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Islamic Finance and Transparency: The Dilemma of Blockchain Integration

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Abstract

This article seeks to explore the dilemma Islamic finance faces in incorporating blockchain with regards to transparency. While blockchain does promote transparency in transactions, its adoption will lead to a proliferation of cryptocurrencies that enhances anonymity. This may undermine the benefits Islamic finance will get from embracing blockchain. A tentative solution will be considered. This article takes a comparative philosophical approach. Transparency, as a virtue, is investigated through the Western tradition as well as through the Islamic tradition. The ramifications of the different conceptualisations of transparency will be drawn out and identified with regard to blockchain/cryptocurrencies. This paper finds that contemporary Islamic finance's support of transparency relies on the Islamic tradition's stance on transparency. In pursuit of end-goals (*maqāsid*) that provide maximal benefit, a host of virtues must be balanced. This can entail restricting transparency where other considerations are more paramount. This finding emphasises that the Western tradition upholds transparency as an ideal, which is unlike the more nuanced view of transparency in the Islamic tradition. The dilemma can be diluted from a *Maqasid* approach. Most academic discussions of cryptocurrencies within Islamic finance focus on the dangers of decentralisation. The issue of the transparency-anonymity tension has been rarely focused on. Additionally, this paper provides a sustained examination of the virtue of transparency within the Islamic tradition, its manifestation in contemporary Islamic finance, and its importance in evaluating the adoption of future financial innovation.

Keywords: Islamic Finance, Transparency, Blockchain, Cryptocurrency, Anonymity, *Maqāsid*

1. Introduction

Islamic finance has developed by promoting several virtues that play a crucial role in supporting economic prosperity. One of those virtues is transparency. Islamic finance actively endorses and emphasises transparency in transactions in order to facilitate a more prosperous and harmonious financial sector. Recent technological advancements have allowed a greater level of transparency through the use of blockchain. It seems viable that Islamic finance may incorporate blockchain given the benefits it provides in transparency. This article explores this possibility and provides a sustained interrogation of the ethical quandaries facing Islamic finance and the embracement of financial innovation.

The second section of this article details the place and significance of transparency as a virtue in the Western tradition. The third section seeks to provide a parallel account for the Islamic tradition and its respect of transparency. The fourth section establishes that transparency is a regulating virtue within Islamic finance, and that contemporary applications of Islamic finance take it into consideration. The fifth section outlines how and why blockchain is amendable to transparency and the points of intersection between it and Islamic finance. The sixth section introduces an auxiliary yet related issue of cryptocurrencies and how their proliferation can lead to increased anonymity. The seventh section articulates the dilemma facing Islamic finance and its incorporation of blockchain. This article concludes that Islamic finance balances competing virtues for a more beneficial end-goal; so, policies on incorporating blockchain/cryptocurrencies into Islamic finance can reasonably limit transparency for the sake of promoting other virtues.

The central dilemma Islamic finance faces can be stated thus: for the sake of transparency, Islamic finance should embrace blockchain. However, blockchain will promote cryptocurrencies that consequently will bolster anonymity. The greater the anonymity the lesser the transparency. But in this case, a vicious circle can easily be triggered, where seeking greater transparency can have the unintended consequence of undermining that same transparency. Previous studies criticising cryptocurrencies from an Islamic finance perspective have focused on the issue of decentralisation and the threats this pose to government regulation of digital markets. This article tackles a different aspect, that of the transparency-anonymity tension.

There is relatively little academic research focused specifically on the role of transparency in Islamic finance and the challenges this poses for incorporating blockchain and cryptocurrencies. This article seeks to address this gap in the current debate within Islamic finance. Another original aspect of this research is the comparative study between transparency as articulated in the Western worldview and transparency as found in the Islamic worldview. This comparative study is integrated into a wider discussion on the feasibility of Islamic finance's openness to new financial innovation.

The solution to the above-mentioned tension is philosophical in light of the unknowability of future technological progress that may render blockchain/cryptocurrencies safer to use. A limitation of this study is that it focuses on the theoretical aspects of this dilemma. It is hoped further research will bring to attention concrete, localised details on current repercussions by the (as-of-yet limited) adoption of blockchain/cryptocurrencies in the Middle East and North Africa (MENA) region.

Practitioners of Islamic finance sorely need to expand the debate and discussion on Islamic finance's incorporation of blockchain/cryptocurrencies; since, it is imperative that an intellectual landscape is prepared so as that Islamic finance can keep abreast with advancements in digital finance. This article hopes to contribute to this expansion.

In what follows, the research adopts a comparative philosophical methodology. This has been done for two reasons. Firstly, transparency is virtue and so is firmly embedded in ethics, a branch of moral philosophy. Secondly, it is widely recognised that economic systems are influenced to a certain extent by their philosophical foundations. The example of Cold War economies of the United States and Soviet Union illustrate this. By comparing philosophically transparency in the Western and Islamic tradition, the direction and *modus operandi* of Islamic finance can be better appreciated.

2. Transparency as Virtue in Western Tradition

This section provides a conspectus of the philosophical, legal, and financial basis of transparency as an indispensable value in the globalised world. The stress in this section is on transparency as articulated by, argued for, and adhered to in the Western tradition.

