LIABILITY OF FOREIGNNESS AND LIABILITY OF OUTSIDERSHIP: UNDERSTANDING BLOCKCHAIN THROUGH UPPSALA LENS

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ABSTRACT

This paper discusses how the blockchain governance model can add a new perspective to the International Business literature and shape the liability of outsidership (LOO) and liability of foreignness (LOF). Based on Uppsala tenets, we develop a conceptual model based on four propositions to show how the LOO and LOF can be less of an impeditive in a blockchain environment. The decentralised coordination allows a more symmetric distribution of information, hence lessening the power struggle, enhancing commitment, and reducing the time consumption of trust-based transactions. This paper contributes to the literature by (a) introducing a nuanced discussion about technology in international business, presenting blockchain governance as a hybrid of networks and contracts; and (b) discussing how blockchain governance mechanisms can moderate LOO and LOF impact on the firms' legitimacy.

Keywords: Governance. Liability of Foreignness. Liability of Outsidership. Blockchain. Trust. Legitimacy.

1. INTRODUCTION

Globalisation, privatisation, the liberalisation of trade, capital flows, and investments made it possible for multinationals to disintegrate their value chains (Ernst and Kim, 2002; Gereffi, Humphrey and Sturgeon, 2005) and to develop global governance methods to integrate their dispersed supply, knowledge, and customer bases (Johanson and Vahlne, 2009; Buckley and Strange, 2015; Buckley, Doh and Benischke, 2017). Meanwhile, the rapid spread of information and digital technology has not only transformed the business environment (Alcácer, Cantwell and Piscitello, 2016) but also how multinational enterprises (MNEs) compete (Kano et al., 2020). Furthermore, firms operate within networks that affect their internationalisation process either by opportunity recognition or development and exploitation of these opportunities (Chandra and Wilkinson, 2017). Thus, the evolution of the governance model from contracts to a network approach has become even more relevant as value chains have finer-sliced their activities into dispersed locations (Narula and Driffield, 2012). Under this context, we aim to discuss how the technological environment influences International Business (IB), as it shapes the liability of foreignness (LOF) and liability of outsidership (LOO) impacts on firm's legitimacy. Since the first is defined as the disadvantages, a foreign firm has in comparison to indigenous firms (Zaheer, 1995; Zaheer and Mosakowski, 1997), and the latter responds for the lack of network resources at the firms disposal (Johanson and Vahlne, 2009).

There have been many studies focusing on the value chain fragmentation, digitization, and product modularization through internalisation (Banalieva and Dhanaraj, 2019; Hennart, 2019; Narula *et al.*, 2019; Strange and Humphrey, 2019) or neo-classical economic theories (Williamson, 1975; Buckley and Casson, 1976; Rugman, 1980). These recent studies have posed assumptions far from the internalisation epistemological roots, thus bringing them closer to the Uppsala Model's assumptions (Vahlne and Johanson, 2021). The Uppsala model conceptualised a firm's internationalisation as an incremental process to acquire market knowledge through experiential learning (Coviello et al., 2017; Forsgren & Holm, 2021) and explained MNE evolution in general. As this model focuses on network-based premises for the internationalisation of firms, the main impeditive to access knowledge-sharing and learning is the LOO and LOF (Johanson and Vahlne, 2009), hence the lack of legitimacy (Li and Fleury, 2020). Legitimacy is primordial in setting an effective governance model and reducing liabilities abroad. Its concept refers to the firm's alignment to accepted and appropriate behaviour by the look of local stakeholders in a given institutional environment (Suchman, 1995).

In this regard, it is assumed that firms that do not belong to a relevant network in a given institutional environment are "outsiders", thus they will suffer from LOO and LOF, making it impossible to develop a business (Johanson and Vahlne, 2009). Along these lines, the LOF mediates the LOO (Yamin and Kurt, 2018). Since the first is based on the notion of institutional distance (Kostova *et al.*, 2020), the latter is the lack of business knowledge. which is the primary source of uncertainty as it is impeditive to learning. Once it is an insider, the firm may begin its learning process, trust-, and commitment-building. As a member, access to resources from other members, trust, and commitment are essential tools to make coordination possible and cope with uncertainty (Rungsithong and Meyer, 2020; Vahlne and Johanson, 2021), which make it possible to develop a business and gain legitimacy.

Along with this reasoning, selecting an appropriate governance mode is imperative, as it influences opportunism, efficiency, value, and performance (Poppo and Zenger, 2002; Brouthers, Brouthers and Werner, 2003; Ness and Haugland, 2005; Castañer *et al.*, 2014).

Heide (1994: 72) defined governance as "a multidimensional phenomenon, encompassing the initiation, termination and ongoing relationship maintenance between a set of parties". The network governance approach takes the network's organisation as its unit of analysis and aims to illuminate the structure of collective action (Powell *et al.*, 2005). In general, studies developed within this approach investigate how network results can be explained by their governance arrangements - namely, coordination mechanisms, processes, and practices - formed by network members at different interaction levels (Provan and Kenis, 2007; Moretti, 2017). The distinguishing feature of the network governance approach is the analysis of the network organisation from a perspective that emphasizes the "collective action" dimension (Powell *et al.*, 2005; Provan and Kenis, 2007), as opposed to the approach traditionally followed by the analysis of social networks, which focuses on the individual perspective.

Decentralised governance is what differentiates the governance model of blockchain-based firms from other traditional MNEs. Blockchain is a new technology based on cryptography, providing a transactional database in which transactions are tamper resistant (Glaser, 2017), acting as a digital, distributed, public ledger (Zhao *et al.,* 2016: 3). Based on the above characteristics, governance built on blockchain technology can be viewed as a self-contained and autonomous system of rules (Hooper and Holtbrügge, 2020: 184). Indeed, the more the information is decentralised, the more the blockchain system transmits trust, while in the conventional model, centralisation is the rule for the trusted process (Zalan, 2018). Moreover, due to the shared access to the same technological layer, all members share resources and the block's competitive position towards other blocks, strengthening the internal networks. Thus, blockchain technology appears as a tool to reduce coordination costs as it may enhance trust and commitment. This paper aims to discuss how the LOO and LOF can be less of an impeditive in a blockchain environment. We show how blockchains can enhance trust and embeddedness and improve power distribution, as they make uncertainty more manageable through a governance model based on trust, transparency, and commitment. With this in mind, we based ourselves on governance and network theory to make four propositions regarding governance aspects of networks in the IB field.

