CRYPTOCURRENCY AS A SOLUTION FOR CROSS-BORDER FUND TRANSFER ISSUES IN AFGHANISTAN: A STUDY OF PUBLIC AWARENESS, ATTITUDES AND ADOPTION

QANDAGHA SAFI, RIZAL BIN MOHD NOR

The Kulliyyah of Information and Communication Technology, International Islamic

University Malaysia, Gombak, Malaysia

Corresponding author: qandagha.safi17@gmail.com

ABSTRACT: Cryptocurrency is a digital exchange system that uses cryptography to create and distribute tokens in a peer-to-peer network. Cryptocurrency is a form of digital currency based on blockchain technology, making it fully decentralized. This decentralization feature enables easy money transfers, leading many researchers to study the success factors of cryptocurrency-based fund transfer services in different countries and regions. On the other hand, Afghanistan has faced constant problems with cross-border money transfers, which have been exacerbated by the Taliban takeover and subsequent international sanctions. Therefore, an alternative solution to the country's international remittance problems must be found. This study examines the willingness of the Afghan public to adopt cryptocurrency-based remittance services. It focuses on important factors that may have a significant impact on the success of this new transfer method. The study uses a quantitative research methodology and an online questionnaire survey to collect data from 200 Afghans in Afghanistan and abroad. The findings reveal significant problems with current remittance methods, particularly with banks and hawala. The study found great concerns among Afghans regarding hawala and banking transfer rates as well as their availability in different regions. In addition, awareness of cryptocurrencies among the Afghan public is basic as there are only a few people who have traded or owned cryptocurrency coins. However, the attitudes toward cryptocurrencies are considered good and positive as the majority of the participants are happy with the cryptocurrency security, privacy, and transfer fee mechanisms. The results of the regression analysis show that the difficulties associated with current remittance methods and the attitude towards cryptocurrencies significantly influence the adoption of cryptocurrency-based money transfer services in Afghanistan. However, the impact of cryptocurrency awareness on adoption is relatively low. This will benefit government policymakers to look into the matter and as well as attract investors to invest in cryptocurrency-based transfer services and exchanges. Overall, this study sheds light on the potential of cryptocurrency-based money transfer services in Afghanistan and provides insights into the factors that influence their adoption.

KEY WORDS: *Blockchain, Cryptocurrency, Remittance, Afghanistan*

1. INTRODUCTION

Cryptocurrency represents a subset of digital currencies that challenges conventional fiat systems governed by centralized authority. Cryptocurrencies operate on a decentralized model, where no single entity can exert control or manipulate the market. Each transaction's ownership is cryptographically approved by other nodes in the network, constituting the Distributed Ledger Technology (DLT) known as Blockchain (Appelbaum & Stein Smith, 2018). Notably, cryptocurrencies like Bitcoin have garnered attention in the realms of international trade law and economics, offering transfers without intermediaries and free from the oversight of specific authorities or geographic constraints. Prominent examples of Blockchain cryptocurrencies include Bitcoin and Ethereum, with Bitcoin holding a higher market value than Ethereum (Rahimi & Sharifian, 2020). Cryptocurrencies find utility both as a medium of exchange and for facilitating fund transfers (Sood & Simon, 2019).

Traditionally, money transfers have occurred through formal channels such as banks and informal avenues like Hawala, as well as transfers facilitated by friends and relatives (Theingi, Theingi, & Purchase, 2017). In Afghanistan, individuals have employed a mix of formal and informal methods for fund transfers over the past two decades. Formal banking channels faced limited popularity due to issues like high transfer rates and a scarcity of bank branches (Mansoori & Ibrahim, 2021).

The banking system in Afghanistan has experienced numerous challenges and successes. Originated in 1933 with the establishment of Bank-e-Millie Afghan (National Bank of Afghanistan), the Afghan banking system faced severe setbacks during the war against the Soviets and internal conflicts among the Mujahideen (Katzman & Thomas, 2017; Pernia et al., 2005). Significant progress was achieved with the re-establishment and revitalization of the banking system in December 2002, supported by international assistance (Naseri & Sharofiddin, 2020).

The Taliban's initial government faced sanctions from the U.S. and U.N for political reasons (E.O. 13129). The events of August 15, 2021, marked the Taliban's entry into Kabul, triggering economic sanctions imposed by the United States on various departments. These sanctions disrupted essential services and humanitarian aid to those in dire need. The freezing of substantial portions of the country's international reserves, including banking sector deposits and central bank resources, paralyzed Afghanistan's financial and bank payment systems. This upheaval led to runs on banks, withdrawal restrictions, liquidity shortages, and forecasts of a potential collapse of the entire banking sector. International correspondent banking relationships were suspended, compounding the challenge by limiting the ability to cash out wire transfers that did manage to reach Afghanistan (IRRC, 2021).

2. PROBLEM STATEMENT

A deficiency in quality service can detrimentally impact banking services in Afghanistan, where access to basic banking and electronic transaction services is severely limited, particularly in rural areas where the majority of the population resides (Perl et al., 2019). The challenging political landscape of Afghanistan, marked by constant changes over the past four decades (CRS, 2010), underwent a significant upheaval in August 2021 with the Taliban's return to power. This event, characterized not only as a transfer of power from the previous regime supported

by the US and NATO for two decades but also as a military victory for a group lacking a positive global reputation, ushered the country into a new phase of formidable challenges, with the public bearing the brunt of the consequences.

The second takeover by the Taliban led to a reduction in funds and previously pledged assistance from donors. Additionally, the initiation of US sanctions on the central bank and other departments unfolded, with the freezing of $9 billion USD in assets belonging to the central bank of Afghanistan. The immediate fallout of these developments pushed Afghanistan's financial and banking payment systems into a state of instability. Beyond the profound socioeconomic repercussions, humanitarian actors faced significant delays in both making and receiving payments (CRS, 2021).

Moreover, the existing global ecosystem for cross-border payments relies on intermediaries, often in the form of correspondent banks (Neyer, 2017). The efficacy of this process hinges on well-defined procedures and responsibilities for all parties involved in the transaction, a feat achieved by the SWIFT system through its standardized messaging structure (Bayram, 2020). However, the SWIFT system, largely controlled by the US, operates as a highly centralized and time-consuming mechanism with exorbitant transfer rates. Additionally, it may not be universally accessible, particularly for countries facing sanctions. Criticisms of the SWIFT network have spurred exploration into alternative methods for cross-border payments, with blockchain technology emerging as a promising option. Despite being a relatively recent development and still undergoing evolution, blockchain technology has found applications in cross-border payments (Morabito, 2017; Parker, 2015).

Given the instability and limited availability of Afghanistan's banking system, exacerbated by recent US sanctions, the country is in dire need of a new approach to address its money transfer issues. This is particularly crucial for funds designated for humanitarian assistance or sent by Afghans working overseas. The resultant increase in cryptocurrency usage in the country, albeit slight, prompts the need for research to ascertain whether cryptocurrency can serve as a viable solution and to delineate the regulatory framework for crypto investments. This study aims to delve into this critical matter and offer potential insights and solutions.

3. RESEARCH QUESTIONS

1) What issues are there in cross-border fund transactions from and to Afghanistan and do they have an impact on the success of cryptocurrency-based cross-border fund transfer services?