It is easy to acknowledge that transparency is a virtue but far harder to locate transparency in an ethical framework suitable for it. The work of T. Ryan Byerly may be of help here. Byerly conceives of transparency as an intellectual virtue that is subsumed under the overarching umbrella notion of intellectual dependability. Intellectual transparency, to use Byerly's term, concerns sharing one's own perspective with others in order to promote epistemic goods for others. It is important to observe that transparency is a virtue even where the content conveyed is not laudable. As Byerly keenly emphasises, sharing one's own ignorance can be just as helpful as sharing one's own knowledge (Byerly, 2021, p. 108). While transparency does overlap with the virtues of honesty and sincerity, it is not coterminous with them. The differences transparency has with these two other virtues suffice to distinguish it from them as a separate virtue in itself (Byerly, 2021, pp. 110-118).

Arguably, the *locus classicus* for transparency as a virtue that regulates society and law is from Jeremy Bentham. Bentham used the term 'publicity' for what is nowadays understood as 'transparency'. He articulated several positive results of publicity. These include the moralisation of politics and the expression of complaints. As Baume and Papadopoulos observe, advocates for contemporary transparency policies cite the same rationale as Bentham did (Baume and Papadopoulos, 2015, p. 173). Furthermore, Bentham envisioned how a "public opinion tribunal" could exert a restraining hand towards government malfeasance. He viewed this tribunal as fulfilling several functions including: the evidence-furnishing function, where people have the right to seek information, censorial function, where people have the right to pass judgement, and executive function, where people reward or punish by establishing reputations (Baume and Papadopoulos, 2015, p. 175). Later, Bentham linked the virtues of publicity to that of democracy.

According to Anne Peter, transparency is becoming the norm on a global scale thanks to what Richard W. Oliver calls the 'information-transparency cycle'. New technologies have made information-gathering more cost-effective, which has facilitated a greater demand for further information-collection. As information becomes easier to acquire, the impetus for increased transparency gets stronger. This cycle is boosted in the business domain by companies such as Google, where the retrieval of information and transparency as a profitable sector have been demonstrated as financially successful. Governments, too, fuel this cycle by placing a lot of administrative procedures, policy descriptions and clarifications, and citizen awareness campaigns on the internet (Peters, 2013, pp. 538-539). Transparency has been elevated to a "global public good". The United Nations envisions global public goods as those goods that cannot be met on a national level. For this reason, the UN General Assembly's Millennium Declaration of 2000 explicitly advocates for "international level…transparency in financial, monetary and trading systems" (Peters, 2013, pp. 542-543).

Because transparency is ubiquitous it has taken on complicated forms. David Heald discusses different types of transparency. His anatomy of the concept unpacks some of the recondite intricacies that define it. There is event or process transparency. Events are measurable whereas processes are not measurable to the same extent. In "traditional public expenditure systems" the input (as the event of initial budgets) are often the focus of transparency. In the private sector, output is a preferred focus. This often means that the "transformation process" involved in private sector enterprise remains a "black box" where outsiders cannot see into. Often this lack of transparency is done for the sake of maximising efficiency (Heald, 2006, pp. 30-31). There is also transparency in retrospect and transparency in real time. The former is often implemented as a reporting cycle whereas the latter often takes the form of continuous surveillance (Heald, 2006, pp. 32-33). More varieties of transparency could be added, but these four types of transparency show that the concept has developed in both technicality and subtlety.

Transparency is key to the intersection between civilisation and globalisation. The IMF sought to civilise world economies by the promulgation and implementation of universal economic standards. Central to this is the promotion of transparency. The IMF's hope in transparency has been summed up by Jacqueline Best: "*The promise of transparency and the goal of universal standards are intimately connected. The possibility of transparent knowledge ensures that international standards can be unambiguously defined and measured. In turn, many of these standards seek to ensure greater political economic transparency – by imposing uniform standards of fiscal, monetary, banking, and accounting practice*" (Best, 2006, p. 140).

Of course, this is not to endorse the IMF's interpretation of transparency. It is only to affirm that transparency has become a value essential to the running of global economy. The Western tradition has supplied formidable philosophical grounding for why transparency should be consecrated as a regulatory virtue. What is missing from this picture is how the notion of transparency was also lauded in non-Western traditions, primarily, in this case, the Islamic tradition. The next section discusses transparency within the heritage that marks the Muslim world.

3. Transparency as Virtue in Islamic Tradition

In this section several remarks will be provided on the importance of transparency in Islam. These are not intended to be exhaustive rather they suffice with being illustrative.

Epistemologically, Islam adheres to the tight bond between transparency and truth. Transparency is considered the necessary condition for the ability to comprehend truths. This is explained summarily by Ellen Philpott-Teo. Ibn al-Haytham, in his magisterial *Manāzir*, considered transparency (*shafīf*) necessary for external visual perception as well as internal conceptual perception. Opaqueness (*kathīf*) is an obstacle to sight. Outer and inner seeing provides rational and intellectual truths and is the basis of human knowledge. This is echoed in al-Ghazali's work *Mishkāt* where the spiritual sight makes transparent the "veils" that ordinarily hide reality from people. Similarly, al-Suhrawardī in his work *Hikmat* avers that the soul's ascension frees it from the opacity of the body that blocks its view (Philpott-Teo, 2022, pp.131-134). This paradigmatic position relates the increase or decrease of transparency to the increase or decrease of truth-apprehension.

