Deliverable information

WP NO.	WP 7
DEL.	D7.8
DEL. NO.	D26
TITLE	Advisory Board Report
DESCRIPTION	The Advisory Board, composed by five non-European experts, after receiving all the project deliverables as well as the feedbacks given by the participants to the project events, will provide a final evaluation report.
NATURE	Report
EST. DEL. DATE	30 June 2021

Document information

DATE	28/06/2021
WRITTEN BY	Bucharest University of Economic Studies
APPROVED BY	Anca Mirela TOMA

The **Advisory Board** of the Fintech Horizon2020 Project consisted of 5 International Experts in the filed coming from prestigious institutions outside Europe:

1. ***ABM: Ying Chen*** - *Associate Professor at the National University of Singapore: Department of Mathematics, Faculty of Science.*

2. ***ABM: Dror Kenett*** - *Senior Economist at FINRA, Washington, District of Columbia, United States*

3. ***ABM: Daniel Heller*** - *Head of Regulatory Affairs at FNALTY, Zurich, Switzerland*

4. ***ABM: Shatha Qamhieh*** - An-Najah National University (Palestine), *Research Professional at the Palestinian Authority*

5. ***ABM: Bihong Huang*** – *Asian Development Bank*

The five members of the Advisory Board have attended various activities of the Fintech Horizon 2020 Project both in person and virtually, once the activity was switched online.
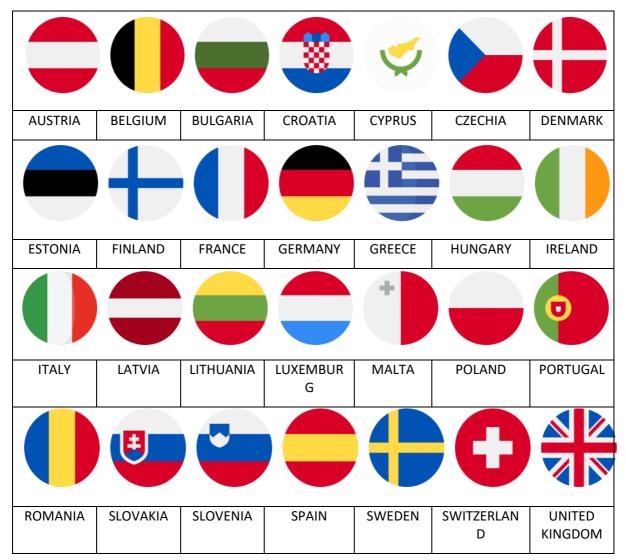

University of Pavia

ZHAW Zurich university for applied science

The Bucharest University of Economic Studies

FINTECH RISK MANAGEMENT
www.fintech-ho2020.eu

FINTECH Horizon 2020 Kick-off PAVIA 01.02.2019	Research Event Big Data Analytics WINTHERTUR 03.09.2019 *UBER co-organizer	Research Event Mild-Term Workshop BUCHAREST 13.11.2019
University College London	ZHAW Zurich university for applied science	Humboldt University of Berlin
Research Event Artificial Inteligence LONDON 19.05.2020	Research Event Blockchain WINTHERTUR 25.03.2021	FINTECH Horizon 2020 Closing Event BERLIN 18.06.2021
modefinance	FIRAMIS Firamis GmbH	ZHAW Zurich university for applied science
RegTech MILANO 29.03.2019 Big Data Analytics	RegTech FRANKFURT 28.06.2019 Big Data Analytics	RegTech WINTERTHUR 04.09.2019 Arficial Inteligence
WU Vienna University of Economics and Business	Universidad Complutense de Madrid	Pantheon-Sorbonne University
RegTech WIEN 26.02.2020 Artificial Inteligence	RegTech MADRID 23.10.2020 Blockchain	RegTech PARIS 24.03-01.04.2021 Blockchain

Big Data Analytics			Artificial Intelligence			Blockchain
AUSTRIA	BELGIUM	BULGARIA	CROATIA	CYPRUS	CZECHIA	DENMARK
ESTONIA	FINLAND	FRANCE	GERMANY	GREECE	HUNGARY	IRELAND
ITALY	LATVIA	LITHUANIA	LUXEMBURG	MALTA	POLAND	PORTUGAL
ROMANIA	SLOVAKIA	SLOVENIA	SPAIN	SWEDEN	SWITZERLAND	UNITED KINGDOM