2) What is the level of awareness among Afghans about blockchain and cryptocurrency and does it affect the usage of cryptocurrency-based cross-border fund transfer services?

3) What are the Attitudes Towards Cryptocurrency in Afghanistan and do they have an impact on the success of cryptocurrency-based cross-border fund transfer services?

4) What is the opinion of Afghans on the role of cryptocurrency in solving cross-border fund transfer issues in Afghanistan?

4. RESEARCH OBJECTIVES

1) To find out current issues with cross-border fund transfer in Afghanistan and its impact on cryptocurrency-based fund transfer services implementation.

2) To explore the level of awareness among Afghans regarding cryptocurrency and its impact on cryptocurrency-based cross-border fund transfer services.

3) To investigate the Attitudes Towards Cryptocurrency in Afghanistan.

4) To examine the public's opinion on the role of cryptocurrency in solving cross-border fund transfer issues in Afghanistan.

5.   RESEARCH HYPOTHESES

1) Current fund transfer methods difficulties significantly impact the adoption of cryptocurrency-based fund transfer services.

2) Cryptocurrency Awareness has significant impact on the adoption of cryptocurrency-based fund transfer services.

3) Attitudes Towards Cryptocurrency significantly impact the adoption of cryptocurrency-based fund transfer services.

2. LITERATURE REVIEW

This segment delves into historical research and seminal contributions concerning cross-border transactions, existing transfer methodologies, and the associated challenges. It also explores the role of blockchain and cryptocurrency in overseas fund transactions, with a primary emphasis on Afghanistan and nations facing analogous circumstances. The findings underscore the imperative need for a novel alternative for international transfers in Afghanistan, underscoring the scarcity of research in this domain, particularly with respect to the exploration of blockchain and cryptocurrency as viable alternatives.

2.1. Cross-Border Fund Transfer Channels

People have employed various methods for cross-border fund transfers, and in today's interconnected world, the demand for international money transfers has become more significant than ever (Theingi, Theingi, 2017). Such remittances occur through both informal and formal channels. Formal channels include banks, registered money transfer offices (MTOs), credit unions, traveler's checks, postal orders, and payment cards, which necessitate a level of infrastructure such as ATMs, bank branches, and regulatory controls. Informal channels, on the other hand, involve unregistered MTOs, often referred to as "Hundi" or "Hawala," acting as local agents, utilizing low-cost technologies such as telephones in the transfer process (Kosse, Vermeulen, 2014).

Consumer-to-consumer cross-border payments pose unique challenges compared to domestic payments. Unlike domestic payments, where all banks in a country have accounts in the central bank and share the same currency, cross-border payments may involve different fiat currencies. Even if the currencies are common for both the payer and payee, there is no global central bank overseeing ledgers for all banks worldwide. In this scenario, the transaction order must traverse through the accounts of a bank holding its account in the payee's country, acting as

an intermediary known as a correspondent bank. These institutions play a role in facilitating the transfer process until the payment order reaches the payee's country's fiat currency system (Qiu, Zhang, Gao, 2019: 430).

To enable cross-border transfers, well-defined procedures and responsibilities are essential for all parties involved in the transaction. The SWIFT system (Society for Worldwide Interbank Financial Telecommunications) has achieved this by implementing a standardized messaging structure. SWIFT is a bank-to-bank electronic messaging system and the primary means for communicating international wire transfers, processing billions of such transactions annually (Hill, 2018).

Many banking systems and fund transfer services are predominantly based in the US, and their operations are highly influenced by the US's diplomatic relations with specific countries. Some nations, such as Iran, Russia, and Venezuela, have faced restrictions and sanctions from the US, hindering their ability to send and receive money through these formal channels. Afghanistan, too, experienced the impact of sanctions imposed by the United States, European Union, and the United Nations, particularly during the first term of the Taliban government and the subsequent takeover in August 2021. The recent sanctions and freezing of assets by the US have disrupted formal fund transfer channels for Afghanistan (UNDP, 2021).

Hawala is an ancient system of remittance that originated from South Asia. Far from being an anachronism, it continues to play an important role in many developing countries. Hawala provides a user-friendly and inexpensive but also an opaque way to move funds within a dense network of Hawaladars across disparate locals. Hawala was historically used to facilitate long-distance trade; however, more recently, migrant workers, criminals, and terrorists also use Hawala to move funds outside the formal financial system. Hawala is still a critical to many developing countries, especially in its birthplace of South Asia (Rahimi, 2021). However, there are issues and concerns with Hawala transfer fee and the availability of the services in different countries and zones as in many countries, Hawala is not a legal business.
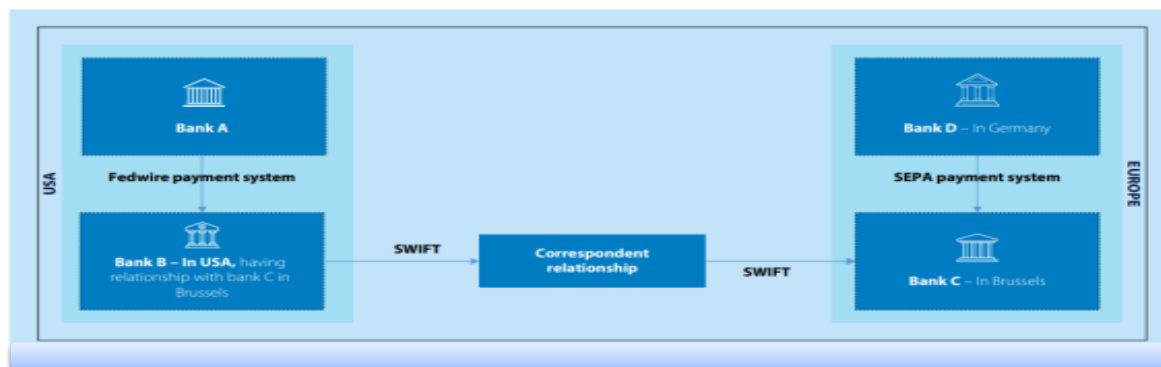

Fig. 1. Payment flow chart bank A sending money to bank D, (Achanta, 2018).

2.2. Current Fund Transfer Channels in Afghanistan

Similarly, to other Southern Asian and underdeveloped countries, Afghanistan maintains both formal and informal channels for fund transfers. As mentioned earlier, formal channels predominantly involve banking. However, due to factors

such as war and conflicts, the country has faced challenges in fully transitioning from informal to formal channels. Nonetheless, there are emerging avenues for fund transfers, especially for domestic purposes and government usage, such as mobile money. Several companies in Afghanistan offer mobile-based money transfer services (Blumenstock et al., 2014). In August 2021, a week before the collapse of the government, the presidential palace and central bank announced mobile payments for all army and military staff. However, following the political changes in August 2021, the status of this transformation process remains unclear, with no updates from officials.