Our arguments and findings contribute in two ways. First, we add a more nuanced discussion about technology in IB, arguing that blockchain governance is a hybrid of networks and contracts. This is because blockchain possesses both network characteristics as well as it provides its members with the possibility of using smart contracts. The business environment is increasingly transformed by information and digital technology (Alcácer, Cantwell and Piscitello, 2016), as it "lowers barriers and allows firms and individuals to equip themselves with information and intelligence", offering new opportunities (Doh, McGuire and Ozaki, 2015: 257). According to the UNCTAD (2020), blockchain technology is seen as one big trend in the digital economy, shaping international production patterns.

Second, we focus on the blockchain's role as a governance mechanism for MNEs as it may enhance trust and reduce the impact of LOF and LOO on the firm's legitimacy. It is well known in IB that different locations require different managerial practices (Filatotchev and Nakajima, 2014). The central role of blockchain network governance is in reducing information asymmetry among stakeholders, opening a more favourable window for trust, commitment, and the learning process. In this sense, the LOO and LOF tend to reduce, hence providing legitimacy before stakeholders (Li and Fleury, 2020). Legitimacy is a recognition of managerial practices as good and appropriate to a given environment (Suchman, 1995), facilitating the business flow (Cumming *et al.*, 2017). It is not argued here that a blockchain insider will instantly acquire

legitimacy abroad. However, blockchain governance allows firms to accelerate this process, connecting formally with essential local stakeholders.

This study is organised as follows. In the next section, we introduce the development and evolution of governance literature, from contracts to networks. Then, we review the literature on international business and networks. In the fourth section, we discuss the definition, characteristics, and application of blockchain in the business world. In the fifth section, we develop four propositions and a theoretical framework based on the extant literature. Finally, we reflect on conclusions, implications, limitations and discuss directions for future research.

2. GOVERNANCE: FROM CONTRACTS TO NETWORK

Traditional literature on governance was mainly based on the transaction costs economics (henceforth, TCE). Governance is the exercise of authority, invisible tramlines delineating cohesion of agents around legitimated practice (Lukes, 1974), thus it is "the mean by which to infuse order, thereby to mitigate conflict and realise mutual gain" (Williamson, 2010: 674). For Coe and Yeung (2016), governance relates to the institutional and regulatory arrangements that shape interactions, especially on the international level. It usually covers sectoral or functional tasks rather than the whole variety of regulative, distributive, and re-distributive issues as dealt within states (Lowi,1972) conferring legitimacy for business. Legitimacy refers to the degree of alignment of the MNE with regulations, institutions, and cultural aspects of its operations to its institutional environment (Suchman, 1995; Zhang *et al.*, 2018). Thus, legitimacy can be one of the primary normative standards for good governance (Börzel and Panke, 2016).

According to Williamson (1975, 1996), the five main functions of governance are: reduction of transaction costs, internalisation of externalities, prevention of monopolistic powers, protection of property rights, and maximisation of social welfare. The author argues that TCE relies on two key assumptions: opportunism and bounded rationality. The first one refers to the lack of honesty in transactions, while the latter is based on the individual limitation of information processing. Kano (2018: 686) says that the sources of these assumptions are, for opportunism, "opportunism as intentional deceit; benevolent preference reversal; and identity-based discordance". While for bounded rationality, the sources are "necessary incompleteness of all information; economic actors' limited capacity to process and interpret information; multifacetedness of information in a multinational setting; and divergence in judgment of identical information by actors with different backgrounds".

As a result, bounded rationality and opportunism lead to an organised transaction to "economise on bounded rationality while simultaneously safeguarding them against the hazards of opportunism" (Williamson, 1996: 254). Hennart (2010) sees three conditions to organise value chains: (a) the parties need to make transaction-specific investments; (b) parties can free ride on each other because the impact is different than the output; (c) information exchange is crucial, but hard to negotiate. In this regard, large firms have often turned to hierarchic mechanisms for the internal organisation (Williamson, 1975). The usual governance approach encompasses incentives, administrative control, and contract law (Williamson, 2002). Thus, contracts are the basis for uncertainty reduction between parties, as it might act as a hierarchy in international relationships (Homburg *et al.*, 2009). However, the protection given by contracts is limited (Hennart, 2010) and dependent on a third party, which is usually the government.

Apart from market and hierarchy, firms can also engage in relational governance mechanisms. In contrast with contractual governance that relies on a third party, relational governance is enforced by the collaborating network. Hence, the network governance is not based only on price mechanisms nor on the authority of a relationship, but it is a hybrid of both

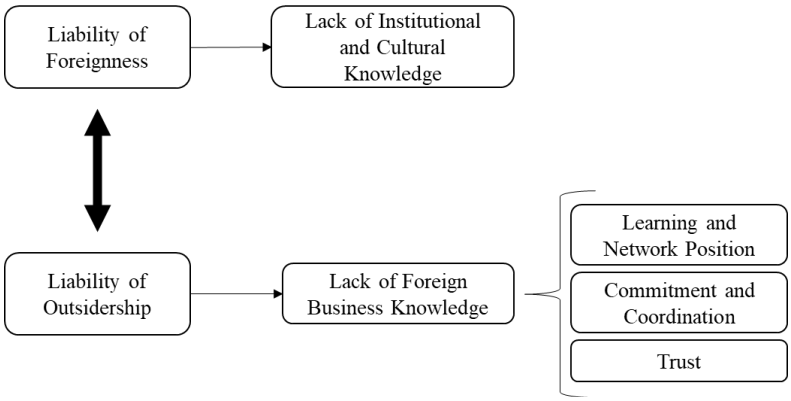
(Park, 1996; Vahlne and Johanson, 2021). Thus, network governance is a distinct form of coordinating economic activity (Powell, 1990). This mechanism brings the view that firms do not have to govern only the relationships between each other but also with indirect stakeholders. As it implies interdependency, it also reduces the range of activities within a firm, thus they can concentrate on core competencies (Prahalad and Hamel, 1990).

