Edited by

Throstur Olaf Sigurjonsson
Alexander Kostyuk
Dmytro Govorun

VIRTUS INTERPRESS®

CORPORATE GOVERNANCE: PARTICIPANTS, MECHANISMS AND PERFORMANCE

Conference proceedings

Proceedings

of the

International Online Conference

"Corporate Governance: Participants, Mechanisms and Performance"

November 23, 2023

名誉 良心 高貴

Meiyo *Ryoushin* *Kouki*

Honor *Conscience* *Nobility*

VIRTUS INTERPRESS

VIRTUS INTERPRESS®

Published in Ukraine by Virtus Interpress

Virtus Interpress
Gagarina Str. 9, 311
Sumy, 40000
Ukraine
www.virtusinterpress.org

Sigurjonsson, T. O., Kostyuk, A., & Govorun, D. (Eds.). (2024). *Corporate governance: Participants, mechanisms and performance*. Virtus Interpress. https://doi.org/10.22495/cgpmp

Book Managing Editor — Olha Lytvynenko

ISBN 978-617-7309-25-2

Conference Editorial Committee:

CONTENTS

CORPORATE GOVERNANCE: THE ARTIFICIAL INTELLIGENCE'S CHALLENGE — A RESEARCH PROJECT

Andrea Fradeani *

* Department of Economics and Law, University of Macerata, Macerata, Italy

OPEN ACCESS

How to cite: Fradeani, A. (2024). Corporate governance: The artificial intelligence's challenge — A research project. In T. O. Sigurjonsson, A. Kostyuk, & D. Govorun (Eds.), *Corporate governance: Participants, mechanisms and performance* (pp. 103–108). Virtus Interpress. https://doi.org/10.22495/cgpmpp21

Received: 05.11.2023
Accepted: 13.11.2023
Keywords: Corporate Governance, Artificial Intelligence, Italian Listed Companies
JEL Classification: G34, M15, M41
DOI: 10.22495/cgpmpp21

Abstract

Artificial intelligence (AI) is an epochal challenge. We illustrate a research project concerning a particular field of its application: its use and its impacts in the accounting and business administration field and, more specifically, on corporate governance (CG). The research we want to carry out consists of four phases. The first consists of the analysis of the literature, in order to better understand AI *per se*, to have a concise overview of its use in the business administration field and then to deepen the main results of the work on its application in CG. The second phase will try to systematize, from a theoretical point of view, the main possible uses of AI in the field of CG and, with reference to each of them, will try to outline its potential and the most significant risks. The third phase will try to test this systematization in the field, through a sample of Italian listed companies, so as to understand whether, where and how practice corresponds to theory. Finally, the phase of conclusions, after summarizing the results obtained, will attempt to offer some reflections on the possibilities of AI to improve CG: a topic of absolute importance, both for the development of research and for operators and regulators who, in various capacities and with different tasks, are involved in this area.

1. INTRODUCTION

Artificial intelligence (AI) is an epochal challenge, especially considering four aspects: the universality of its applications, the pervasiveness of its effects, the speed of its development and its ethical implications. The creation and diffusion of software capable of analysing, learning, solving problems and making decisions in a similar way to human intelligence, but with a processing speed and storage capacity of different (and even increasing) order of magnitude, certainly opens up enormous opportunities but also brings significant threats. We are convinced that AI is an unstoppable revolution, with contours and perspectives that are difficult to define but that must be guided so that it represents an asset for humanity.

Our work will focus on a particular area of application of AI: its use and its impacts in the accounting and business administration fields and, more specifically, on corporate governance (CG). The research will not only be theoretical, but we will also look for answers to the considerations offered by investigating the Italian context and, in particular, that of listed companies. This choice is based on the assumption that the latter, compared to unlisted companies (even of comparable size), normally boasts administration and control systems that are not only of greater depth, by virtue of regulatory provisions, but also more inclined to evolution, a context (we refer to that of listed companies) in which it should be more likely to find significant applications of AI in the context of CG.

The research we want to carry out consists of four phases. We will start with an analysis of the literature in order to better understand AI *per se*, have a concise overview of its use in the accounting and business administration field and then deepen the main results of the work on its application in CG. We will then try to systematize, from a purely theoretical point of view, the main possible uses of AI in the context of CG, and, with reference to each of them, we will try to outline its potential and the most significant risks. We will, therefore, try to test this systematization in the field through a sample of Italian listed companies, so as to understand whether, where and how practice corresponds to theory. Finally, in the conclusions, we will not only summarize the results obtained but will also try to offer some reflections on the possibilities of AI to improve CG, a topic of absolute importance, not only for the development of research related to CG but also for operators and regulators who, in various capacities and with different tasks, are involved.