Transparency as a virtue is clearly extolled in the Quran, the Prophetic *Sunnah*, and in the examples of the Prophet's Companions."Monetary transparency" (*wudhū'h al-amwāl*) is the topic of the longest verse in the Quran, namely Q.2:282 (Zughayba, 2001, pp. 181-182). The key term in the verse is *allā tartābū* (do not doubt): "*This is more just in the sight of Allah, and more convenient to establish evidence and remove doubts (allā tarābū)*" (Quran 2: 282).

Ibn 'Ashūr commented that *allā tarābū* means that the financial legislations articulated in the verse have the function of "negating suspicion and doubt" (*nafy al-rībat wā al-shakk*). The Shariah objective (*al-maqsad al-shar'ī*) is for financial records to be "clear, far from ambiguity" (*wādhiha ba'īda 'an al-ihtimālāt*) (Ibn 'Ashūr, 1984, vol. 3, pp. 114-5). According to Ramon Harvey, Q.2:282 is known as *āyat al-dayn* ('verse of debt') and contains, alongside its appendix Q.2:283, the "most detailed" prescription for economic regulation in the entire Quran. In fact, al-Qurtubi was able to deduce 52 legal points from this verse alone. In brief, the verse commands "parties accurately record their commitments" in financial transactions. A unique aspect of this verse is how it enforces "a high degree of scruples" at each stage of contract-agreement. Harvey astutely observes that the verse recruits "external actors" in the agreement between parties, which "highlights the importance of community support for upholding justice between individuals." This verse epitomises the spirit of distributive justice in trade that the Quran upholds (Harvey, 2018, pp. 125-127).

In his study of Ibn Taymiya's economics, Abdul Azim Islahi shows how market regulation to ensure fair trade was enshrined by the Prophet himself. Islahi cites the following incident: "*A Companion of the Prophet, Abu Hurairah, reports that he passed by a heap of grain and, putting his hand into it found it to be wet. He questioned the seller, who told him the grain had got wet. At this the Prophet said: 'Why did you not put the wet grain on top so that people might see it? Those who cheat us are not among my people*'" (Islahi, 1996, pp. 187-188).

As Islahi notes, this incident set the "precedent" for institutionalised oversight of market practices. The seller had done no wrong apart from not being fully transparent, and for that reason alone the Prophet labelled his behaviour as falling within the scope of cheating. Ibn Taymiya comments on the incident as follows: "*Fraud enters into sale with the concealment of defects and the misrepresentation of goods, as when the exterior of the article is better than the inside, like the case which the Prophet, on him be peace, encountered and disapproved. It may also occur in industries, e.g. among those concerned with the preparation of food such as bread, cooked stuff, lentils, grilled meat, etc., or with the making of clothes, like weavers, tailors, etc., or among those who follow some other craft. All must be restrained from fraud, deceit and unlawful concealment*" (Ibn Taymiya, 1982, p. 30).

The key term here is "concealment". To conceal relevant information during a trade is to engage in fraudulent behaviour, per the stringent code of Prophetic ethics. Transparency, thus, becomes a duty, for dereliction of this duty entails concealment. Dr. Muwaffaq Salim Nūrī considers Caliph Umar the very embodiment of transparency (al-*shafāfiya*). Caliph Umar dealt with the public treasury with utmost openness. For instance, one day he required honey as medicine for an illness he faced. Instead of taking the honey from the public treasury, he ascended the minbar in the Prophet's Mosque and asked permission from the gathered people to allow him to take honey. They granted him permission (Nūrī, 2012, pp. 46-47). This case demonstrates that Islam requires complete transparency with public wealth and that any usage of public wealth must be publicised.

Given how the Quran, the Prophetic Sunnah, and the examples of the Prophet's Companions explicitly call for transparency in dealing with wealth, Muslim intellectuals have correctly included transparency as one of the *maqāsid* (objectives) of financial regulation. This is emphasised most clearly in how Ibn 'Ashūr makes "monetary transparency" (*wudūh al-amwāl*) a requirement that is needed in order to avoid financial harm and legal disputes within trade. He marshals several verses and hadiths that sanctify the protection of wealth. Since transparency protects wealth, it is religiously sanctioned to be transparent in financial dealings (Ibn 'Ashūr, 2006, pp. 295-296). Arising from this, a global/national argument for transparency has already been articulated. Current economies are plagued with problems that cause much distress and harm to the majority of people. Solutions to these problems are urgently needed so as to alleviate widespread suffering. Yet in order to solve a broken economy, transparency is needed beforehand so that the actual condition of the economy, and where its problematics are located, can be known. Obscuring the economic condition of a country is tantamount to barring an objective evaluation of the economic woes buckling a nation. Thus, Islam requires economic transparency especially for a national economy (Ghannouchi, 2022, pp. 252-253).

In the Islamic tradition, transparency has often been focused on financial matters. At the same time, the virtue of financial transparency taps into the ethical and eschatological vision that permeates the Quran.

This imbues technical and legalistic discussions with a spiritual significance. Money matters not only for the collective society but also for the individual soul. This paradigm has continued into the modern period with the rise of Islamic finance but it has also been transformed by the contemporary context. This will be delved into in the section that follows.