In addition to banks, Afghanistan's financial system includes two types of non-bank actors. The first group is Sarrafs, which translates to money exchangers. According to formal rules, they are limited to engaging in the exchange of different currencies. The second group comprises Money Service Providers (MSPs), which, under formal regulations, can conduct currency exchange and participate in domestic and international money transfers, commonly known as Hawala. MSPs also have the capability to buy, sell, and discount checks (Rahimi, 2021). Hawala imposes significant charges for cross-border transfers, posing challenges, particularly for immigrants and overseas workers. Furthermore, post-Taliban takeover, new challenges have emerged for Afghans. According to NRC 2022, transferring funds into and within Afghanistan has become a major obstacle for non-governmental organizations (NGOs) since the Taliban's return to power on August 15, 2021. The NRC report's summary is presented in the figure below.
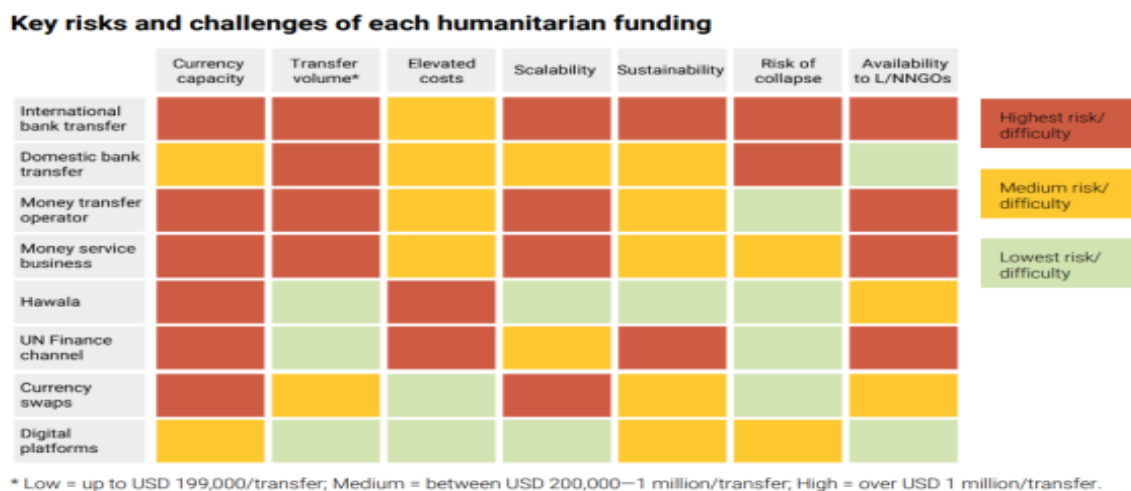

Key risks and challenges of each humanitarian funding

* Low = up to USD 199,000/transfer; Medium = between USD 200,000—1 million/transfer; High = over USD 1 million/transfer.

Fig. 2. US sanctions impact on financial channels in Afghanistan (NRC, 2022)

2.3. Cryptocurrency

A cryptocurrency serves as a digital asset designed to function as a medium of exchange, employing robust cryptographic techniques to secure financial transactions and validate asset transfers (Corbet, Lucey, Urquhart, & Yarovaya, 2018). Bitcoin, the pioneer in the application of Blockchain technology, marked the initiation of cryptocurrencies (Lewis, 2015). Various cryptocurrencies, including Ethereum, Ripple, Bitcoin Cash, Litecoin, EOS, and Cardano, have become integral parts of the ecosystem alongside Bitcoin. As of September 27, 2019, the cryptocurrency landscape comprised 2,899 cryptocurrencies with a cumulative market capitalization of US$214 billion (Coinmarketcap, 2019).

The Bitcoin system is specifically crafted to facilitate transactions between users without reliance on any financial institution (Hong & Kim, 2019). Bitcoin transactions operate without the necessity for identification and are accessible 24 hours a day. To acquire Bitcoins, users initially establish an electronic wallet to store their Bitcoin by creating an account on any of the website exchanges.

A study conducted in the field of small to medium-sized enterprises (SMEs) in tourism and hospitality found that factors such as strategic focus, personal characteristics of the owner/manager (self-efficacy and innovativeness), and social power significantly influence the intention to adopt cryptocurrency payments (Nuryyev et al., 2020).

2.4. Transaction in Blockchain

Blockchain, functioning as a universal ledger within a distributed network accessible to all participants, ensures transparency and security. Each node in the network possesses a complete copy of the entire database or ledger, and any alterations to the ledger must undergo verification by other nodes or parties to validate the changes. This structure facilitates instantaneous and tamper-resistant direct transfers, even for cross-border payments, as it eliminates the need for intermediaries or correspondent banks (Achanta, 2018).

Most current blockchain initiatives for cross-border payments primarily involve banks and financial institutions as network members, benefiting from an established level of trust within this sector. However, achieving the same level of trust among consumer-type members in a blockchain network may pose challenges, particularly due to the potential anonymity of individual accounts, especially in public blockchains like Bitcoin (Buitenhek, 2016).

The inaugural cross-border payment executed through blockchain was initiated by Standard Chartered and executed by the Ripple blockchain network within a mere 10 seconds. Similarly, another early cross-border payment, commissioned by the National Australia Bank to transfer funds from Australia to Canada, was also completed within 10 seconds (Guo and Liang, 2016). Figure 3 provides a comparative illustration of blockchain and SWIFT transactions.
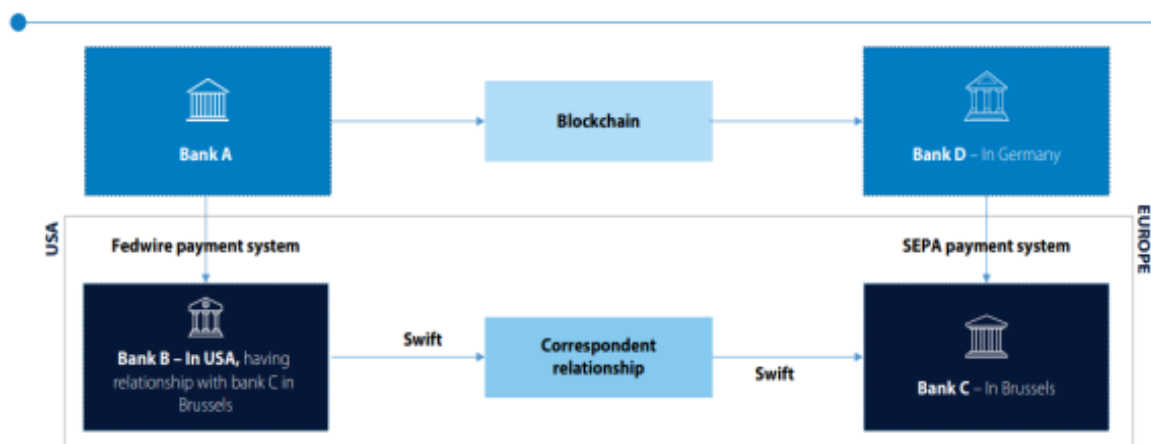

Fig. 3. Money transfer from bank A to Bank D via blockchain, (Achanta, 2018).

2.5. *Blockchain Usage and Awareness in Afghanistan*

Afghanistan entered the realm of Blockchain technology through the implementation of the GoLand Registry, a Blockchain-based project for land registration, which commenced in 2019. This initiative, driven by UN organizations (UNOICT and UN-Habitat) and the LTO Network, aimed to modernize land registration processes for the Government of Afghanistan (Konashevych, 2021).

