ENHANCING CORPORATE GOVERNANCE: A CONCEPTUAL APPROACH TO ARTIFICIAL INTELLIGENCE USAGE

Anacleto Correia [*], Pedro B. Água [*]

* CINAV, Escola Naval, Military University Institute, Almada, Portugal

OPEN ACCESS

How to cite: Correia, A., & Água, P. B. (2023). Enhancing corporate governance: A conceptual approach to artificial intelligence usage. In M. Tutino, V. Santolamazza, & A. Kostyuk (Eds.), *New outlooks for the scholarly research in corporate governance* (pp. 121–127). Virtus Interpress. https://doi.org/10.22495/nosrcgp23

Received: 24.05.2023
Accepted: 30.05.2023
Keywords: Artificial Intelligence, Corporate Governance, Data Science, Ethical Decision-Making, Organizational Ethics, Transparency
JEL Classification: G34, C81, M15, K22, O33
DOI: 10.22495/nosrcgp23

Abstract

In this exploratory study, we examine the intersection of corporate governance (CG) and artificial intelligence (AI), addressing the essential question: how can AI be utilized to improve ethical and transparent decision-making in the corporate endeavour? Using current research on organizational governance, AI ethics, and data science, our study examines the potential of AI to augment conventional governance mechanisms, as well as the ethical dilemmas and challenges it may present. We propose a conceptual framework based on the principles of separation of ownership and control while considering data ethics, which will be supported and validated in the future by an empirical study.

1. INTRODUCTION

Corporate governance (CG) is a vital mechanism for ensuring the efficient functioning and ethical conduct of corporations (Tricker, 2015). It involves the structures, processes, and rules that control and direct corporations, with the aim of balancing the interests of a company's broad stakeholders set (Freeman, 1984). However,

numerous cases of corporate mismanagement and scandals, such as Enron, WorldCom, or Volkswagen, underscore the persistent challenges and the need for further enhancement of CG mechanisms (Park, 2019; Jensen, 2001). The ongoing digital transformation presents an opportunity to rethink and reinvent CG, with the emergence of powerful technologies such as artificial intelligence (AI) (Brynjolfsson & McAfee, 2014). AI has the potential to disrupt traditional business models and introduce novel approaches to management and decision-making, but its application in CG remains under-explored and its implications under-theorized (Mikalef et al., 2019).

AI has the potential to enhance decision-making by providing valuable insights from large volumes of data, automate certain governance processes, reduce human error and bias (Água & Correia, 2021; Água & Correia, 2022), and improve efficiency (Myatt, 2007). However, its ethical implications include issues related to privacy, fairness, and accountability (Russell et al., 2015). AI systems have the potential to infringe on privacy and make decisions that are not fair or unbiased (Castelvecchi, 2016). To address these challenges, there is a need for a comprehensive framework for leveraging AI in CG, which balances the potential benefits and ethical and transparency issues. This study aims to develop a comprehensive AI-based CG framework to explore how AI can be leveraged to enhance CG, identify the potential ethical and transparency issues that could arise from the use of AI in CG, and propose strategies for mitigating these issues.

2. BACKGROUND

Agency theory, originally proposed by Jensen and Meckling (1976), has been the dominant theoretical framework in corporate governance research for decades. It postulates that in modern corporations, there exists a separation of ownership and control, where the owners (principals) delegate the management of the corporation to the managers (agents). This separation gives rise to agency problems due to the divergence of interests between the principals and agents, which can lead to issues such as moral hazard and adverse selection. To mitigate these problems, various corporate governance mechanisms have been put in place, such as board supervision, performance-based compensation, shareholder voting rights, and external audits (Fama, 1980; Jensen & Meckling, 1976). However, these mechanisms have their limitations, such as human bias, subjectivity, lack of transparency, and inadequate oversight.

AI techniques have the potential to help overcome these limitations, as they simulate human intelligence processes by machines, especially computer systems (Russell & Norvig, 2016). AI has gained significant attention in business research and practice due to its potential to transform various aspects of business operations, such as decision-

making, process automation, customer service, and strategy formulation (Brynjolfsson & McAfee, 2014). AI can enhance decision-making by providing valuable insights from large volumes of data, reducing human error and bias, and providing predictive analytics based on comprehensive data analysis (Davenport & Ronanki, 2018). AI can also automate routine tasks, freeing up human resources for more strategic and creative tasks (Goodfellow et al., 2016). However, there is a paucity of research that systematically investigates this potential.

