Debating Hawala, Infrastructures and Critical Issues: A Continuum from Hawala to Blockchain Technologies?

Debatiendo Hawala, sus infraestructuras y cuestiones críticas: ¿Existe una continuidad de Hawala hasta las tecnologías de cadena de bloques?

Mario Mirabile*

Fecha de recepción: 25/08/2022 Fecha de aceptación: 06/10/2022

The paper aims to investigate the debate regarding the Informal Value Transfer Systems (IVTS), in particular that of hawala, a trust-based money transfer system. In this regard, analyzing the debate regarding hawala using primary and secondary sources, the paper demonstrates how hawala suffers forms of coercion –particularly after the September 11 attacks in the US–. But also, experts and academics dealing with human rights, the remittance market and financial inclusion advocate for a fair and sustainable development of the hawala system. The article offers a brief overview of the possibilities and main challenges offered by the application of blockchain-based technologies and the societal, institutional and technological issues arising from it. In particular, the paper reflects on the contemporary debate about the hawala system to explain –why at the moment– the category of continuum cannot be considered adequate to describe the relationship between hawala and blockchain technologies.

Keywords: remittances, hawala, blockchain, infrastructures, migration

Este documento tiene como objetivo investigar el debate sobre los Sistemas Informales de Transferencia de Valor (IVTS), en particular el de hawala, un sistema de transferencia de dinero basado en la confianza. Analizando el debate sobre la hawala y utilizando fuentes primarias y secundarias, este documento demuestra cómo hawala sufre formas de coerción, particularmente después de los ataques del 11 de septiembre en EE. UU. Pero también, expertos y académicos que se ocupan de derechos humanos, del mercado de remesas e inclusión financiera abogan por un desarrollo justo y sostenible del sistema del hawala. El artículo ofrece una breve descripción de las posibilidades y los principales desafíos que ofrece la aplicación de tecnologías basadas en blockchain y los problemas sociales, institucionales y tecnológicos que surgen de ella. En particular, el artículo reflexiona sobre el debate contemporáneo sobre el sistema hawala para explicar, por qué en este momento, la categoría del continuum no puede considerarse adecuada para describir la relación entre hawala y las tecnologías blockchain.

Palabras clave: *remesas, hawala, blockchain, infraestructura, migración*

* South Working - Lavorare dal Sud.

https://doi.org/10.46530/cf.vi34/cnfns.n34.p72-92

Introduction

This paper stems from some reflections born in the context of the international conference that took place on September 24, 2018, in Palermo (Italy), organized by the association "Locus", in collaboration with Prof. Carmelo Cattafi of the Tecnológico de Monterrey, and representatives of NGOs, academia, research centers and experts from Mexico, Austria and Italy. The title of the conference was "Data and Law: future scenarios of the fight against organized crime. From Palermo to the world". The aim was to analyze the main scenarios of adoption by organized crime of new and experimental technologies (e.g., blockchain), hybridization scenarios with existing informal networks based on trust (continuum: hawala-blockchain), possible scenarios and implications for law enforcement. Starting from these points, the paper aims to develop a reflection based on the analysis of the contemporary debate about the hawala system to demonstrate how nowadays we cannot generally speak of a hawala-blockchain continuum, but just of common or –at least partially– similar features of these two systems.

The paper is divided into three sections. In the first, the research focuses on defining the theoretical framework of the concept of hawala and it answers the following research questions: what is hawala? How does the hawala system work? What are its operational characteristics? The second section aims to analyze the debate regarding this system, with reference to documents, articles and books published after the September 11 attacks. Further research questions investigated are: what role did the hawala play in the debate at that time? What were the institutional consequences for this system? What kind of actors were involved in the debate? Finally, in the third section, the paper questions the contemporary technical and social research community regarding the hybridization scenarios between the hawala and blockchain-based money transfer systems. In this case the research investigates the following questions: is there a relationship between these two systems? And in what terms? How is it necessary to analyze financial infrastructures to understand their socio-political nuances and the contemporary societal issues? Is it possible to identify a continuum between hawala and blockchain systems? What are their similarities and differences?

In providing some conclusive reflections, this paper makes no claim to generalization of the results, but it intends to bring attention to the changing nature of the ancient hawala system and the new implications rising in the contemporary debate due to the introduction of new digital technologies in the wider global remittance infrastructure.

Defining the hawala system. A theoretical framework and the operational characteristics of the hawala system.

Every year billions of dollars are transferred across countries and continents using Informal Value Transfer Systems (IVTS). The Financial Crimes Enforcement Network (FinCEN) refers to IVTS as "any system, mechanism, or network of people that receives money for the purpose of making the funds or an equivalent value payable to a third party in another geographic location, whether or not in the same form" (US Department of the Treasury, 2003, p. 1). These transfers generally take place outside of the conventional banking system (Ibid.) and hawala, a trust-based money transfer system (Iazzolino and Hersi, 2019), is globally known as one of the leading forms of IVTS, in terms of flow of money involved in this system. Indeed, according to Buencamino and Gorbunov (2002), it is estimated that each year approximately $100 to $300 billion flow through IVTS, although it is extremely difficult to measure the extent of money flow due to the informal organization of the system and other characteristics discussed in the next sections.

There is not a universal consensus among scholars and experts about all the nuances of the hawala system and other non-banking systems alike. A first conceptualization of the term may be useful to better disentangle its complexity.

