REPUBLIC OF TURKEY
ISTANBUL GELISIM UNIVERSITY
INSTITUTE OF GRADUATE STUDIES

Department of Economics and Finance

COMPARATIVE ANALYSIS OF RISK ADJUSTED RETURNS: A STUDY OF SHARIA VERSUS CONVENTIONAL BANKING STOCKS IN MAJOR ISLAMIC BANKING COUNTRIES

Master Thesis

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Supervisor
Assoc. Prof. Dr. Hüseyin ÖCAL

Istanbul – 2026

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DECLARATION

I hereby declare that in the preparation of this thesis, scientific ethical rules have been followed, the works of other persons have been referenced in accordance with the scientific norms if used, there is no falsification in the used data, any part of the thesis has not been submitted to this university or any other university as another thesis.

Mohamed Abdi MOHAMED

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The thesis study of Mohamed Abdi Mohamed titled as *Comparative Analysis of Risk Adjusted Returns: A Study of Sharia Versus Conventional Banking Stocks in Major Islamic Banking Countries* has been accepted as MASTER THESIS in the department of Economics and Finance by our jury.

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SUMMARY

This thesis studies the comparative risk adjusted return performance between Sharia compliant banking stocks and conventional banking stocks in Türkiye, Malaysia, and Indonesia during the selected of period 2020 - 2025. This study analyzes how the Islamic and conventional banks perform and evaluate those performances to determine whether these stocks deliver efficiency in generating returns relative to the risks involved. This research applies key performance metrics mainly the Sharpe ratio analysis and additional Sortino ratio analysis to assess whether Islamic banking stocks demonstrate competitiveness or weaker performances compared to their conventional counterparts across multiple time intervals 1-year, 6 months, and 3 months and a sort the performances by ranking. Through these methods, this research offers an insight into stability, efficiency, and comparative risk performance of Islamic and conventional banking stocks.

Key Words: Banking Index, Sharia Banking Stocks, Conventional Banking Stocks, Sharpe Ratio, Sortino Ratio, Islamic Banking Performance, Risk Adjusted Return Analysis.

ÖZET

Bu tez, seçilen 2020-2025 döneminde Türkiye, Malezya ve Endonezya'daki Şeriat uyumlu bankacılık hisse senetleri ile konvansiyonel bankacılık hisse senetleri arasındaki karşılaştırmalı risk ayarlı getiri performansını incelemektedir. Bu çalışma, İslami ve konvansiyonel bankaların nasıl performans gösterdiğini analiz etmekte ve söz konusu performansları, bu hisselerin dâhil olunan risklere göre getiri üretme konusunda ne derece verimli olduklarını belirlemek amacıyla değerlendirmektedir. Bu araştırma, temel performans ölçütü olarak ağırlıklı biçimde Sharpe oranı analizini ve ek olarak Sortino oranı analizini uygulayarak İslami bankacılık hisselerinin farklı zaman aralıklarında—1 yıl, 6 ay ve 3 ay—konvansiyonel muadillerine kıyasla rekabetçi mi yoksa daha zayıf performanslar mı sergilediğini değerlendirmekte ve performansları sıralayarak karşılaştırmaktadır. Bu yöntemler aracılığıyla, bu araştırma İslami ve konvansiyonel bankacılık hisselerinin istikrarı, verimliliği ve karşılaştırmalı risk performansı hakkında bir içgörü sunmaktadır.

Anahtar kelimeler: Bankacılık Endeksi, Şeriat Bankacılığı Hisseleri, Konvansiyonel Bankacılık Hisseleri, Sharpe Oranı, Sortino Oranı, İslami Bankacılık Performansı, Risk Ayarlı Getiri Analizi.

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ABBREVIATION

RAR **:** Risk Adjusted Return

IFSB **:** Islamic Financial Services Board

IFSI **:** Islamic Financial Services Industry

CAGR **:** Compounded Annual Growth Rate

AAOIFI **:** Accounting and Auditing Organization for Islamic Financial Institutions

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PREFACE

Alhamdulillah all praises belong to Almighty Allah Subhanahu Wata'ala the All-knowing One, the Ever-Responding, blessed me with guidance and open the door of opportunity, confidence, courage, the power, the knowledge to fulfill this thesis that hopefully would bring value and contribute to the field of Risk Adjusted Return between Sharia and Conventional banking stocks from a comparative performance perspective.

Additionally, I extend my deepest gratitude and heartfelt appreciation to my both parents who with love, prayers, encouragement, sacrifices and belief helped me reach this level of education and their support since i was child has been the foundation of all my achievements. Thank you, Mr. Abdi Mohamed Egalle and Mrs. Amina Abdi Mohamed for continuing to believe in me and supporting me, May Allah grant you both Jannatul Firdaus Al'ala.