3 Use Cases in the Big Data Analytics pillar

Use Case 1 - Network based scoring models to improve credit risk management in peer to peer lending platforms

Use Case 2 - Factorial Network Models to Improve P2P Credit Risk Management

Use Case 3 - Spatial regression models to improve P2P credit risk management

Advisory Board Member - ABM

ABM:
Big data provides rich information and deliver insights that plays an important role in decision-making process in FinTech as well as many other areas. When using big data and IoT technologies extensively to conduct risk analysis and provide advanced service, it requires fast and robust operations on the vast amounts of data. The three use cases provided timely methodologies and showcase how to apply these risk management methodologies in peer-to-peer lending. As an

important and fast growing FinTech products, P2P lending provides benefits and opportunities to complement traditional financial activities. However, it also involves a lot not-well understood risks and further regulation challenges to investors, market and regulators.

The use cases provided well justified models and elaborated their importance and applications clearly with supporting real data analysis. The topics are explicitly engaged with the needs of regulators to evaluate and manage systemic risks in the fast growing lending platforms. In particular, Giudici, Hadji-Misheva and Spelta (2019) proposed a credit scoring predictive model to investigate systemic risks in the peer-to-peer lending platforms. By leveraging topological information embedded into similarity networks that reflects borrowers' importance and community structures, it improved credit risk accuracy. Ahelegbey, Giudici and Hadji-Misheva (2019) focused on credit scoring of over 15000 SMEs engaged in P2P lending services across Europe. It developed a factor network-based segmentation for credit score modeling, which segment the heterogeneous population into more homogeneous clusters and then build a credit score model for each cluster via lasso logistic regression. The result reveals the network-based segmentation achieves higher predictive performance than the conventional model. Agosto, Giudici and Leach (2019) proposed a binary spatial regression models to measure contagion effects in credit risk of 1185 Italian companies arising from corporate failures. By employing the Bank for International Settlements' data on flows between country banking systems and the World Input-Output Trade (WIOT) statistics between economic sectors, it provided evidence of high levels of contagion risk, which increases the individual credit risk of each company.

Moreover, the use cases share related resources, which not only contribute to society by promoting research in the direction, but also attract attention of professionals in the recent study of big data Fintech. The use cases as well as replication codes are public available at https://github.com/danpele/FINTECH_HO_2020/, which is consistent to the objective of the project by elaborating detailed understanding of the risk management models that can be applied to financial technologies.

References

Giudici, P., Hadji-Misheva, B., & Spelta, A. (2019). Network based scoring models to improve credit risk management in peer to peer lending platforms. *Frontiers in Artificial Intelligence*, *2*, 3.

Ahelegbey, D. F., Giudici, P., & Hadji-Misheva, B. (2019). Factorial Network Models To Improve P2P Credit Risk Management. *Frontiers in Artificial Intelligence*, *2*, 8.

Agosto, A., Giudici, P., & Leach, T. (2019). Spatial regression models to improve P2P credit risk management. *Frontiers in Artificial Intelligence*, *2*, 6.

ABM:

I was very excited about the project's pillar focused on the area of big data analytics, and was happy to have had the opportunity to see them present in person, in the fall of 2019. The focus of the case studies was predominantly on peer to peer lending, and the case studies were interesting, and presented some interesting insights into this important mechanism for dis-intermediated lending channel. I was able to provide some feedback on the case studies, and regret not having the chance to have more dialogue with the team to help them further in building in the work that was done. While I agree with the importance of this topic, I also would have liked to see some additional topics addressed in this pillar, as well as the inclusion of additional academics and regulators. Finally, since the original presentation in 2019, it is hard to identify significant progress and development of the pillar. I think that additional efforts on this front would have enhanced the success and impact of the pillar.

ABM:

This section contains three applications of big data analytics (BDA) to peer-to-peer (P2P) lending networks. This area of research is highly relevant, in particular in light of the recent retraction of banks from lending to firms and households. The papers recognize a fundamental fact that asymmetric information in lending markets puts P2P lending at a disadvantage vis-à-vis bank lending since banks specialize in assessing and monitoring borrowers. The losses of LendingClub in 2017 are an illustration of the risk involved in P2P lending. Thus, sound risk management of P2P lending networks is essential for their long-term success and sustainability. At the same time P2P platforms seem to have a competitive advantage in the sense that they can operate with lower capital requirements and don't have to contribute to deposit insurance.

