

REPORT

Title of the workshop

SUPTECH WORKSHOP II AI, Robo Advisory and Market Risk, Portfolio Risk Management and AI Explainability

Venue

ONLINE

On the virtual campus (<http://campus.ief.es>) of the Institute of Fiscal Studies (<https://www.ief.es/>) through the ZOOM software.

It was carried out in this way because of the COVID-19 pandemic.

Madrid (Spain)

Date

June 23, 2020.

Hosting university

Complutense University of Madrid

Regulator/supervisor

DIR. GRAL. DE SEGUROS Y FONDOS DE PENSIONES. MINISTERIO DE ASUNTOS ECONÓMICOS Y TRANSFORMACIÓN DIGITAL.

The speakers

1. Javier Arroyo Gallardo
2. Miller Janny Ariza Garzón

Number of participants

18

The main topics:

Use Case I_V: Network Models to Enhance Automated Cryptocurrency Portfolio Management (Giudici, Pagnottoni and Polinesi, 2020).

Use case II_X: Explainable AI in Fintech Risk Management (Bussmann, Giudici, Marinelli and Papenbrock, 2020)

The main results

In both cases, attendees highlighted the possible use of connectivity networks as a complementary tool for risk management in the insurance sector.

Although they do not manage portfolios, they identify in connectivity networks an opportunity to find new valuable information, determinants, risk drivers, similarities and correlations of the variables that characterize the entities, clusters, centrality measures, which surely describe patterns of the data structure not taken into account by traditional methods.

The exposed tools of Artificial Intelligence make them ponder about the added value they can obtain from the analysis of the amount of data and the varied information they manage as regulators. The new sources not only allow descriptive and exploratory analysis but can support confirmatory and predictive analysis, in a first instance, generating value by including

new information, new ways of analyzing and generating variables, in the traditional risk models.

The attendees highlight the role explainability of AI methods can play, not only for regulators but for the whole market, and in the different areas of knowledge, as an essential component, together with ethics, to guarantee transparency and confidence derived from its use. Explicability is one of the major leverages of IA use, gaining not only in precision but in the understanding of how and why the new tools make decisions.

New insights and main takeaways

The use of post modeling agnostic methods is valued to add explainability to machine learning and Artificial Intelligence models. However, it is highlighted that explainability is a developing field, a research challenge where all stakeholders must work together to ensure the transparent application of Machine Learning in the development of new innovation and technology challenges in all components of human development.

It is also discussed which can be the best free software for the development of analysis tools involving AI, ML in particular; highlighting the use of R and Python, giving more strength to the latter by having incorporated in a single library, the case of Scikit-learn, an important range of tools and evaluation processes.

In particular, it is clarified that decision tree models are part of IA models, although they have been in use for some time, they are considered highly explanatory with some explanatory advances derived for example from entropy measures. They may not be as easy to understand if the number of variables, nodes and branches generate a complex structure to read, and in the end, need to be interpreted using tools such as SHAP values to ensure efficient and transparent use.

Further remarks

In the end, the Directorate General of Insurance appreciates the seminars, appreciates the selfless commitment, the well-prepared sessions and the usefulness generated by the cases presented, highlighting the potential that artificial intelligence can have for the analysis and risk management of the insurance market.

Complement Report

AI- MADRID – DIRECTORATE-GENERAL FOR INSURANCE AND PENSION FUNDS. MINISTRY OF ECONOMIC AFFAIRS AND DIGITAL TRANSFORMATION– JUNE 23, 2020

○ Parties participating, their roles and their responsibilities:

- Balance sheet and risk analysis area
- Inspection equipment
- Subdirector General for Solvency
- Area of Studies.

The role of the participants: Directors, head of division, informatics and state insurance inspectors.

- how will they stay involved? They have access to the platform to see the exposed cases, other use cases and all the tools and material provided by the project. They receive the

papers with the use cases, the presentations and the codes as material derived from the seminars. They receive continuous sending of the summaries of other use cases, from the different WPs, to evaluate their interest and the possibility of new seminars, considering that they are different regulatory bodies and different departments. We are committed to providing participants with a report that collects comments and feedback from the same seminars in other EU countries. We share our publications so that they can see results of the feedback given, collect feedback on their applied approach, and carry out knowledge transfer. They have been invited to participate in different suptech and regtech events.

- what is their feedback on the use cases presented? Once again, explainable Artificial Intelligence is outstanding, not only in the regulators but in the whole market, and in the different areas of knowledge, as an essential component, together with ethics, to guarantee transparency and trust derived from its use. Explicability is one of the major levers of IA use, gaining not only in precision but in the understanding of how and why the new tools make decisions.
- Are the selected use cases in the end the ones that meet the expectations and requirements at most? Although directly the cases are not directly applicable in their areas, the Directorate General of Insurance appreciates the seminars, appreciates the disinterested commitment, the well-prepared sessions and the usefulness generated by the cases presented, showing them the potential that artificial intelligence can have for the analysis and risk management of the insurance market.

Annex. Event photo

The screenshot shows a Zoom meeting in progress. On the left, a presentation slide titled "Agenda:" is displayed. It lists two topics: "Network Models to Enhance Automated Cryptocurrency Portfolio Management" by Giudici P., Pagnottoni P., and Polinesi G. (2020), and "Explainable AI in Fintech Risk Management" by Busmann N., Giudici P., Marinelli D., and Papenbrock J. (2020). The slide also includes a disclaimer: "The content reflects only the author's view and that the Commission is not responsible for any use that may be made of the information it contains".

In the center, there are two video feeds. The top one shows Cristina Belando Barcelo, and the bottom one shows Javier Arroyo Gallardo. To the right of the video feeds, there is a list of participants (21) with their names and initials. The list includes: Javier Arroyo Gallardo (JA), profesoria8 IEF (Anthrion) (PI), Miller Ariza Garzon (MA), ALEJANDRO GOMEZ HARO (AG), ALICIA PEREZ (AP), ALMUDENA ANTONA GUTIERREZ (AA), and BEATriz VINCENTE INEZ (BVI). Below the list, there are buttons for "Invitar", "Unmute Me", and "Levantar la mano".

At the bottom right, there is a chat window titled "Chat de grupo de Zoom". It shows a message from Miller Ariza Garzon: "Me he quedado sin permiso de video, ya le pediré el favor a Eva por el chat".