

Blockchain technology as an alternative to the centralized financial transaction settlement model

The aim of this work is to analyse the impact of blockchain technology on the centralized financial transactional model in the financial industry, using Switzerland as a case study.

In particular, we investigate the potential impact of blockchain technology on the financial market infrastructure and existing financial transactional model based on third-party intermediaries, trying to understand whether blockchain technology may be the foundation for a new decentralized financial market infrastructure in securities trading, clearing and settlement. We analyse the supporting and hindering factors for the adoption of blockchain technology testing through a survey of banking executives the perceived benefits and risks of large-scale blockchain technology adoption.

The choice of Switzerland as a case study has two main reasons. First, Switzerland is globally perceived as a leading and competitive financial centre. In particular, Switzerland plays a key role in wealth management, with around a quarter of total global cross-border assets managed in the country. It is also a leader in transaction financing and a key international location for insurance and reinsurance. Second, in recent years it has offered a supportive environment for innovative companies in the financial industry ("fintech"), giving birth to an ecosystem of start-ups, established companies, and universities, known as "the Crypto Valley". As an example, the establishment of the Ethereum Foundation in the Swiss Crypto Valley in Zug may play a key role for the development and innovation of the blockchain ecosystem in the country.

We begin with an extensive literature review of research papers, industry reports and white papers from financial institutions, industry consultants and central bank, and complement the study through an empirical analysis based on surveys supplemented to industry experts from the financial industry and fintech companies in Switzerland.

The main findings from the literature review suggest that blockchain may have a significant impact on the centralized financial transactional model and financial market infrastructure, replacing, partially or entirely, with a decentralized transactional model based on blockchain technology. The main benefits of the new technology would be efficiency gains, cost savings and speed in financial transactional settlement. However, major challenges would have to be tackled concerning legal and regulatory uncertainties and technological and operational risks such as lack of common standards, scalability and interoperability between different legacy and blockchain-based systems.

The results of our survey reflect the findings from the literature review. We find that the main reasons for supporting the change to a blockchain-based system are efficiency gains, costs benefits, fast transaction settlement, and transparency benefits, whereas the main perceived obstacles are legal and regulatory uncertainties, and technological and operational risks.

Through our research, we provide further evidence to the literature related to blockchain technology adoption and its potential impact as an alternative to the traditional centralized financial transactional model typically used in the financial industry. Future research should investigate the outstanding issues concerning the adoption of the distributed-ledger technology, namely compliance with legal and regulatory standards, and the risks connected with privacy and cybersecurity.