Furthermore, I would like to my teachers and professors in Gelişim University who taught well in Economic and Finance and provided me with the knowledge needed to complete this thesis. Without them this thesis would not be achievable. I also, would like to thank my advisor Assoc. Prof. HÜSEYİN ÖCAL for his expertise, insightful guidance which helped shape the direction and the quality of my thesis to be the better form that it is right now.

Lastly, I would like to thank all who supported me directly and indirectly to conclude my research, I appreciate your support, May Allah reward you all. May this research contribute academically and support future researchers.

INTRODUCTION

This Study aims to examines the comparative risk adjusted return between sharia and conventional listed banking stocks from Türkiye, Malaysia, Indonesia. Generally, Islamic banks are defined as a fully sharia compliant institution. On the other hand, Conventional banks are interest-based institutions. These banking stocks are selected based on their huge assets and are among the top banks in each country.

Since it is important to understand how well sharia performs compared to conventional banking stocks, this study will analyze the performance using Sharpe Ratio as the main metric to evaluate and compare risk adjusted return. This research is based on the computation of risk adjusted performance over the course of 5 years starting from 2020-2025.

The following are the banks which was selected based on their assets and are the main material for this research. Indonesia covers 5 banks: PT Bank Syariah Indonesia Tbk (BRIS), and PT Bank BTPN Syariah Tbk (BTPS) as sharia compliant stocks. PT Bank Central Asia Tbk (BBCA), PT Bank Mandiri Tbk (BMRI), PT Bank Rakyat Indonesia Tbk (BBRI) as conventional Banks.

Likewise, For Malaysia the selected banks are 5: Bank Islam Malaysia Bhd (BIMB), Malaysia Building Society Berhad (MBSB) as sharia banks. On the other hand, CIMB Group Holdings Bhd (CIMB), Malayan Banking Bhd (MBBM), and Public Bank Bhd (PUBM) as conventional.

Additionally, Türkiye covers 4 banks. However, due to lack of sharia compliant banking stocks, the researcher was able to find Albaraka Turk Katilim Bankasi AS (ALBRK) as the sole sharia banking stock. Oppositely, the conventional banking stocks are Akbank TAS (AKBNK), Turkiye Garanti Bankasi AS (GARAN), and Yapi ve Kredi Bankasi AS (YKBNK).

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

Financial institutions, particularly Islamic financial institutions have experienced growth during the last few decades. The growth came from influx of developments covering all types of products that Islamic financial institutions offer such as (Islamic Commercial Banks, Islamic Investment Banks, Islamic Microfinance Institutions (IMFIs), Islamic Insurance Companies (Takaful), Islamic Leasing Companies, Islamic Mutual Funds, Islamic Real Estate Investment Trusts (REITs), Islamic Development Banks, Islamic Capital Market Institutions, Zakat and Waqf-Based Institutions, Islamic Credit Unions / Cooperatives).

As a result of these Islamic institutions developments, according to one report their assets have increased reaching $770 billion assets in 2022 (Domat, 2024). In addition, the exponential growth rate of Islamic finance was recorded as an approximately 10% annually. According to the 2023 State of Global Islamic Economy report that by 2026, the total value of sharia-compliant assets will have reached $5.95 trillion (Domat, 2024). This fact has led the Islamic finance to be considered one of most significant developments that has led to the rise of Islamic Banking and Finance products today.

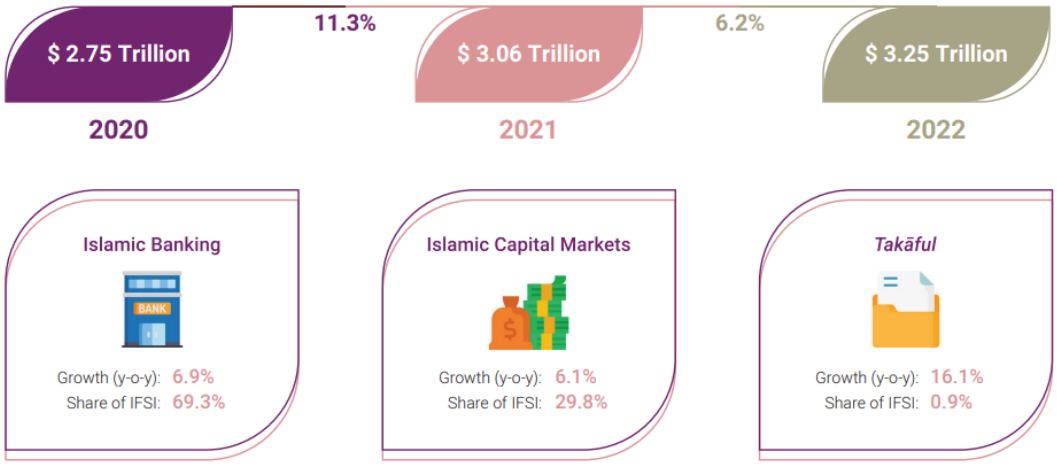

Figure 1. Key IFSI Highlights, (IFSB Report, 2023).

