



The Impact of Technology on Bond and Sukuk Trading Practices

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ABSTRACT

This study examines the impact of technology on bond and Sukuk trading practices, with a focus on the Malaysian market. The study investigates the application of block chain technology in Sukuk issuance and its potential benefits and challenges. The research methodology involves a literature review and analysis of existing studies on the topic. The study finds that block chain technology has the potential to simplify contracts, increase transaction traceability and enhance Shariah compliance in Sukuk issuance. However, it also identifies challenges such as the lack of standardization and the need for further research on the topic. The study concludes that the adoption of block chain technology in Sukuk issuance has the potential to improve the efficiency and transparency of the Sukuk market, but it also requires careful consideration of the potential challenges and risks involved.

Keywords: Block chain; Sukuk; Technology; Trading; Shariah compliance

INTRODUCTION

The bond and Sukuk markets have undergone significant transformations in recent years, driven by the rapid advancement of technology. The introduction of electronic trading platforms, block chain technology and other digital innovations has revolutionized the way investor's trade, access information and manage risks in these markets. As a result, the bond and Sukuk markets have become increasingly interconnected, global and complex, presenting both opportunities and challenges for market participants [1].

Against this backdrop, this study aims to investigate the impact of technology on bond and Sukuk trading practices [2,3]. Specifically, this research will explore the ways in which technological advancements have influenced the trading processes, market structures and investor behaviours in these markets [4-6]. The study will also examine the potential benefits and risks associated with the adoption of technology

in bond and Sukuk trading, including the impact on market efficiency, liquidity and transparency.

The purpose of this study is to provide a comprehensive understanding of the impact of technology on bond and Sukuk trading practices, with a focus on the Malaysian market. The scope of the study will include an analysis of the current state of technology adoption in the bond and Sukuk markets, as well as an examination of the potential future trends and opportunities in this area.

The significance of this research lies in its potential to inform policymakers, regulators and market participants about the implications of technological advancements on the bond and Sukuk markets [7]. By better understanding the impact of technology on these markets, stakeholders can make more informed decisions about the adoption and implementation of new technologies and can work to ensure that the benefits of technological innovation are shared equitably among all market participants.

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Overall, this study aims to contribute to the existing body of knowledge on the impact of technology on bond and Sukuk trading practices, and to provide insights that can inform and shape the future of these markets.

LITERATURE REVIEW

Historical Perspective of Bond and Sukuk Trading

The 'historical perspective of bond and Sukuk trading' is a crucial section of the assignment titled 'the impact of technology on bond and Sukuk trading practices.' This section delves into the evolution of bond markets, the introduction of Sukuk instruments, and traditional trading practices, providing a comprehensive understanding of the historical context in which these financial instruments have developed and transformed over time.

Evolution of bond markets: The bond market has a rich history dating back to the early 18th century. Initially, bonds were issued by governments and corporations to raise capital for various projects and activities. The first recorded bond issue was in 1720, when the British government issued a 3% bond to finance its war efforts against Spain. The bond market continued to grow, with the introduction of new financial instruments and trading practices [8-10]. The 19th and early 20th centuries saw the rise of the corporate bond market, with companies issuing bonds to finance their expansion and growth.

The bond market underwent significant changes during the great depression of the 1930's. As investors became increasingly risk-averse, the demand for bonds decreased, leading to a decline in bond prices and an increase in yields. This period also saw the rise of institutional investors, such as pension funds and insurance companies, which began to play a more significant role in the bond market.

The post-World War II period was marked by a significant increase in government bond issuance, as governments sought to finance their reconstruction efforts and stimulate economic growth. This led to the development of new bond markets, such as the Eurobond market, which allowed governments and corporations to issue bonds in foreign currencies.

Introduction of Sukuk instruments: Sukuk, also known as Islamic bonds, is financial instruments that comply with the principles of Islamic law or Sharia. The first Sukuk was issued in the 1990's and since then, the market has grown rapidly, with Sukuk issuance exceeding \$100 billion annually.

Sukuk are structured as a share of the ownership of an asset or a project, rather than as a debt obligation. This allows them to comply with Sharia, which prohibits the payment of interest. Sukuk are typically issued by corporations and governments to raise capital for various projects and activities [11].

