Chapter 2
Adoption of Blockchain in Supply Chain Financing

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ABSTRACT

This study explores the factors that impact the adoption of blockchain in supply chain financing (SCF). Blockchain's unique features make it a good solution to the current problems in SCF. However, given that both blockchain and SCF are relatively new, there are almost no commercially viable large-scale implementations yet in this area. Research in the factors that drive the adoption of blockchain in SCF, is also scarce. Of the six identified determinants of adoption of blockchain in SCF, the study found four to be significant. Relative advantage, compatibility, organization readiness, and environment readiness influence the adoption of blockchain in SCF. Complexity and technology readiness are insignificant determinants, indicating a technically mature industry capable of handling current blockchain implementations in SCF and associated changes. The authors also found that trust has a mediating effect between compatibility and adoption and between environment readiness and adoption.

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INTRODUCTION

This section provides the justification for the research and introduces the research model.

The Euro Banking Association (EBA) defined SCF as 'The use of financial instruments, practices and technologies to optimise the management of processes for working capital and liquidity tied up in the supply chain collaborating business partners' (Jansen, Beyer, & Taschner, 2018, p. 7). According to Strategic Treasurer (2021), SCF has been gaining importance in recent years. It is especially useful during times of high or fluctuating interest rates; in conditions of onerous compliance requirements, in cross border trade; and where there are large networks of suppliers and financers. However, traditional SCF has several issues, including too much paperwork, multiplicity and duplication of information and the need for reconciliation, as there are too many systems capturing piecemeal information (instead of an end-to-end system), a need for a common communication system, lack of trust and opportunities for fraud.

Blockchain is taking the world by storm. The concept was based on the seminal whitepaper by Satoshi Nakamoto (2008). In this system, all transactions are verified and stored in a block. Each block is linked to the previous block, thereby creating a chain. Hence, the term 'blockchain'. The transactions are time stamped, and this prevents anyone from altering the ledger (Tapscott & Tapscott, 2016).The key blockchain characteristics are a distributed database, peer-to-peer (P2P) transmission, transparency with pseudo-anonymity, irreversibility of records and computational logic (Tapscott & Tapscott, 2017). Blockchain is still, however, in the early stage in terms of theory, methods and empirical work. Scholars only started publishing articles on this topic, in 2014 (Frizzo-Barker et al., 2020).

The review of the existing literature showed that more research is needed on blockchain in SCF. Some examples are set out in Table 1.

Given the above, we chose the adoption of blockchain in SCF as our research topic.

The subject of this research was the adoption of blockchain in SCF at an enterprise level. Accordingly, information system (IS) theories of technology adoption were examined, particularly at the organization level. The diffusion of innovations (DOI) and technology-organization-environment (TOE) theories of adoption were identified as the most appropriate for this research. A combination of the two theories was used to provide the theoretical framework for this research. Thus, a model was developed wherein six determinants, namely, relative advantage, compatibility, complexity (from the DOI theory), technology readiness, organization readiness, and environment readiness (from the TOE theory), influence the adoption of blockchain in SCF.