The hawala system is often described as an underground system employed to transfer money, as asserted by Trehan (2003) and Razavy (2005); however, according to Jost and Sandhu (2000), the use of this expression is not always correct, "as they often operate in the open with complete legitimacy, and these services are often heavily and effectively advertised" (p. 5). Thompson (2008) underlines the global and antagonistic role of the hawala system in respect to the state and banking apparatus, defining it as "an ancient form of money dealing and funds transfer that spans the globe and has re-emerged broadly in competition with state-governed finance across fragile regions." (p. 83) Another definition of the hawala system is provided by El-Qorchi et al. (2003) who embrace the term not as a unitary concept but deeply examine its duality in terms of channels of application and in relation with the mainstream narrative of an underground hawala system. Thus, the authors use the term hawala as "money transfer mechanisms which exist in the absence of, or parallel to, conventional banking channels." (p. 10)

The complexity of the historical and socio-cultural understanding of hawala –or similar non-banking institutions– is even more stressed out by the presence of this system in different parts of the world and the variety of terms employed to indicate it. Accordingly, in the international debate on the origins of hawala, there is a considerable disagreement on the actual onset of the origins of this system with arguments ranging from one hundred to thousands of years ago. These arguments underline the crucial role played by migration, such as Indian Diasporas in Africa and

Southeast Asia; traders looking for a way to travel securely, or by other credit systems like the giro in ancient Egypt (Buencamino and Gorbunov, 2002). Furthermore, Martin (2009) addresses the conceptual and cultural biases, highlighting the limited understanding of why the hawala system persists, despite the modern banking institution.

Depending on the latitude and the ethnic group, a variety of terms are used in referring to IVTS practices. Passas (1999, pp. 11-12) summarized them in the following list:

- Hawala (trust, reference, exchange; the Arabic root h-w-l means 'to change' or 'to transform') - India.
- Hundi (commonly translated as trust, it means bill of exchange or promissory note and is derived from a Sanskrit root meaning 'to collect') - Pakistan.
- Fei ch'ien (flying money) - Chinese.
- Phoe kuan - Thailand.
- Hui k'uan (to remit sums of money) - Mandarin Chinese.
- Ch'iao hui (overseas remittance) - Mandarin Chinese.
- Nging sing kek (money letter shop) - Tae Chew and Cantonese speaking groups.
- Chop shop - foreigners use this term for one of the Chinese methods.
- Chiti banking - refers to the "chit" used as receipt or proof of claim in transactions introduced by the British in China (short for 'chitty', a word borrowed from the Hindi 'chitthi', signifying a mark).
- Hui or hui kuan (association) –Vietnamese living in Australia.
- Stash house (for casa de cambio) – South American systems.

Furthermore, according to Thompson (2008), "hawilaad [or, xawilaad, i.e., hawala] is commonly employed by Somalis to denote the same practice in the African continent." (p. 83)

The operational characteristics of the hawala system are equally sophisticated. According to El-Qorchi (2002), the transaction can be operated from a customer (CA), in country A, to another customer (CB)

in country B. The hawala operator from country A (HA) receives funds in one currency from CA and, in return, gives CA an authentication code. So, he instructs the peer correspondent in country B (HB) to deliver an equivalent amount in the local currency to the beneficiary (CB). The latter has to provide the authentication code to receive the funds. The hawala operator in country A can charge a fee or take advantage of exchange rate spread to be remunerated. Following the remittance transaction, HA has a liability to HB. Their position can be settled by various means, either financial or goods and services. Other intermediaries can assume and consolidate their "initial positions and settle at wholesale or multilateral levels" (p. 32). Furthermore, 'reverse hawala' is another means through which the settlement of the liability position of the hawala dealers can be done. It consists of transactions often employed for investment purposes or to cover individual expenses, e.g., travel, medical, or education ones, started from a developing country. El-Qorchi (Ibid.) exemplified the mechanism as follows: "In a country subject to foreign exchange and capital controls, a customer (XB) interested in transferring funds abroad for, in this case, university tuition fees, provides local currency to HB and requests that the equivalent amount be made available to the customer's son (XA) in another country (A). Customers are not aware if the transaction they initiate is a hawala or a reverse hawala transaction. HB may use HA directly if funds are needed by XB in country A or indirectly by asking him to use another correspondent in another country, where funds are expected to be delivered." Finally, the author (Ibid.) depicts a scheme to simply describe all these mechanisms of above (see: Figure 1).

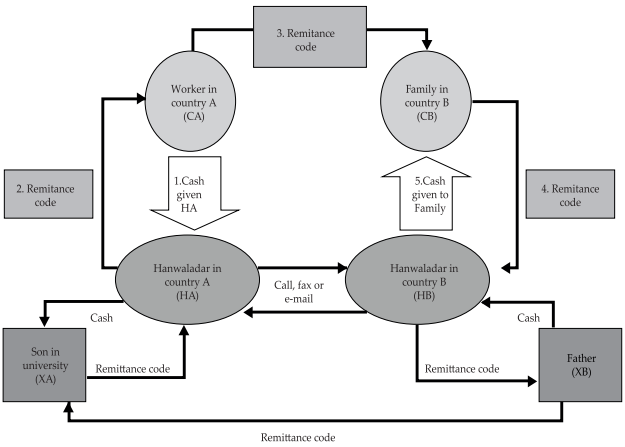

Figure 1. Prototype of a hawala transaction. From How does these informal value transfer systems work, and should it be regulated? (El-Qorchi, 2002).

The remitters are strongly advantaged using this money transfer system due to its operational and intrinsic characteristics. Indeed, hawala transactions are based on:

- Cultural convenience: the enhancement of development of informal networks is strongly related to the cultural differences between ethnic groups (*e.g.*, language, religion, and so on and so forth); the trust among community members, the solidarity among migrant people, facing the same difficult experiences (Ibid.). Thus, according to Ladányi and Kobolka (2004) "the system is culture friendly. For migrant workers, ethnic or kinship ties with the Hawala brokers make this system particularly convenient and easy to use." (p. 418)

- Versatility: hawala operations are highly adaptable to unstable contexts suffering because of conflicts, economic crisis, weak or nonexistent banking systems, but even in countries under pressure due to economic sanctions and blockades. In the last decades, the hawala system strongly reemerged in conflict-afflicted countries such as Somalia, Kosovo, Afghanistan and Iraq (El-Qorchi et al., 2002).

