CORPORATE GOVERNANCE AND BLOCKCHAIN: SOME PRELIMINARY RESULTS BY A SURVEY

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Abstract

Blockchain technology can influence various aspects of the business even if empirical studies are still lacking to estimate the effective application of technology on corporate governance. Beyond its scientific-practical trendiness, blockchain should not be a matter of "if", but a matter of "how" organizations are willing and able to integrate blockchain practices into their vision of the future, with ways to manage shareholders issues down to regular operations reaching and managing different levels of activism. It seems almost paradoxical that still not all companies subscribe to the "next best practice". Therefore, this paper aims to answer the following research question: What is the expected impact of blockchain technology on corporate governance? The purpose of this study is to provide a starting point for research that can be used for further examination of these aspects.

1. INTRODUCTION

Blockchain technology and the underlying distributed database technologies are "the key technological enablers of recent developments in distributed transaction and ledger systems" (Lindman et al., 2017, p. 1535). It is a new paradigm bound to revolutionize the economic system,

modifying at the base the concepts of transaction, property and trust. Originally developed as a technology for recording cryptocurrency transactions (Nakamoto, 2008), blockchain technology has evolved in a large number of applications and in different sectors: from banks and insurance companies to financial markets, via voting systems (Dai & Vasarhelyi, 2017; Tarasov & Tewari, 2017; Risius & Spohrer, 2017; Holub & Johnson, 2017; Guo & Liang, 2016).

Blockchain technology can influence various aspects of the business even if empirical studies are still lacking to estimate the effective application of technology on corporate governance (Esposito De Falco & Cucari, 2018). Recently, Yermack (2017) tried to investigate the impact that the effective application of blockchain technology could have in modifying and reformulating the basic principles of corporate governance. Blockchain technology can simplify the adhesion of companies to the recent regulatory changes introduced by the Shareholder Right Directive (EU Directive 2017/828) through a more direct identification of the persons entitled to vote; greater transparency in the procedures and mechanisms of voting by institutional investors and their service providers.

Based on these assumptions, we maintain that some future positive impact is possible and a formula is provided for what blockchain could be represent for corporate governance. Beyond its scientific-practical trendiness, blockchain should not be a matter of "if", but a matter of "how" organisations are willing and able to integrate blockchain practices into their vision of the future, with ways to manage shareholders issues down to regular operations reaching and managing different levels of activism. It seems almost paradoxical that still not all companies subscribe to the "next best practice". Therefore, this paper aims to answer the following research question: What is the expected impact of blockchain technology on corporate governance?

The research builds on survey approach. Survey approaches may be used to access qualitative data not available through archival datasets (Filatotchev & Wright, 2017) and provide information obtained directly from the participants of board processes (Bednar & Westphal, 2006). In total, 47 respondents from different countries have agreed to take part in the survey.

The results indicate that areas that will be more impacted by the use of blockchain technology in the long term, will be the process of record ownership, proxy voting and turnout rate, according to the members of the board; while, according to institutional investors, the greatest impacts will be on increasing market liquidity and transparency.

Since blockchain technology is rapidly expanding, our main intent is to deepen our collective understanding of where the corporate governance literature on blockchain is at present and suggest a few promising research avenues for corporate governance scholars.

The remaining part of this paper is organized as follows: Section 2 outlines the main literature. Section 3 explains the methodology used for our analysis, whereas Section 4 presents the findings, both the effects of blockchain and the challenges to be overcome. Section 5 discusses the results, implications and concludes.

2. MAIN LITERATURE REVIEW

There is a lot of interest in emerging technologies in the corporate governance area but there is much less agreement on what the digital transformation means for the future of business models and organization, as well as corporate governance (Fenwick & Vermeulen, 2018).

