Mizan Protocol: Automating Trust in Islamic Finance using Stellar Soroban Smart Contracts

Hamza Bensliman

Department of Economics and Management
Sidi Mohamed Ben Abdellah University
Fez, Morocco
hamza.bensliman@usmba.ac.ma
Website: mizan.software

Abstract—This paper presents "Mizan Protocol," a decentralized technical framework for digitizing Islamic Murabaha contracts using the Stellar blockchain. We address the challenge of "trust" in banking transactions by utilizing an immutable audit trail for the three stages of Murabaha: Wa'd (Promise), Qabd (Possession), and Sale. The system features "Mizan Enterprise," a React-based banking interface integrated with Soroban (Rust) smart contracts, ensuring real-time data synchronization, reduced administrative latency, and full Sharia-compliance auditability without trusted intermediaries.

Index Terms—Islamic Finance, Blockchain, Smart Contracts, Murabaha, Stellar Soroban, Mizan Enterprise.

I. INTRODUCTION

Digital transformation in Islamic Finance faces unique challenges, primarily the need to ensure Sharia compliance in automated transactions [1]. Traditional Murabaha contracts rely heavily on manual verification to ensure the sequence of "Constructive Possession" (Qabd), strictly following standards set by AAOIFI [2]. This paper explores how modern Web3 technologies can automate this process using the Stellar network.

II. PROBLEM STATEMENT

Current banking systems lack transparency in the sequence of Murabaha transactions. There is a risk of selling the asset before the bank actually owns it, which violates Sharia principles regarding risk-sharing and ownership [3]. Furthermore, manual auditing is time-consuming and prone to human error.

III. PROPOSED SOLUTION

We propose a decentralized system named "Mizan Protocol" that utilizes blockchain principles to create an immutable ledger.

A. System Architecture

The system replaces the traditional core banking system with a blockchain-based approach:

- **Frontend (Mizan Enterprise):** A dedicated dashboard built with React.js allowing financial officers to initiate and track Murabaha contracts via the Freighter Wallet.
- **Smart Contracts:** Written in Rust on the Soroban platform to enforce the logic of purchase and resale.
- **Immutable Ledger:** Every step (Promise, Possession, Sale) is recorded as a transaction hash on the Stellar Futurenet.

IV. TECHNICAL IMPLEMENTATION

The prototype, accessible via the Mizan Enterprise interface, was built using the Stellar Soroban SDK.

A. Smart Contract Logic

The connection to the blockchain is established using the Freighter Wallet API. The contract ensures that the "Bank" (the smart contract) must hold the asset title before transferring it to the client, solving the issue of distinct possession.

B. Performance

By utilizing Stellar's consensus mechanism, the system achieves near-instant settlement with negligible transaction fees, making it viable for micro-financing.

V. CONCLUSION

This project demonstrates that it is possible to build a low-cost, secure, and transparent Murabaha auditing system using open-source tools. Future work will focus on deploying Mizan Enterprise to the Stellar Mainnet and integrating Stablecoins (USDC) for settlement.

REFERENCES

[1] M. H. Kamali, "FinTech and the Future of Islamic Finance," in *Islamic FinTech: Insights and Solutions*, Springer, 2021.
[2] AAOIFI, "Shari'ah Standard No. 8: Murabaha," Manama, Bahrain, 2017.
[3] Z. Iqbal and A. Mirakhor, *An Introduction to Islamic Finance*, John Wiley & Sons, 2011.
[4] Stellar Development Foundation, "Soroban Smart Contracts Documentation," 2024.