Network governance advocates power in reciprocal dependence, as stakeholders often rely on resources complementarity and shared objectives. Thus, organisations abdicate individual autonomy for uncertainty reduction based on collective power regulated by shared principles and norms (Park, 1996). In this regard, actors control opportunism through repeated interaction, reputational credentials, and trust (Gereffi, Humphrey and Sturgeon, 2005; Benito, Petersen and Welch, 2019). The capability of having trustful relationships has been seen as a firm advantage (Vahlne and Johanson, 2021), as it reduces transaction costs since it is believed that the other party will sustain commitments and honour future actions (Anderson and Narus, 1990). In this sense, structural embeddedness is crucial for understanding relational governance as a dynamic processing rather than a static one. Defined as "the impersonal configuration of linkages between people or units", structural embeddedness can determine the extent and range of resources within a manager's reach (Nahapiet and Ghoshal, 1998; Moran, 2005). Hence, to provide a complete discussion about the topic in the IB field, we will turn to the network literature.

3. INTERNATIONAL BUSINESS AND NETWORKS

Following the Uppsala Model (Johanson and Vahlne, 1977), the internationalisation process is a result of experiential knowledge and commitment, even though, according to the network approach, none of them refers to countries, but rather to existing and potential relationships (Johanson and Vahlne, 2003). Thus, to expand, firms need to get privileged access to information that comes from their network. In addition, opportunities are often the result of firms' network activities, which adds to their knowledge base (Johanson and Vahlne, 2009). Therefore, based on the network perspective, Johanson and Vahlne (2009) revised the Uppsala model to highlight the role of network structure and the relationships inherent to the business network as an essential variable for internationalisation to occur. The perspective adopted moves toward the LOO, as the authors argue that insidership provides the firm with functional relationships which reduce uncertainty and risks. Nevertheless, they posit that both LOF and LOO are related. This is because the higher the LOF, the harder the establishment of an insider position within a network in the host country. According to Eriksson *et al.* (2015), the LOF can be related to the institutional knowledge and the LOO with the lack of foreign business knowledge, which encompasses learning and network position, commitment and coordination, and trust. Figure 1 summarizes these relations.

Figure 1. Liability of Foreignness, Liability of Outsidership and related variables



Source: The authors

In this regard, network embeddedness becomes an essential concept. According to Cuypers *et al.* (2020: 715), actors "are embedded within a network to the extent that they show a preference for repeat transactions with network members, and to the extent that ties are created, renewed, and extended through the network of connected actors rather than through outside actors". The level of embeddedness affects sales, market share and profitability (Andersson, Forsgren and Holm, 2002). Embeddedness are divided into structural and relational (Forsgren, 2016). On the one hand, structural embeddedness has to do with network reach, density, or hierarchy. In this regard, dispersed networks have greater reach, which impacts information diversity and the identification of new opportunities. On the other hand, relational embeddedness refers to emotional closeness and inter-personal trust. In this case, innovations have more chances to flourish as it is expected the exchange of intangible resources and mutual learning.

Since being part of a network implies reciprocity, a firm make available to its partners its own capabilities. Thus, actors that are strongly tied to each other have better chances to exchange information and enhance knowledge creation. However, the access to such capabilities depends on the firm's position and history within the network (Alcácer, Cantwell and Piscitello, 2016). Valentino, Caroli and Mayrhofer (2018) argue that learning, creating, and trust-building impact the network position. The discussion about the firm position is complemented by the concept of node configuration. That is how a firm engages with a foreign stakeholder (Sandberg, 2013). In this context, relationships can be dyads or triads. The first one is between buyers and sellers, and the latter is the indirect relationships, such as an intermediary or distributor (Jansson and Sandberg, 2008). Moreover, these ties can be weak or strong, and they influence the information availability, timing and firm referrals (Sharma and Blomstermo, 2003). Hence, the stronger the tie, the more the level of commitment and reciprocity.

However, the level of embeddedness and position of a firm is not enough to provoke learning and build knowledge within the network. In order for it to happen, social capital must be developed as it is a prerequisite for the construction of intellectual capital (Nahapiet and Ghoshal, 1998). The authors define social capital as the sum of actual and potential resources that are derived from the network. Thus, it is the social capital that provides the means for the flow of information, knowledge, and resources since it carries trust and the norms of reciprocity. From then on, a firm can adapt, innovate, and learn. This concept reinforces the relational trait of the network as a mode of governance.

Apart from that, relationships reduce uncertainty since they enhance predictability. Podolny (2001) argues that uncertainty can be reduced by enhancing legitimacy. This uncertainty reduction is resultant from the information exchange and knowledge-building regarding cultural and institutional differences between the home- and the host-country, which influences the LOF (Zaheer, 1995). Thus, networks are an important source of social capital that enhances the perception of the firm legitimacy (Shane and Cable, 2002). Hence, the Uppsala model consists of the recognition and exploitation of opportunities associated with foreign risk. Such risk is a product of the international uncertainties, which is reduced by the firm network. It is the network that provides the firm with additional skills and resources to move more successfully abroad. Therefore, trust and commitment are essential variables in this model. Similarly, as an insider of a network, the legitimacy before stakeholders can be improved faster and consistently. This is because the information is swiftly distributed across managerial practices and relational ties (Johanson and Vahlne, 2009). Hence, not being part of a network incurs in the LOO, which enhances the risk to go to international markets.

In sum, the network possesses a high degree of complexity and its coordination cannot rely on solely one firm or headquarter, so it should be coordinated by the network or value chain themselves (Vahlne and Johanson, 2021). Moreover, the authors argue that its governance does not possess only price agreements but also trust-building mechanisms to enhance coordination and knowledge exchange to achieve legitimacy. In this regard, we believe that a discussion concerning blockchain as a governance model would enhance the network benefits and reduce internationalisation risks.

4. BLOCKCHAIN: DEFINITION AND CHARACTERISTICS

Blockchain can add to network theory as it changes how collaborations are organised (Davidson, De Filippi and Potts, 2018; Dutra, Tumasjan and Welpe, 2018). Blockchain is a recent technology built on cryptography and on the work of Nakamoto (2008). He proposed the cryptocurrency Bitcoin as a decentralised electronic payment system. However, blockchain does not refer only to cryptocurrencies, but it is a class of technologies.