In the wake of Kabul's fall in August 2021, numerous reports from leading media sources indicated a surge in Afghans turning to cryptocurrency, particularly Bitcoin, as a means of seeking refuge outside the country. Cryptocurrencies, notable digital assets like Bitcoin, played a crucial role as lifelines for many individuals in Afghanistan. With the drastic depreciation of Afghanistan's currency following the Taliban's capture of Kabul on August 15, cryptocurrencies provided essential assistance for relocation, evacuation of families, and the establishment of new lives in other countries. In the 2021 Crypto Adoption Index by Chainalysis, Afghanistan secured the 20th position among 154 countries during the crypto boom in 2021 (cointelegraph, 2022).

2.6. *Blockchain Adoption and Challenges*

People have employed various methods for cross-border fund transfers The successful implementation of Blockchain in Afghanistan faces challenges stemming from cultural and social barriers. Key concerns within the social context include issues related to ease of use, privacy, and uncertainty. In Afghanistan, individuals, particularly those born in the 20th century, have had limited exposure to new technologies. However, there is an expectation that the younger generation may exhibit a more favorable adoption rate.

An additional challenge is the low literacy rate in the country. According to knoema.com, the literacy percentage in Afghanistan was approximately 37.3% in 2021, encompassing individuals with basic education such as reading and writing. Trust in cryptocurrency emerges as a significant concern, with a perceived lack of awareness among the Afghan population. The intricacies of the technology contribute to the challenges, requiring people to invest more time in understanding its fundamental principles.

The absence of well-defined legal and Islamic perspectives on blockchain and cryptocurrency poses another major hurdle, particularly within the current governance structure guided by strict Islamic law, according to public beliefs. Moreover, inadequate internet services in the country present a significant factor. Factors such as high connectivity costs, limited literacy levels, insufficient access to computers and networks, and a scarcity of local content production collectively impede internet accessibility for a considerable portion of the Afghan population (Abdullah, Hamdard, 2012).

2.7. *Blockchain Adoption and Opportunities*

The opportunities presented by cryptocurrency, as a relatively new commodity, hold great promise. Despite experiencing significant price and value escalations, the full extent of its benefits and future opportunities is still being explored. One major advantage of blockchain, the underlying technology of cryptocurrency, is its robust security. In a case study by Ying et al. (2018), it was observed that blockchain not only facilitates the use of cryptocurrency but also ensures the

protection of confidential information, eliminating the need for intermediaries from institutional processes.

Additionally, cryptocurrency offers the advantage of lower transaction costs. Presently, transaction costs in cryptocurrency, including Bitcoin transaction charges, are lower when compared to traditional currencies (Kim, 2017). Another notable feature contributing to its advantages is the global accessibility of the currency. Cryptocurrency transactions can be conducted across different locations, and they are not confined by time limitations, operating 24/7 (Sharma, Pant, Sharma, Brahmachari, 2020).

In the context of Afghanistan, as discussed earlier, challenges such as the lack of robust banking systems, limited banking branches, banking institutions struggling with cash availability, high costs associated with informal money transfer systems like Hawala, and the unavailability of the Hawala system in many countries create substantial opportunities for the implementation of cryptocurrency in the country. Furthermore, the uncertainty surrounding Afghanistan's current situation and its diplomatic relationships with the U.S. and other influential countries make it crucial to explore alternative financial solutions (Note: The sentence appears to be cut off and requires completion).

3. METHODOLOGY

This research employed the quantitative research method which is emphasizing on numerical, statistical, and mathematical analysis of data through the distribution of surveys, questionnaires, and the organization of interviews and polls (Research Guides, 2016). The adoption of primary data collection aimed to achieve the research objectives, with questionnaires being a dominant method for collecting a wide range of information, as emphasized by Burns and Grove (1999). The study focused on various fund transfer methods in Afghanistan, addressing relevant issues, as well as exploring the awareness level of cryptocurrency and attitudes towards cryptocurrency among Afghans.

To collect primary data, the questionnaire was distributed to Afghans residing in different parts of the world and those within Afghanistan. A Google form was chosen for questionnaire design due to its ease of data entry into computers. The distribution took place through various social media platforms, such as WhatsApp, Facebook, Telegram, etc., with participants advised to fill out the questionnaire based on their best knowledge.

The questionnaire comprises two main sections: Part A and Part B. Part A encompasses the demographic profile of respondents, covering gender, age, educational background, monthly income, and work experience. Part B is subdivided into four sections to categorize data. The subsections of Part B were structured with different closed-ended questions, utilizing the common 5-POINT LIKERT SCALE. This method allows respondents to express degrees of opinions rather than simple YES/NO answers.

A random sampling technique was employed to collect and design the sample, targeting 200 respondents within the constraints of time and resources. The SPSS tool will be utilized for the analysis and evaluation of study findings. Validation of data validity will involve conducting normality, reliability, and consistency tests.

Additionally, descriptive, regression, and correlation analysis methods will be applied to analyze the collected data.

4. DATA ANALYSIS AND RESULTS

As previously mentioned, a survey questionnaire was administered to gather data from 200 respondents. Given the quantitative nature of this study, the Statistical Package for Social Science (SPSS) was employed for the analysis of the collected data. Various statistical analyses were utilized to derive the relevant findings and accomplish the objectives of this study.

4.1. Data Screening

Data screening is important for analyzing questionnaire surveys. A total of three different data screening methods were conducted right before applying advanced analysis. The first one was the treatment of outliers. In the field of statistics, outliers are scores that differ significantly from other observation points (Pallant, 2002). All independent and dependent variables were tested for outliers, and as a result, almost all variables had some outlier values. After checking the data, a total of 10 respondents were removed from the analysis process due to incorrect data entry.

The second test was the assessment of normality. Normality can be tested through different formal methods. For this research, skewness and kurtosis analyses were used to measure the normality of the data. The values of skewness and kurtosis should be within the range of (-1 and +1) for a sample size of 50-300. If it exceeds that range, it is considered unacceptable (Hair et al., 2017; Lowry and Gaskin, 2014). The result showed that the data is normally distributed.

The third and final test for data screening was the assessment of reliability. Reliability is a type of measurement that produces consistent results with equal values (Mohajan, 2017). The main aim of reliability is to measure the consistency, repeatability, precision, and trustworthiness of the study (Mohajan, 2017). This test was conducted using the Cronbach Alpha technique. To ensure data reliability, the coefficient of Cronbach Alpha should be above 0.7. Our result showed that the Cronbach's Alpha value is well above 0.7, indicating that the data is reliable.

Table 1: Assessment of the Reliability

Variables	Number of Questions	Cronbach's Alpha
Current System Difficulties	6	0.756
Cryptocurrency Awareness	8	0.877
Attitudes Towards Cryptocurrency	4	0.885
Cryptocurrency Adoption	4	0.876
Overall	22	0.902

4.2. Descriptive Analysis

The main purpose of descriptive analysis is to discuss the background of the participants as well as their awareness level, adoption and attitude towards

cryptocurrency-based transfer services and their opinion about current transfer methods difficulties.

4.2.1. Background of The Respondents

A total of 200 respondents participated in this study, out of which 190 were selected for the analysis purpose. Among the total participants, 94% were male, and 6% were female. In terms of age distribution, 63% of the respondents were between 20-30 years old, followed by 32% in the age group of 31-40 years old. Regarding education, 48% of the participants studied bachelor's degrees, and 34% held master's degrees. In terms of occupation, 36% were students, 40% were employees, while the rest either had their own business or were unemployed.