- Anonymity: the system is anonymous, facilitating transfers without public records or documentation. Generally, the existing records are not kept by hawala brokers at the end of the transactions (Ladányi and Kobolka, 2004).

- Cost: the system is economically effective. Money dealers take small commissions and usually hawala transfers have more advantageous exchange rates than the formal banking rates (Ibid.).

- Speed: on average, transfers take from six to twelve hours, between major international cities; or from twenty-four to forty-eight hours, between different countries (El-Qorchi et al., 2003).

- Reliability: as mentioned before, the system is based on trust, so it is reliable. According to Ladányi and Kobolka (2004) "there are no reported instances of customers being cheated in the literature." (p. 418)

- No bureaucratic slowdowns: because of its nature, the system is flexible and not bureaucratic, making it very attractive for migrants and/or people with tax or legal concerns. This is the case of illegal migrants, who do not have adequate identification and are not

authorized to use the banking system to send money home (Ibid.). However, hawala operators exchange information using common means of communication, such as e-mails, facsimiles, phones, mobile phones (Elmi and Ngwenyama, 2019), and apps (e.g., WhatsApp, Telegram, Viber) (Bodetti, 2016). However, if digital processes do not work, companies and remitters swiftly return to the manual ones, as in the case of West Bengal in 2018 (Press Trust of India, 2018).

- The system can be used for either legitimate or illegitimate aims (El-Qorchi et al., 2003).

Furthermore, Jost and Sandhu (2000) also briefly reports some distinction among the different systems in relation with hawala advantages: "The components of hawala that distinguish it from other remittance systems are trust and the extensive use of connections such as family relationships or regional affiliations. Unlike traditional banking or even the chop system, hawala makes minimal (often no) use of any sort of negotiable instrument." (p. 5)

In terms of supply to local communities, transactions run through a network of hawaladars (i.e., hawala dealers) and, according to El-Qorchi (2002), "funds are often delivered door to door within 24 hours by a correspondent who has quick access to villages even in remote areas." (p. 32)

Finally, scholars introduce one of the main challenges posed by the hawala system from an ethical perspective: the problem of its secrecy (Redín et al., 2014). On the one hand, "the respect for individual privacy" and, on the other hand, "the protection against possible illegal acts." (p. 22) So, "it is obvious that hawala, created centuries ago, put much less emphasis on this second principle, but this does not turn the system immoral now, but in any case, riskier from the point of view of public ethics or politics." (Ibid.)

In the next section, the research analyzes the debate that arose following the terrorist attacks of September 11, which also focuses on the ethical dimension of hawala and its challenges for public security.

The early 2000s debate on the hawala system and the 9/11 attacks

According to Yousef (2001), who testified during a U.S. Senate hearing on hawala and underground terrorist financing mechanisms, which took place 64 days after the tragedy of September 11: "Evidence of its existence goes back thousands of years and it is widely in use throughout the

world especially in Africa, Asia, and more recently in the United States." (p. 44). The September 11 attacks profoundly influenced the public and institutional debate on the hawala system. According to De Goede (2003), considering what happened on September 11, hawala became the target of the international press. The then South Asia correspondent for *Time Magazine*, Meenakshi Ganguly, currently South Asia director at Human Rights Watch, referred to hawala system as "a banking system built for terrorism" (Ganguly, 2001). Similar assertions came from one of the first articles related to this argument after the terrorist attacks. On September 26, *The New York Times* published an article written by William F. Wechsler (2001), former Special Adviser to the Secretary of the Treasury, where he states: "President Bush has just stepped-up efforts against the international financial network that provides the lifeblood for Osama bin Laden and his Al Qaeda terrorist organization… It is wrong to think of Al Qaeda as being financed primarily by Mr. bin Laden." By contrast, Wechsler suggests focusing on the financial networks and hawala to temporarily stem Al Qaeda's terrorist actions: "More important is Al Qaeda's global network of financial donors, Muslim charities, legal and illegal businesses, and underground money transfer businesses [...] by disrupting the criminal financial network, we will force Al Qaeda to take time and money to rebuild it -and in the process help obstruct terrorist operations." (Ibid.)

Policymakers either contributed to the growing suspicion atmosphere rounding the hawala systems and hawaladars, accusing the latter of providing terrorists with a nimble 'underground' financial apparatus. A few days after 9/11, the Security Council adopted the Resolution 1373, attaching great importance to the financial means that supposedly make terrorist attacks possible (Resolution 1373, 2001). According to Rosand (2003), it "is the cornerstone of the United Nation's counterterrorism effort." (p. 333)

In his discourse to the UN on November 10, President George W. Bush (2001) interpreted the aim of Security Council Resolution 1373 as follows: "Its requirements [that of Resolution 1373] are clear: every United Nations member has a responsibility to crack down on terrorist financing. We must pass all necessary laws in our own countries to allow the confiscation of terrorist assets. We must apply those laws to every financial institution in every nation." During the speech, the former President (Ibid.) addressed issues and challenges of the counter-terrorism strategies: "They need the support of a financial infrastructure, and safe havens to train and plan and hide". Therefore, he followed stressing the necessity of passing laws in the UN member countries to allow the confiscation of terrorist assets and concluding: "We must apply those laws to every financial institution in every nation." Thompson (2008) suggests other Bush's rhetorical examples: Bush referring to the hawaladars activities in the U.S. as "foreign scourge"

(p. 85), and the announcement of federal actions in the US and abroad to reach al-Qaeda crackdown (Ibid). Finally, according to Savage and Harvey (2007), the 9/11 Commission found that the terrorist attacks have been financed through formal banking and wire transfer systems. The authors warn that this does not mean that informal transfers were not implicated in the movement of the funds, and, at the same time, they confirm Ballard's assertions on the false assumption of the greater importance of informal transfer systems compared to formal banking for such illegal activities (Ballard, 2006).