A few studies have started to explore this area, but their focus has been on specific aspects of CG (Mikalef et al., 2019; Yoo et al., 2018). However, these studies do not provide a comprehensive framework for leveraging AI to enhance CG, nor do they thoroughly address the ethical and transparency issues that could arise from such usage. The application of AI in decision-making and process automation also raises significant ethical and transparency issues (Crawford, 2016). The ethical and transparency issues associated with AI have been increasingly recognized as critical challenges that need to be addressed. These issues include privacy, fairness, transparency, and accountability (Castelvecchi, 2016). Privacy issues arise from the extensive data collection and processing involved in AI systems, fairness issues arise from potential biases in AI systems, transparency issues arise from the opaque decision-making process of AI systems, and accountability issues arise from the difficulty of attributing responsibility for the decisions made by AI systems.

Agency theory provides a valuable theoretical foundation for understanding the role of AI in CG, but the successful integration of AI into CG requires a thoughtful and balanced approach that takes into account both the potential benefits and the ethical and transparency considerations. While AI holds significant promise for enhancing CG and mitigating agency problems, it also needs a comprehensive framework that balances the potential benefits and challenges and ensures ethical and transparent AI use.

3. PROPOSAL

The previous section reveals a gap in the existing research on the intersection of AI and CG. To develop a comprehensive framework that integrates AI into CG and addresses the associated ethical and transparency issues, it is necessary to conduct empirical research that explores how AI can be leveraged to enhance CG, and how the ethical and transparency issues can be mitigated. The proposed framework should address several key aspects of CG, such as board structure and processes, executive compensation, shareholder rights, and corporate accountability and transparency. It should also take into account the specific characteristics and capabilities of AI, such as machine learning, predictive analytics, and decision automation, and provide

guidance on how to leverage these capabilities to enhance CG and address the associated challenges.

The AI-based CG framework proposed in this work comprises the following five key aspects: board structure and processes, executive compensation, shareholder rights, corporate accountability, and corporate transparency. The framework is flexible and adaptable and can be tailored to the specific characteristics and needs of different types of corporations and different contexts. It also recognizes the dynamic nature of AI technologies and the need for continuous learning and adaptation. The proposed AI-based CG framework is flexible and adaptable and can be tailored to the specific characteristics and needs of different types of corporations and different contexts.

The AI-based corporate governance framework is a framework that encourages corporations to regularly update their AI strategies and practices in response to technological advancements and changes in the business and regulatory environments. It focuses on the intersection of AI and CG and its key aspects, such as board structure and processes, executive compensation, shareholder rights, corporate accountability, and corporate transparency (see Figure 1).

Figure 1. AI-based corporate governance framework

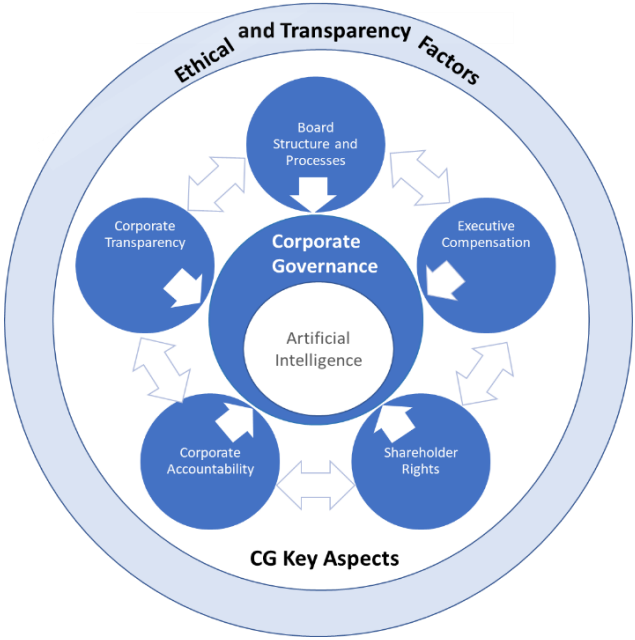

Figure 1 depicts the overall representation of the AI-based CG framework and its components:

- *AI in corporate gove*rnance: the central focus of the framework is given by the intersection of AI and CG (central circle).
- *Key aspects of corporate governance*: around the central circle are surrounding circles, each representing a key aspect of CG that can be enhanced by AI.
- *Integration of AI*: each one of the key aspects of CG can be enhanced via AI integration (represented by arrows connecting surrounding circles to the central circle).
- *Dynamic nature of the framework*: this behaviour is suggested by the impact originated by each key aspect of CG on the other key aspects, due to the AI effect (arrows between the key aspects of CG).
- *Ethical and transparency factors*: provides guidance on how to ensure the ethical use of AI in CG. It involves implementing data privacy policies, conducting fairness audits, using explainability tools, and establishing accountability structures (Russell et al., 2015) (outer layer surrounding the entire figure).