The distribution of respondents living inside Afghanistan was almost similar to those living outside, with values of 53% and 47%, respectively. Moreover, 32% of the respondents had experience with at least one and less than three oversea transfers, while 27% had more than three oversea transfers, and 21% were regular participants who send or receive funds overseas almost every month.

In terms of the preferred method for fund transfer, hawala was the favorite choice for the majority of the participants, with a percentage of 35%, followed by 15% using banking services, and 27% using both banking and hawala transfer services.

4.2.2. Current *Method Difficulties*

In this section, six questions were asked regarding the current fund transfer method issues or difficulties, and the respondents were asked about their experience of transferring funds through formal banking systems and informal methods like hawala. Table 2 shows a descriptive analysis of the level of satisfaction with the current method of fund transfer, based on the mean value and percentage of each question asked. The mean value for this independent variable ranges from 3.93 to 3.13, with an average mean value of 3.60.

The highest mean value is for the fifth question, "I believe sending funds from/to Afghanistan using hawala is not always and everywhere available." This indicates a clear and significant issue about hawala availability across different countries and at different times. Questions 1, 3, and 4 also have mean values above 3.7, which indicates serious issues with the current transfer method when it comes to ease of use and transfer fees. On the other hand, trust and instability were the least significant issues for the participants, with mean values of 3.29 and 3.13, respectively.

Overall, the average mean value of 3.60 suggests great concerns among participants and their dissatisfaction with the current overseas transfer services.

Table 2: Participants responses for Current Methods Difficulties

No	Current Methods Difficulties factors	Current Method Satisfaction level (%)					N	Mean
		1	2	3	4	5		
1	Sending money from/to Afghanistan is troublesome.	0.0	16.8	15.8	44.2	23.2	190	3.74
2	Fund transfer from/to Afghanistan using banking is unstable.	12.6	18.4	28.4	24.2	16.3	190	3.13

3	Fund transfer from/to Afghanistan using banking is costing high transfer fee.	4.7	8.9	17.4	36.8	32.1	190	3.83
4	Fund transfer from/to Afghanistan using hawala is costing a high transfer fee.	1.6	13.7	21.1	37.9	25.8	190	3.73
5	Fund transfer from/to Afghanistan using hawala is not always and everywhere available.	3.2	8.9	13.7	40.5	33.7	190	3.93
6	Fund transfer from/to Afghanistan using hawala is not trustable.	10.0	16.8	27.4	25.8	20.0	190	3.29
	Average Value of Mean							**3.60**

4.2.3.   Cryptocurrency Awareness Level

The second section consists of 8 statements defining people's knowledge regarding cryptocurrency. Table 3 shows the results for this category. As it can be seen, statements 1, 2, 3, 4, and 5 have mean values around 3.5, which shows great support for these statements, especially the second and third statements with mean values of 3.73 and 3.74, respectively. This suggests that respondents have a good understanding and support for these basic aspects of cryptocurrency.

However, statements 6, 7, and 8, which explore deeper knowledge regarding cryptocurrency, have less support from the respondents. Hence, the level of awareness among Afghans is at a basic level, and only a small percentage of the respondents have owned, traded, and transferred cryptocurrency coins. The table also shows that the majority of the respondents are neutral, which indicates a lack of confidence among participants regarding this topic. Overall, the findings suggest that there is a need for more education and awareness-building efforts regarding cryptocurrency among the Afghan population.

Table 3: Participants responses Cryptocurrency Awareness

No	Cryptocurrency Awareness factors	Level of awareness (%)					N	Mean
		1	2	3	4	5		
1	I have heard about Blockchain technology before.	0.0	20.0	35.3	23.7	21.1	190	3.46
2	I have heard about Cryptocurrency technology before.	0.0	13.7	23.7	38.4	24.2	190	3.73
3	I have heard about a popular cryptocurrency coin called Bitcoin before.	7.4	6.3	23.7	30.0	32.6	190	3.74
4	I have heard about many cryptocurrency popular coins such as Bitcion, Etherium and Binance before.	0.0	21.1	32.1	23.2	23.7	190	3.49
5	I have knowledge about cryptocurrency application	0.0	21.1	29.5	32.1	17.4	190	3.46
6	I have already traded cryptocurrency before	20.5	21.6	30.5	17.9	9.5	190	2.74
7	I have been checking the cryptocurrency market regularly on daily/weekly basis.	23.2	22.6	26.8	18.9	8.4	190	2.67
8	I have used cryptocurrency for fund transfer purposes before.	31.6	21.6	26.3	13.2	7.4	190	2.43
	Average Value of Mean							**3.21**

4.2.4. Attitudes Towards Cryptocurrency

To gain good insight into public trust, satisfaction, and their readiness to trust and adopt cryptocurrency, a total of 4 questions were asked in this section. As shown in Table 4, the mean value for all statements is mostly over 3.5, with the lowest being 3.45 for statement 2 and the highest being 3.56 for question 3. The average mean value is 3.51, indicating that the attitudes towards cryptocurrency are generally positive.

Most of the participants agreed that cryptocurrency provides benefits such as availability, security, privacy, and lower transfer fees. However, the table also shows that there are many responses with neutral responses for almost all questions, which indicates their lack of deep knowledge and confidence in this area.

Overall, the findings suggest that while there is a positive attitude towards cryptocurrency among the respondents, there is also a need for further education and awareness-building efforts to enhance their understanding and confidence in adopting cryptocurrency.

Table 4: Participants Attitudes Towards Cryptocurrency

No	Attitudes Towards Cryptocurrency Factors	Attitudes Towards Cryptocurrency (%)					N	Mean
		1	2	3	4	5		
1	I believe that cryptocurrency can be accessible anywhere and anytime.	0.0	11.6	40.0	33.7	14.7	190	3.52
2	I believe that cryptocurrency provides high security for trading and transfers.	0.0	13.2	42.6	30.5	13.7	190	3.45
3	I believe that cryptocurrency provides an excellent privacy mechanism for users by storing minimal information and disclosing only user public ID.	0.0	10.5	41.1	30.0	18.4	190	3.56
4	I believe that cryptocurrency charges a very low transfer fee.	0.0	9.5	46.3	25.8	18.4	190	3.53
	Average Value of Mean							**3.51**

4.2.5. Cryptocurrency Adoption

To better understand public opinion regarding cryptocurrency-based fund transfer services and their preparedness to use this service, four questions were asked. The section was designed to explore respondents' opinions from a general level to more specific aspects, such as their belief in cryptocurrency as an alternative to current fund transfer methods, their willingness to invest in cryptocurrency, and their interest in using cryptocurrency-based fund transfer services.

As shown in Table 5, the mean value for all statements is around 3.5, with the lowest being 3.41 for statement 2 and the highest being 3.52 for questions 3 and 4. The average mean value is 3.47, suggesting that the overall feeling toward cryptocurrency-based fund transfer services is positive among the respondents.

While the adoption level is considered good, there are also many neutral responses, indicating a lack of knowledge and confidence among participants.

Despite this, the category achieved good support from the respondents, as the majority agreed that cryptocurrency can be a good alternative to current transfer methods and can solve current issues. They also expressed interest in investing in and using cryptocurrency-based fund transfer services.

Overall, the findings suggest that there is positive sentiment and interest among the respondents toward cryptocurrency-based fund transfer services, but there is a need for further education and awareness-building efforts to increase their knowledge and confidence in this area.