4. Transparency within Contemporary Islamic Finance

As discussed previously, transparency is an important virtue within the Islamic heritage. This virtue has morphed into a myriad of expressions within the field of contemporary Islamic finance. Both theoretically and in practice, Islamic finance emphasises transparency as a necessity for valid economic engagements. This section will demonstrate and establish that transparency is a key criterion practitioners of Islamic finance take into consideration when developing financial tools, apparatus, and services in line with the Islamic ethos.

An important factor in Islamic Corporate Governance (ICG) is transparency. The inclusion of transparency into ICG has historically continuity. The Abbasid Caliphate established the institution of *Hisba* or "inspector of the market" (Bhatti and Bhatti, 2010, p. 29). It is plausible to view some aspects of contemporary ICG framework as a modern modification of this traditional institution. An ideal of public deliberation is the usage of universally accepted principles for policy formation. This is challenged, however, by the diversity of cultures, beliefs, viewpoints, and experiences. Common norms in such diversity may be minimal at best. One of those norms in economics is transparency. Islamic finance embraces transparency as a universal, non-contentious principle (Lai, 2015, p. 445). Transparency, thus, has a tradition-specific appeal as well as a common-humanity appeal. This twin characterisation situates transparency as a value that is both intra- and inter-denominational thus giving it a broader scope of ethical significance.

Islam is said to lay particular emphasis in developing relationships between people and parties based on trust and honesty. Islamic finance translates this into the imperative of ensuring a "high level of transparency" in business transactions. Investors are "compelled" to be transparent towards financiers so that a sturdy relationship can be formed between them (Kayed and Hassan, 2011, p. 559).

Recently Ryan Calder has made an opposite obiter dictum. In Islamic finance, transparency is linked to ambiguity. If transactions contain an unacceptably high level of ambiguity, they are labelled as *gharar fāhish* and are juristically banned. This entails that transparency, the opposite of ambiguity, is a "divine injunction" that Islamic finance must adhere to (Calder, 2024, p. 106). The case of *gharar fāhish* shows that Islamic finance recognises opacity is a defect in itself.

Mudaraba or *musharaka* contracts are regarded as the "most legitimate" of financing operations. Scholars recognise this legitimacy as superseding that of other types of transactions sanctioned within Islamic finance. The main factor that conveys confidence to *mudaraba* contracts is the "greater-than-average levels of transparency" the contracts demand. This aspect of Islamic finance is in line with the "Washington Consensus" on liberal economy and its need for transparency (Parks, 2004, p. 241). Nasir Ali Merchant has persuasively argued that Islamic financial institutions (IFI) have greater transparency than conventional institutions. No doubt standard economic practice requires some degree of transparency. However, it is also true that "religion puts special emphasis on complete transparency and disclosure."

As a result, IFI's have an increased responsibility to ensure greater transparency in their dealings (Merchant, 2013, p. 301).

It is currently accepted that Islamic finance is sorely in need of improvement in the area of transparency. Hassan & Rohayem acknowledge that the *takaful* industry needs to adopt greater transparency if it is to garner greater recognition globally (Hassan and Rohayem, 2009, p. 274). Ibrahim Warde is correct in pointing out the cultural differences that impede transparency. For instance, the notion of transparency in America is far more open than the notion in Saudi Arabia. This leads to a culturally modified implementation of transparency that may not live up to economic expectations (Warde, 2010, p. 205). Shari'ah has been incorporated into secular jurisdiction; however, as Michael J. T. McMillen observes, most financial parties prefer the transparency guaranteed in English law than in incorporated law that caters to Islamic finance (McMillen, 2006, p.156). These criticisms are neither prohibitive nor insurmountable. Since Islamic finance is relatively young in the global finance scene, it has much improvement to undertake. What can be agreed, despite divergent opinions, is that transparency is a feature of Islamic finance that requires serious effort to strengthen further.

Islamic finance takes transparency seriously in theory as in practice. With improved technology, access to greater transparency becomes easier. This is currently epitomised by blockchain and its much-lauded benefits in transparency. The next section delves into the possible ramifications on transparency that blockchain promises and sees to what extent these overlap with Islamic finance's own stress on transparency.

5. Blockchain Technology and Transparency

Blockchain technology offers unprecedented transparency that is directly beneficial to financial transactions. It is in the interest of Islamic finance to adopt financial innovations that can strengthen transparency. To properly evaluate whether blockchain and Islamic finance have common ground that can facilitate incorporation, it is necessary to explore blockchain's contribution to transparency and whether this chimes with the motivating force behind Islamic finance. This section seeks to do this through a brief yet explanatory excursus.

The basis of blockchain is a decentralised network of nodes. In traditional centralised systems, transactions are verified and validation by a single institution. In contrast, blockchain offers validation via a network of participants. Data stored on a blockchain is cryptographically secured, thus guaranteeing recording accuracy. Crucially, everyone in the network will have access to this data for themselves. This cultivates trust amongst its users. Whenever a block of new transactions gets added, all users in a network must agree to it beforehand. This ensures only valid transactions get placed on the blockchain (Virani, 2024, p. 694).