In contrast, another research assessment shows that the growing of Islamic financial institution projected data highlights their significant regional and sectoral strength. According to the Islamic Financial Services Board (IFSB), the global Islamic financial assets reached over $3.25 trillion in 2022. While Islamic banking remained the most dominant, with an asset size of USD 2.25 trillion accounting for 69.3% of the global Islamic Financial Services Industry (IFSI) assets. driven mainly by top 10 domestic Islamic banking assets countries like Saudi Arabia, Iran, Malaysia, Kuwait, Qatar, Türkiye, Bangladesh, Indonesia, Bahrain (IFSB Report, 2023).

Region	Islamic Banking Assets	*Ṣukūk* Outstanding	Islamic Funds Assets	*Takāful* Contributions	Total	Share (%)
Gulf Cooperation Council (GCC)	1342.9	356.6	24.1	16.7	1740.4	53.6%
South-East Asia (SEA)	307.2	411.4	32.8	6.0	757.4	23.3%
Middle East and South Asia (MESA)	478.3	57.8	62.9	5.9	604.9	18.6%
Africa	49.6	2.9	1.9	0.8	55.2	1.7%
Others	71.2	1.0	14.9	0.6	87.7	2.7%
Total	2249.2	829.7	136.6	30.0	3245.5	100.0%
Share %	69.3%	25.6%	4.2%	0.9%	100%	

Figure 2. Breakdown of the Global IFSI by Sector and Region (USD billion) (IFSB Report, 2023).

This upward trend of financial performance in Islamic finance has intensified academic and policy interest in term of evaluating the performance of sharia compliant financial product relative to their conventional banking counterparts, particularly in the context of risk and return of publicly traded stocks. A primary key factor for stock selection as an investment for investors and from a government regulators perspective.

Furthermore, Islamic and conventional banking systems coexist together within the same national economies and its impact is very significant particularly in countries like Malaysia, Indonesia, and Türkiye. This mutual coexistence creates a unique environment for empirical comparison to be carried out. In such dual-banking system settings in a country, both types of institutions operate under the same macroeconomic condition with sometimes different or same regulatory and supervisory authorities, depends whether the country has appointed specific boards. Therefore, both follow their own distinct financial philosophies and risk management practices according to their regulation.

However, the only difference between conventional and Islamic financial institution is that all Islamic financial institutions must abide by and follow the Sharia Law. Sharia law has distinct principles and are the core function of these banking institutions. All Islamic Financial Institution must contain in their products the following principles – be free of interest (Riba), uncertainty (Gharar), speculation (Maysir), and any Involvement in prohibited activities (AAOIFI, 2015).

This parallel operation between conventional and Islamic institution specifically in banking sectors that are publicly traded IPO banks creates a unique environment that attracts investors, researchers, policy makers to compare performance metrics more effectively, especially during harsh periods of financial stress, market volatility, as well as booming period marked by economic resilience, market growth and stability where the performance stocks of the bank and it's adaptability, and the risk adjusted returns profile of banking systems become critical indicators of financial robustness and a factor of investor confidence, not only for portfolio optimization but also for the creation of regulations and policies.

On the other hand, several studies have analyzed the impact of global financial crises towards Islamic and conventional banks revealing several different outcomes. These studies outcomes highlight the relative resilience of Islamic banks during global financial crisis due to their asset-backed structures. While others pointed to weaknesses in risk management and adequate capital base that left them vulnerable and exposed during the later stages of financial crisis.

According to a study, Islamic banks (IBs) were relatively protected from the early stages of the global financial crisis in 2008 due to their asset based and risk sharing business models that was implemented by these banks. Their lack of involvement in any prohibited activities guided by the principles of Sharia Economic Law helped preserve profitability and credit growth during this period. However, in 2009 as the crisis started effecting the real national economy, Islamic banks faced greater profitability challenges due to weaker risk management structures reversing some of the earlier gains (Hasan & Dridi, 2010).