Table 5: Participants responses for Cryptocurrency Adoption

No	Cryptocurrency Adoption Factors	Cryptocurrency Adoption (%)					N	Mean
		1	2	3	4	5		
1	I believe that cryptocurrency can be a good alternative for current cross-border fund transfer methods in Afghanistan.	0.0	15.8	39.5	30.0	14.7	190	3.44
2	I believe that cryptocurrency can fix current fund transfer issues in Afghanistan.	0.0	17.4	36.8	33.7	12.1	190	3.41
3	I am interested in investing in cryptocurrency-based fund transfer services in Afghanistan.	0.00	15.3	35.3	32.1	17.4	190	3.52
4	I am interested in using cryptocurrency-based fund transfer services in Afghanistan.	0.00	17.4	32.1	32.1	18.4	190	3.52
	Average Value of Mean							**3.47**

5.1. Regression Analysis

This type of analysis is the most vital and important statistical analysis method to obtain a better result for the research. It is a type of predictive method for data analysis. Regression analysis can be used to predict and investigate the relationship between target (dependent) variables and predictor (independent) variables. or this research the linear regression analysis was conducted for the identification of factors that have a significant effect on the adoption of cryptocurrency-based fund transfer in Afghanistan. Regression analysis contains 3 main tables to be considered for the result of the data including model summary, ANOVA, and coefficient.

4.3.1. Linear Regression Equation

The equation is ($Y = a + bX$), while Y stands for the dependent variable, X for the independent variable and b is the slope of the line (Dhakal, 2019).

4.3.2. Materials and Methods (defining data)

For 190 respondents, hypothetical data (Table 1): dependent variable (y) = Cryptocurrency Adoption, and 3 independent variables, x_1 = Current Method Difficulties, x_2 = Cryptocurrency Awareness, and x_3 = Attitudes Towards Cryptocurrency are considered for this study.

4.3.3. Model Summary of Regression Analysis

The R-square or correlation coefficient is a statistical measure that shows the percentage of variance or change in the dependent variable that can be explained by the independent variable. It helps identify how much of the total change in the dependent variable can be attributed to changes in the independent variable. The R-square value can range from -1 to +1, with positive values indicating a positive correlation and negative values indicating a negative correlation.

In this research, the R-value of 0.722 indicates a good level of prediction and suggests that there is a strong positive relationship between the dependent and independent variables. The key information from Table 6 is the R-square (coefficient of determination) value of 0.52. This means that 52% of the variance or variability of the dependent variable has been explained by the independent variable.

In other words, the results indicate that the independent variable (such as cryptocurrency adoption or awareness) can explain 52% of the changes observed in the dependent variable (such as attitudes towards cryptocurrency or willingness to use cryptocurrency-based fund transfer services). The remaining 48% of the variance may be influenced by other factors not included in this study or may be due to random variation.

Table 6: Model Summary

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.722[a]	.522	.514	.10271
A. Predictors: (Constant), Attitudes Towards Cryptocurrency, Cryptocurrency Awareness, Current Method Difficulties				

4.3.4. Statistical Significance / Anova Test

The second dimension for regression analysis is the ANOVA test. The ANOVA test is used to determine the significance of the variance explained by the regression model. It helps to assess whether the independent variable(s) have a significant impact on the dependent variable.

By using the Ratio factor of ANOVA, researchers can predict the accuracy of the outcomes for the regression model. In this research, the result of the ANOVA test shows that the model is statistically significant at the level of $p < .0005$. This indicates that the independent variable(s) have significantly predicted the dependent variable.

In simpler terms, the ANOVA test confirms that the relationship between the independent variable(s) (e.g., cryptocurrency adoption or awareness) and the dependent variable(s) (e.g., attitudes towards cryptocurrency or willingness to use cryptocurrency-based fund transfer services) is statistically significant and not due to chance. The low p-value indicates that the relationship is strong and reliable.

Table 7: ANOVA Test

ANOVA						
Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	**Regression**	2.255	3	.752	71.254	.000[b]
	Residual	2.068	186	.011		
	Total	4.323	189			
a. Dependent Variable: Cryptocurrency Adoption						
b. Predictors: (Constant), Attitudes Towards Cryptocurrency, Cryptocurrency Awareness, Current Method Difficulties						

4.3.5. Coefficient Table

In regression analysis, this table of Coefficients is plying vital role for the significant value and correlation of the variables. Coefficient can identify relationship between variables and p-value can describe their significance (Marshall, n.d.).

Table 8: Coefficients Test

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.037	.009		3.950	.000
Current Method Difficulties	.176	.061	.148	2.891	.004
Cryptocurrency Awareness	.059	.036	.082	1.640	.103
Attitudes towards cryptocurrency	.548	.043	.656	12.744	.000
a. Dependent Variable: Cryptocurrency Adoption					

4.3.6. Regression Analysis Result

Table 8 is showing regression analysis results for this research dataset. This regression analysis was performed to find the influencing factors for the use and success of cryptocurrency based fund transfer services in Afghanistan. Moreover, to test and identify the hypotheses of our research.

H1: Current fund transfer methods difficulties have significant impact on the adoption cryptocurrency-based fund transfer services.

H2: Cryptocurrency Awareness has a significant impact on the adoption cryptocurrency-based fund transfer services

H3: Attitudes Towards Cryptocurrency has a significant impact on the adoption cryptocurrency-based fund transfer services.

Based on the linear regression equation obtained from the analysis, the relationship between the independent variables (Current Method Difficulties, Cryptocurrency Awareness, and Attitudes Towards Cryptocurrency) and the dependent variable (Cryptocurrency Adoption) can be interpreted as follows:

a) Current Method Difficulties: An increase in Current Method Difficulties by one point will lead to an increase in Cryptocurrency Adoption value by 0.176 or 17.6%. This suggests that higher difficulties with the current fund transfer methods are associated with a higher likelihood of adopting cryptocurrency-based fund transfer services. The relationship between Current Method Difficulties and Cryptocurrency Adoption is statistically significant.

b) Cryptocurrency Awareness: Improving Cryptocurrency Awareness level by one unit will result in an improvement in Cryptocurrency Adoption value by 0.059 or 5.9%. This indicates that higher awareness about cryptocurrency is associated with a higher likelihood of adopting cryptocurrency-based fund transfer services. However, the impact of Cryptocurrency Awareness on Cryptocurrency Adoption is relatively weaker compared to other factors, and its correlation is weaker with the dependent variable.

c) Attitudes Towards Cryptocurrency: Increasing Attitudes Towards Cryptocurrency by one point will enhance Cryptocurrency Adoption value by 0.548 or 54.8%. This suggests that more positive attitudes towards cryptocurrency are strongly associated with a higher likelihood of adopting cryptocurrency-based fund transfer services. Attitudes Towards Cryptocurrency has the most significant impact on Cryptocurrency Adoption among the independent variables.

d) Intercept: If all the independent variables equal zero, cryptocurrency adoption will decrease by 0.037 or 3.7%. This represents the starting point for Cryptocurrency Adoption in the absence of any influence from the independent variables.