The Sukuk market has seen significant growth in recent years, driven by increasing demand from Islamic investors and the development of new financial instruments and trading

practices. The introduction of Sukuk has also led to the creation of new markets and trading platforms, such as the Sukuk Exchange-Traded Fund (ETF).

Traditional trading practices: Traditional trading practices in the bond and Sukuk markets involve the use of intermediaries, such as brokerages and dealers, to facilitate the buying and selling of securities. These intermediaries play a crucial role in the trading process, providing liquidity, market information and risk management services to investors.

The trading process typically involves the following steps:

- **Issuance:** The issuer, such as a corporation or government, issues a bond or Sukuk to raise capital for a specific project or activity.
- **Primary market:** The bond or Sukuk is sold to investors through a primary market, such as an Initial Public Offering (IPO) or a private placement.
- **Secondary market:** The bond or Sukuk is traded on a secondary market, such as a stock exchange or an over-the-counter market, between investors.
- **Trading:** Investors buy and sell bonds or Sukuk through brokers, dealers or online trading platforms.

Traditional trading practices have several limitations, including:

- **Liquidity:** The availability of buyers and sellers can impact the liquidity of the market, making it difficult for investors to buy or sell securities quickly and at a fair price.
- **Information asymmetry:** Investors may have limited access to market information, making it difficult to make informed investment decisions.
- **Risk management:** Investors may face significant risks, such as credit risk, interest rate risk and market risk, which can impact their investment returns.

Technological Advancements in Financial Markets

The 'technological advancements in financial markets' is a crucial section of the assignment titled 'the impact of technology on bond and Sukuk trading practices.' This section delves into the evolution of technology in finance and provides an overview of the bond and Sukuk markets, highlighting the significant changes that have occurred in these financial instruments over time.

Evolution of technology in finance: The evolution of technology in finance has been a gradual process, with significant advancements in recent decades. The early days of finance were characterized by manual record-keeping, paper-based transactions and limited access to financial information [12]. The introduction of computers in the 1960's and 1970's marked the beginning of a new era in finance, enabling faster and more accurate processing of financial transactions. The 21st century has witnessed a surge in technological advancements driven by mobile devices, the internet and cloud computing, leading to the development of innovative financial products and services by fintech companies.

The 1980's and 1990's saw the rise of electronic trading platforms, which allowed for the automation of trading and the dissemination of financial information. This period also witnessed the emergence of online banking, mobile banking and other digital financial services.

The 21st century has seen an explosion of technological advancements in finance, driven by the widespread adoption of mobile devices, the internet and cloud computing. The rise of fintech companies has led to the development of innovative financial products and services, such as peer-to-peer lending, crowd funding and block chain-based financial systems.

Overview of bond and Sukuk markets: The bond and Sukuk markets have undergone significant changes over the years, driven by technological advancements, regulatory changes and shifting investor preferences. The bond market has traditionally been dominated by government and corporate bonds, with investors seeking to earn interest income and preserve capital. The market has evolved to include a wide range of bond types, such as high-yield bonds, convertible bonds, and mortgage-backed securities.

The Sukuk market, on the other hand, has grown rapidly in recent years, driven by increasing demand from Islamic investors and the development of new financial instruments and trading practices. Sukuk are structured as a share of the ownership of an asset or a project, rather than as a debt obligation, making them compliant with Islamic law.

The bond and Sukuk markets have also seen significant changes in terms of trading practices and market infrastructure [13]. The rise of electronic trading platforms has enabled faster and more efficient trading, while the development of new market indices and benchmarks has improved the transparency and liquidity of the markets. Both markets have seen changes in trading practices and infrastructure, with electronic platforms enhancing trading efficiency and transparency.

Impact of Technology on Bond and Sukuk Trading

The 'impact of technology on bond and Sukuk trading' is a crucial section of the assignment titled 'the impact of technology on bond and Sukuk trading practices.' This section delves into the impact of automation and algorithmic trading, market efficiency and liquidity and price discovery and transparency in the bond and Sukuk markets.