Blockchain technology, from a purely technical point of view, could lead to greater transparency by allowing real-time monitoring by shareholders, with a consequent strengthening of their role in board decisions. One example, albeit still ongoing, on the shareholders' vote is the Delaware Blockchain Initiative (DBI), under which, the Delaware lawmakers explicitly authorize the tracking of issues and transfers of shares on a distributed ledger. According to the Director of the DBI *"if shares are registered on a distributed ledger, investors and issuers would be able to interact directly. Property rights would be crystal clear. (...) Proxies would be transparent and always accurate (...) Securities lending records would always be accurate, I know accidental over-issue of securities would never happen"*[1] .

The electronic vote could therefore be revolutionized by Ethereum (Wood, 2014), which differs from Bitcoin since it acts as a generic platform, based on blockchain, for the creation of customized functions in the form of smart contracts (Tarasov & Tewari, 2017).

Even the Annual General Meeting (AGM) and its functions could be modified by the use of the blockchain (Van der Elst & Lafarre, 2017). In a private blockchain, managed by the company accessible only to shareholders, the company and shareholders holding sufficient shares could submit proposals, and the forms of "smart contracting" would allow shareholders to be promptly informed and above all to exercise their voting rights in a short time. In this way, blockchain technology would not only substantially reduce voting and meeting costs, but would also offer faster business decision making. According to Lafarre and Van der Elst (2018, p. 18), organizing a blockchain-based AGM only would decentralize the AGM in two ways: shareholders can participate in a decentralized blockchain network environment and the centralized yearly nature of the current AGM can be abrogated because voting items can be placed in the blockchain, and shareholders can be notified

[1] https://corpgov.law.harvard.edu/2017/03/16/delaware-blockchain-initiative-transforming-the-foundational-infrastructure-of-corporate-finance/"Delaware Blockchain Initiative: Transforming the Foundational Infrastructure of Corporate Finance" in Harvard Law School Forum on Corporate Governance and Financial Regulation. Tinianow A., 16 March 2017.

accordingly, at any time.

In addition, blockchain technology offers potential advantages in terms of cost, speed and data integrity compared to classical recording ownership methods (Yermack, 2017). The use of blockchain technology could solve many problems related to the inability of companies to keep accurate and timely records of who owns their actions. This problem is also found in the field of equity crowdfunding, where one of the biggest problems is the lack of an effective way for investors to participate in corporate governance (Zhu & Zhou, 2016).

Transparency in the identity of investors would also have effects on the exchange of shares and on market liquidity. With the blockchain, institutional investors could be facilitated to carry out "exit" actions to the detriment of "voice" actions. In fact, shareholders (and in particular activists), could take advantage of lower trading costs for faster acquisitions and liquidate their positions more easily (albeit more transparently)

The blockchain technology would allow greater engagement during the Annual General Meeting facilitating and improving the shareholder voting chain. This topic is at the center of the debate in view also of the application of the Shareholder Rights Directive (2007/36/EC) – which was amended by Directive (EU) 2017/828 – which among the new features includes: Shareholder identification, transmission information, facilitating the exercise of shareholder rights, non-discrimination, proportionality and cost transparency, transparency of asset managers.

As said by Tarasov and Tewari (2017), blockchain has introduced a new way to construct secure systems which have less inherent security issues present within the systems. Consequently, a blockchain being one of the main elements present in a hybrid electronic voting scheme (Bradbury, 2014)

All legislative innovations on which blockchain technology can potentially impact because it is undoubtedly a technology that can facilitate the identification of shareholders and ensure electronic participation (Lafarre & Van der Elst, 2018). In this way, it can help to improve the relationship between the proxy and the shareholder. As Piazza (2017) already points out, proxy voting, although it has allowed shareholders to participate in the assembly, has also created problems regarding the effective registration and manipulation of the proxy. The implementation of the blockchain could solve these problems, given its level of accuracy and reliability. Furthermore, expressing oneself in the assembly is expensive for investors therefore blockchain can make participation less costly and ensure that the interests of the beneficiaries are reflected in the voting decision of institutional investors and asset managers with benefits for all shareholders. According to Lafarre and Van der Elst (2018, p. 18), with the blockchain technology, remote voting "manner becomes yet more transparent and reliable and thus further reduces the transaction costs to shareholders, which further stimulates (small) shareholder participation rates".