In summary, the linear regression analysis indicates that Current Method Difficulties and Attitudes Towards Cryptocurrency are the most influential factors in determining Cryptocurrency Adoption for cryptocurrency-based fund transfer in Afghanistan. Cryptocurrency Awareness has a lesser impact on the adoption rate, but it is still statistically significant. Overall, the model provides valuable insights into the relationship between the variables and helps understand the factors that can drive the adoption of cryptocurrency-based fund transfer services in the country.

5. DISCUSSION

This section examines the results derived from our conducted studies, aligning them with the initially outlined objectives through the earlier analysis. All four

objectives were successfully met by employing diverse analytical techniques. In summary, significant apprehensions arise in relation to prevailing transfer methodologies, given their potential influence on the adoption of cryptocurrency in international transfers. Public sentiment toward cryptocurrency emerges as notably favorable, exerting a substantial impact on its adoption. However, it is noteworthy that public awareness regarding cryptocurrency is relatively low, thereby minimizing its impact on adoption.

5.1. Objectives

Based on the findings of the study, it can be concluded that the first objective, which aimed to identify the main issues with the current fund transfer methods and their impact on Cryptocurrency Adoption, has been achieved. The descriptive analysis revealed that the major concerns with the current fund transfer methods in Afghanistan are related to services' availability at different times and places, high transfer fees, and overall performance. The regression analysis further supported these findings by showing a significant relationship between Current Method Difficulties and Cryptocurrency Adoption. This indicates that the challenges with the current methods are driving people to consider adopting cryptocurrency-based fund transfer services as an alternative thus H1 is supported.

The second objective, which aimed to assess the level of awareness regarding cryptocurrency and its impact on Cryptocurrency Adoption, has also been achieved. The descriptive analysis showed that the majority of people in Afghanistan have only basic knowledge about cryptocurrency, with a smaller percentage having mid-level awareness and an even smaller percentage having deep-level knowledge. The linear regression analysis indicated that Cryptocurrency Awareness has a less significant impact on Cryptocurrency Adoption, suggesting that people's level of awareness may not be the primary driving factor for adopting cryptocurrency-based fund transfer services therefore H2 is not supported.

The third objective, which aimed to explore people's attitudes towards cryptocurrency and its impact on Cryptocurrency Adoption, has been achieved as well. The descriptive analysis showed that attitudes towards cryptocurrency were not highly positive among Afghans, with a significant percentage of neutral responses. However, the linear regression analysis revealed that Attitudes Towards Cryptocurrency have a strong positive impact on Cryptocurrency Adoption, indicating that positive attitudes are a key factor driving the adoption of cryptocurrency-based fund transfer services hence H3 is strongly supported.

The fourth and final objective, which aimed to assess people's interest in using cryptocurrency for cross-border fund transfer services, has been achieved through descriptive analysis. The results showed that a majority of participants expressed interest in using cryptocurrency-based fund transfer services, while a smaller percentage were neutral and a minority expressed disinterest. This indicates that there is a significant level of interest among Afghans in using cryptocurrency to address the current issues in cross-border fund transfer.

5.2. Recommendations

To enable the successful implementation of cross-border cryptocurrency in Afghanistan, several critical steps must be taken. To begin with, addressing the issue of low cryptocurrency awareness is essential. This can be achieved through

educational campaigns to increase the understanding of cryptocurrency and blockchain technology among the Afghan population. Enhancing digital literacy will help build trust and familiarity with these technologies, encouraging broader adoption.

Furthermore, conducting further studies to evaluate the legal and infrastructural aspects of cryptocurrency implementation is crucial. While the current research did not focus on these areas, understanding the legal implications and infrastructural needs is necessary for creating a supportive environment for cryptocurrency-based remittances. This includes analyzing how existing laws and regulations can be adapted to accommodate cryptocurrency transactions and assessing the technological infrastructure required to support widespread use.

6. CONCLUSION

The study successfully achieved its main purpose, which was to assess and understand the issues related to cross-border fund transfer to and from Afghanistan and to explore the Cryptocurrency Awareness, Attitudes Towards Cryptocurrency, and Cryptocurrency Adoption for adopting decentralized oversea money transfer using cryptocurrency in Afghanistan. The quantitative research method with a descriptive research design proved to be effective in accomplishing the objectives.

The study revealed that the current fund transfers methods in Afghanistan, mainly banking and hawala, have significant drawbacks, including high transfer fees and limited availability. On the other hand, the level of Cryptocurrency Awareness among Afghans is relatively basic, with participants having a general understanding of terms and names related to cryptocurrency. However, only a small number of respondents actually owned and used cryptocurrencies for fund transfer purposes.

Attitudes Towards Cryptocurrency were not highly positive among the respondents, with many expressing neutral opinions. However, the study demonstrated that positive attitudes play a significant role in driving the adoption of cryptocurrency-based fund transfer services in Afghanistan.

The regression analysis provided valuable insights into the impact of the independent variables (Current Method Difficulties, Cryptocurrency Awareness, and Attitudes Towards Cryptocurrency) on the dependent variable (Cryptocurrency Adoption). The findings showed that the difficulties with the current transfer methods have a small impact on the adoption of cryptocurrency-based services thus it's considered as a weak factor. Additionally, positive attitudes towards cryptocurrency have a strong influence on its adoption, while Cryptocurrency Awareness has a less significant impact and is considered a weak factor as well.

The study also highlighted the interest among respondents in using cryptocurrency for cross-border fund transfer services, with many expressing willingness to invest in and utilize this technology.

Overall, the research successfully addressed all the objectives and answered the related questions. The hypothesis was tested, and the results were presented clearly throughout the study. The findings provide valuable insights into the potential for cryptocurrency adoption in Afghanistan and the factors that influence its acceptance as a cross-border fund transfer solution.

REFERENCES

American Psychological Association. (2010). Concise rules of APA style (6th ed). Washington, DC: Author.

Cheney, T. A. R. (1983). Getting the words right: How to rewrite, edit, and revise. Cincinnati, Ohio: Writer's Digest Books.

Fowler, H. R., & Aaron, J. E. (2012). The Little, Brown handbook (12th ed). Boston: Pearson.

Fowler, H. W., & Fowler, F. (1908). The King's English (Oxford language classics series). Retrieved July 26, 2012, from http://www.bartleby.com/116/

Jewer, J., & McKay, K. N. (2012). Antecedents and consequences of board IT governance: Institutional and strategic choice perspectives. Journal of the Association for Information Systems, 13(7), 581-617.

Oxford University Press. (2012). Utilize. In Oxford English Dictionary (3rd ed.).

Appelbaum, D., & Stein Smith, S. (2018). Blockchain Basics and Hands-on Guidance: Taking the Next Step toward Implementation and Adoption. CPA Journal, 88(6), 28-37.

Rahimi, F., Sharifian, S. Cryptocurrency in the National and International System. Arch Pharma Pract 2020;11(S1):87-93.

Sood, A., & Simon, R. (2019, November). Implementation of blockchain in cross border money transfer. In 2019 4th international conference on information systems and computer networks (ISCON) (pp. 104-107). IEEE.

Theingi, T., Theingi, H., & Purchase, S. (2017). Cross-border remittance between emerging economies: an institutional perspective. *Journal of Business & Industrial Marketing, 32*(6), 913-926.