Standardised accounting systems are based on the 'double entry' system. Transactions are recorded so as to make debits equal credits. Regardless of how sophisticated accounting systems are today, the underlying 'double entry' system remains six hundred years old. In 1986 a 'triple entry' system was suggested. A third party would have to certify transactions to increase safety. With the use of blockchain this third-party certification can be automatised without needing any third party to oversee transactions. In effect, blockchain provides an accounting system that is impervious to past frauds such as the Enron scandal (Huang *et al.*, 2024, pp. 59-60). Transparency is boosted two-fold. Automatisation of the certification process means users need not worry over financial manipulation. The security granted against frauds means transactions are less vulnerable to opacity.

Marco Dell'erba holds that blockchain has boosted 'decentralised finance' (DeFi). Smart contracts can be enforced deterministically in a public blockchain. This provides the key characteristic of immutability where transactions operate with rigorous recording that contribute to transparency. No clearing houses, or other market infrastructures, are needed for smart contracts to be enforced, as automatisation suffices (Dell'erba, 2024, pp. 60-61). The notion of transparency here is slightly modified. It has taken on a technocentric dimension that trumps personalistic definitions tethered to individual trust. This shift in the meaning of transparency, as a concept, is symptomatic of the automatisation trend in the digital sphere as a whole.

Blockchain's greatest appeal is the preservation of financial data and the difficulty, if not impossibility, of retrospectively rearranging or rewriting this data. While this immutability may sound hyperbolic, experts are confident of its legitimacy. Maxwell & Salmon write: "*One of the design features of blockchain architecture is that transaction records cannot be changed or deleted after-the-fact. A subsequent transaction can always annul the first transaction, but the first transaction will remain in the chain. The GDPR recognises a right to erasure. The broad principle underpinning this right is to enable an individual to request the deletion or removal of personal data where there is no compelling reason for its continued processing. What constitutes 'erasure' is still open to debate. Some data protection authorities have found that irreversible encryption constitutes erasure. In a blockchain environment, erasure is technically impossible because the system is designed to prevent it*" (cited in Herian, 2019, p. 47).

Transparency is enhanced by guaranteeing that financial records cannot be falsified. Eliza Mik recognises that blockchain provides "universal transparency" however points out, quite rightly, that such transparency contradicts crucial commercial requirements such as confidentiality and privacy (Mik, 2020, pp. 163-164). Vincent Graf Narbel warns that in private as opposed to public blockchains, transparency benefits may be "in some cases non-existent". Even in public blockchains, unparalleled transparency cannot solve the problems of "so-called bad data". If incorrect records are incorporated into a blockchain, the entire network will be rendered unreliable (Narbel, 2024, pp. 254-255). That transparency is a double-edged sword is no surprise. Almost every technological enterprise has its inherent limitations and weaknesses. A cost-benefit analysis is capable of balancing out the negatives of blockchain with greater positives. In practice, blockchain's transparency has already been applied to a spectrum of areas from energy supply chains to democratic voting (Kleinaltenkamp and Ansari, 2024, p. 197; Peelam *et al*., 2025).

Blockchain implementation has caught the interest of scholar and societies in the Muslim world. Karam Gadallah, of al-Azhar University, and a scholar at the Oxford Centre of Islamic Studies, has argued that blockchain could help developing countries further their economic development (Gadallah, 2023). The Dubai government has also experimented with blockchain technology (Alketbi *et al*., 2020).

By any metric, blockchain seems to outperform traditional centralised financial systems in terms of guaranteed transparency. It would seem that blockchain does recommend itself highly to Islamic finance on the level of transparency benefits. However, the use of blockchain can, and most definitely will, trigger an explosion of decentralised cryptocurrencies which, paradoxically, are highly valued for their anonymity. This anonymity has more in common with the ambiguity that Islamic finance is against. Since blockchain and cryptocurrencies are different sides of the same coin, it is incumbent to interrogate to what extent cryptocurrencies would undermine transparency before one can pass judgement on blockchain usage within Islamic finance. The next section turns to this issue.

6. Cryptocurrency and Anonymity

Anonymity is no friend of transparency. Both values challenge and contest each other. Blockchain technology promotes transparency; however, cryptocurrencies that are facilitated by it foster anonymity. This may seem paradoxical yet it is well documented.

According to Trozze et. al., cryptocurrencies share three principles: decentralisation, pseudo-anonymity, and transparency. Cryptocurrencies do not require account numbers and can run instead on keys that are "decoupled from real-world identities". Financial transactions are done without being explicitly connected to particular persons or companies. At the same time, thanks largely to blockchain, these transactions are rigorously recorded, thus conferring transparency upon such exchanges (Trozze et al., 2022, p. 2.). Baer et. al. recognise the tension between cryptocurrencies' anonymity, on the one hand, and its transparency, on the another hand. This anonymity makes it "effectively impossible to recover private addresses from information provided in crypto transactions" while the transparency means "IP addresses can often be traced". Yet even this information can be "concealed" via the use of VPN (Baer *et al.*, 2023, p. 482). This poses incredible difficulties in a variety of essential procedures such as taxation and combating financial crime, a concern registered by Baer et. al.