From the previous examples, a Western centric view of the hawala system emerges, which has gone so far as to criminalize it, especially following the tragedy of September 11. The extent of the general criminalization of hawala prompts Austin and Sugihara (1993) to state that the connotations of the words informal or unorganized –characterizing the narrative applied to efficient non-Western credit markets– are "much broader and more disparaging of the unorganized sector than is implied by the standard definition itself: that the formal or organized institutions are those that are fully instituted within the Western legal framework and centrally supervised, for example by a central or reserve bank." (p. 2) Although the non-banking transfer systems are crucial for contemporary Third World economies, they are often seen as "an index of the unevenness of economic development in the world." (Ibid.)

According to Amin (2004), far from being under-regulated, these micro-worlds are filled with rules and parameters. Thus, adopting Guermond's (2020) geographical notion of remittance-scapes,[1] Cirolia et al. (2021) illustrates how in the context of remittance circulations, the visible regulatory functions of porous bureaucracies as well as the interwoven nature of faith-based organizations with livelihoods and households regulate migrant life and the circulation of remittances putting all these rules in relation with the spiritual, familial, and associational ties across space. Remittances are crucial for international development, which fuels the demand for quick, cost-effective, and traceable money transfer channels. The development sector has resumed its celebration of remittances throughout the previous two decades. The present frenzy surrounding remittances is fueled by spectacular figures demonstrating that remittances currently surpass development aid or direct foreign investment (DFI) in underdeveloped nations. Despite this celebration, experts on international development agree that several problems are diminishing the potential of remittances. For instance, the cost of sending money through reputable and established

1 Guermond (2022) describes the remittance-scapes as "the socio-economic and financial institutions, physical structures and cultural practices through which the production, circulation and reception of remittances are accomplished across multiple scales and spaces." (p. 373)

money transfer operators remains expensive, especially considering the often-unstable nature of migrant labor (Cirolia et al. 2021). At the same time, the Sustainable Development Goal 10.c intends to restrict transaction fees to no more than percentage of remitted money by 2030. However, the global average cost of sending $200 remained about 7 % in the first quarter of 2019, with Africa being among the most affected, with a 10 % transaction fee. The costliest remittance conduit is banks, which charge 11 %, followed by post offices, which charge 7 %. In the fourth quarter of 2018, national post offices were reported to have earned a premium of 1.5 % to 4 % due to their collaboration with money transfer operators. As a result, existing money transfer routes in underdeveloped nations do not match the needs of users properly (Bhimani et al. 2021). Nevertheless, Thompson (2007) identifies humanitarian relief workers as among the first who recognize the necessity of local money dealers for the delivery of money in war zones and states in crisis, as the cases of Afghanistan and Iraq demonstrate. In these countries, despite the war context, local money dealers continued providing services to people as "displaced and vulnerable persons who have few alternative means of survival, but also the availability of a mechanism by which traffickers in illegal goods, terrorists, and corrupt politicians can move and launder their money under the radar of state regulation." (p. 281) According to the author (Ibid.), this could explain the alternative image of hawaladars that persists in policy and media, looking at them as almost exclusively belonging to underground or criminal finance. Similarities also emerge for Pakistani migrants in Dubai. When these workers face salary delays, some "trusted hawala agents" provide support to their families remitting cash transfers in advance. In this way, the families can continue to afford paying their household expenses (Malit Jr. et al., 2017). But "this particular 'humanitarian transaction' is often only possible if the migrant has built long-standing trust and relationships with the hawala agent." (p. 80) Also, the difficulty of gaining access to formal remittance networks is compounded by regulatory controls requiring specific forms of identification and immigration status. These factors drive migrants to utilize informal channels consisting of diverse kinds of authority and expertise. However, according to Rella (2019), "an impetus toward formalization drives both inclusion and digitization." (p. 2) Where formalization is the process of making informal assets apparent and integrating them into market dynamics. It transforms remittances into assets that may be monetized by extracting transaction fees, monetising users' data, and leveraging these payment streams to create more complex financial products.

Finally, according to Redín et al. (2014), after the past years of concern for Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT), low-income countries, lacking appropriate capacities and/

or resources, although they are maintaining low compliance standards (Verdugo Yepes, 2011). In this sense, the introduction of new technologies in the remittance infrastructure are posing further challenges and opportunities to the remittance-scapes. Thus, in the next section, the research analyzes the contemporary debate around the relationship between the hawala system and blockchain-based technologies for money transfer.