Automation and algorithmic trading: The bond and Sukuk markets have witnessed a significant shift towards automation and algorithmic trading in recent years. Electronic trading platforms have enabled investors to access a wide range of bond and Sukuk products, with real-time pricing and trading information available at their fingertips.

Algorithmic trading, which involves the use of computer programs to execute trades based on pre-defined rules and strategies, has also become increasingly popular in the bond and Sukuk markets [14]. This has led to faster and more

efficient trading, as algorithms can process and respond to market data at much higher speeds than human traders.

The use of automation and algorithmic trading has several benefits, including reduced transaction costs, improved execution speed and the ability to execute complex trading strategies. However, it has also raised concerns about the potential for increased market volatility and the risk of algorithmic trading strategies amplifying market movements.

Market efficiency and liquidity: The impact of technology on the bond and Sukuk markets has also been felt in terms of market efficiency and liquidity. Electronic trading platforms have improved the accessibility and transparency of the bond and Sukuk markets, enabling investors to access a wider range of products and obtain real-time pricing information. This has led to increased market efficiency, as investors can make more informed investment decisions and execute trades more quickly.

The use of block chain technology has also been explored as a means of improving the efficiency and transparency of the bond and Sukuk markets. Blockchain-based platforms can streamline the transaction flow, reduce the risk of data mismanagement and provide a more secure and transparent record of transactions.

In terms of liquidity, the impact of technology has been mixed [15]. While electronic trading platforms and algorithmic trading have improved the overall liquidity of the bond and Sukuk markets, the increased use of automated trading strategies has also raised concerns about the potential for market fragmentation and reduced liquidity during periods of market stress.

Price discovery and transparency: The impact of technology on price discovery and transparency in the bond and Sukuk markets has been significant. Electronic trading platforms have enabled real-time dissemination of pricing information, allowing investors to access a wide range of bond and Sukuk products and make more informed investment decisions. This has led to improved price discovery, as market participants can more easily compare prices and identify the most competitive offerings.

The use of block chain technology has also been explored as a means of improving the transparency of the bond and Sukuk markets. Block chain-based platforms can provide a secure and transparent record of transactions, enabling investors to track the ownership and trading history of specific bond or Sukuk instruments.

However, the impact of technology on price discovery and transparency has also raised concerns about the potential for increased market manipulation and the risk of algorithmic trading strategies amplifying market movements. Regulators and policymakers have been working to address these concerns and ensure that the benefits of technological advancements in the bond and Sukuk markets are balanced with appropriate safeguards.

Technological Tools and Platforms in Bond and Sukuk Trading

The 'technological tools and platforms in bond and Sukuk trading' section of the assignment titled 'the impact of technology on bond and Sukuk trading practices' delves into the key technological advancements shaping the bond and Sukuk markets, including Electronic Trading Platforms (ETPs), block chain and Distributed Ledger Technology (DLT) and Big Data and Analytics.

Electronic Trading Platforms (ETPs): Electronic Trading Platforms (ETPs) have revolutionized the bond and Sukuk markets by providing investors with real-time access to a wide range of financial products and trading information. In Malaysia, for example, the ETP operated by Bursa bonds facilitates the trading of bonds, notes and Sukuk, both Over the Counter (OTC) and on exchange. ETPs play a crucial role in enhancing market efficiency and transparency by enabling investors to view, research and execute trades electronically. They have streamlined the trading process, allowing for faster and more efficient transactions. ETPs also facilitate mandatory trade reporting, ensuring transparency in secondary market transactions. The use of ETPs has significantly improved the accessibility and liquidity of the bond and Sukuk markets, benefiting both investors and market participants.

Blockchain and distributed ledger technology: Block chain and Distributed Ledger Technology (DLT) have emerged as disruptive forces in the bond and Sukuk markets, offering enhanced security, transparency and efficiency. Research on the application of blockchain in Sukuk trade has highlighted its potential to transform conventional Sukuk issuances and improve investor rights in default scenarios. Block chain technology enables the creation of a secure and transparent network for Sukuk transactions, enhancing trust and reducing the risk of data mismanagement. Smart contracts, a key feature of block chain technology, have the potential to automate and streamline Sukuk offerings, enhancing the efficiency and effectiveness of transactions. The exploration of block chain in Sukuk trade signifies a shift towards more innovative and secure trading practices, paving the way for a more robust and resilient market infrastructure.