2. LITERATURE REVIEW

The literature review will be divided into three sequential phases. The first will concern AI alone. The aim is to better understand its notion and origin, its types and, in general, its potential and its most significant risks. We will, therefore, develop a framework that we believe is important not only to continue with the next phases but also to deal with concepts that belong to different fields of knowledge (e.g., mathematics, computer science, law, psychology and philosophy).

The second phase will concern the application of AI in the accounting and business administration fields. The aim is to offer a brief summary of the main research areas and their development trends. The basic idea is to identify, through one (or more) literature databases, the main scientific works in the accounting and business administration area that, thanks to specific search terms (e.g., "artificial intelligence" both in the title and in the keywords), deal with AI. From the first analysis, given the high number of contributions obtained through this type of query and given the aims of the work, it will be necessary to drastically limit the set of works that will be seen in more detail, for example, by weighting the relevance of the journals in which they are published, considering the number of their citations (bearing in mind, however, that this is a topic of recent development) and then analysing the abstract.

The third phase will concern the application of AI in the context of CG. The objective is to understand the degree of interest aroused by the topic, to appreciate the level of depth of the existing literature and to summarize the main conclusions reached by it. The scientific papers to be analysed will be identified, again through one (or more) of the above databases, with a search key that requires — this is the basic idea — the simultaneous presence of "artificial intelligence" and "corporate governance" in the title, in the abstract or in the keywords of the contributions. From a first analysis, given their small number, it will not be necessary to drastically limit the set of works that will be seen in more detail. We also point out the intention not to limit the query to the accounting and business administration area — also to satisfy our curiosity towards different points of view.

3. THE QUESTIONS AND THE THEORETICAL MAP

The first question we will ask ourselves refers to the main possible uses of AI in the context of CG. A first simplistic answer could refer to any human intellectual activity; it is no coincidence that one of the main fears is being replaced by AI, perhaps losing control of it to the limit of being controlled by it, in turn. We have already talked about the universality of the application of AI, but there are still technical limits (even if they appear destined, given its speed of development, to rapid and progressive degradation), economic, legal, and ethical. Supported by the analysis of the literature — we refer particularly to the results of the third phase mentioned above — we will try to identify and systematize the main applications of AI in the context of CG. Let us already imagine some elective categories, for example, reporting, management control, internal control systems and risk management. More intriguing is the application of AI to the interpretation of the environmental context and to the definition and evaluation of strategies to even arrive at top-down decision-making activities.

The second question we will ask ourselves concerns the potential and risks of the main applications of AI in the context of CG, as identified and systematized by answering the previous question. In other words, we will try to identify the main theoretical pros and cons of each possible use. Let us imagine right now that the potentials and risks identified could have significant similarities and transversality and are capable of facilitating the achievement of an initial systematization of their key characteristics.

By systematizing the results obtained by answering the two questions above, we would like to attempt to build a sort of map of the most promising applications of AI in the field of CG (i.e., those that could most contribute to the state-of-the-art and, from a theoretical point of view, to its improvement).

4. COMPARISON WITH A SAMPLE OF ITALIAN LISTED COMPANIES

The map of the application of AI in the context of the CG referred to in the previous point is not intended to be a mere theoretical exercise. Our goal is to test it in the field, albeit limited to the Italian context (in the future, we would like to extend the verification, thanks to the collaboration with other colleagues, to other countries to obtain more general results and evaluate the differences). Therefore, we will seek a comparison with a sample of listed companies with the idea, as already mentioned, that these are Italian companies, where it should be more likely to find significant applications of AI in the context of CG.

A questionnaire will be defined and aimed at acquiring three types of information: the degree of interest and involvement of the company with respect to AI, the main applications of AI within the framework of its CG and the main pros and cons found. Before administering it to the entire sample, we will try to improve the questionnaire in question through comparison with a small set of subjects operating in the CG of Italian listed companies.

The responses received from the listed companies in the sample will be processed to understand whether, where and how AI is really applied within their CG. It will be interesting to verify the existence of any recurrences, both in their uses and in their pros and cons, also for the purpose of developing a sort of map of the real main applications of AI in the context of CG — an actual map to be compared with the theoretical one developed previously, so as to evaluate and try to justify the differences found.

Another interesting aspect will be to try to identify some of the factors that can affect the adoption of AI in the context of the CG, for example, the sector of activity, business performance, the characteristics of the management or of the corporate control structure and national or international screening.