To test hypotheses about the claimed relationships, correlational studies should be conducted using samples of several corporations from various industries. The goal is to gather vital information regarding the level of AI integration within a company's governance procedures and to account for potential confounding factors such as industry, company size, and geographical location. The mediation analysis could be used to investigate the process by which a variable (the mediator) influences the relationship between two other variables (the independent and dependent variables). The mediation analysis involves testing whether the indirect effect of the independent variable on the dependent variable through the mediator is significant. The mediation analysis of AI's integration into CG can be illustrated by a model consisting of an independent variable (X — AI's integration into CG), mediators (M — board structure and process, executive compensation, shareholder rights, corporate accountability, and corporate transparency), and a dependent variable (Y — corporate performance). The mediation analysis would involve the following steps: regressing the mediators (M) on the independent variable (X), regressing the dependent variable (Y) on the independent variable (X), and regressing the dependent variable (Y) on both the independent variable (X) and the mediators (M). The indirect effect of AI's integration into CG on corporate performance through the mediators would be considered significant if the confidence intervals do not contain zero. The actual mediation analysis may involve more complex statistical techniques depending on the nature of the data and the research questions. It will be important to interpret the results of mediation analysis in light of the theoretical underpinnings of the proposed framework and the literature on AI and CG.

4. CONCLUSION

This research aimed to promote the transformative potential of AI for CG and the need for an ethical and transparent approach. It proposed an AI-based CG framework that provides a balanced approach to leveraging AI in CG, integrating AI into decision-making and governance processes, while also addressing the ethical and transparency issues. Future research should delve deeper into the ethical and transparency issues, such as testing the proposed framework, conducting larger and diverse interviews, using detailed and comprehensive data sets, and developing specific ethical and transparency guidelines and mechanisms.

Acknowledgements: The Authors would like to acknowledge the Portuguese Navy Research Centre, CINAV, for its support.

REFERENCES

1. Água, P. B., & Correia, A. (2021). Mind bias behind board decision-making. In K. M. Hogan & A. Kostyuk (Eds.), *Corporate governance: Fundamental and challenging issues in scholarly research* (pp. 15–20). Virtus Interpress. https://doi.org/10.22495/cgfcisrp2
2. Água, P. B., & Correia, A. (2022). A research agenda on de-biasing the board. In G. M. Mantovani, A. Kostyuk, & D. Govorun (Eds.), *Corporate governance: Theory and practice* (pp. 16–21). Virtus Interpress. https://doi.org/10.22495/cgtapp2
3. Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W. W. Norton & Company.
4. Castelvecchi, D. (2016). Can we open the black box of AI? *Nature News, 538*(7623), 20–23. https://doi.org/10.1038/538020a
5. Crawford, K. (2016, June 25). Artificial intelligence's white guy problem. *The New York Times*. https://www.nytimes.com/2016/06/26/opinion/Sunday/artificial-intelligences-white-guy-problem.html
6. Davenport, T., & Ronanki, R. (2018). Artificial intelligence for the real world. *Harvard Business Review, 96*(1), 108–116. https://www.hbsp.harvard.edu/product/R1801H-PDF-ENG
7. Fama, E. F. (1980). Agency problems and the theory of the firm. *Journal of Political Economy, 88*(2), 288–307. https://doi.org/10.1086/260866
8. Freeman, R. E. (1984). *Strategic management: A stakeholder approach.* Pitman.
9. Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep learning*. MIT Press.
10. Jensen, M. C. (2001). Value maximization, stakeholder theory, and the corporate objective function. *Journal of Applied Corporate Finance, 14*(3), 8–21. https://doi.org/10.1111/j.1745-6622.2001.tb00434.x
11. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

12. Mikalef, P., Boura, M., Lekakos, G., & Krogstie, J. (2019). Big data analytics and firm performance: Findings from a mixed-method approach. *Journal of Business Research, 98*, 261–276. https://doi.org/10.1016/j.jbusres.2019.01.044
13. Myatt, G. J. (2007). *Making sense of data: A practical guide to exploratory data analysis and data mining*. John Wiley & Sons. https://doi.org/10.1002/0470101024
14. Park, S. K. (2019). Social responsibility regulation and its challenges to corporate compliance. *Brooklyn Journal of Corporate, Financial & Commercial Law, 14*(1), 39–52. https://brooklynworks.brooklaw.edu/bjcfcl/vol14/iss1/6/
15. Russell, S., & Norvig, P. (2016). *Artificial intelligence: A modern approach*. Pearson Education.
16. Russell, S., Dewey, D., & Tegmark, M. (2015). Research priorities for robust and beneficial artificial intelligence. *AI Magazine, 36*(4), 105–114. https://doi.org/10.1609/aimag.v36i4.2577
17. Tricker, R. I. (2015). *Corporate governance: Principles, policies, and practices*. Oxford University Press.
18. Yoo, Y., Boland, R. J., Jr., Lyytinen, K., & Majchrzak, A. (2018). Organizing for innovation in the digitized world. *Organization Science, 23*(5), 1398–1408. https://doi.org/10.1287/orsc.1120.0771