Finally, according to Kaal (2017) blockchain technology could lead to a decentralized governance model in which the classical internal and external monitoring mechanisms required to solve agency problems are no longer needed. Blockchain technology may offer a solution to the agency problem and its related costs (Lafarre & Van der Elst, 2018). The supervisory tasks traditionally performed by the "principal" to control the "agent" could be delegate to decentralized computer networks highly reliable, secure, immutable and independent from fallible and discretionary human inputs.

To sum, blockchain technology could provide a new and alternative governance mechanism that can reduce agency costs and create greater trust in the contractual relationship between the principal and the agent, thereby increasing efficiency in the relationship agency.

However, the possible adoption of the blockchain within the company raises doubts about its environmental impact, according to the dictates of corporate sustainability (Lozano, 2015). The literature is already questioning the environmental impacts of bitcoin and blockchain technology, with contrasting results (Vranken, 2017; Giungato et al., 2017; Dalal, 2014).

For example, an analysis of the Motherboard site estimated that a single bitcoin transaction requires 215 kilowatts of processing power (the equivalent of what an average American family consumes in a week). Remy Briand, head of ESG for MSCI index creator, says: "*If we assume that consumption will continue to increase roughly in line with the bitcoin price (...) then we could end up in a few years where the electricity consumption of bitcoin mining would be equivalent to a country like the Netherlands or Switzerland".*

The adoption of a technology that is not sustainable from an environmental point of view could create embarrassing situations for institutional investors, who are becoming more aware and attentive to ESG (Environmental Social Governance) factors when they decide to allocate their assets (Luo et al., 2015).

3. RESEARCH DESIGN

Principal aim of our study is to examine which expectation is associated with blockchain technology among board of directors and institutional investors. To do so, we performed a survey among 47 respondents, asking them to provide details about their expectation. Our online survey was distributed between November and December 2018 with the help of 2 organizations (Governance Advisors[2] and Virtus Interpress[3]). Respondents were sourced via mailing lists and social media channels. The questionnaire was structured in two macro sections, each of which is specific for the category to which it belongs, "board members" or "institutional investors" category. For both categories, an initial question

[2] Consulting company on corporate governance and business management.
[3] Publishing house with expertise and global perspectives in corporate governance.

was made to verify the confident that the respondents have about the blockchain technology and whether it is used or not within the company where they work or have worked. A sample of representative questions for each category is listed below[4].

For the board members, it was decided to investigate: i) the effects of the blockchain technology on the record ownership ii) on the record date process; iii) effects on the shareholders' meeting from both a procedural and a functional point of view; iv) on the balancing of powers between board and shareholders and between majority shareholders and minority shareholders.

For the institutional investors, it was decided to investigate i) on the current economic system based on the intermediation of third parties; ii) on the increase in liquidity and investments in the markets deriving from the use of technology; iv) on the balancing of powers between board and shareholders and between majority shareholders and minority shareholders.

4. FINDINGS

28 members of the board of directors and 19 members of institutional investors have responded to the survey (Table 1). 42% of responses come from Italy, followed by Great Britain (13%) and the United States (11%) and other countries (16%).

Table 1. Sample

	Member of Board	*Institutional Investor*	*Total*
Listed	15	8	23
Not Listed	13	11	24
Total	28	19	47

In order to analyze the answers from respondents who have a medium-high knowledge of technology, only those who have declared a medium-high degree of confidence have been considered.

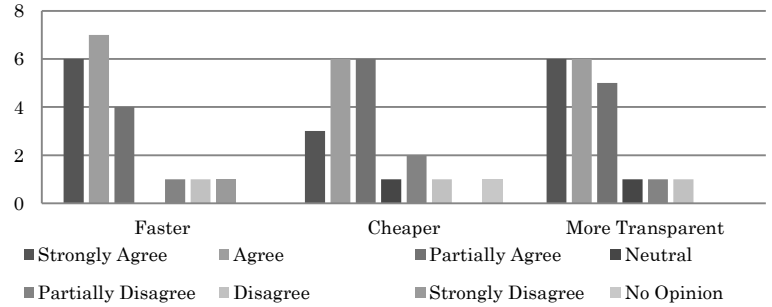
Thus, first, the results of the "members of board" (20) are presented; second, the results of the institutional investors (8).