Old problems, new times: enthusiasm, pessimism and the challenges for a fairer remittance future

The diversification of sources of money could be considered as a further strategy of social and economic security for migrants in response to the instability of collapsing states and institutions. Notwithstanding such developments, "hawala has remained in the eye of the storm for international financial regulation." (Redín et al. 2012, p. 8) The September 11 attacks and the financial crisis of 2007-08 have led to a global implementation of restrictive regulations for the remittance market, provoking financial institutions to abandon those sectors labeled as high-risk, unprofitable or politically complicated. After the global financial crisis, the financial infrastructure underwent de-risking, which involved a decrease in correspondent accounts and a concentration of those accounts in fewer financial institutions. This had a particularly detrimental impact on the price and speed of retail cross-border remittances (Rella, 2019). Meanwhile, migrants are starting to look at different ways of managing their own capital, transcending simply sending money home by acquiring bank credits or managing money simultaneously in more than one country (Flore, 2018). In the actual context, financial infrastructures are ubiquitous and facilitate payments, debt obligations, and trading. Tech-driven firms aim to include transactional data in their platforms without becoming banks. In fact, banking licenses and regulatory restrictions are seen as burdens for tech companies. With platforms entry into finance, financial infrastructures are not replaced, but rather built upon (Westermeier, 2020).

While platforms and infrastructures are often seen as interchangeable, their conceptual differences are crucial to understand societal issues mentioned later in this section. Thus, infrastructures are heterogeneous systems connected through socio-technical gateways (Ibid.), relational-based and connected to structured behaviors (Star and Ruhleder, 1996), while platforms are programmable with a stable core system. Infrastructures' markets are typically regulated in the public interest, while platforms are mostly private and competitive. Also, infrastructures are built for long-term sustainability, whereas platforms are updated often (Westermeier, 2020).

In this regard, as mentioned by Rella (2019), the existing critical, interdisciplinary social science literature tends to concentrate on sale and everyday experiences and subjectivities of remittance payers and payees, leaving payment infrastructures understudied. Following this path, in this section the research offers a contribution around the debate focusing on the relationship between hawala and blockchain-based technologies for money transfer. Blockchain creates a distributed system of transaction databases (blocks) that archive all transactions, making them absolute and unchangeable. Caliskan (2020) understands blockchains as "infrastructures that enable the movement of data as representation and value." (p. 3) This technology can enable rapid, low-cost, private transactions handled entirely by family members and less penetrable by state surveillance technologies. Blockchain and cryptocurrency have inspired a new transfer service to reduce costs and improve distribution. With cryptocurrencies, this technology could enable rapid, high-security, traceable transactions over great distances, bypassing banks, agents, cash reserves, and other intermediaries. This infrastructure is spawning a private digital remittance market (Bhabha et al. 2021). As global momentum for remittances favors the blockchain technologies, regulatory and policy gaps persist. In this regard, Bhabha et al. (Ibid.) suggest that governments and regulators should create a multi-regional system to coordinate and supervise blockchain processes. However, many doubts persist on the concrete possibility to track blockchain procedures. The authors (Ibid.) address the opportunities and critical issues arising from the application of AI for transnational families. This technology might replace border security, ID checks, and migration data for decision-making. Big data mixed with AI algorithms could assist predict and protect migratory patterns as data collection and aggregation technologies advance (Ibid.), but also perpetuate biases and discrimination based on historical data and the design of the algorithms adopted (Nowotny, 2021). These advances threaten skewed data and black-box algorithms, which reinforce biases and induce unlawful discrimination, even against multinational families. In a time of altering global and regional law, the effects of AI algorithms and big data on these families and all migrants must be carefully reviewed (Bhabha et al. 2021).

Less formal techno-financial experimentation is increasing across the Global South as part of the turn to technology in development. Claims that Africa's future is crypto are materializing in formal and informal experiments based on the blockchain technologies powering cryptocurrencies (Campbell-Verduyn and Giumelli, 2022). These blockchain-based initiatives reportedly seek to meet a demand for financial autonomy, especially in Africa (Sirila, 2014). Widespread techno-euphoria encourages blockchain experiments as "the answer to Africa's problems" (Campbell-Verduyn and Giumelli, 2022). In fact, techno-enthusiasts

propose the implementation of blockchain-based technologies in the remittance market in order to fight informal money transfer systems and contravene restrictive regulations and high operational costs. Scott (2016, p. 5) summarizes justifications for the adoption of Bitcoin to empower people in underdeveloped countries as follow:

- Bitcoin to facilitate low-cost remittances for those seeking to transfer small amounts of money internationally.

- Bitcoin as a means for an otherwise excluded individual to have a decentralized global bank account, accessible simply by downloading an open-source wallet from the internet, rather than having to set up with a formal financial institution.

- Bitcoin subsequently provides the basis for a richer set of financial services.

Blockchain-based technologies for money transfer share certain characteristics with the hawala system. Commentators even refer to blockchain as the modern or new hawala (Mayyasi, 2014; Biswas and Roy, 2017). Notable characteristics include: decentralization with no central authority; convenience; anonymity or pseudonymity; trust; fastness (Scott, 2016; Vejačka, 2014). Blockchain-based systems subsequently may seem theoretically like hawala systems and potentially applicable in complex contexts such as the Somali one, as also argued by Scott (2016): "Bitcoin theoretically could be used to bypass… banks to form an alternative remittance channel." (p. 5) The author also emphasizes an additional advantage in the use of cryptocurrency. It seems to have potential in facilitating "small-scale international commerce. Local merchants in poorer countries may struggle to access international payment systems to sell their goods abroad." (Ibid.) In addition, according to Schiller (2017), the spread of new technologies could facilitate the lowering of operational remittance costs: "new technology and the boldness of an emerging group of money transfer startups -like Circle, and others like Abra, Transferwise, and WorldRemit- could also have a profound impact. The combination of the internet, mobile phones, bitcoin, and the blockchain could dramatically reduce the cost of sending money internationally, say experts." In a true libertarian fashion, the commentator adds that this could be reachable: "if the startups are allowed to grow unimpeded by unnecessary regulation and special interest griping, including from banks and exchangecompanies that currently gain handsomely from the fees and inefficiency in the space." Indeed, technological progress and new business models for remittance services, making operations more efficient, are greatly reducing costs. The

implementation of new technologies, starting from mobile phones has promoted the use of mobile money for international remittances and the huge cost reduction for the user who wants to transfer money (Rühmann et al., 2020). Thus, based on the potential impact of such technological innovations on the cost of remittances, blockchain is perceived as an element of positive change for the remittance market and cryptocurrencies are not only a first attempt to implement the blockchain system in the sector. They promise to solve existing problems, instantly settling transactions, cutting down the capital costs associated with the current settlement system, and addressing some of the shortcomings of the traditional payment systems such as speed, access, transparency and transaction cost (Ibid.). However, this system, which may seem to be a source of resolution of a burdensome problem such as that of high remittance prices, especially in highly conflictive contexts, faces several challenges that the experts (Ibid.) emphasize in their research. These are:

- Last-mile delivery: remittances are generally spent on consumption, so cryptocurrencies and similar have to be converted to cash in order to be able to use the received remittances.

- Lack of financial inclusion, lack of access to financial services and lack of financial infrastructure: they hamper the potential of blockchain technology to reduce the cost of remittances significantly.

- Digital divide: the success of blockchain-based technologies rests heavily on the accessibility to mobile connectivity, internet connectivity, email, access to electricity and to technological literacy and familiarity with digital tools.

- Regulation: on the one hand, it is crucial for challenging the risks for the protection of customers; on the other, regulation also hampers the adoption of blockchain technology for remittances.

- Data privacy risks: one of the main problems is related with the potential misuse of data and violation of privacy rights by the involved parties. So, "some of the most fundamental questions remain: who owns the data (who has access to it and who are the decision makers?) and how is it being controlled." (p. 26)

Other questions regarding migrants focus on the potential resistance to transparency given their gains arising from the weaknesses of the prevailing system, and their lack of trust in government. In countries with

weak governance, blockchain's benefits cannot be fully realized because its output is as good as its input. Furthermore, blockchain adoption is expensive. Since blockchain talents are a niche industry, developers and network engineers earn $120,000-180,000 per year in Europe and $150,000 in the US. Also, implementation costs should include energy consumption. One blockchain transaction uses as much energy as the average household in a day. This poses a question to the possibility of application of this system in poor countries like Pakistan, which claimed electrical shortage in 2018. Developing countries may face significant operational costs (Bhimani et al. 2021). Finally, Whyte (2019) stresses the risk of using blockchain technology to raise funds to keep activities viable by organized crime and terrorist groups.

Conclusions

In this paper, the research analyzed the hawala system, its theoretical framework, the debate following the 2001 terrorist attacks in the United States and the relationship of the hawala system with blockchain-based systems. In the first section of the paper a theoretical framework of the hawala system has been exposed to better disentangle its complexity and operational characteristics. In the second section, the research found that cultural conflicts came with regulations and coercive actions of more ancient and 'exotic' institutions such as the hawala system. The depiction of hawala as a financing system for terrorist groups emerged especially following the attacks of September 11, yet, as exposed above, the suspicions that hawala financed September 11 attacks have been debunked by the proper UN Commission. Critical voices raised in recent decades undermined the criminalizing political narrative that dominates the debate on the hawala and other IVTS. These primarily point out the necessity of hawala as a means of subsistence for millions of people around the world, and in the Global South in particular. In the third section, the paper called into question the current technical and social research debate over hybridization scenarios involving hawala and blockchain-based money transfer systems. The paper demonstrates that, at the moment, we cannot generally speak of a hawala-blockchain continuum. Furthermore, the paper highlighted that the discourse of blockchain-enthusiasts underlies a certain techno-solutionist –and "crypto-colonialist" (Herzfeld, 2002)– rhetoric with the aim to disrupt the remittance market, rather than achieving a fairer financial inclusion. In this regard, Scott (2016) also points out that "technology solutionism can be contrasted to more holistic anthropological perspectives concerned with understanding the socially embedded use of technology in particular political and cultural

settings. Technology does not operate in a vacuum, and Bitcoin systems do not just descend on 'poorer countries' for the empowerment of all. The solution gets sold by particular people and adopted by particular people within particular contexts." (p. 9) Finally, future social research requires critical and empirical analysis of socio-technical aspects of migration and remittance infrastructures (Caliskan, 2020; Cirolia et al. 2021; Rella, 2019; 2020), particularly engaging with the political materiality of remittance-scapes.

References

Amin, A. (2004). Regulating economic globalization. T*ransactions of the Institute of British Geographers, 29*(2), 217-233. https://doi.org/10.1111/j.0020-2754.2004.00126.x

Austin, G. and Sugihara, K. (1993). Introduction: Local Suppliers of Credit in the Third World, 1750-1960. In: G. Austin and K. Sugihara (Eds.), *Local Suppliers of Credit in the Third World, 1750–1960* (pp. 1-25). London: Palgrave Macmillan. https://doi.org/10.1007/978-1-349-22916-1_1

Ballard, R. (2006). Hawala: Criminal Haven or Vital Financial Network? *Newsletter of the International Institute for Asian Studies*, 8-9. https://doi.org/10.11588/xarep.00000263

Bhabha, J., Bathia, A., and Peisch, S. (2021). Transnational Families and Technology: Trends, Impacts and Futures. In M. McAuliffe (Ed.), *Research Handbook on International Migration and Digital Technology* (pp. 300-314). Edward Elgar Publishing. https://doi.org/10.4337/9781839100611.00032

Bhimani, A., Hausken, K., and Arif, S. (2021). Blockchain Technology Adoption Decisions: Developed vs. Developing economies. In K. R. Balachandran (Ed.), *Information for Efficient Decision Making* (pp. 91-113). World Scientific Publishing Company. https://doi.org/10.1142/9789811220470_0003