Glaser (2017) defined the blockchain as a decentralised, transactional database in which transactions are tamper-resistant. Zhao, Fan and Yan (2016: 3) says that it is "a distributed database comprising records of transactions that are shared among participating parties". Thus, "blockchain technology acts as a digital, distributed, public ledger, and it is transforming traditional business activities by streamlining processes, increasing trust and saving time and costs for companies" (Hooper and Holtbrügge, 2020: 184).

Thus, in this network actors do not need to know each other to make a trust-based interaction. This is because the ledgers are distributed to everyone who has access to the blockchain. The transactions are automatically verified as all the records are stored in blocks that are linked through hash functions, which can be traced back to the block of origin. Thus, it does not need human intervention, an authority, or a third party. In this regard, Gupta (2017) suggests a series of business potential effects as blockchain offers a "nearly friction-free" cooperation. Hence, sectors like banking and financial services, supply chain, and environmental sustainability can benefit from a middlemen-free environment. Moreover, the blockchain environment can be set as a repository of documents, contracts, and assets as the information within the block are believed to be immutable and trustworthy.

Although it is said that everyone has access to the information encrypted, this is not entirely true. The data on the blockchain can be designed for different levels of transparency and privacy. In this context, there is the figure of a public blockchain that grants access to all users wishing to join the network, such as Bitcoin, Ethereum, Dash, and Lisk (Katina *et al.*, 2019). Moreover, there is the private blockchain which is accessed only by members with permission to do so. In this case, the network can be designed for specific purposes, such as Ripple, R3 Corda, and Chain (Katina *et al.*, 2019). However, in both public and private blockchain, there is no need for a third party as the enforcement and execution are in the cryptographic code. Thus, there is "a shift from trusting people to trusting math" (Antonopoulos, 2014).

Moreover, blockchain technology is often combined with other modern technologies, such as smart contracts and non-fungible tokens (NFT). The latter can be used to authenticate luxury products and art (Vermes, 2016; Deloitte, 2020), as well as other products. In the case of smart contracts, they are virtual contracts "based on a sequence of coded events that automatically verify and execute the agreed terms of the contract" (Gayton, 2016). The smart contracts logic of blockchain allows firms to apply this technology in different industries and processes (Fahmy, 2018; Giacalone *et al.*, 2021). It runs an agenda automatically through the Decentralized Autonomous Organisation (or DAO). This decentralization feature was created

to operate without a unique agent controlling data or transactions, with the promise of human interaction-free. Based on the plethora of benefits DAO can provide, such as transparency, immutability, auditability, even governments have been considered potential users (Alketbi, Nasir and Talib, 2018). Thus, it enables transactions with no need of trusting an intermediary, reducing uncertainty and risks (Giancaspro, 2017; Holden and Malani, 2019) through the provision of full disclosure or producing a single truth.

Katina *et al.* (2019) list the main benefits associated with blockchain: (a) elimination of single point of failure; (b) reduction of record-keeping costs; (c) reduction of risk of fraud and information leakage; (d) removal of transaction intermediaries; (e) transaction time reduction. Hence, this technology might allow firms and individuals to rethink their interactions in several arenas, such as politics, business, and society, as it makes a considerable impact on disintermediation based on automation and trustless transactions.

In this regard, blockchain adds to our understanding of governance. Pelt *et al.* (2021: 21) define blockchain governance as "the means of achieving the direction, control, and coordination of stakeholders within the context of a given blockchain project to which they jointly contribute". Thus, it differs from governance based on market and hierarchies given its decentralised characteristic (Ziolkowski *et al.*, 2019). Ziolkowski, Miscione and Schwabe (2020: 319) argue that this governance system is like a tribal one. This is because it tends to be organised around a group of shared interests and values, and actors rely on a "togetherness to maintain the system". Hence, it enables stakeholders to discuss and make decisions based on the group interests to pave the way in which the blockchain should evolve. Table 1 compares the different governance mechanisms.

Table 1. Comparative Between Governance Mechanisms

	Contractual governance	**Relational governance**	**Blockchain governance**
Defining feature	Enforceable promises defining the rights and obligations of the parties	Set of patterns of behaviour to which parties are expected to conform	Self-contained and autonomous system of rules
Regulatory principles	Law	Social norms and "shadow of the future"	Protocols and code-base rules
Mode of enforcement	Enforcement through third parties (court, arbitrator)/government authorities	Enforcement through the parties themselves	Automatic enforcement by the underlying blockchain-based network
Form	Typically, legal prose	Mostly informal	Formal programming language

Source: Lumineau, Wang and Schilke (2021: 507)