While there is evidence that P2P lending is growing, relevant data seem to be limited. The three papers use datasets from an Italian and Southern European platforms for SMEs. In general, a more detailed description of the data would have been welcome. For instance, Table 1 in Giudici-Hadji, isn't very accessible to the reader. Also, it remains unclear whether the data cover more than one year (2015) which seems to be necessary to receive robust results.

The papers show various approaches of how risk management could be enhanced in P2P lending platforms. One leverages on topological information embedded in similarity networks. The other one is a factor network based segmentation for modelling a credit score. The third applies spatial regression models. All papers make a very welcome and valuable contribution since they show how P2P lending platforms can improve their risk management. Research of this sort will be essential for the future development of new forms of lending.

ABM:

1. Giudici P., Hadji-Misheva B., Spelta A. Network based scoring models to improve credit risk management in peer-to-peer lending platforms (Focus: credit risk management). The authors improved the predictive performance of credit scoring models for peer-to-peer platforms by using the topological coefficients of similarity networks as additional explanatory variables to describe the borrower importance and the community structures.
2. Ahelegbey D.F., Giudici p., Hadji-Misheva b. Factorial Network Models to Improve P2P Credit Risk Management (Focus: credit risk management). The authors improve credit risk modelling by first segmenting a network of SMEs that are engaged in P2P lending services into clusters based on linkages that represent the co-movement of latent factors, then they build a credit score model for each cluster via lasso logistic regression to achieve an improvement in the default predictive performance.
3. Agosto a., Giudici p., Leach t. Spatial Regression Models to Improve P2P Credit Risk Management (Focus: systemic risk management / contagion risk). The authors apply a binary spatial regression model to measure contagion effects arising from corporate failures and they provide evidence of high levels of contagion risk, which increases the individual credit risk of each company.

ABM:

1.   Giudici P., Hadji-Misheva B., Spelta A. Network based scoring models to improve credit risk management in peer-to-peer lending platforms (Focus: credit risk management). The authors improved the predictive performance of credit scoring models for peer- to-peer lending platforms by using the topological coefficients of similarity networks as additional explanatory variables to describe the borrower importance and the community structures.
2.   Ahelegbey D.F., Giudici p., Hadji-Misheva b. Factorial Network Models to Improve P2P Credit Risk Management. (Focus: credit risk management). The authors improve credit risk

modeling by first segmenting a network of SMEs that are engaged in P2P lending services into clusters based on linkages that represent the co-movement of latent factors, then they build a credit score model for each cluster via lasso logistic regression to achieve an improvement in the default predictive performance.

3.   Agosto a., Giudici p., Leach t. Spatial Regression Models to Improve P2P Credit Risk Management (Focus: systemic risk management / contagion risk) The authors apply a binary spatial regression model to measure contagion effects arising from corporate failures and provide evidence of high levels of contagion risk, which increases the individual credit risk of each company.

Key aspects

Well justified models.

The pillar could have addressed more topics and continue the good start in 2019.

The research presented touches on important aspects for the further development of the new forms of lending

3 Use Cases in the Artificial Intelligence Pillar

Use Case 1 - Network models to enhance automated cryptocurrency portfolio management

Use Case 2 - Convergence and Divergence in European Bond Correlations

Use Case 3 - Explainable Machine Learning in Credit Risk Management

ABM:

Over the past few years, financial industry has initiated adopting AI solutions to cope with the industry's fast changing landscape. AI have almost thoroughly infiltrated almost every area in FinTech, with showcases especially in Robo-advisors, sentiments, cryptos. The use cases demonstrated some of the contributions of the project during this exciting period. For example, Giudici, Pagnottoni and Polinesi (2020) proposed a network model to extend the Markowitz model with Random Matrix Theory and network measures to build efficient portfolio allocation strategies involving cryptocurrencies. The algorithms can be easily used for Robo-advisors to automatically match investors' risk profile with specific class of financial assets and build an efficient portfolio allocation for specific client. The results show that overall our model over-performs several competing alternatives, maintaining a relatively low level of risk. Schwendner, Schüle and Hillebrand (2019) investigated market sentiment in European sovereign bonds using a correlation analysis toolkit based on influence networks and hierarchical clustering. Several case studies including the 2016 Brexit referendum, the French presidential elections in 2017, during the budget negotiations within the new Italian coalition in 2018, sentiments delivered reasonable interpretations. Bussmann, Giudici, Marinelli and Papenbrock (2021) proposed an explainable Artificial Intelligence model that can be used in credit risk management. Among others, it illustrated how to use the model in measuring the risks that arise when credit is borrowed employing peer to peer lending platforms. Empirical analysis of 15,000 small and medium companies demonstrated that both risky and not risky borrowers can be grouped according to a set of similar financial characteristics, which can be employed to explain their credit score.