Regarding the process of Record Ownership, Figure 1 highlights how the respondents agree that the use of blockchain in the process of Record Ownership will increase the speed in disposing of their actions, eliminating the third parties involved in the process, will decrease costs and will increase the speed of the process.

With regard to the functioning of the Shareholders' Meeting (Figures 2 and 3), the following results were expected according literature: reduction of management and establishment costs; reduction of data manipulation, such as counting and recording of votes; greater transparency, thus increasing the information available to shareholders.

[4] The questionnaire is available from the authors upon request.

Figure 1. Record ownership



In Figure 2, it is possible to see how the respondents said they were neutral with respect to the possible impact of the blockchain on the corruptibility to which the shareholders' meeting is subject, although the improvements in the counting and voting registration processes show positive trends. This highlights a lack of confidence on the part of the respondents regarding the immutability provided by this tool.

Figure 2. Improvement on shareholders general meeting

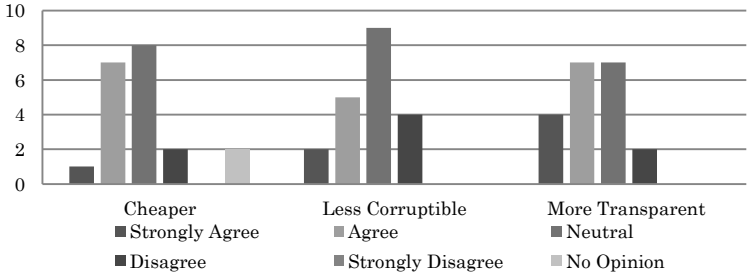
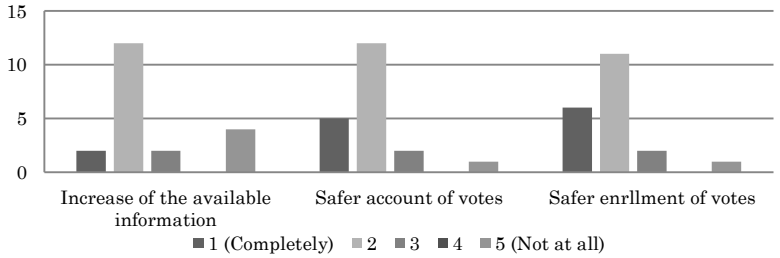
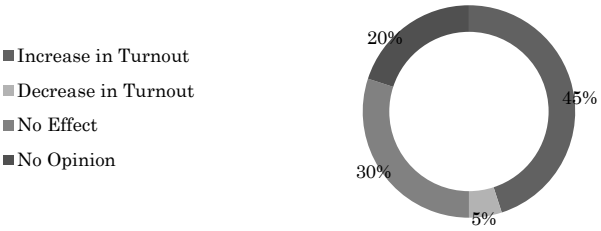


Figure 3. Most influenced process on the shareholder general meeting



Focusing on the voting process (Figure 4) the literature believes that the implementation of the blockchain can lead to an increase in the turnout rate in the AGM, given the lower costs (Van der Elst & Lafarre, 2017).

Figure 4. Voting process – turnout rate



On this point, 45% of the interviewees agreed with an increase in participation, despite the 30% of the opinion that there can be no effects. In addition, we believe that the blockchain can improve the shareholders' meeting and the processes that take place within it, making the firm a more flexible organization, with a more transparent management and able to respond to ever-changing market needs.

Figure 5 confirms that blockchain is a tool that increases the transparency and circulation of information both inside and outside companies. This will eliminate the information asymmetries, thus solving the agency's problem both in the case of a principal-agent conflict and in the case of a conflict between principal and Principal.