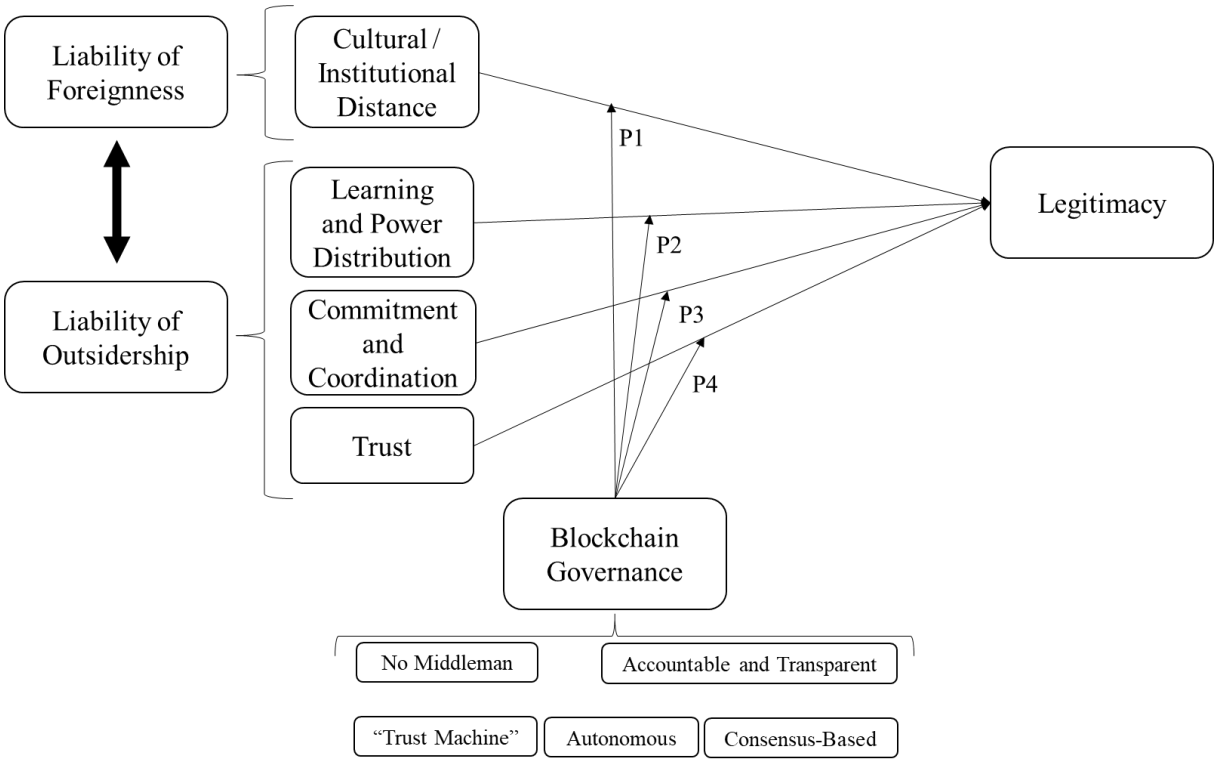
Therefore, governance in the blockchain network involves the provision for control, communication, and integration of a system, as well as an accountability system focusing on efficiency, monitoring, and exploration of deviation conditions (Katina *et al.*, 2019). Hence, this technology revolutionizes internal and external business processes, impacting business abroad, its risks, as well as both LOF and LOO.

5. DISCUSSION AND PROPOSITION DEVELOPMENT

Although LOF and LOO share a relatively common background, firms suffer from both liabilities when internationalising given their interplay (Yamin and Kurt, 2018). LOF is seen as a lack of cultural and institutional knowledge, while LOO is a lack of business knowledge, and both concepts can affect each other as discussed by Johanson and Vahlne (2009). In overcoming these liabilities, the firm might beneficiate from legitimacy and acceptance in the target market (Kurt and Kurt, 2020).

Blockchain technology is proposed as a way to overcome these liabilities since it implies that transacting parties do not need to establish expectations about the other party's behaviour. Within the block, parties can be confident that transactions are built upon a trustful and immutable environment as they are accountable and transparent to their members since it is based on consensual algorithms. They reduce institutional barriers and enhance communication and predictability. Thus, blockchain reduces the effect on both LOF and LOO, reducing time consumption on relationship-building. Based on this, we developed four propositions. Figure 2 summarizes our theoretical framework.

Figure 2. Theoretical Framework



5.1 Liability of Foreignness and Blockchain

Zaheer (1995) developed the notion of LOF which is taken as an overall concept, capturing the net effect of foreignness on all costs and advantages. FDI theory provides some suggestions both regarding the sources of the costs of foreignness (Hymer, 1960) and the advantages that MNEs possess over local firms (Caves, 1996). In this article, we mainly explore the concept of LOF by looking at its external costs and how blockchain can help alleviate these costs by speeding up the process to overcome the LOF.

Researchers in IB have long theorised that MNEs doing business abroad face costs (Kindleberger, 1969; Hymer, 1976) arising from several sources, such as coordination costs, unfamiliarity with local culture, lack of information, or political influence. Therefore, these are the competitive disadvantages of MNEs compared to indigenous firms, ceteris paribus. Based on Zaheer (1995) discussion that the losses imposed by the LOF have their roots in social and cultural barriers, Kostova and Zaheer (1999) furtherly expanded the LOF to a notion of institutional distance. In this regard, they incorporated a broader social dimension consisting of institutional (e.g., politics and laws) and cultural distance. Based on these definitions and classifications, IB scholars have studied institutions in terms of how diverse regulatory rules and legal norms impact transaction costs for MNEs (Brouthers, 2002) or create uncertainty for

MNEs owing to the institutional distance (Kostova, 1999) and culture distance (Hofstede, 1980) between home and host country institutions.

From the perspective of cultural distance, Zaheer and Mosakowski (1997, p. 444) argue that the LOF is "a function of the social and cultural barriers'' faced by the subsidiary when integrating into the local' information flow". Compared with indigenous firms, foreign firms are disadvantaged in understanding cultural variation in host countries that impacts both the firm's external and internal environments (Calhoun, 2002). Concerning the first, Calhoun (2002) argued that most of the cultural variation is based on contract enforcement and property rights, and cultural differences are reflected in formal governance structures, laws, and practices. Moreover, they are mainly based in more informal, undocumented contracting practices of the market, all of which impact firm transactions. Therefore, foreign firms must obtain a complete understanding of the formal government structure and informal practices. Regarding the internal firm environment, cultural differences manifest in observable behaviour differences and less observable values differences of individuals, which causes foreign subsidiaries to struggle to maintain internal consistency with the parent's organisational practices while adapting locally (Bartlett and Ghoshal, 1989). Thus, MNEs must balance between local institutions and the organisational or managerial capabilities provided by the parent firm to compete successfully against local firms (Buckley and Casson, 1976; Dunning, 1977; Caves, 1996).

The distance between the external and internal cultures causes information asymmetry and uncertainty, thus it is a source of liability for the foreign firm. Cultural distance implications refer to a more sociologic understanding of the organisational legitimacy (Deephouse and Suchman, 2008), posing it as an operations environment that a firm must cope with (Cuervo-Cazurra and Genc, 2011). In this sense, the necessary time to adapt will depend on how similar (or different) the cultural setting of home and host countries is. Therefore, a foreign firm must continually overcome this hurdle through a series of incremental commitments to build trust in the foreign location to conduct businesses there, which takes time (Johanson and Vahlne, 1977).