The use cases as well as replication codes are public available at https://github.com/danpele/FINTECH_HO_2020/,

References:

Giudici, P., Pagnottoni, P., & Polinesi, G. (2020). Network Models to Enhance Automated Cryptocurrency Portfolio Management. *Frontiers Artif. Intell.*, *3*, 22.

Schwendner, P., Schüle, M., & Hillebrand, M. (2019). Sentiment Analysis of European Bonds 2016–2018. *Frontiers in Artificial Intelligence*, *2*, 20.

Bussmann, N., Giudici, P., Marinelli, D., & Papenbrock, J. (2021). Explainable machine learning in credit risk management. *Computational Economics*, *57*(1), 203-216

ABM:

The second pillar addresses an additional area of great importance and many efforts across regulators, academics, and practitioners. This is a broad area and the project team dedicated some of its resources in this area and developed very interesting work. I think that the topic of explainable AI in particular, as well as the issue of AI related ethics, is of high value and importance and is getting a lot of attention. As in my previous comments, I think greater impact and success of this pillar would have come from greater engagement across the three different groups of stakeholders. I do find the deliverables of the use cases to be of value, and congratulate the team on their success and all of their efforts.

ABM:

The papers in the AI block cover a diverse set of topics. The first paper shoes how super volatile assets like cryptocurrencies can be integrated into automated consultancy (robo advisory). It finds that an "extended" Markowitz model can lead to superior results.
The second looks at the market sentiment during three recent events in the European bond market (Brexit in 2016, French elections in 2017 and Italian budget negotiations in 2018).
The third paper proposes a network based explainable Artificial Intelligence model for measuring credit risk in P2P lending markets for Small and Medium Enterprises.
All three papers apply sophisticated technical tools to relevant policy questions. They nicely show the heterogeneity of relevant topics.

ABM:

1. Giudici, P. Pagnottoni, P. Polinesi, G. Network models to enhance automated cryptocurrency portfolio management (Focus: investment risk management). The authors provide an extension for the efficient portfolio allocation strategies of Markowitz model. They combine Random Matrix Theory and network measures to extract the portfolio weights that allow to enhance the risk-return outcome of portfolios that include volatile financial instruments such as cryptocurrencies.
2. Schwendner, P. Schule, M. Hillebrand, M. Convergence and Divergence in European Bond Correlations (Focus: market spillover risk management / sovereign risk). The authors use noise-filtered partial correlation influences to capture the time structure of the correlation matrix between the yield changes of the euro area government bonds. This time dependency is evaluated and visualized using network graphs.
3. Bussmann, N. Giudici, P. Marinelli, D. Papenbrock, J. Explainable AI in Credit Risk Management (Focus: credit risk management). The authors provide an explainable AI model for credit risk prediction that arise from using credit scoring platforms by SMEs. They apply similarity networks to Shapley values and group predictions based on similarities in the underlying explanatory financial characteristics variables.

ABM:

1.   Giudici, P. Pagnottoni, P. Polinesi, G. Network models to enhance automated cryptocurrency portfolio management (Focus: investment risk management). The authors provide an extension for the efficient portfolio allocation strategies of Markowitz model. They combine Random Matrix Theory and network measures to extract the portfolio weights that are able to enhance the risk-return outcome of portfolios that include volatile financial instruments such as cryptocurrencies.

2.   Schwendner, P. Schule, M. Hillebrand, M. Convergence and Divergence in European Bond Correlations. (Focus: market spillover risk management / sovereign risk). The authors use noise-filtered partial correlation influences to capture the time structure of the correlation matrix between the yield changes of the euro area government bonds. This time dependency is evaluated and visualized using network graphs.

3.   Bussmann, N. Giudici, P. Marinelli, D. Papenbrock, J. Explainable AI in Credit Risk Management. (Focus: credit risk management). The authors provide an explainable AI model for credit risk prediction that arise from using credit scoring platforms by SMEs. They apply similarity networks to Shapley values and group predictions based on similarities in the underlying explanatory financial characteristics variables.