Similarly, another study provided empirical evidence from Malaysia showing that Islamic banks maintained higher liquidity levels during financial crisis compared to its conventional counterparts. Islamic banks were able to maintain stable

performance metrics during periods of turbulent uncertainty because of their strategy of holding liquid assets, which made them relatively less susceptible to liquidity risk (Kassim & Abdulle, 2012).

Additionally, according to alternative study Islamic banks performed worse than conventional banks during the crisis in terms of return on equity, leverage, and adequate capital. However, Islamic banks performed better in the aspect of return on assets and liquidity indicating that their operational conservatism had provided stability even though their capital structures were more prone to risk (Parashar & Venkatesh, 2010). Moreover, since there are different national regulatory frameworks, different country being compared and bank specific risk assessment profiles with the metric analysis methodologies used to evaluate the financial performance are the reason as to why previous studies have different outcomes.

In conclusion, making a comparative dynamic between Islamic and conventional banking institutions, particularly during times of financial crises does highlight the important of major Islamic country specific analysis. As Islamic finance continues to grow, especially in publicly traded banking sectors having to understanding the risk adjusted performance becomes very essential for both academic literature and real-world financial trading strategy. This study therefore seeks to contribute to that understanding by evaluating the performance of Islamic and conventional banking stocks across major Islamic banking countries through the use of risk adjusted return metric analysis and its ratios.

1.2. Statement of Research Problem

In today's growing financial ecosystems, the implementation of Islamic finance banking has brought about major change and development of its sector. Their regulatory structures revolve around sharia law and ethical, equity-based models, such as profit-and-loss sharing and asset-backed financing. In contrast, conventional banks operate under interest-driven, debt-based. These foundational differences shape not only the instruments each system can offer but also the mechanisms they use to balance return with financial stability. While indeed Islamic banks do continue to grow, their investment is often measured not simply by absolute returns but also their ability to manage risk efficiently in comparison to conventional banks.

Therefore, to evaluate their financial performance of such two different financial models, the use of **risk adjusted return** concept becomes very important in this topic. In definition, risk adjusted return is the performance of an investment measured based on the returned earned after accounting for the risk involved in generating that return. (Chen, 2023). This method is widely used in finance as a fair method of comparing the effectiveness of various investments in financial institutions especially when there are different types of risk profiles. Metrics used to analyze risk adjusted return are **Sharp Ratio** as the main metric. Additional metrics are also implemented such as **Return of (Stock, Composite, Banking Index, 1 Year Bond Yield), Excess Return, Downside Deviation, Standard Deviation, Sortino Ratio**, **Stock's Beta, Stock Correlation** (Relative to Banking Index), **and Annualized Return** using **Compounded Annual Growth Rate (CAGR).** These metrics will assist the researcher to determine whether Islamic bank and conventional bank stock's return earnings ratio is of significant to that risk taken.

This research will contribute to previous researches by adding more data in comparative analysis between Islamic and conventional banking stocks. This study aims to add value to the current research on risk adjusted return data conducted previously on different stocks by focusing on sharia banks and conventional banks from 3 different countries. This study will analyze a total of 5 sharia banking stocks and 9 conventional banking stocks across the 3 selected countries. These 3 selected countries are a major Islamic country especially Indonesia with a well-established and significant Islamic finance sectors due to its huge Muslim population. These nations also not only represent different regulatory system but also has a major global share in Islamic banking market in terms of assets (TAB Insights, 2024). By analyzing their performances using risk adjusted return metrics and making comparison of Islamic banking stocks and conventional banking stocks, this research aims to uncover the return relative to the risk taken and rank which country and banking system has performed well the most.

1.3. Research Questions

1. How does the Sharpe ratios of Islamic and conventional banking stocks in Türkiye, Malaysia, and Indonesia compare over the selected study period?

2. Which banking model Sharia or conventional banking exhibits high Sharpe ratio or low Sharpe ratio than other in terms of risk adjusted returns in Türkiye, Malaysia, and Indonesia stocks?

3. Based on the selected countries, which type of banking stock Islamic or conventional reflect a more stable performance over the selected time-based intervals on the Sharpe ratio analysis?

1.4. Research Objective

1. To evaluate the risk adjusted return performance of Islamic and conventional banks using risk adjusted return metrics.

2. To compare these performances across 3 major Islamic banking countries.

3. To identify whether Islamic banks outperform or underperform conventional banks in managing return relative to risk.

1.5. Research Hypotheses

Hypothesis Q1:

H0: There is no significant difference in the Sharpe ratios of Islamic and conventional banking stocks in Türkiye, Malaysia, and Indonesia over the selected study period.