The usage of cryptocurrencies is amendable to several "obfuscation techniques" that can be used to mask the identities of traders and investors. Nicholls, Kuppa, and Le-Khac have discussed some of these in relation to Bitcoin and money laundering. Mixing is a process where the origin of a Bitcoin can be hidden. A mixing service website allows users to have their Bitcoin mixed until the original Bitcoin cannot be traced. Transactions using these mixed Bitcoin can be difficult to unravel because they can include hundreds of inputs and outputs. Conjoin is a transaction involving multiple users who combine inputs in a single transaction. Addresses can be changed to add confusion to the transaction. It becomes especially hard to deanonymise these exchanges. Peeling is a process where small amounts of Bitcoin are sent to different addresses. The use of many wallets to receive small chunks of a Bitcoin is a "vast layering process" that makes it hard to identify the owner of the Bitcoin (Nicholls *et al.*, 2024, pp. 4-6). These techniques are significant for the compound the anonymity of cryptocurrency usage by adding extra layers of anonymity that make it harder to track transactions properly.

The trend of money laundering is developing along three axis. These are: globalisation, dematerialisation, and anonymisation. Giulio Soana points out that cryptocurrencies offer the "perfect match" for the development of money laundering. This is especially true for anonymisation, where cryptocurrencies "guarantee higher level of anonymity" compared with traditional online financial services (Soana, 2022, p. 2.). This suggests that the anonymity proffered by cryptocurrencies can be leveraged successfully for financial crimes in a way that traditional finances cannot. As Braaten & Vaughn make clear, anonymity is crucial for criminality. One avenue that is infamous for financial criminal behaviour is the dark web. The dark web is a favoured means used by criminals exactly because it guarantees anonymity. Cryptocurrencies have been combined with the dark web to commit financial activities that are masked from law enforcement agencies (Braaten and Vaughn, 2021, p. 971).

Directly after discussing blockchain, Europol warns that the rise of altcoins has resulted in the proliferation of "privacy coins" that provide greater anonymity by using a public ledger in the blockchain that is "obfuscated". This is epitomised by Monroe, a privacy coin that is "frequently used by criminals". Transactions are anonymous, with even the amounts obfuscated and kept unknown. While privacy coins can be considered as a subset of cryptocurrencies, they provide "enhanced anonymity features" that makes their usage hard to quantify or know in detail (Europol, 2021, pp. 6-7). Claus Dierksmeie and Peter Seele are right in stating: *"Unquestionably, the anonymity afforded by some altcoins affords criminals advantages compared to either trading in physical spaces or to using privately or publically owned exchange media within the virtual space of the Internet, opening the door to many forms of fraud and theft as in the case of the imprisoned founder Arthur Budovsky of the cryptocurrency 'Liberty Reserve'"* (Dierksmeie and Seele, 2016, p. 7).

It is no surprise, therefore, that many contemporary financial crimes are aided by the anonymity provided by cryptocurrencies. Jason Scharfman includes amongst these crimes' crypto scams, dark DAOs, the controversy over DeFi Bounty Programs, social engineering and deception phishing techniques, emerging technology phishing, and cryptocurrency spoofing scams (Scharfman, 2024, vol. 2., 44, 89, 135, 207, 211, 214). Islamic finance, of course, would hardly condone making its own system vulnerable to an explosion of anonymity-driven financial crimes.

The MENA region faces problems that other countries do not face at least at a comparable level. In particular, MENA faces the dangers of terrorism, both domestic and international. The anonymity of cryptocurrencies benefits terrorism. According to Wang and Zhu, the improved anonymity of cryptocurrencies will contribute to greater terrorist financing (Wang and Zhu, 2021, p. 2333). ISIL has been documented as using cryptocurrency, though Isaac Kifr is cautious regarding the exact extent (Kifr, 2020, p. 119). The threat exists that if cryptocurrencies proliferate in MENA, then government authorities may be unable to stop terrorist funding.

Cryptocurrencies pose a danger to the stability, safety, and security of financial systems that adopt them. Much of this danger can be located specifically in the anonymity that cryptocurrencies provide to users. Islamic finance finds itself in a paradox that represent the paradox of the latest financial innovation: blockchain secures unparalleled transparency that overlaps with Islamic finance's own ethos yet its usage will inevitably lead to a burgeoning adoption of cryptocurrencies that brings with it the harms of anonymity. This complex stalemate, between the benefits of transparency and the dangers of anonymity, is in dire need of analytical scrutiny, because leaving the issue landlocked may give the mistaken impression that Islamic finance is too conceptually impoverished to furnish a solution. The next section seeks to tentatively suggest a way out of this impasse that can help practitioners of Islamic finance untangle the Gordian knots that vex one's understanding and appreciation of the digital finance revolution.

7. Navigating the Transparency-Anonymity Tension

Islamic finance finds itself facing a Catch-22 scenario. Blockchain incorporation will allow Islamic finance to boost its transparency; however, the consequence of cryptocurrencies promote instead anonymity, a near opposite of transparency. On the other hand, if cryptocurrencies are excluded from Islamic finance, the latest financial innovation that can uphold unparalleled transparency, blockchain, will also be spurned.

In cases of dilemmas and paradoxes, it is common to try to quantify which option will provide the greatest benefit or the lesser harm. Problematically, however, the case of blockchain and cryptocurrencies cannot be quantified apart from speculation. The technology and transactions are not fully implemented;

so, it is hard, if not impossible, to get an accurate estimate of the ramifications involved. Additionally, this domain is currently in the midst of accelerated research-and-development, which means improved innovations may be on offer in the near future. It seems premature for Islamic finance to attempt a comprehensive evaluation of blockchain and cryptocurrencies at the present stage.