Key aspects

The use cases touch upon some of the hottest areas of the domain.

The pillar would have had a greater success if a greater engagement across the three different groups of stakeholders would have been achieved.

Applying sophisticated technical tools, the use cases cover a diverse set of topics.

.6 Use Cases in the Blockchain Pillar

Use Case 1 - Initial Coin Offerings: risk or opportunity?

Use Case 2 - Are Cryptos becoming alternative Assets?

Use Case 3 - Libra or Librae? Basket based stable coins to mitigate foreign exchange volatility spillovers

Use Case 4 - Financial Risk Meter

Use Case 5 - Analysis of the cryptocurrency market applying different prototype-based clustering techniques

Use Case 6 - Cyber risk ordering with rank-based statistical models

ABM:

All material presented here reflects only the authors' view. The European Commission is not responsible for any use that may be made of the information it contains.

Blockchain has been considered by financial institutions and regulators one of the fundamental technologies for the future of risk management. Meanwhile, it raises questions given the still limited knowledge on blockchain-based business models such as whether the innovative product will expose company and market to new types of risk and if so how to measure and mitigate these risks. There are 6 use cases in the Blockchain pillar, which covers wide spectrum of blockchain risk management including e.g. fraudulent activities detection in Initial Coin Offerings (Toma and Cerchiello, 2020), stochastic behavior comparison between cryptos and other assets in tails, moment and memory factors (Pele, Wesselhoefft, Härdle, Kolossiatis and Yatracos 2020), construction of stable coin based on basket currencies or single currency (Giudici, Leach and Pagnottoni, 2020), development of systemic risk metric accounting for links and mutual dependencies between financial institutions (Mihoci, Althof, Chen and Härdle, 2020), partitional clustering and association analysis of cryptocurrency market (Lorenzo and Gallardo, 2021), risk management model for connected on-line ordinal cyber data (Giudici and Raffinetti, 2020). The studies provide both high quality methodological tools and comprehensive empirical evidence for researchers, professionals and regulators to understand and manage risks related to blockchain that will help to make a better decision while utilizing blockchain to drive efficiency in business activities and alleviate certain existing risks.

The use cases as well as replication codes are public available at https://github.com/danpele/FINTECH_HO_2020/,

References:

Toma, A. M. and Cerchiello, P. (2020). Initial Coin Offerings: Risk or Opportunity? *Frontiers in artificial intelligence*, *3*, 18.

Pele, D.T., Wesselhoefft, N., Härdle, W.K., Kolossiatis, M. and Yatracos, Y.G. (2020). Are Cryptos becoming alternative Assets? Working paper.

Giudici, P., Leach, T. and Pagnottoni, P. (2020). Libra or Librae? Basket based stablecoins to mitigate foreign exchange volatility spillovers. Working paper.

Mihoci, A., Althof, M., Chen, C. Y. H., and Härdle, W. K. (2020). FRM financial risk meter. In *The Econometrics of Networks*. Emerald Publishing Limited.

Lorenzo, Á. L. and Gallardo, J. A. (2021). Analysis of the cryptocurrency market applying different prototype-based clustering techniques. *Financial Innovation*.

Giudici, P., and Raffinetti, E. (2020). Cyber risk ordering with rank-based statistical models. *AStA Advances in Statistical Analysis*, 1-16.

ABM:

In comparisons to the other two pillars of the project, the third pillar addresses the youngest and perhaps the most dynamic of topics. The pillar touches on the uses and applications of blockchain, but with the focus on the tokens themselves, and their implications in finance. I like this aspect the most about the use cases, given that a lot of the literature has focused in this area on the technical aspects of blockchain or DLT. The accelerated growth of the token space is affecting the classical finance world in ways that are still being understood, and such use cases are of value and provide interesting insights. I find the code and deliverables provided with the use cases to be of value and applaud the team for all their efforts.

ABM:

The blockchain section contains six papers. The first paper looks into risks and opportunities of Initial Coin Offerings (ICOs). It uses statistical methods to detect fraudulent ICOs. The paper defines success of an ICO that the targeted hard cap for fundraising is reached. But as history has shown many ICOs have turned out to be "fraudulent" or have failed only after the ICO has been successful.