Based on this, we expect a new balance of powers between different categories of actors: shift of power towards the shareholders with respect to the Board-Shareholder conflict (Figure 6); shift of power to minority shareholders regarding the majority-minority shareholder conflict (Figure 7).

Figure 5. Effects on shareholder meeting

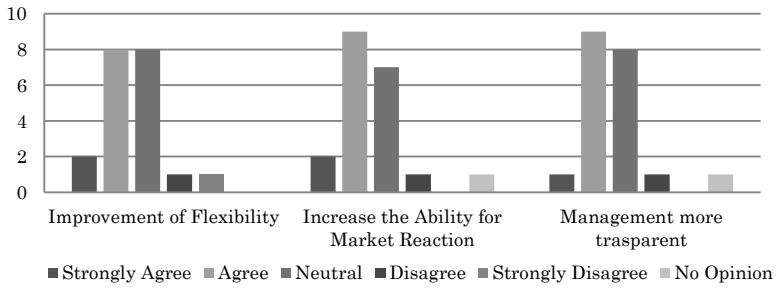


Figure 6. Balance of power between board-shareholders

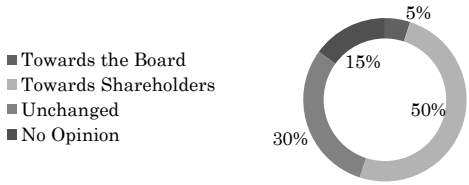
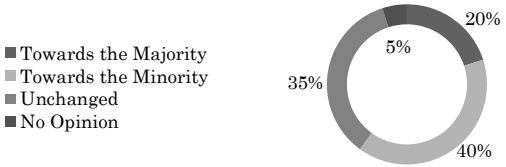


Figure 7. Balance of power between majority and minority

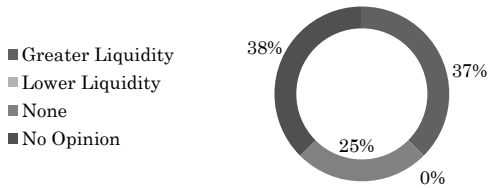


According to Figure 6 and Figure 7, it is possible to fully confirm that in the case of the conflict between principal and agent (Figure 6), 50% of respondents believe that there may be a shift of powers towards shareholders, although a 30% believe that the blockchain can not alter the balance currently existing. Figure 7 shows the conflict between principal and principal; in this case, although 40% agreed with a shift of power to minorities, 35% believe that there will be no effect and as many as 25% of the opinion that power will shift to majorities. In the light of these results, it is possible to state that the blockchain is able to mitigate the conflict between Board and Shareholders, which can not be asserted in the case of the conflict between majorities and minority shareholders.

Regarding the section dedicated to investors, first, we can note how the percentage of respondents who said they have a medium-high knowledge of technology is lower (42% vs. 71%).

A first hypothesis advanced in the literature is the greater liquidity of the financial markets caused by the use of this technology.

Figure 8. Market liquidity

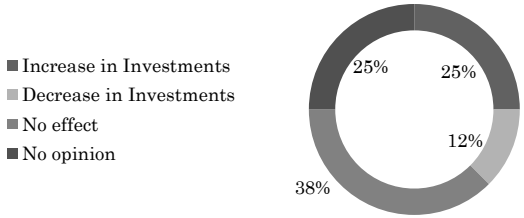


38% of respondents (Figure 8) did not say anything about it, 25% believe that there can not be an increase in liquidity through the use of this technology, while 37% believe they agree with an increase in liquid assets.

In Figure 9, it can be seen how, even about the effects on investments of institutional investors, there are conflicting opinions that do not allow highlighting net and significant trends.

The most relevant data is the percentage of those who gave the answer "No Effect", representing 38%. This does not allow clarifying the debate that arose in the literature on the possible effects of the blockchain on the investments of institutional investors.

Figure 9. Effects on the institutional investors



Regarding behavior for activist investors, 50% of respondents (Figure 10) are of the opinion that Activist Investors will increase their investments as a result of blockchain, against 25% of those who believe that there can be no effects and a further 25% who did not express an opinion.