In this regard, the blockchain technology may speed up this process. The adoption of this technology may help the firm solve trust building issues, favouring the relationship in terms of transparency and security for the parties. It is not being argued that blockchain intervenes in the firm's cross-cultural learning process but that it accelerates by disseminating knowledge through organisational structures in a legitimate manner. The rules are laid out by the network members themselves, which helps to avoid or dissolve relational problems embedded in the lack of cultural knowledge from one of the parts. Furthermore, blockchain enables efficient accountability and monitoring and it does not depend on a third party. In this way, it helps in the development of relationships and increases legitimacy before its stakeholders, reducing discrimination and opportunism hazards. For instance, the German Daimler has been investing in blockchain technology throughout Mercedes-Benz (its subsidiary) with a milestone ambition: increasing transparency in the production of its cars. In doing so, the blockchain is used to connect the supply chain, and carbon emission levels control in all stages of the production, integrating partners and businesses related to the same block objective: creating transparency to its stakeholders (Daimler, 2021). This social objective is linked with its sustainability plan, presenting itself as a social topic greatly appreciated in many cultures worldwide. Based on the discussed above, we propose the following:

Proposition 1a: Blockchain governance reduces the estimated time for firms to cope with the liability of foreignness in terms of cultural distance, hence improving business legitimacy.

From the perspective of institutional distance, as MNEs face multiple host environments with intricated and multifaceted institutions, they are presented with remarkably institutional complexity, which is responsible for the LOF (Saka-Helmhout, Deeg and Greenwood, 2016; Doh *et al.*, 2017). Wu and Salomon (2017) cited three factors that make firms struggle when concerning the regulatory environment: information disadvantage; conflicts between home and host country regulations; and legitimacy towards local regulators. In this regard, Eden and Miller (2004) split LOF into three hazards: unfamiliarity, discrimination, and relational hazards. The first corresponds to the unfamiliarity with local norms and rules, the second to the discrimination from local stakeholders, and the latter to the lack of a business network. In general, several mechanisms have been proposed to overcome the LOF. Lindorfer, D'Arcy, and Puck (2016) proposed prior experience and market knowledge to reduce unfamiliarity and relational hazards, and visibility to lower relational and discrimination hazards. In this sense, firms tend to assume a mimetic behaviour in an attempt to be accepted in the local business environment, as they expect to gain legitimacy (Suchman, 1995) to overcome the LOF. The adoption of blockchains may help the firm to solve legitimacy issues. When operating on a blockchain, the firms inside the blockchain network share a universal programming language, which facilitates the understanding between the parties and reduces asymmetries of information.

Blockchain governance might also offer some implications regarding the home and host context. Cuervo-Cazurra and Genc (2011) presented a discussion of how the direction of institutional distance matters for multinational firms operating in more or less developed countries, while the same is not true for cultural distance. In this sense, the blockchain governance model can be a source of advantage in two main situations. First, firms from more developed countries operating in less developed institutional environments might rely on the technology to guarantee automatic contract enforcement as a means of protecting their investment and avoiding opportunism. Second, firms from less developed countries operating in more developed countries might find blockchain technology a way to deal with home country institutional inefficiencies and use it to create a reliable bridge with the foreign market, providing transparency and building trust through this governance form.

In addition, the blockchain technology and its algorithms are always under development in comparison with government institutions and issues related to the rule of law and contract enforcement that are relatively lagged in face of the societies' needs. Therefore, the operation of firms based on blockchain faces fewer constraints from government institutions and it is more flexible to encompass the emergence of best practices at the same time that it relies on automated processes (Hooper and Holtbrügge, 2020). In this sense, blockchain presents itself as an essential tool to overcome regulations idiosyncrasies. For instance, the North American Tokken was founded in 2016 to serve as a payment platform to what they called "un-banked" cash-intensity industries, such as the cannabis market (Inner-Cicle, 2021). The firm was founded on a traditional banking regulation limitation that blockchain could solve, preventing laundering schemes, for example. Other initiatives come from the French insurance firm AXA, which uses blockchain technology for flight insurance, and Populous, which deals with invoice financing through smart contracts. Thus, these initiatives reduce the need of middlemen and automate transactions without the need to follow a country's contract enforcement law.

Here it is not argued that firms will not incur in LOF, but that blockchain helps to overcome part of its effects quicker than more traditional methods of governance given that not all sources of LOF are forever, and most of them reduce overtime (Zaheer, 2002). Thus, we propose the following:

Proposition 1b: Blockchain governance reduces the estimated time for firms to cope with the liability of foreignness in terms of institutional distance, hence improving business legitimacy.

5.2 Liability of Outsidership and Blockchain

Several studies pointed out that business networks influence internationalisation processes, such as market selection and entry mode decisions (Coviello and Munro, 1997; Sharma and Blomstermo, 2003; Valentino, Caroli and Mayrhofer, 2018). The discussion focuses on how networks reduce costs and thus minimises the risk of going abroad. Johanson and Vahlne (2009) argue that the internationalisation involves steps for the firm to become an insider in a network abroad. By doing this, the firm will suffer not only with the LOF, but also from the LOO. This concept suggests that a firm internationalise as an outsider because it has few relations with stakeholders in the foreign market (Johanson and Vahlne, 2009).

In this regard, MNEs may incur in lower returns due to various risks and lack of market knowledge. Hence, the LOO is reduced by strengthening the network position as firms gain knowledge, through relationships, about the market and other business opportunities. This is because each firm occupies a specific position, which defines the possibilities development (Coviello and Munro, 1997). Thus, business networks are important to gain access to new nodes in other networks and different knowledge and opportunity levels. As posit by Alcácer, Cantwell and Piscitello (2016: 507), "in any given network the accessibility of external capabilities is a matter of degree rather than a matter of kind, depending upon the degree of insidership that characterizes a firm's position within each business network in which it is engaged".

In order to overcome the LOO, MNEs should concentrate on developing networks with local firms and engage on relationships. By doing this, MNEs build market knowledge that increases the learning capability to navigate inside the network to enhance knowledge and opportunities (Galkina and Chetty, 2015). Hence, as MNEs commit resources to develop relationships, the network grows, and more opportunities and knowledge become available to its members. Thus, the development of relationships involves learning, commitment, and trust (Johanson and Vahlne, 2006, 2009; Vahlne and Johanson, 2013).

