Chapter 100
Will Blockchain Bring an End to Corruption?
Areas of Applications and Potential Challenges

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ABSTRACT

Blockchain technology is an electronic ledger of digital records that is distributed over a network of computers rather than located on single or multiple servers. As the technology is by itself transparent and secure even without a trusted third party involvement, many applications are being developed as a means of eliminating corruption around the world. This article examines how the blockchain technology could be used to curb corruption and take integrity to higher standards at a firm level, within-country level and cross-country level. Possible risks and challenges related to the technology were identified and found that without considering the data governance and security issues, the blockchain technology may not always lead to a socio-economic benefit.

1. INTRODUCTION

Blockchain technology, also commonly known as a distributed-ledger technology, is an electronic ledger of digital records that is shared among participants. This technology addresses every transaction's authenticity by confirming the time and date of transaction as well as the contents between the parties involved. If a transaction contains fraud information due to corruption or forgery, it is not validated due to the consensus protocol, and therefore, transaction cannot take place. As such, the blockchain technology can be an effective tool to root out corruptions from having a clear and rigid accountability on every transaction. This paper focuses on the blockchain technology that arose as an effective way of resolving

DOI: 10.4018/978-1-7998-5351-0.ch100

corruption issues both in the private and public sectors. It identified possible risks and challenges related to the technology and found that without a well-designed technology policy, the blockchain technology may not always lead to a socio-economic benefit.

This paper examines the applications of the blockchain technology as a means of eradicating corruption and comes up with the challenging factors that need to be addressed before its technological diffusion. A close understanding of its limitations needs to be uncovered and appropriate policy measures need to be formulated accordingly in order to maximize the socio-economic benefit of the blockchain technology. The motivation of this paper is to review the current stage of technological development through analyzing the blockchain use cases and provides implications on where to go as a next stage.

From the analysis of the blockchain applications in fighting against corruption, the result finds that the blockchain technology is a double-edged sword. It may be an effective tool to eradicate fraud, corruptions and bribery as the technology is by itself transparent. However, new issues including data governance and security problem, a new type of discretion power that abuse the technology may arise. In addition, due to the resistance from the incumbents and the lack of support from the top management in countries where corruption runs rampant, the diffusion of the blockchain technology will not be realized at anytime soon. The challenges of the blockchain technology need to be examined and the limitations should be identified prior to its commercial usage. Without considering them, the price to pay due to its reserve effect might surpass the potential socio-economic benefit that we expect from eradicating corruption.

The rest of the paper is organized as follow. The following section present reviews on how corruption relates to economic growth and how technological innovations are being used to eliminate corruption. The subsequent section presents the potential applications and challenge related to the Blockchain technology and concludes with policy implications.

2. RESEARCH BACKGROUND

There are many discussions to identify the relationship between corruption and economic growth. A growing stream of research finds that, in general, corruption is closely related to low economic growth. Mauro, P. (1995), identified the relationship between corruption and economic growth based on a cross-sectional national data for the first time. It measured the degree of corruption of a country based on political stability, legal system, judiciary, and terrorism and named it as the Bureaucratic Efficiency (BE) index. The result showed that as BE index increased, economic growth tended to increase as well. Although the causal relationship between economic growth and corruption is difficult to identify, this tendency has been observed in many other studies since this research.

The direct and indirect effect of corruption on economic growth can be summarized as below. First, as corruption increases, transaction costs and uncertainty increase. Such transaction costs include monitoring costs and enforcement costs to sustain the market. As a result, corruption reduces the domestic and foreign investment. Public spending in education, healthcare and infrastructure decreases if corruption becomes widespread in the society. From an empirical study, Mauro (1997) finds that corruption seriously affects private investment and ultimately affects growth adversely.

Second, corruption inhibits the efficient allocation of resources. It is very important to optimally allocate and utilize resources in an economy with limited resources. If corruption is widespread, incentives to utilize resources efficiently would be reduced, thus resulting in a decrease in overall vitality of the society. Svensson (2005) found that corruption and firm performance are significantly correlated.