Biswas, A. and Roy, B. (June 14, 2017). Bitcoin, the New Hawala. *The Economic Times*. https://economictimes.indiatimes.com/blogs/et-commentary/bitcoin-the-new-hawala/

Bodetti, A. (15 November, 2016). *From WhatsApp to Hawala: How the Taliban Moves Money Around.* Motherboard. Tech by VICE. https://www.vice.com/en_us/article/bmv3g3/from-whatsapp-to-hawala-how-the-taliban-moves-money-around

Buencamino, L. and Gorbunov, S. (2002). Informal Money Transfer Systems: Opportunities and Challenges for Development Finance. *Economic & Social Affairs* (DESA Discussion Paper No. 26). United Nations Department of Economics and Social Affairs. https://www.un.org/esa/desa/papers/2002/esa02dp26.pdf

Bush, G. W. (November 10, 2001,). President Bush Speaks to United Nations [Discourse to the United Nations]. United Nations General Assembly, U.N. Headquarters, New York, New York. https://georgewbush-whitehouse.archives.gov/news/releases/2001/11/20011110-3.html

Caliskan, K. (2020). Data Money: The Socio-Technical Infrastructure of Cryptocurrency Blockchains. *Economy and Society, 49*(4), 540-561. https://doi.org/10.1080/03085147.2020.1774258

Campbell-Verduyn, M. and Giumelli, F. (2022). Enrolling into Exclusion: African Blockchain and Decolonial Ambitions in an Evolving Finance/Security Infrastructure. *Journal of Cultural Economy, 15*(4), 524-543.

https://doi.org/10.1080/17530350.2022.2028655

Cirolia, L. R., Hall, S., and Nyamnjoh, H. (2021). Remittance Micro-Worlds and Migrant Infrastructure: Circulations, Disruptions, and the Movement of Money. *Transactions of the Institute of British Geographers*, *47*(1), 63–76. https://doi.org/10.1111/tran.12467

de Goede, M. (2003). Hawala Discourses and the War on Terrorist Finance. *Environment and Planning D: Society and Space, 21*(5), 513-532. https://doi.org/10.1068/d310t

Elmi, M. and Ngwenyama, O. (2019). The Role of Mobile Money in Somalia's Remittance System. In: F. F.-H. Nah and K. Siau (Eds.), *HCI in Business, Government and Organizations. ECommerce and Consumer Behavior* (Vol. 11588, 119-136). Springer International Publishing. https://doi.org/10.1007/978-3-030-22335-9_8

El-Qorchi, M. (2002). How Does This Informal Funds Transfer System Work, and Should it Be Regulated? *Finance and Development, 39*(4), 31-33. https://www.imf.org/external/pubs/ft/fandd/2002/12/elqorchi.htm

El-Qorchi, M. E., Maimbo, S., and Wilson, J. (2003). *Informal Funds Transfer Systems: An Analysis of the Informal Hawala System*. International Monetary Fund. https://www.elibrary.imf.org/view/IMF084/03590-9781589062269/03590-9781589062269/03590-9781589062269.xml?redirect=true

Flore, M. (2018). *How Blockchain-Based Technology is Disrupting Migrants' Remittances: A Preliminary Assessment.* Publications Office of the European Union. https://doi.org/10.2760/23991

Ganguly, M. (October 5, 2001). A Banking System Built for Terrorism. *Time.* http://content.time.com/time/world/article/0,8599,178227,00.html

Guermond, V. (2022). Remittance-Scapes: The Contested Geographies of Remittance Management. *Progress in Human Geography, 46*(2), 372–397. https://doi.org/10.1177/03091325211033645

Herzfeld, M. (2002). The Absent Presence: Discourses of Crypto-Colonialism. *South Atlantic Quarterly, 101*(4), 899-926. https://doi.org/10.1215/00382876-101-4-899.

Iazzolino, G. and Hersi, M. (2019). Shelter from the Storm: Somali Migrant Networks in Uganda between International Business and Regional Geopolitics. *Journal of Eastern African Studies, 13*(3), 371-388. https://doi.org/10.1080/17531055.2019.1575513

Jost, P. M. and Sandhu, H. S. (2000). *The Hawala Alternative Remittance System and its Role in Money Laundering.* Interpol General Secretariat. https://bensonsamuel.files.wordpress.com/2013/02/interpol-hawala-document.pdf

Ladányi, E. and Kobolka, I. (2004). *The Hawala System. Interdisciplinary Management Research*, (Vol. 10). Josip Juraj Strossmayer University of Osijek. http://www.efos.unios.hr/repec/osi/journl/PDF

InterdisciplinaryManagementResearchX/IMR10a30.pdf

Malit Jr. F. T., Alawad, M., and Naufal, G. (2017). More Than a Criminal Tool: The Hawala System's Role as a Critical Remittance Channel for Low-Income Pakistani Migrants in Dubai. *Remittances Review, 2(*2), 63-88. https://doi.org/10.33182/rr.v2i2.429

Martin, M. (2009). Hundi/hawala: The problem of definition. *Modern Asian Studies, 43*(4), 909-937. https://doi.org/10.1017/S0026749X07003459

Mayyasi, A. (February 7, 2014,). Hawala: the Working Man's Bitcoin. *Priceonomics*.https://priceonomics.com/hawala-the-working-mans-bitcoin/

Nowotny, H. (2021). *In AI We trust: Power, Illusion and Control of Predictive Algorithms*. Polity Press.