5. CONCLUSION

The research we have outlined has, in a nutshell, three main objectives. The first is to identify — also on the basis of the analysis of the literature — a map of the most promising applications of AI in the field of CG. The second is to understand, limited to the Italian case, those that can actually be found in the context of listed companies. The third refers to an attempt to offer reflections on the possibilities of AI to improve CG.

Ambitious goals must be confronted with risks and limitations. We mention just a few here: the complexity; multidisciplinarity and speed of evolution of the AI topic, which leads us to ask for the collaboration of other researchers; the issues related to the definition of the sample of listed companies (in terms, for example, both of its size and of the way in which its elements are chosen) and the number and quality of responses to the questionnaire administered.

What are the effects of research? To contribute to a strand of study on CG, the one related to the applications of AI, recently and (we believe) promising development and to offer useful guidance to companies and their advisors to face a challenge, that of AI, which also concerns the field of CG. Such guidance could also be of interest to regulators in guiding the application of AI within CG.

REFERENCES

1. Cui, X., Xu, B., & Razzaq, A. (2022). Can application of artificial intelligence in enterprises promote the corporate governance? *Frontiers in Environmental Science, 10*. https://doi.org/10.3389/fenvs.2022.944467
2. Davenport, T. H., & Ronanki, R. (2018). Artificial intelligence for the real world. *Harvard Business Review*, *2018*(January-February), 108–116. https://hbr.org/2018/01/artificial-intelligence-for-the-real-world
3. Eroğlu, M., & Karatepe Kaya, M. (2022). Impact of artificial intelligence on corporate board diversity policies and regulations. *European Business Organization Law Review, 23*(3), 541–572. https://doi.org/10.1007/s40804-022-00251-5
4. Grove, H., Clouse, M., Shaffner, L. G., & Xu, T. (2020). Monitoring AI progress for corporate governance. *Journal of Governance & Regulation, 9*(1), 8–17. https://doi.org/10.22495/jgrv9i1art1
5. Haenlein, M., & Kaplan, A. (2019). A brief history of artificial intelligence: On the past, present, and future of artificial intelligence. *California Management Review, 61*(4), 5–14. https://doi.org/10.1177/0008125619864925
6. Hanisch, M., Goldsby, C. M., Fabian, N. E., & Oehmichen, J. (2023). Digital governance: A conceptual framework and research agenda. *Journal of Business Research, 162,* Article 113777. https://doi.org/10.1016/j.jbusres.2023.113777

7. Hickman, E., & Petrin, M. (2021). Trustworthy AI and corporate governance: The EU's ethics guidelines for trustworthy artificial intelligence from a company law perspective. *European Business Organization Law Review, 22*(4), 593–625. https://doi.org/10.1007/s40804-021-00224-0
8. Hilb, M. (2020). Toward artificial governance? The role of artificial intelligence in shaping the future of corporate governance. *Journal of Management and Governance, 24*(4), 851–870. https://doi.org/10.1007/s10997-020-09519-9
9. McCarthy, J., Minsky, M. L., Rochester, N., & Shannon, C. E. (2006). A proposal for the Dartmouth summer research project on artificial intelligence, August 31, 1955. *AI Magazine, 27*(4), 12–14. https://doi.org/10.1609/aimag.v27i4.1904
10. Sacco Ginevri, A., Locci, L., & Kumar Jena, A. (2021). Artificial intelligence and corporate governance. *Law and Economics Yearly Review, 10*(2), 325–335. https://www.laweconomicsyearlyreview.org.uk/Law_and_Economics_Yearly_Review_LEYR_Journal_vol_10_part_2_2021.pdf
11. Shen, W. (2022). Analysis of the application of artificial intelligence technology in the protection of corporate governance rights and interests. *Frontiers in Psychology, 13*. https://doi.org/10.3389/fpsyg.2022.966689
12. Touring, A. M. (1950). Computing machinery and intelligence. *Mind, 59*(236), 433–460. https://doi.org/10.1093/mind/LIX.236.433

CORPORATE GOVERNANCE: THE ARTIFICIAL INTELLIGENCE'S CHALLENGE — A RESEARCH PROJECT

by Andrea Fradeani

Basma Bchennaty: Dear Andrea Fradeani, the topic of your paper is contemporary and attractive. I am particularly interested in the intersection of corporate governance and artificial intelligence.

Andrea Fradeani: Thank you Basma for your considerations. In fact, I believe that the impacts of artificial intelligence on corporate governance represent a really important and undiscovered issue.

Živilė Stankevičiūtė: Dear authors, I like your research idea. Your idea refers to revealing three types of information: the degree of interest and involvement of the company with respect to AI, the main applications of AI within the framework of its CG and the main pros and cons found. I suggest to include and ask also about the added value of the application of AI. What value can businesses generate with AI applications? What value can be created for employees in terms of their well-being? What value could be created for top managers and for customers?