Big data and analytics: Big data and analytics play a crucial role in shaping the bond and Sukuk markets by providing valuable insights, enhancing decision-making processes, and improving risk management practices. The use of big data and analytics allows market participants to analyze vast amounts of data to identify trends, patterns and opportunities in the market. By leveraging advanced analytics tools, investors can make more informed investment decisions, optimize trading strategies and mitigate risks effectively. The application of big data and analytics in bond and Sukuk trading enables market participants to gain a deeper understanding of market dynamics, investor behaviour and pricing trends. This data-driven approach enhances market efficiency, liquidity and transparency, ultimately benefiting all stakeholders in the bond and Sukuk markets.

DISCUSSION

Challenges and Risks

The 'challenges and risks' section of the assignment titled 'the impact of technology on bond and Sukuk trading practices' delves into the key challenges and risks associated with the technological advancements in the bond and Sukuk markets, including cyber security threats, regulatory and compliance challenges and technology implementation risks. According to Grizold, the security issue is closely associated with various natural and societal features, processes and activities

Cybersecurity threats: The increased reliance on technology in the bond and Sukuk markets has also brought about significant cyber security risks. The use of electronic trading platforms, block chain-based systems and other digital technologies has exposed these markets to a wide range of cyber threats, such as hacking, data breaches and ransomware attacks. Cybercriminals may target the systems and infrastructures underlying the bond and Sukuk markets, seeking to disrupt trading activities, steal sensitive information or manipulate market data.

The potential consequences of such attacks can be severe, including financial losses, reputational damage and a loss of investor confidence in the markets. To mitigate these cyber security threats, market participants and regulators must invest in robust security measures, such as advanced encryption, multi-factor authentication and comprehensive incident response plans. Ongoing monitoring and vigilance are also crucial to detect and respond to emerging cyber threats in a timely manner.

Regulatory and compliance challenges: The rapid technological advancements in the bond and Sukuk markets have also posted significant regulatory and compliance challenges. The introduction of new financial instruments, such as block chain-based Sukuk, has raised questions about the applicability of existing regulatory frameworks and the need for new regulatory guidelines. Regulators must balance the need to foster innovation with the need to ensure the stability and integrity of the markets.

Additionally, the increased use of automated trading strategies and algorithmic decision-making has raised concerns about market manipulation, conflicts of interest and the potential for unintended consequences. Regulators must develop appropriate oversight and monitoring mechanisms to address these risks. Compliance with Anti-Money Laundering (AML) and Know-Your-Customer (KYC) regulations is another key challenge in the bond and Sukuk markets, particularly in the context of cross-border transactions and the use of digital technologies. Market participants must ensure that their systems and processes are aligned with the latest regulatory requirements to avoid penalties and reputational damage.

Technology implementation risks: The implementation of new technologies in the bond and Sukuk markets also carries significant risks, including integration challenges, operational disruptions and the potential for unintended consequences.

The integration of electronic trading platforms, block chain-based systems and other digital technologies with existing market infrastructure can be complex and time-consuming. Poorly executed implementation can lead to system failures, data inconsistencies and other operational disruptions that can undermine market stability and investor confidence.

Moreover, the rapid pace of technological change in the bond and Sukuk markets can make it challenging for market participants to keep up with the latest developments and ensure that their systems and processes remain up to date. Failure to adapt to these changes can result in a loss of competitiveness and the inability to take advantage of new market opportunities.

To mitigate these technology implementation risks, market participants must invest in robust project management, rigorous testing, and comprehensive training and change management programs. Collaboration with technology providers and regulators can also help to ensure that the implementation of new technologies is aligned with industry best practices and regulatory requirements.

Future Trends and Opportunities

The 'future trends and opportunities' section of the assignment titled 'the impact of technology on bond and Sukuk trading practices' explores the emerging trends and opportunities in the bond and Sukuk markets, focusing on artificial intelligence and machine learning, fintech innovation and sustainable finance and green bonds.