MANSSOORI, J. ., IBRAHIM SALEH , A. H. A. ., & ABUBAKAR IBRAHIM, A. . (2021). Examining the Factors Influencing The Success of Mobile Money In Afghanistan. Journal of Information Systems and Digital Technologies, 3(1), 40–64. Retrieved from https://journals.iium.edu.my/kict/index.php/jisdt/article/view/198

Katzman, K., & Thomas, L. (2017). AFGHANISTAN: POST-TALIBAN GOVERNANCE, SECURITY, AND US POLICY (UPDATED). Current Politics and Economics of the Middle East, 8(4), 531-643

Naseri, K., & Sharofiddin, A. (2020). Exploring the Challenges of the Historical Development of Islamic Banking System in Afghanistan Using Document Analysis. Journal of Islamic Finance, 9(2), 13-25

CRS, Thomas C. (2021). U.S. Military Withdrawal and Taliban Takeover in Afghanistan: Frequently Asked Questions. Congressional Research Service. Retrieved from: https://crsreports.congress.gov/product/pdf/R/R46879

IRRC, International Review of the Red Cross (2021), 103 (916-917), 705–716. Counterterrorism, sanctions and war doi:10.1017/S181638312100093X. retrieved from: https://international-review.icrc.org/sites/default/files/reviews-pdf/2022-02/the-public-policy-of-sanctions-compliance-need-for-collective-action-916.pdf

Perl, V. J. U., Johnson, C., Kelley, S., Woods, P., Martin, K., & Zonies, D. (2019). Missed injuries in combat casualties: Lessons from Iraq and Afghanistan. Injury, 50(5), 1138-1142.

Neyer, G. (2017). Next generation payments: Alternative models or converging paths? Journal of Payments Strategy & Systems, 11(1), 34-41.

Bayram, O. (2020). Importance of Blockchain use in cross-border payments and evaluation of the progress in this area. Doğuş Üniversitesi Dergisi, 21(1), 171-189.

Morabito, V. (2017). Business Innovation Through Blockchain. Cham: Springer International Publishing.

University of Southern California Libraries. (n.d.). Organizing Your Social Sciences Research. Retrieved from https://libguides.usc.edu/writingguide/quantitative.

Burns N, Grove S (1999) Understanding Nursing Research. 2nd edn. WB Saunders Company, Philadelphia.

Kosse, A., & Vermeulen, R. (2014). Migrants' choice of remittance channel: Do general payment habits play a role?. Journal of Banking & Finance, 45, 1-13.

Isaksen, M. (2018). Blockchain: The Future of Cross Border Payments (Master's thesis, University of Stavanger, Norway). URL: https://uis.brage.unit.no/uisxmlui/bitstream/handle/11250/2587148/Isaksen_Marcus.pdf?sequence=4.

Qiu, T., Zhang, R., & Gao, Y. (2019). Ripple vs. SWIFT: Transforming Cross Border Remittance Using Blockchain Technology. Procedia computer science, 147, 428-434.

Hill, Julie Andersen, SWIFT Bank Heists and Article 4A (September 24, 2018). Journal of Consumer and Commercial Law, Vol. 22, No. 1, at 25 (2018), U of Alabama Legal Studies Research Paper No. 3254505, Available at SSRN: https://ssrn.com/abstract=3254505.

Hill, Julie Andersen, SWIFT Bank Heists and Article 4A (September 24, 2018). Journal of Consumer and Commercial Law, Vol. 22, No. 1, at 25 (2018), U of Alabama Legal Studies Research Paper No. 3254505, Available at SSRN: https://ssrn.com/abstract=3254505.

Mahdavieh, R. (2019). Governments' Adoption of Native Cryptocurrency: A Case Study of Iran, Russia, and Venezuela.

UNDP (2021). The Afghan Banking and Financial System Situation Report. https://www.undp.org/afghanistan/publications/policy-brief-afghan-banking-and-financial-system-situation-report.

Rahimi, H. How to create better Hawala regulations: a case study of Hawala regulations in Afghanistan. Crime Law Soc Change 76, 131–148 (2021). https://doi.org/10.1007/s10611-021-09959-w.

Blumenstock, J. E., Callen, M., & Koepke, L. (2014). Promises and Pitfalls of Mobile Money in Afghanistan : Evidence from a Randomized Control Trial, (September).

NRC, Norwegian Refugee Council. Life and Death (2022): Executive Summary , NGO access to financial services in Afghanistan. https://www.nrc.no/resources/reports/life-and-death-ngo-access-to-financial-services-in-afghanistan.

Corbet, S., Lucey, B., Urquhart, A., & Yarovaya, L. (2018). Cryptocurrencies as a Financial Asset: A systematic analysis. International Review of Financial Analysis, 62, 182-199. https://doi.org/10.1016/j.irfa.2018.09.003.

Coinmarketcap. (2019). Cryptocurrency Market Capitalizations | CoinMarketCap. Retrieved September 16, 2019, from https://coinmarketcap.com/.

Nuryyev, G., Wang, Y. P., Achyldurdyyeva, J., Jaw, B. S., Yeh, Y. S., Lin, H. T., & Wu, L. F. (2020). Blockchain technology adoption behavior and sustainability of the business in tourism and hospitality SMEs: An empirical study. Sustainability (Switzerland), 12(3). https://doi.org/10.3390/su12031256.

Kethineni, S., & Cao, Y. (2019). The Rise in Popularity of Cryptocurrency and 278 Associated Criminal Activity. International Criminal Justice Review, 1–20. https://doi.org/10.1177/1057567719827051.

Achanta, R. (2018). Cross-border money transfer using blockchain-enabled by big data. White Paper, External Document.

Buitenhek, M. (2016). Understanding and applying Blockchain technology in banking: Evolution or revolution? Journal of Digital Banking, 1(2), 111-119.

Konashevych, O. (2021, June). 'GoLand Registry'Case Study: Blockchain/DLT Adoption in Land Administration in Afghanistan. In DG. O2021: The 22nd Annual International Conference on Digital Government Research (pp. 489-494).

Cointelegraph. (2022). How are Afghans using crypto under the Taliban government. https://cointelegraph.com/news/how-are-afghans-using-crypto-under-the-taliban-government.

Abdullah, B., & Hamdard, J. (2012). A comparative study of cosmetic regulations in different countries of the world with focus on India. Int J Curr Res Rev, 4, 130-43.

Kim, C., Oh, E., Shin, N., & Chae, M. (2009). International Journal of Information Management An empirical investigation of factors affecting ubiquitous computing use and U-business value, 29, 436–448. https://doi.org/10.1016/j.ijinfomgt.2009.06.003.

Sharma, D. K., Pant, S., Sharma, M., & Brahmachari, S. (2020). Cryptocurrency mechanisms for blockchains: models, characteristics, challenges, and applications. Handbook of research on blockchain technology, 323-348.

. Pallant, J. F., & Lae, L. (2002). Sense of coherence, well-being, coping and personality factors: Further evaluation of the sense of coherence scale. Personality and individual differences, 33(1), 39-48.

Mohajan, H. K. (2017). Two Criteria for Good Measurements in Research: Validity and Reliability. Annals of Spiru Haret University. Economic Series, 17(4), 59– 82. https://doi.org/10.26458/1746.

Dhakal, C. P. (2019). Interpreting the Basic Outputs (SPSS) of Multiple Linear Regression, (June), 6–11. https://doi.org/10.21275/4061901.