That said, some form of evaluation is still needed. Practitioners of Islamic finance require some strategies or methods to help them navigate this Catch-22. This section will proffer a philosophical evaluation that touches on the differences between the Western tradition's and Islamic tradition's understanding of transparency.

In the Western tradition, transparency was upheld as a supreme value for the formation of a good society. This is most apparent in the notion of openness that Karl Popper forwarded in his defence of an "open society" (Popper, 1962). A society that was open instead of closed would be saved from the scourge of totalitarianism. This apologetic manoeuvre on behalf of liberal democracy meant that since Popper till the present most attempts to restrict openness (and its synonyms transparency and publicity) are viewed as threats to society within Western thought. Henk Addink is correct to say that the "principle of transparency" is needed fundamentally to ensure the "legitimacy of the government" (Addink, 2019, p. 111). The very authority of a government to rule in the developed Western world is based on a high threshold of transparency, as in the case of vote-counting. Christensen and Cornelissen rightly observe that transparency has taken the form of a "myth", in the sense of a mythic vision that frames how modernity views the world (Christensen and Cornelissen, 2015, pp. 136-137). Myths exemplify the values a culture holds, and in the West, transparency is valued enough to become a modern-day myth.

In contrast, the Islamic tradition views transparency differently. The Quran states: "*O believers! Do not ask about any matter which, if made clear to you, may disturb you*" (Q.5:101). Regarding this verse, Qurtubi records that a person asked the Prophet about his own paternity, and the Prophet replied, and the answer was upsetting (Qurtubi, 2006, vol. 8, p. 229). The verse revealed warned people not to seek transparency in matters that may hurt them. In *Sahih Bukhari*, there is the following chapter heading: "*If a man is away or absent from his family for a long time, then on returning home, he should not enter his house at night, lest he should find something which might arouse his suspicion as regards his family, or lest he should discover their defects*" (Bukhari, 1997, vol. 7, p. 112).

This makes clear that the Prophet strongly disliked some forms of transparency that could ruin familial relationships. Moreover, Eli Alshech has demonstrated how early Muslim scholars protected privacy of one's own home as well as prohibited gathering information about what one does inside his home. This stance taken up by early Muslim scholars is traceable to the Quranic injunction in Q.24:27-9 (Alshech, 2004, p. 297). This early application of privacy protects a person's activity within his or her private domestic domain from being publicised or made known to those outside of this domain. The Quran, Prophetic *Sunnah*, as well as early Muslim scholars clearly restrict transparency in crucial cases.

As has been mentioned prior, the Islamic tradition strongly relates transparency with truth. But even truth is not regarded as the primary virtue that dominates other virtues. Nawawi says there is a consensus that lying is prohibited (Nawawi, 2005, p. 607). However, he then approvingly cites Ghazali who provides a nuanced perspective on truth and falsehood. According to Ghazali, the value of truth as a virtue and falsehood as a vice is based on the end-goal (*maqsūd*) they are utilised for. In cases where truthfulness will lead to harm, it ceases to be a virtue. And in cases where falsehood will lead to help, it ceases to be a vice. Ghazali illustrates this with the example of a tyrant (*dhālim*) who seeks to murder an innocent person. If the tyrant asked a Muslim for the whereabouts of this person, then the Muslim is obligated to lie in order to hide the location of this person and save his life. This not only applies to the protection of human life, but also of human wealth. Ghazali gives another example of a tyrant who tries to steal a person's wealth. A Muslim, in such a situation, should lie to the tyrant in order to hide this wealth and protect it from being stolen. Ghazali gives several examples of where lying has beneficial results, and he concludes by saying "[in these situations] lying is not prohibited, on the condition that the end result [which is beneficial] cannot be attained except by lying" (Nawawi, 2005, pp. 608-609).

This view can be taken to mean the following: truth is undoubtedly a virtue; however, there are many situations where it is more beneficial or less harmful to not adhere to truthfulness. Ergo, the same can be said for most, if not all, of the other virtues extolled in Islam. Thus, if transparency is outweighed in a situation by other factors that call for a lack of transparency, then it is religiously justified to restrict transparency in such a situation.

The *Maqāsid* approach that Ghazali mentioned resonates with Ibn 'Ashūr's understanding of transparency in finance. He writes: "*The objectives of the Shari'ah concerning all kinds of economic wealth can be summarized under five headings: marketability (rawāj); transparency (wudūh); preservation (hifz); durability (thabāt); and equity ('adl) in handling it*" (Ibn 'Ashūr, 2006, p. 285).

As Ibn 'Ashūr demonstrates in his subsequent explanation, these five objectives of economic wealth interact with one another, and produce a holistic benefit-orientated approach to economics in Islam. Transparency (*wudūh*) is only one of the five objectives and it is antithetical to the Islamic ethos to elevate transparency as the value that dominates the rest.

While the paradox between blockchain's transparency and cryptocurrency's anonymity may place increased strain on a transparency-orientated view of society, law, and governance that is characteristic of the Western tradition, the Islamic tradition can handle a more limited form of transparency that at the same time allows for other benefits or reduction of harms to accrue. Such limitations would be justified on the basis of furthering end-goals that promise to provide a more holistic benefit to all in society.