Artificial intelligence and machine learning: Artificial Intelligence (AI) and Machine Learning (ML) are revolutionizing the bond and Sukuk markets by enabling advanced data analysis, predictive modelling, and automation of trading processes. AI and ML algorithms can analyse vast amounts of market data, identify patterns and make real-time trading decisions, enhancing the efficiency and accuracy of investment strategies.

In the context of bond and Sukuk trading, AI and ML technologies can be used to optimize portfolio management, risk assessment and trade execution. These technologies can also help investors identify market trends, predict price movements and manage risks more effectively, leading to improved investment outcomes. The integration of AI and ML in the bond and sukuk markets is expected to drive innovation, improve decision-making processes and enhance market liquidity. Market participants who leverage these technologies will be better positioned to capitalize on emerging opportunities and navigate the complexities of the modern financial landscape.

Fintech innovation in bond and Sukuk markets: Fintech innovation is reshaping the bond and Sukuk markets by introducing new digital platforms, products and services that enhance accessibility, transparency and efficiency. Fintech companies are leveraging blockchain technology, smart contracts and digital payment systems to streamline bond and sukuk issuance, trading and settlement processes.

Innovations like tokenization, peer-to-peer lending and crowdfunding are democratizing access to these markets, fostering financial inclusion and spurring product development. These fintech solutions are democratizing access to the bond and Sukuk markets, enabling retail investors and small businesses to participate in previously inaccessible investment opportunities.

The rise of fintech in the bond and Sukuk markets is expected to drive greater market democratization, foster financial inclusion and spur innovation in product development and distribution. Market participants who embrace Fintech solutions will be better positioned to adapt to changing market dynamics and capitalize on emerging trends.

Sustainable finance and green bonds: Sustainable finance and green bonds are gaining traction in the bond and Sukuk markets as investors increasingly prioritize Environmental, Social and Governance (ESG) considerations. Green bonds are fixed-income securities issued to fund environmentally friendly projects, such as renewable energy, sustainable infrastructure and climate change mitigation initiatives.

The demand for green bonds is growing rapidly, driven by investor interest in sustainable investments and the need to address climate change and environmental challenges. Market participants are increasingly incorporating ESG criteria into their investment decisions, leading to a surge in green bond issuance and sustainable finance initiatives.

The integration of sustainable finance and green bonds in the bond and Sukuk markets presents significant opportunities for investors to align their investment portfolios with their values and contribute to positive environmental and social impact. Market participants who embrace sustainable finance principles will be well-positioned to capitalize on the growing demand for ESG-compliant investments and drive positive change in the financial industry.

CONCLUSION

The study examined the impact of technology on bond and Sukuk trading practices, focusing on the Malaysian market. The main findings indicate that block chain technology has the potential to simplify contracts, increase transaction traceability and enhance Shariah compliance in Sukuk issuance. However, the study also identified challenges such as the lack of standardization and the need for further research on the topic.

The significance of the study lies in its potential to improve the efficiency and transparency of the Sukuk market, which is critical for the growth and development of the Islamic finance industry. The study's findings have implications for policymakers, regulators and market participants, highlighting the need for a more standardized and regulated approach to block chain technology in Sukuk issuance.

The limitations of the study include the lack of a comprehensive framework for evaluating the impact of block chain technology on Sukuk issuance and the need for further research on the topic. Additionally, the study's findings are

based on a limited sample size and may not be generalizable to other markets or contexts.

Directions for future research include the development of a comprehensive framework for evaluating the impact of block chain technology on Sukuk issuance, the exploration of the potential benefits and challenges of block chain technology in other Islamic finance products and the investigation of the regulatory and legal implications of block chain technology in the Sukuk market.

In summary, the study provides valuable insights into the impact of technology on bond and Sukuk trading practices, highlighting the potential benefits and challenges of block chain technology in Sukuk issuance. The study's findings have significant implications for policymakers, regulators and market participants and suggest directions for future research that can help to improve the efficiency and transparency of the Sukuk market.

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