Passas, N. (1999). *Informal Value Transfer Systems and Criminal Organizations: A Study into So-Called Underground Banking Networks*. Netherlands Ministerie Van Justice. https://doi.org/10.2139/ssrn.1327756.

Press Trust of India (24 July, 2018). Hawala Transactions Rising Due to GSTN Software: WB Minister. *The Economic Times*. https://economictimes.indiatimes.com/news/economy/policy/hawala-transactions-rising-due-to-gstn-software-wb-minister/articleshow/65121052.cms

Razavy, M. (2005). Hawala: An underground haven for terrorists or social phenomenon? *Crime, Law and Social Change, 44*(3), 277-299. https://doi.org/10.1007/s10611-006-9019-3

Redin, D., Calderon, R., and Ferrero, I. (2012). Cultural Financial Traditions and Universal Ethics: The Case of Hawala. *Journal of Business Ethics.* https://doi.org/10.2139/ssrn.2486079

_____ (2014). Exploring the Ethical Dimension of Hawala. Journal of Business *Ethics, 124*(2), 327-337. https://doi.org/10.1007/s10551-013-1874-0

Rella, L. (2019). Blockchain Technologies and Remittances: From Financial Inclusion to Correspondent Banking. *Frontiers in Blockchain*, 2. https://doi.org/10.3389/fbloc.2019.00014

_____ (2020). Steps Towards an Ecology of Money Infrastructures: Materiality and Cultures of Ripple. *Journal of Cultural Economy*, *13*(2), 236-249. https://doi.org/10.1080/17530350.2020.1711532

Resolution 1373 of 2001 [United Nation Security Council]. Threats to International Peace and Security Caused by Terrorist Acts (September 28 2001). https://www.refworld.org/docid/3c4e94552a.html

Rosand, E. (2003). Security Council Resolution 1373: The Counter-Terrorism Committee, and the Fight Against Terrorism. *American Journal of International Law, 97*(2), 333-341. https://doi.org/10.2307/3100110

Rühmann F., Konda, S. A., Horrocks, P. and Taka, N. (2020). Can Blockchain Technology Reduce the Cost of Remittances? *OECD Development Co-operation Working Papers*, 73. OECD Publishing.

Savage, K. and Harvey, P. (2007). Remittances During Crisis: Implications for Humanitarian Response. *Humanitarian Practice Group Report*, 26. Overseas Development Institute. https://odi.org/en/publications/remittances-during-crises-implications-for-humanitarian-response/

Schiller, B. (April 28, 2017). The Fight for the $400 Billion Business of Immigrants Sending Money Home. *Fast Company*. https://www.fastcompany.com/3067778/the-blockchain-is-going-to-save-immigrants-millions-in-remittance-fees

Scott, B. (2016). How Can Cryptocurrency and Blockchain Technology Play a Role in Building Social and Solidarity Finance? *UNRISD Working Paper*. United Nations Research Institute for Social Development. https://www.weusecoins.org/assets/pdf/library/Cryptocurrency%20and%20Blockchain%20-%20Role%20in%20Building%20Social%20and%20Solidarity%20Finance.pdf

Sirila, D. (2014). The Pleasures and Perils of New Money in Old Pockets: M-PESA and Bitcoin in Kenya. *SSRN Scholarly Paper*. https://doi.org/10.2139/ssrn.2490111

Star, S. L. and Ruhleder, K. (1996). Steps Toward an Ecology of Infrastructure: Design and Access for Large Information Spaces. *Information Systems Research*, 7(1), 111-134. https://doi.org/10.1287/isre.7.1.111

Thompson, E. A. (2007). Misplaced blame: Islam, Terrorism and the Origins of Hawala. *Max Planck Yearbook of United Nations Law Online, 11*(1), 279-305. https://doi.org/10.1163/18757413-90000009

_____ (2008). An Introduction to the Concept and Origins of Hawala. *Journal of the History of International Law/Revue d'histoire du droit international, 10*(1), 83-118. https://doi.org/10.1163/157180508X308509

Trehan, J. (2003). Underground and parallel banking systems. *Journal of Financial Crime, 10*(1), 76-84. https://doi.org/10.1108/13590790310808628

US Department of the Treasury Financial Crimes Enforcement Network [FinCen] (2003). *FinCen Advisory*, 33. https://www.fincen.gov/resources/advisories/fincen-advisory-issue-33.

Vejačka, M. (2014). Basic Aspects of Cryptocurrencies. *Journal of Economy, Business and Financing*, 2, 75-83. https://www.researchgate.net/publication/292586903_Basic_Aspects_of_Cryptocurrencies

Verdugo Yepes, C. (2011). Compliance with the AML/CFT International Standard: Lessons from a Cross-Country Analysis. *IMF Working Papers*, 1-75. https://www.imf.org/external/pubs/ft/wp/2011/wp11177.pdf

Wechsler, W. F. (September 26, 2001). Terror's Money Trail. *The New York Times.* https://www.nytimes.com/2001/09/26/opinion/terror-s-money-trail.html

Westermeier, C. (2020). Money Is Data: The Platformization of Financial Transactions. I*nformation, Communication & Society, 23*(14), 2047-2063. https://doi.org/10.1080/1369118X.2020.1770833

Whyte, C. (2019). Cryptoterrorism: Assessing the Utility of Blockchain Technologies for Terrorist Enterprise. *Studies in Conflict & Terrorism*, 1-24. https://doi.org/10.1080/1057610X.2018.1531565

Yousef, T. M. (November 14, 2001). Hearing on Hawala and Underground Terrorist Financing Mechanisms [Hearing Prepared Statement of Dr. Tarik M. Yousef]. US Senate Committee on Banking, Housing and Urban Affairs, Washington. http://purl.access.gpo.gov/GPO/LPS25707