More in detail, 50% of respondents have the opinion that the most used strategy will be that of "Voice" in spite of a 12% that is said to be more inclined towards "Exit" strategies (Figure 11).

Figure 10. Effects on the activists

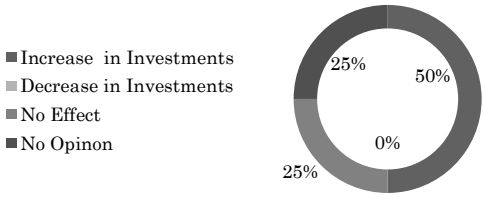
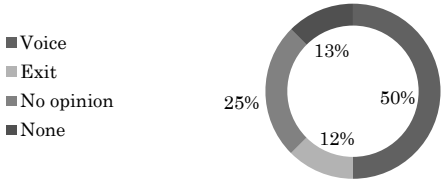


Figure 11. More attractive strategy for activist



Finally, it was asked whether the blockchain could diminish the information asymmetries, both between principal and agent (Figure 12) and between principal and principal (Figure 13).

Figure 12. Balance power between board and sharheolders

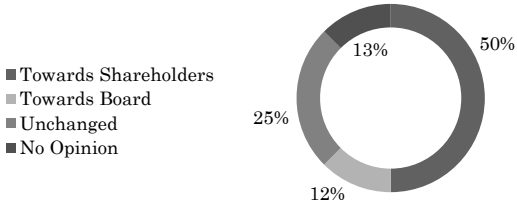


Figure 12 shows how the blockchain would shift power to shareholders in the conflict between principal and agent, with 50% of respondents being told of this opinion.

Figure 13. Balance power between majority and minority

Figure 13 shows instead the shift of power between majority and minority; in this case, having equal percentages between the four answers (25%), it is not possible to highlight any trend.

5. DISCUSSION AND CONCLUSION

Blockchain is celebrated as a new technological revolution and our results strengthen the argument that blockchain technology could be

expected to have a far-reaching impact on the corporate governance. Greater transparency and disclosure are at the core of good governance models as they allow all actors involved in corporate dynamics to make informed decisions and limit agency costs. According to this perspective, in recent years, there has been a strong focus on improving corporate disclosure (for example Shareholder Right Directive 2017/828, and the 2014/95/EU directive on non-financial disclosure), in order to facilitate the participation of all actors. Therefore, we think that blockchain technology, given its characteristics, is a useful tool that promotes trust among the actors. The likely increase in the frequency of the reports, encrypted and securely stored and linked to blockchain that can viewed by all shareholders, should lead to a simplification and a better cataloging of the information, so as to allow more easily the exercise of the vote of shareholders. A scenario radically different from the current one, in which minority shareholders can count more and the adequacy of the choices of the management will be evaluated by all the shareholders. In addition, we maintain that blockchain technology can be viewed as a "next best practice" in the "digital transformation" of corporate governance.

Therefore, the paper present some preliminary results by a survey among member of board and of institutional investors. Indeed, there are numerous cases of stock exchanges using blockchain technology (i.e. London stock exchange and Nasdaq) and several financial institutions and Central Share Depositories (CSDs) have been investigating the use of private blockchain systems to implement shareholder e-voting infrastructure. Moreover, there are likely challenges that blockchain technology would need to overcome before fully unfolding its potential.

Empirical research on the impact of blockchain on corporate governance is still scarce; however, we are most likely at a turning point entering a new era of corporate governance (Cucari, 2018). We need to develop an understanding of how blockchain affect different process and predict what their role within organizations and the corporate governance framework will be in order to have a real contribution for practice and society. This is why we are convinced that this is the right time to start this discussion since this topic and in particular IT governance, has recently gained increased scholarly attention (i.e. Mohamad, 2018). The purpose of this study was to provide a starting point for research that can be used for further examination of these aspects. We recognize that our survey approach is a limitation of the study, as we do not limit our results to any firm and national context. Nevertheless, we provide a first overview of effect of blockchain on corporate governance area.

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