibaba's data could have been as successful. However, without the same access to data, they have no chance to compete.

The regulator asked whether PSD2 should be updated with provisions forcing non-financial companies including big techs to provide open access to their data for all financial institutions.

The industry speaker felt that the General Data Protection Regulation (GDPR) already contains all the core ideas that are

needed for managing data sharing properly and making this possible. GDPR already provides users with the right to ask for their data and thus allows data sharing across organisations. The problem however is that, unlike PSD2, it does not define any standards for providing the data, therefore companies that hold data, such as big techs, are currently able to release it in a way that is impractical and unhelpful if they are asked to do so by users. Every industry should therefore be asked to comply with a set of common standards regarding the movement of data, such as those provided by PSD2, in order to lift those obstacles. This would allow competition to develop on equal terms based on the trust of clients i.e. the most trustworthy companies would be the ones that get the most access to customer data, which would then lead to the desired results. The speaker added that Europe has a real chance to build a unique selling proposition (USP) around data standards in this context, potentially becoming the region on the globe where institutions will want to store their data because they know it will be handled properly.

In terms of the competitiveness of the financial sector vis-à-vis tech companies, an official stated that the odds are not in the financial sector's favour with regard to data analytics, even though financial firms are increasingly utilising non-financial and non-balance sheet data such as images, social media or geo-localisation information in their decision processes. Technology companies already have the edge in this area with many more data points from which insights can be drawn. Previously, financial firms could count on their superior understanding of the needs and economics of their customers for making marketing or risk decisions, due to their proximity with them, but now technology firms could potentially develop better insights based on data analytics. Referring to the comments made by the previous industry speaker, the official agreed that data and having the appropriate rules for it is important, but it is not the only factor. Data is an input and the learning algorithm is also essential. In some cases, the algorithm has achieved such a level of sophistication that it is very difficult to catch up with it. Thinking that GDPR is sufficient to preserve a safe competitive environment may be 'wishful thinking'.

The regulator remarked that financial services institutions can purchase AI capabilities from tech companies and that data analytic capabilities do not necessarily put tech companies in a favourable position for entering the financial sector. The official confirmed that technology firms are currently not venturing into the financial space because of the regulatory and prudential requirements and that financial institutions are using tech third parties to develop ML algorithms rather than just relying on in-house engineers. However, in doing so, financial institutions should take care not to become too dependent on tech third-party providers.

An industry representative emphasized that customer experience will be driving the embedding of these technologies in financial services, the opportunities for new product development using AI, such as a further personalisation of products, and thus the competitiveness of financial institutions in this area. However providing more personalised products, as requested by customers, will also require that financial institutions put an increased focus on data privacy. The data element will be as important to manage vis-à-vis customers as the technology itself for financial institutions. Willingness to invest will also determine whether financial institutions can compete in an AI-based environment. It is not just about investments in technology and data, the speaker believed, but also investments in skillsets and people. Those institutions that successfully capture and achieve a positive outcome on these challenges will gain the competitive advantage.

3. Challenges associated with the use of AI in the financial sector

3.1 Explainability

A regulator remarked that while some of the challenges discussed in relation to AI are similar to those concerning digitalisation in general, such as cybersecurity or the measures needed for safe cloud outsourcing, some are more specific. The explainability of predictive models, which is a key challenge for the successful implementation of AI systems is one of these. Explainability for supervisors is not about being able to fully analyze or replicate any AI algorithm, which would be impossible. Rather, it is about being provided with a sufficient level of auditability of algorithms - e.g. being able to understand what are their key drivers for providing results or test the algorithms with samples of data - in order to ensure that they do not create excessive risk or bias. In addition, the level of explainability that is needed for each type of use case needs to be defined jointly by the financial institutions, the developers of the algorithms and the supervisors concerned. The French ACPR (Autorité de Contrôle Prudentiel et de Résolution) has published a recent study on the governance of AI algorithms in the financial sector that is currently under consultation and will help to develop a framework for analysing how AI use cases can be supervised.

An official considered that the level of development of AI should not be over-estimated. It may be that at some point in time AI developments may become so sophisticated that humans can no longer understand how they are reaching their insights. If and when regulated firms start using this technology en masse, supervisors will need to have a deep understanding of the technology and how it is used. However, so far, applications are mainly seen at an experimental level and the use cases that have been referred to by the previous speakers are not making up a large proportion of the balance sheet or risk capital of financial institutions.

A regulator referred to an academic who had stated that strict insistence on explainability and documentation could stifle AI innovation. An industry representative agreed with the academic, stating that this issue is often handled incorrectly at present. Indeed a human decision-maker is not judged by trying to understand how decisions are made, but by the results produced i.e. the decision itself. Applying this reasoning to an algorithm, the focus of potential policy guidelines or supervisory monitoring should not be on the explainability of the algorithm or understanding how it is built, but rather on the explainability and the relevance of the results provided and acting upon them if needed. To what degree the company using the AI system is checking whether the results produced are in line with the initial objectives defined and acting on possible divergences should be verified in particular. For example, if it is discovered that certain groups are systematically discriminated against by the results of an AI algorithm or that some social media algorithms result in the spreading of fake news, this needs to be acted upon.