Martino Agostini: Dear Andrea, the subject area is quite intriguing. I would suggest exploring AI and the role of the board of directors.

Andrea Fradeani: Thank you Živilė. I appreciate your suggestion. Trying to measure the value created by the application of artificial intelligence is an interesting and complex challenge, even more so if declined outside of the canonical economic-financial performance (you were also referring to social aspects, such as well-being of employees).

Thank you, Martino. I think that the theme you proposed can be investigated in various directions: the role and factors that can push the board of directors (BDs) to promote the adoption of artificial intelligence (AI); how AI can support BDs in its activities and choices; whether AI can support in the choice of BDs components; even, if AI can replace BDs. There are, of course, also legal issues and limitations.

Dmitriy Govorun: Hi Andrea and all! Welcome to the conference. I would like to thank you for sharing ideas on how you plan to investigate the Italian case of AI and CG connection. Actually, AI, CG, blockchain and related innovations are about or near transparency, reducing risks and in some cases transaction costs. So, basically, what is your vision/opinion on who should be a trendsetter in pushing the idea of AI implementation?

The next question was also mentioned by colleagues earlier. You gave an interesting answer about whether AI can replace a BD. What are your ideas on that? Should we expect to have enough legal ground that AI as an algorithm will reduce or exclude people from the decision/making or decision control?

Andrea Fradeani: Thank you Dmitriy for your considerations.

I believe that today ideas about AI are polarized: on the one hand, there are those who see it as an absolute danger to be avoided, on the other hand, there are those who consider it the solution to every problem. Obviously, I do not agree with the two extreme solutions, I believe that at the moment it is necessary to evaluate specifically the pros and cons of the single applications.

I believe that the push for a reasoned adoption of AI, aware of the opportunities but also of the risks, can come not only from operators (managers, consultants, etc.) but also from the academic world.

I come to the topic of BDs by AI. Although I do not believe it will happen in the short term, it is an issue that needs to be addressed. I don't have certainties, but I ask questions: who and how will develop the algorithms? Will the algorithms have to be made public (to investors, banks, and the market in general)? Who will be responsible for the management errors made? What role will the supervisory bodies play? Will the latter also be replaced by AI? Drawing a parallel with autonomous driving, will it be necessary, how and for how long "to keep human hands on the steering wheel"?

With this, I do not want to minimize the advantages of AI, which will have to be measured in some way concretely, but I would like to emphasise that AI will be a positive phenomenon (also in terms of maximizing the benefit/cost ratio) if its development and application will take place within the framework of precise rules and limits capable of taking into account (and minimizing) ethical issues, legal issues, etc.

Marco Venuti: Dear colleague, congratulations on the important research. In your research, do you plan to address the role of the learning machine in terms of AI applied to corporate governance issues? If you decide to address the role of machine learning in AI, I suggest you address the different types of machine learning and their limitations (biases).

Andrea Fradeani: Dear Marco, thank you for your considerations. Yes, the idea is to consider the application of AI in a broad sense and therefore also with reference to machine learning: I will carefully evaluate your suggestion.

Magdi El-Bannany: Dear Andrea, the research topic is important — I would like to refer to some queries:

- What prompted the characterization of artificial intelligence as an "epochal challenge", and how is it perceived within the accounting and business administration field?
- How does the literature review inform the subsequent phases of the research project?
- In offering reflections on the possibilities of artificial intelligence to improve corporate governance, what considerations will be given to the ethical, regulatory, and societal implications?
- Are there particular aspects of the Italian listed companies' landscape that may influence the generalizability of the research?

Andrea Fradeani: Dear Magdi, thank you first of all for the interesting considerations.

With reference to the first question, the idea that AI represents an "epochal challenge" is the result, first of all, of the intuitive perception of its best-known uses (I refer, for example, to generative AI, applied to the audio/video/photographic sectors, translation, autonomous driving, etc.) as well as to the four aspects that I mention in the introduction of the research project ("the universality of its applications, the pervasiveness of its effects, the speed of its development and its ethical implications").

Less clear, at least at present, is the perception of AI in the context of accounting and business administration (ABA) which, to be honest, I imagine is very much affected by the potential and results that have occurred in other areas such as those mentioned above. It is no coincidence that one of the goals of my work is to try to contribute to understanding the perception of AI in the context of corporate governance (CG).