Practitioners of Islamic finance may find the evaluation provided in this section useful in navigating the increasingly complex interplay between transparency and anonymity in current financial innovations. Unlike Western economic thought that makes transparency into an ideal that must be sought out, Islamic finance can instead strategise based on multidimensional factors where transparency is not regarded in a utopian light. While Islamic finance does have adequate philosophical grounds to tackle the adoption of blockchain, and its concomitant ushering of cryptocurrencies, this hardly guarantees that Islamic finance in practice will do so. Many philosophically astute views have failed to be translated into contemporary practice. The challenge still remains for Islamic finance to use the insights on transparency in the Islamic tradition to successfully embrace current and future technological advancements in digital economy.

8. Conclusion

Unfortunately, due to pervasive stereotyping, long-cherished prejudices, and a penchant for sensational disinformation, many are those who raise eyebrows when told that transparency is a highly cherished and valued virtue in both the Islamic tradition and in contemporary manifestations of Islamic practices. This article attempted to rectify this quagmire.

Tracing transparency as a value in the Western tradition is informative but not complete. Sources such as Jeremy Bentham in the past or the International Monetary Fund (IMF) in the present do not exhaust the founts that feed transparency in other non-Western traditions, primarily in the Islamic heritage. In the Quran, transparency is attested to as a virtue in the longest verse. The Prophetic injunction against cheating/fraud defines the lack of transparency as a crime. The Caliphate of Umar is startling for how transparency was respected. Interestingly, these sources emphasise most financial transparency rather than, say, personal or behavioural transparency. This ethos carries on into contemporary Islamic finance that values transparency.

The literature on Islamic finance and transparency is vast. The upshot is that Islamic finance adds an extra burden of religious duty that motivates for greater transparency in transactions done through Islamic finance. Of course, the economic status-quo already enshrines transparency. However, Islamic finance urges even more transparency, at least in theory. In practice, due to the infancy and relative youth of Islamic finance, more can be done to improve transparency.

Since Islamic finance cherishes transparency, it is well poised to adopt blockchain technology that boasts of superior transparency in contrast to traditional monetary systems. The crucial element in blockchain is its digital ledger that cannot be rewritten or manipulated *post hoc*. This promises a bulwark against rampant corruption, fraudulent schemes, and misappropriation of wealth. On its own merits, blockchain is deserving of greater integration to Islamic finance. However, to view blockchain in such a reified manner would be mistaken.

Blockchain usage would inevitably lead to widespread cyrptocurrency usage. And the scholarly, technical, and academic literature is clear on this point: cryptocurrency fosters anonymity that can compromise transparency. A dilemma, paradox, or Catch-22 is reached. Islamic finance would be reneging on its emphasis of transparency if it allows cryptocurrencies to run amok.

Though at the current moment no concrete solution can be provided, a philosophical strategy can be discerned that will help practitioners of Islamic finance navigate such technological conundrums. Transparency as coloured by the Islamic tradition is not identical with transparency as found in the Western tradition. In the latter, transparency is turned into an ideal that must be strived for. In the former, transparency is one virtue among many others that needs to be balanced for end-goals (*maqāsid*) that provided greater benefits. For this reason, transparency in the Islamic tradition has, and continues to be, restricted and limited not due to an inherent aversion to transparency *per se*, but to the overriding importance of other virtues and values as well. On balance, if adopting more transparency can lead to devaluing other vital virtues, then limiting transparency can be justified.

It must be stressed that this article discusses a tension between Islamic finance and blockchain/cryptocurrency that is often overlooked. Many academics have, rightly, stressed the dangers of decentralisation of cryptocurrencies, and the need for rigorous governmental regulation of what could become an anarchic digital financial space. The concerns mapped out in this article do not relate to decentralization. Instead, the stress of this article has been on the transparency-anonymity tension. It is hoped theorists working within Islamic finance can take note of this tension in further research on Islamic finance and cryptocurrencies.

Some limitations of this study have already been mentioned. Principally, the technological acceleration in blockchain and cryptocurrencies means that perhaps in the near-future the tension is reined in. Or perhaps not. The speculative nature of this topic cannot be put to rest. Yet to be mentioned is another limit to this study: the lack of concrete figures and statistics regarding cyber-financial crimes in the MENA region. This lack proves difficult to making an informed evaluation of the potential repercussions of adopting blockchain/cryptocurrencies. It is hoped that in the future more detailed localised studies can be made that uncover the extent of digital vulnerability that besets MENA and how this relates to Islamic finance and its incorporation of new digital financial innovation.

In the contemporary age characterised by successive technological innovations that have transformed social interactions, it is important for practitioners of Islamic finance to explore both philosophically as well as financially the challenges that haunt any attempt at incorporating wholesale new financial tools, services, and processes into Islamic finance. This article hopes to be a humble contribution to this endeavour that opens the door to further inquiry by other intellectuals in the field. If anything, this article demonstrates that Islamic finance has the conceptual depth, thanks largely to the Islamic tradition, to tackle cutting-edge developments in digital finance. This is an area that will undoubtedly thrive in the near-future. More robust theorisation in Islamic finance will, thus, help Muslim countries in competing in a globalised market.

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