This means that to become an insider and overcome the LOO, it is necessary to convince an insider to welcome an outsider, which implies the ability to acquire business knowledge and legitimacy (Fiedler, Fath and Whittaker, 2017; Lagerström and Lindholm, 2020). Hence, surpassing the LOO takes time and requires gradual development (Johanson and Vahlne, 2009). Thus, local embeddedness is a crucial factor for international success, as it is often through relationships that MNEs learn, build trust and commitment (Valentino, Caroli and Mayrhofer, 2018).

5.2.1 Learning and Network Position

Relationship-building takes time, and it is an incremental process that involves trust and learning about each party. However, the level in which these factors occur is unequal, as there are different power positions within a network which influences resources availability and knowledge-building. In this regard, internationalisation can be seem as the strengthening of a position in a focal network (Vahlne and Bhatti, 2019), as being an insider enhances opportunities and knowledge. This is because the positioning of a firm is associated with superior information access and legitimacy (Oehme and Bort, 2015). Hence, learning is influenced by the status of actors and the power dynamics involved (Li and Fleury, 2020).

The discussion around power in the Uppsala model played a minor role in the original version, until the execution of power was incorporated later as resource dependence within

relationships are essential (Forsgren, Holm and Johanson, 2015). Thus, ownership makes the power concentrated in resource owner's hands (Vahlne and Johanson, 2021), who might control the information flow within the network (Díez-Vial and Montoro-Sánchez, 2020). In this case, even in a network environment, governance would be applied through hierarchical mechanisms based on the information control by the power holder.

On the contrary, the flow of information would not be held by a single party in a blockchain environment. Blockchain is a decentralised ledger where the information regarding all operations and transactions are stored across the network. Thus, the transaction records are publicly available and timestamped on the distributed network, which makes it verifiable by the members. The absence of a middleman means that there is no centralized point for information and data to pass through, making them transparent and safe (Nakamoto, 2008). This configuration allows a more equal power distribution. Even if one of the network peers disagree with a new member joining the network, their governance model is based on consensus. The hierarchy is decided by contracts' rules and consensus allowing a more flatted distributed power, hence providing its new members with legitimacy before the common agreement. Besides, the information available to the block (which is relevant to the process, product, and parties involved) is equally distributed, enhancing the quality of the communication avoiding power struggles caused by asymmetries of information. In this situation, the proof of stake is done by all members in the network (or by individuals elected by the network members), as the information validation is based on a consensus scheme, impacting the power struggle as it fosters resource sharing. For example, the need to empower energy consumers in electricity markets would benefit from this advantage as it would enable local power generation and consumption through the grid controlled by the concessionary firm, lessen the power concentrated in the hands of the latter (Andoni *et al.*, 2019). Based on this blockchain particularity, we propose:

Proposition 2: Blockchain governance reduces the liability of outsidership as it lessens the power struggle within the network, hence improving business legitimacy.

5.2.2 Commitment and Coordination

The Uppsala dynamic approach tells us that multinational's governance is based on a hybrid in between market and hierarchy, and it is successful due to gradually building trust and commitment (Vahlne and Johanson, 2021). Moreover, knowledge creation is important to reduce uncertainty and enhance commitment, as the latter deter breaches and support efficient exchange between parties (Williamson, 1996).

In this regard, commitment encompasses coordination, which implies that there is a mutual orientation between parties. This means that actors have complementary objectives within a network, which reflects the level of interdependency between them. Hence, coordinating relationships is essential, even more for international business (Johanson and Vahlne, 2003, 2009). This is because uncertainties and complexities rise with institutional and geographical distances between parties, which is reflected in different routines and higher coordination and commitment problems (Das and Kumar, 2010). To reduce these problems, the adoption of routines between parties provides accountability and predictability, as these sequential interactions enhance commitment and coordination while reducing opportunism. Thus, the institutional arrangement to manage collaboration between parties is a critical factor for a successful network.

In this context, blockchain appears to facilitate coordination and commitment. Since blockchain is built upon mutually shared values and runs automatically, it allows bypassing human unpredictability and bounded rationality, given the fast and cheap computation power.

For example, Carrefour and C&A use blockchain to trace their products and value chain (Allison, 2018; C&A, 2020), preventing opportunism and providing accountability for important information. In the case of the IBM food trust blockchain model, used for many firms in Europe, including the giant Carrefour, they rely on the technology to trace each product of the supply chain worldwide, and in case of food contamination, the responsible is easily identified (Allison, 2018). Thus, parties possess consistent and trustful knowledge about their common objectives and responsibilities, reinforcing the correlation of coordination and commitment. Hence, all the parties in the network work on the machine consensus and on the encrypted specified roles of each actor that they acknowledged and accepted as predefined rules. Therefore, within a blockchain network, actors do not rely on human cognition and emotions, nor in its lack of rationality, which enhances commitment and coordination that in its turn reduce uncertainty and provide legitimacy (Bangara, Freeman and Schroder, 2012). Because of that, we propose:

Proposition 3: Blockchain governance reduces the liability of outsidership since it enhances commitment and coordination within a network, hence improving business legitimacy.

5.2.3 Trust

According to Vahlne and Johanson (2021), trust is a prerequisite for learning, knowledge sharing and commitment. As the knowledge of each part is valuable to another, trust is a tool to control mechanisms that facilitate knowledge transfer. This is because firms access knowledge through trust-based relationships that lower the costs for market learning. Moreover, trust can substitute knowledge, for example, when a firm lacks knowledge and trusts a middleman (Johanson and Vahlne, 2009). Thus, trust is a mechanism to cope with uncertainty, and it enhances commitment.

Apart from being costly and time-consuming (Madhok, 2006), trust are a valuable asset that shapes the LOO (Lu, Song and Shan, 2018). It often implies a perception of credibility and benevolence (Kumar, Scheer and Steenkamp, 1995) and the ability to predict the other party's behaviour (Johanson and Vahlne, 2009). Thus, it persuades individuals to share information, and it is associated with less need for other control mechanisms (Williamson, 1996; Vahlne and Johanson, 2021). Hence, trust emphasizes the role of communication, which may be impacted by the LOF (Zaheer, 1995).