On the role of literature for the development of research: in the second paragraph of the research project, I indicated three phases of analysis and their respective expectations. With reference to the last two phases, the goal is to understand the state of the art of AI research in both ABA and, the most interesting aspect, CG. This is also to theoretically identify the possible and most promising applications of AI to the CG, so as to compare them with those that will emerge from the field analysis (questionnaires referring to the sample of Italian listed companies).

Coming to the third question: the ethical and social implications are central. It is precisely regulation, which I believe is necessary, that will have to ensure that the development and applications of AI take due account of this.

With reference to the last question, the Italian context places limits on generalization, both in terms of the characteristics and number of listed companies and with reference to the regulatory and social context. My intention, in future works and with the collaboration of other colleagues, is to try to understand and overcome — by comparing it, for example, with contexts such as those of the USA, ASIA, Middle East — the problem you mentioned by trying to understand the (possible) differences and their motivations.

Khadija Al Arkoubi: Dear Dr. Fradeani, thanks for this insightful contribution. I find the three-phase structure of the literature review commendable, as it allows for a systematic exploration of AI, its applications in accounting and business administration, and its specific relevance to corporate governance. Also, acknowledging the interdisciplinary nature of AI by involving fields such as mathematics, computer science, law, psychology, and philosophy is a thoughtful approach. It reflects the diverse dimensions that AI encompasses and how it intersects with various domains of knowledge. I have a few questions for you:

1. How does the literature review plan to address ethical considerations associated with AI applications in corporate governance, especially considering the potential for loss of control and the fear of being controlled by AI?
2. Given the acknowledgment of AI's rapid development, how does the review plan to assess the currency of the literature and ensure that it reflects the latest advancements and challenges in the field?
3. Is there consideration for integrating case studies or practical examples in the review to illustrate how AI has been implemented in real-world corporate governance scenarios?

Adam Samborski: Dear Andrea, the issues you address are extremely interesting and topical. Artificial intelligence is basically everywhere. It assists our decision-making processes, helps us process information, generates alternative solutions to problems and shows us the possible consequences of specific decisions. So it is obvious that we are addressing the issues of artificial intelligence in the context of CG. It is developing so rapidly that our findings made today may no longer be relevant tomorrow. Hence, it is of utmost importance how we will explore the process of how artificial intelligence affects different areas of CG function.

Andrea Fradeani: Dear Khadija, thank you for your interesting thoughts.

One of the most complicated aspects of dealing with AI is its multidisciplinary nature. The problem also has an impact on the review of the literature which, given the objectives of the work and also my skills, will be oriented above all from the point of view of accounting and business administration sciences. This does not remove the need to refer — I am thinking of the ethical issue (a central theme if we talk about the cons of AI) — also to journals and conference proceedings in different fields: if necessary, I will try to compare myself with colleagues from my university who work in the philosophical field, also to better understand the literature sources to be analyzed.

With reference to the speed of development of knowledge on AI, I am aware of the need to use type of literature that are generally less used: so not only journals but also conference proceedings and working papers in the hope that they will allow me to grasp the most recent ideas.

Regarding the third question, I believe that much will depend on the answers received from the questionnaires relating to Italian listed companies. If, as I hope, interesting cases of the application of AI in the context of corporate governance emerge, I could develop a second paper dedicated to their illustration.

Dear Adam, thank you for your ideas. I agree with you: given the speed of evolution of AI, the obsolescence of parts (or the whole) of work is almost a certainty rather than a risk. However, this cannot curb curiosity and the need to investigate a phenomenon with such important prospects. I will carefully evaluate your considerations.

Loai Ali Alsaid: Dear Andrea, thank you for your manuscript. It is really interesting to integrate artificial intelligence (AI) into a corporate governance framework, especially given the current debate about the legitimacy of AI tools. However, to improve the quality of your empirical analysis, I suggest that you interpret the results through a specific theoretical framework or model. This will demonstrate your theoretical contributions to the literature, especially as the use of AI is seen as an emerging field in corporate governance. I wish you all the best with this interesting paper.

Andrea Fradeani: Dear Loai, thank you for your considerations, which I will evaluate for the development of my research.

Chan Du: Dear Dr. Fradeani, thank you for presenting the important and timely research on AI and corporate governance. I find your research on using a questionnaire to identify the possible uses of AI in the context of corporate governance and then identify the factors that affect the uses of AI in corporate governance very interesting. One of the related studies is Erel, Stern, Tan, and Weisbach (2021), which find that the members of board of directors selected using AI algorithms could outperform those actually selected by firms. I wonder if the questionnaire may include questions such as whether the companies have AI governance (rules, policies, procedures, etc.) in addition to the possible uses of AI in corporate governance as AI governance is a necessary component related to the uses of AI in corporate governance.

ISBN 978-617-7309-25-2