The second uses various classification techniques to distinguish crypto currencies from classical assets. Most variation can be explained by three factors (tail, moment, memory).

The third paper looks at the properties of the original Libra proposal to create a payment asset/currency that is stable vis-à-vis a basket of currencies such as the IMF's Special Drawing Right (SDR). Using VAR models the authors find that the currency basket is less volatile in case of exchange rate shocks than single currencies. While this finding isn't really surprising, it doesn't mean that the original Libra proposal would have appealed to consumers who are currently not exposed to exchange rate shocks (i.e. those whose income and expenditures are in the same currency).

The fourth paper proposes a new systemic risk measure accounting for links and dependencies between financial institutions. Such measures are highly relevant for banking supervisors for determining adequate capital requirements for times of systemic distress, e.g. in determining countercyclical capital buffers.

The fifth paper analyses cryptocurrency markets applying different clustering techniques. This research could allow investors in cryptocurrencies to detect big trends in the crypto market.

The last paper deals with cyber risks, an increasingly acknowledged risk in global financial markets. The paper provides a statistical model aimed at predicting the ordinal servery levels of cyber risks.

All use cases provide sound research on blockchain related topics. But they also show how quickly changes are happening. ICOs are essentially have turned into a marginal field due to entrepreneurial shortcomings or enforcement actions of market authorities. And of course, one would be very interested to learn how the recent boom and bust market for bitcoin and ether would have influenced the results.

ABM:

1. Toma, A. Cerchiello, P. Initial Coin Offerings: risk or opportunity? (Focus: operational risk management / fraudulent risk management) The authors use statistical approaches to detect the characteristics of ICOs that are significantly related to fraudulent behaviour to reduce illegal money raising. They use classical statistical classification models on structured data to determine if the ICO is a success, a failure, or a scam, in addition to using textual analysis on telegram chats.

2. Pele, D. Wesselhofft, N. Hardle, W. Kolossiatis, M. Yatracos, Y. Are Cryptos becoming alternative Assets? (Focus: market risk management / investment risk management) The authors use the dimensionality reduction technique of the Maximum Variance Components Split method to show that most of the variation among asset types can be explained by tail, moment and memory factors of their log-returns. Their findings classify cryptocurrencies as a separate asset class based on tail factors but show that cryptocurrencies have synchronic evolution.

3. Giudici, P. Leach, T. Pagnottoni, P. Libra or Librae? Basket based stable coins to mitigate foreign exchange volatility spillovers (Focus: market risk management / investment risk management). The authors empirically compare the advantage of a stablecoin that has a diversified currency basket, to the advantage of a stablecoin of a single currency. The authors first find the optimal weights of the currencies in the diversified basket, next they determine the foreign currency that drives the exchange rate of other currencies using the volatility spillover decomposition methods, finally they verify the stability of both stablecoins under currency shocks using VAR models and impulse response functions.

4. Mihoci, A. Althof, M. Chen, C. Hardle, W. FRM Financial Risk Meter (Focus: systemic risk management) The authors propose a Financial Risk Meter (FRM) based on Lasso quantile regression that is designed to capture tail event co-movements. They use FRM to indicate tail event behaviour

in a network of financial risk factors by accounting for links and mutual dependencies between financial institutions utilizing tail event information. The FRM focus is understanding active set data characteristics and the presentation of interdependencies in a network topology.

5. Lorenzo, L. Arroyo, J. Analysis of the cryptocurrency market applying different prototype-based clustering techniques (Focus: market risk management / investment risk management)

The authors aim is to help investors in understanding the main trends in the cryptocurrency market, and to select cryptocurrencies with different financial performance. For this purpose, they use three complementary different market perspectives based on three different partitional clustering algorithms, in addition to the perspective from the combination of the three clustering results. They finally enhance the clusters profiling by analyzing the association of the clustering results with other descriptive features of the cryptocurrencies.

6.Giudici, P. Raffinetti, E. Cyber risk ordering with rank-based statistical models. (Focus: operational risk management / cyber risks management). The authors aim is to provide a cyber-risk management model. For this purpose, they propose a rank-based statistical model aimed at predicting the severity levels of cyber risks. In the application of their model on ordinal cyber data from a real-world case, they show that the model simple to implement and interpret.