Moreover, Calhoun and Harnowo (2015) argue that trustworthiness needs compensating factors that include reciprocal knowledge-sharing and evidence such as honesty and transparency. In this context, the level of trust depends on institutions, as incentives for cheating are proportional to lower-quality contract enforcements (Oxley, 1999). In addition, contracts also produce information that may reduce firm stereotypes and prejudices (Lu, Song and Shan, 2018), which impacts legitimacy.

In this regard, smart contracts on a blockchain environment enhance trust as system automatization reduces cheating and middleman dependency. That is, all the transactions executed automatically by the smart contract provide information to the nodes of the block involved based on DAO. DAO can provide many benefits to the involved parties, such as transparency, immutability, and auditability(Alketbi, Nasir and Talib, 2018). Moreover, blockchain overturns old technologies that need centralization to build a trustful network (Zalan, 2018), and it is built over a common language and consensus, which reduces information asymmetry and enhances trust. Less information asymmetry also provides the MNE with a more precise understanding of the legitimate behaviour in a given country (Persson and Nagy, 2009). Because of that, The Economist (2015) called the blockchain the ‘trust machine’. Thus, we propose:

Proposition 4: Blockchain governance reduces the liability of outsidership as it enhances trust, hence improving business legitimacy.

6. CONCLUSION

The digital economy is changing the way we perform business. New opportunities and daunting challenges are being created at an unprecedented speed (UNCTAD, 2019). This scenario has been drawing IB researchers' attention to clarify the implications to MNE worldwide. In reference to blockchain technology, the relations with partners and stakeholders are directly affected. Blockchain is shaping a new and faster-connected economy, tightening global value chains and other relevant global operations. Before this new reality, this paper claims a revision of LOO and LOF impact on IB, considering the disruptive changes caused by blockchain technology.

Based on the blockchain governance model, we argue that LOO and LOF could be less of an impeditive for MNE internationalisation. First, blockchain is a technology that provides a decentralized distribution of power through transparent and trustful protocols and smart contracts. Second, the coordination within the block is mediated by a reliable technology preventing the exposition to the bounded rationality, sharing responsibility, hence improving the member's commitment. Lastly, the technology reduces the asymmetry of information, enhancing trust-based relationships.

6.1 Theoretical Implications

Our theoretical contribution is twofold. First, adding a more nuanced discussion about technology in IB, we proposed how blockchain governance helps MNE to cope with uncertainty improving trust-based relationships. Hence, we agree with Vahlne and Johanson (2021) that trust is a fundamental asset to surpass LOF and LOO as we discuss how a blockchain mediates relationships. This is because, according to the Uppsala model, firms learn from experience and create opportunities to a large extent by trial-and-error processes (Johanson and Vahlne, 1977). They suffer not only from LOF and LOO but also a lack of relevant knowledge (Johanson and Vahlne, 2009). Moreover, this model poses that organisational capabilities emerge from experiential learning and opportunity recognition. Hence, it is an incremental and gradual process since trust-building is time-consuming (Vahlne and Johanson, 2021). Thus, we add that blockchain technology can help firms engage with a network of partners and actors while building trust and commitment faster than regular governance modes, as it reduces time consumption to surpass LOF and LOO.

Second, through our theoretical framework, this paper helps form a fundamental understanding of how blockchain governance corroborates with legitimacy acquiring during the internationalisation process, especially by lessening the power struggle, enhancing commitment and coordination, and reducing the time consumption of trust-based transactions. The current literature explains that the MNEs struggle with legitimacy in different ways during the acquiring process (Zhang *et al.*, 2018) and could opt for different ownership structures to cope with these issues (Kostova and Zaheer, 1999; Chan and Makino, 2007; Dacin, Oliver and Roy, 2007) such as to overcome LOF and LOO. Nonetheless, integration issues persist in terms of the understanding between the parties (Zhang *et al.*, 2018), and we propose that the use of blockchain can provide the firm with one shorter way of doing so.

6.2 Implications for Decisionmakers

This study has implications for managers and policymakers. In terms of management, given that blockchain technology is seen as one big trend in the digital economy, it is shaping international production patterns and changing the global value chain structures. Managers

must consider how to introduce and apply blockchain governance into their international strategies by enhancing trust, reducing LOO and LOF, and acquiring legitimacy. Besides this, augmented complexity and competitiveness continue to force MNEs to change the form in which they interact with markets (Tirado, Tena and Guillén, 2019). It is worth and urgent for managers to consider applying and utilising new technologies to develop firms' dynamic capability. This also implies adopting an innovative business model, from products to management, creating unique advantages in such fierce competition.

For policymakers, our study shows a need to merge the prominent blockchain actors, proposing its formal regulation and creating a better and unified institutional environment for firms. This could be done by developing public policies in the digital sphere since the existing law of the technology is lagged and limited. As a response to the global competition and international strategy diversification, firms are innovating and creating new forms of business where regulation has not been unified and mature. Thus, the best-prepared institutions can cultivate a better business environment, leading the global market digital race.

6.3 Limitation and Future Research

The main limitation of our study is that we adopted a theoretical approach to discuss our propositions. In this regard, we suggest that future studies might want to test our propositions through cases or econometric modelling. By doing this, it will be possible to explore whether the blockchain governance model is suitable across different industries and institutional environments, as we propose. Case studies and econometric models could also provide evidence if there is any friction in the governance model in a particular set of institutions, impacting firm legitimacy, LOO and LOF in international endeavours. We also acknowledge that, given the steady business blockchain-based expansion and the rising concerns about data privacy in a digital economy (Luo, 2021), the lack of current regulations can impose some complex challenges to MNEs' business in the near future. Lastly, even though the character of the blockchain governance model is a "borderless" business model, national, international, and supranational safeguards could create some invisible barriers to these businesses. Luo (2021) poses that MNEs must deal with a digital regulatory complexity risk and cited data protection regulations developed within Europe and countries like Indonesia and Russia. Thus, future studies can investigate how blockchain technology lacks regulation, and the emergence of new ones impose risks in overcoming the LOO and LOF, shaking the level of trust among network members and its stakeholders.

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