Another industry representative agreed that explainability is essential and should be focused on the output. For example, their firm makes sure that it can explain the results of AI and ML-based models, not just to itself but also to its customers and also checks the stability and consistency in the outcomes. Consideration is also given to whether the technology is utilised to the benefit of customers and the financial markets as a whole. This is part of a more general focus on the responsible deployment of AI and ML in which model risk management and data governance play a key role, alongside explainability and accountability principles. Technological changes, in the context of the competitive landscape with the big tech companies,

indeed need to be responded to by banks in a sustainable, pragmatic fashion.

Another industry representative concurred with the importance of a responsible use of AI and of explaining end results to customers, as well as within financial institutions; technology is a means, not an end. Thinking about the responsible usage of AI is important for example when AI is used for enhancing personalisation. Indeed extreme personalisation, potentially customising proposals for individual customers may be attractive, but would go against the principle of diversification and pooling, which is the basis of insurance and may undermine the possibility for insurers to serve specific customer segments in a non-discriminatory way.

3.2 Accountability

A regulator emphasized that the results of AI not only need to be explainable for the institution's supervisors, but also for the governance of the institutions i.e. the board and senior management who are held accountable for the resulting decisions. Ultimate accountability should indeed lie with the supervised entity, regardless of whether they choose to develop knowledge internally or via a third party. This means that the senior management needs to be aware of the implications of using these instruments and should also be able to understand the outputs produced.

Another regulator concurred that accountability and liability risks need to be considered with regard to AI. There is currently a significant gap in terms of knowledge and understanding between the data scientists, who are building the scenarios and the AI models, and the bankers, insurers and asset managers, who are managing the business and are accountable for the decisions made. This means that it is difficult for the latter managers to make sure that the risk models that are built are adequate. The solution for financial institutions, concerning IT developments, has been until now to hire engineers or work on a long-term basis with third-party providers, who can develop this knowledge internally, but it is uncertain whether this can be achieved with AI.

3.3 Bias

A regulator explained that there are risks of bias or of amplification that exist with AI and that require extreme caution because non-representative data can lead to undesired outcomes. This is related to the quality of the data and also to the infrastructure that is used for managing the data. For example, risk models considering features such as age, credit history or the origin of name could lead to excluding some parts of a population from banking services if other elements of client knowledge that may require human interaction for collecting them, are not taken into account.

Another regulator agreed that there is a risk of undue bias with the use of AI algorithms and techniques. There needs to be ex ante clarity over these risks and ex post adjustment if those biases were to arise in order to enhance the confidence in these systems. Consideration also needs to be given to consumer protection and privacy issues. Consumers need to be aware of how their data is used as an input for the outcomes produced.

3.4 Skills and knowledge

A public representative emphasized the challenges in terms of skills and technological knowledge raised by the implementation of fast-developing technologies such as AI for the public authorities and also for the financial institutions. It is difficult for regulators and supervisors in charge of controlling these systems to adapt quickly enough to these fast technological developments and for firms it can also be challenging to control and use the data and technology properly. The provision of appropriate training and constantly updating qualifications for people connected with AI systems is essential in this context.

An industry representative agreed, noting that for example one of the first proposals of the Advisory Council of the German Ministry of Finance was to make it easier for people with a tech background to become a board member of a financial institution. Initiatives such as these are essential for ensuring that sufficient people with the relevant background are present in the financial industry.

4. Policy approach recommendations

Some regulators on the panel stated that, to address the aforementioned risks, it is first necessary to determine what constitutes 'sound' AI. A first regulator considered that a small number of key technical principles need to be identified relating to the performance of data management and the stability and explainability of predictive models and their results. A second regulator added that elements such as the quality of data and cybersecurity are also important. From the regulatory perspective, the key element to be borne in mind is the need for trust to be built around AI technology in order to be able to use it on a much higher scale. Controlling that the criteria mentioned previously are fulfilled is essential for building trust and ensuring that all stakeholders are comfortable with using it.

A public representative noted that there has been a high level of policy activity in the area of AI. The European Parliament has issued an ethics guideline on AI. The European Commission also published a White Paper on AI earlier in 2020 that echoes some of the principles that have been mentioned above. Consultations with the member states are ongoing with a view to then drafting relevant regulations. The common agreement so far is that the regulatory framework should be focusing on three main aspects: the economic; the social; and the ethical. The right balance needs to be struck between these areas. Ultimately, it is not the technology that is a problem. The issue is rather how it is used, implemented and regulated. It is also important to make a clear distinction between ML and AI. The industry has realised this distinction but this needs to be better reflected in the regulatory framework that is being prepared.

The public representative also stressed that AI rules require not only EU harmonisation but global harmonisation as well. Europe has a unique chance to be at the forefront of regulating this technology, and it needs to get it right. A great deal of input from people with a technical background is required for achieving this properly. ■