ABM:

1.   Toma, A. Cerchiello, P. Initial Coin Offerings: risk or opportunity? (Focus: operational risk management / fraudulent risk management). The authors use statistical approaches to detect the characteristics of ICOs that are significantly related to fraudulent behaviour to reduce illegal money raising. They use classical statistical classification models on structured data to determine if the ICO is a success, a failure, or a scam, in addition to using textual analysis on telegram chats.

2.   Pele, D. Wesselhofft, N. Hardle, W. Kolossiatis, M. Yatracos, Y. Are Cryptos becoming alternative Assets? (Focus: market risk management / investment risk management). The authors use the dimensionality reduction technique of the Maximum Variance Components Split method to show that most of the variation among asset types can be explained by tail, moment and memory factors of their log-returns. Their findings classify cryptocurrencies as a separate asset class based on tail factors but show that cryptocurrencies have synchronic evolution.

3.   Giudici, P. Leach, T. Pagnottoni, P. Libra or Librae? Basket based stable coins to mitigate foreign exchange volatility spillovers (Focus: market risk management / investment risk management). The authors empirically compare the advantage of a stablecoin that is linked to a diversified basket of currencies, with the advantage of a stable coin pegged to a single currency. The authors first find the optimal weights of the currencies in the diversified basket, next they determine the foreign currency that drives the exchange rate of other currencies using the volatility spillover decomposition methods, finally they verify the stability of both stable coins under currency shocks using VAR models and impulse response functions.

4.   Mihoci, A. Althof, M. Chen, C. Hardle, W. FRM Financial Risk Meter (Focus: systemic risk management). The authors propose a Financial Risk Meter (FRM) based on Lasso quantile regression that is designed to capture tail event co-movements. They use FRM to indicate tail event behaviour in a network of financial risk factors by accounting for links and mutual dependencies among financial institutions utilizing tail event information. The FRM focus is understanding active set data characteristics and the presentation of interdependencies in a network topology.

5.   Lorenzo, L. Arroyo, J. Analysis of the cryptocurrency market applying different prototype-based clustering techniques (Focus: market risk management / investment risk management). This research aims to help investors understanding the main trends in the cryptocurrency market, and to select cryptocurrencies with different financial performance. For this purpose, the authors use three complementary different market perspectives based on three different partitional clustering algorithms, in addition to the perspective from the combination of the three clustering results. They finally enhance the clusters profiling by analysing the association of the clustering results with other descriptive features of the cryptocurrencies.

6.   Giudici, P. Raffinetti, E. Cyber risk ordering with rank-based statistical models. (Focus: operational risk management / cyber risks management). This research aims to provide a cyber-risk management model. For this purpose, the authors propose a rank-based statistical model aimed at predicting the severity levels of cyber risks. In the application of their model to ordinal cyber data from a real- world case, they show that the model is simple to implement and interpret.

Key aspects

The use cases cover a wide area of aspects connected with the hottest technology of the moment.

The pillar touches on the uses and applications of blockchain, but with the focus on the tokens themselves, and their implications in finance and not on the technology itself.

The use cases provide sound research and their variety shows how quickly the changes are happening in the field.

Over 87 Suptech events and over 5000 registrations (participants)	*6 Research events and 519 registrations (participants)*	*6 Regtech events and 599 registrations (participants)*
Over 11 Spin-off events and over 20 other special events	*Over 13 podcasts and 940 views*	*Over 325 LinkedIn posts and 1160 followers*

---

events of the project, website and social media presence

ABM:

The Fintech Horizon2020 Project organized a series of influential activities, including 6 Research events, 6 Regtech events, 87 Suptech events and 11 Spin-off events. These events successfully attracted more than 3000 participants from more than 28 countries in Europe and International, with background of FinTech consortium partner, FinTech/Bank/Insurance company, national supervisor, international advisor/regulator and others. In addition, the project posted over 13 podcasts and 320 LinkedIn posts which attracted more than 1000 followers.

These events were consistent to the objectives such as monitoring the activity of the project, opening the activity of the project to international stakeholders and providing a discussion platform for the latest research and training activity conducted by the project partners. Simultaneously these

events attracted international attention on the fast development of FinTech risk management in EU.

These activities were very well organized and I enjoyed the insightful discussions and communications in the events I personally attended. Overall, the project was successful and reached to KPIs of e.g. dissemination to the academic community, through publications, workshops and via the website, and provided contributions to the scholarly community and professionals through the sup tech and spin-off events. I congratulate the project for its achievements.

ABM:

Overall, I find that the project team did a good job in maintaining a social media presence and a digital footprint. I observed several interesting posts by the project team, and also found the videos posted by the team to be very useful and informative. I only attended a few of the project events, but the research related events I did attend were well organized and provided a good mix of industry, academic, and regulator representatives. The events provided the opportunity for a meaningful dialogue across the three stakeholder groups to discuss the issues and potential solutions. The in person events were very successful, and the online events that were a result of the pandemic, were able to provide a decent compromise given the situation, and I applaud the project team efforts in making such a transition in a quick and relatively seamless way.

ABM:

Nothing to add regarding the events, website and the social media presence of the project.

ABM:

The project has a dedicated website that is user friendly; the contents are classified into main categories in a manner that is easy to follow and reach out, the videos are of good quality, the social media covered the events in a clear manner through main platforms such as LinkedIn and Twitter, the project repository on GitHub includes all the project documents, events, use cases, and dissemination files.

The stakeholders are provided an open platform for the project, and the workshops were conducted with the participation of a variety of interested stakeholders, including university participants, Fintechs and banks, international and national supervisors.

To achieve the planned goal of 87 Suptech events within the project to national supervisors of 29 EU countries, despite the interference of the COVI-19 pandemic, is impressive. Both the number and the scope of the organized SupTech events are valuable in terms of supporting the EU supervisory bords risk management practices. This achievement certainly reduced the gap across EU between FinTech technicalities and FinTech supervision by increasing the effectiveness of main SupTech supervision activities over data collection and data analytics. The training conducted for the supervisors is based on the USE-CASES developed by the project for BDA, AI and BC applications.

The availability of practical training sessions to both FinTechs and to banking institutions helped in validating the innovative technological models through the coding sessions from a RegTech perspective within BDA, AI and BC. The project reduced the mismatch at an international level between the speed of advancement in FinTech compared to RegTech advancement. Yet, this mismatch is not eliminated and is still obvious due to the disruptive nature of FinTech innovations and their models' validation impediments in comparison with the processes of the conventional

financial institutions. The validation training is based on the replication of the USE-CASES developed by the project for BDA, AI and BC applications.

The project goals included achieving 6 research workshops, out of which three were horizontal workshops with the purpose of developing use cases that satisfy the regulators priorities, and another three vertical workshops with the purpose validating the developed use cases. The research workshops were conducted by several EU participants.

ABM:

The project has built a user friendly website whose contents are classified into main categories in a manner that is easy to follow and reach out. The videos of this project are of good quality. The events of this project have been promoted in a clear manner through the main social media such as LinkedIn and Twitter. The project repository on GitHub includes all the project documents, events, use cases, and dissemination files.

The project has collaborated with several institutes, including Concordia, BDVA, SPARTA and Cybersecurity for Europe.

The stakeholders are provided an open platform for the project, and the workshops were organized with the participation of a variety of interested stakeholders, including university participants, Fintechs and banks, international and national supervisors.

The achievement of delivering the 87 planned Suptech events within the project to national supervisors of 29 EU countries, despite the interference of the COVI-19 pandemic, is impressive. Both the number and the scope of the organized SupTech events are valuable in terms of supporting the EU supervisory board's risk management practices. This achievement certainly reduced the gap between FinTech technicalities and FinTech supervision by increasing the effectiveness of main SupTech supervision activities over data collection and data analytics. The training conducted for the supervisors is based on the USE-CASES developed by the project for BDA, AI and BC applications.

The practical trainings for both FinTech companies and banking institutions helped validating the innovative technological models through the coding sessions from the RegTech perspective within BDA, AI and BC. The project reduced the mismatch at an international level between the speed of advancement in FinTech compared to RegTech advancement. Yet, this mismatch is not eliminated and is still obvious due to the disruptive nature of FinTech innovations and their models' validation impediments in comparison with the processes of the conventional financial institutions. The validation training is based on the replication of the USE-CASES developed by the project for BDA, AI and BC applications.

The project goals included organizing 6 research workshops, out of which three were horizontal workshops with the purpose of developing use cases that satisfy the regulators priorities, and another three vertical workshops with the purpose of validating the developed use cases. The research workshops were conducted by several EU participants.

Key aspects
Wide variety of events mixing all important stakeholders.

Good social media presence.

Videos provide useful information in a very accessible manner.