H1: There is a significant difference in the Sharpe ratios of Islamic and conventional banking stocks in Türkiye, Malaysia, and Indonesia over the selected study period.

Hypothesis Q2:

H0: Islamic and conventional banking models do not exhibit any difference in terms of high or lower Sharpe ratios for risk adjusted returns in Türkiye, Malaysia, and Indonesia.

H1: Islamic and conventional banking models exhibit significant difference in terms of high or lower Sharpe ratios for risk adjusted returns in Türkiye, Malaysia, and Indonesia.

Hypothesis Q3:

H0: There is no noticeable difference in the performance stability of Islamic and conventional banking stocks across the selected time-based intervals based on Sharpe ratio analysis.

H1: There is noticeable difference in the performance stability of Islamic and conventional banking stocks across the selected time-based intervals based on Sharpe ratio analysis.

1.6. Significance of the Study

This thesis purpose is to analyze and compare risk adjusted return performance of Islamic and conventional banks across 3 major countries with a well-established Islamic financial system. The analysis will focus mainly on available and publicly traded banking stocks. This study aims to analyze publicly traded Islamic banking stocks in comparison to conventional banking stocks based on their historical data under similar macroeconomic environments using the risk adjusted return performance metrics such as Sharpe Ratio, Sortino Ratio.

The importance of this thesis is to contribute to previous academic literature as well as practical understanding of how Islamic banking stocks perform relative to their conventional counterparts. To contribute to previous studies on risk adjusted return, this thesis covers a broader comparative approach by analyzing data from 3 various key Islamic banking nations.

This research seeks to assist investors, policymakers, regulators, and scholars interested in understanding the Islamic banking stock's performance relative to conventional banking stocks in their stability and risk return dynamics. It will also support strategic investment decisions making and development of regulatory frameworks in a dual-banking economies environment by identifying patterns in stock market performance and evaluating whether Islamic banks provide better option relative to conventional banks.

1.7. Scope of the Study

This research analyzes the risk adjusted return performance subject using publicly listed Islamic and conventional banking stocks across 3 countries with major Islamic banking sectors listed in the table below. For each country, this research primary goal is to include 3 Islamic and 3 conventional banking stocks totaling 6 banks. However, due to lack of data in terms of bond yield, banking stock, the number of banks has been reduced as per the table show. It is crucial that all selected banks both Islamic and conventional are publicly listed and must have at the very minimum

5+ years of historical data to support and carry out risk adjusted return performance analysis. Fortunately, the listed banks do accommodate this requirement.

The following table consist of 14 banking stocks in total to be analyzed across the selected period of 2020–2025. The study uses the 1-Year Government Bond Yield of each country as the benchmark for the risk-free rate (R_f), to compute Sharpe Ratio the main indicator for risk adjusted return performance metric used in this analysis.

Lists of research Samples categorized:

Table 1. Selected Islamic and Conventional Banks by Country for Risk Adjusted Return Analysis – The selection based on their significant asset size.

Country	Islamic Banks	Conventional Banks
ASIA-EU REGION		
Türkiye	Albaraka Türk Katılım (ALBRK)	Türkiye Garanti Bankası (GARAN) - Yapı ve Kredi Bankası (YKBNK) - Akbank (AKBNK)
ASIA REGION		
Indonesia	Bank Syariah Indonesia (BRIS) – Bank BTPN Syariah (BTPS)	Bank Central Asia (BBCA) – Bank Mandiri (BMRI) – Bank Rakyat Indonesia (BBRI)
Malaysia	Bank Islam Malaysia Bhd (BIMB) – Malaysia Building Society Berhad (MBSB)	CIMB Group Holdings Bhd (CIMB) Malayan Banking Bhd (MBBM) Public Bank Bhd (PUBM)

1.8. Limitation of the Study

This research has several key limitations which helps narrow its analysis to be more focus centric and specific to the selected subject area and its objective in the following list:

1.8.1. Data Availability & Coverage

Only publicly listed banking stocks were selected along with their indexes with at least five years of continuous historical daily market data for analysis.

1.8.2. Selection Limitation

The banking stocks is limited due to the total available data of Islamic banking stocks and 3 conventional banking stock per country to ensure balanced in the comparison analysis. Despite this, the analysis remains viable and can still be carried out.

1.8.3. Metric Analysis Used

This study is mainly limited to Sharpe Ratio as the primary analysis of risk adjusted return. In addition to that, other key metrics are also analyzed to fulfil the primary measurement Sharpe ratio such as Stock's return, Banking Index return, Composite return, 1-year Bond Yield return, Excess Return, Downside Deviation, Sortino, Standard Deviation, Stock Beta, Stock Correlation relative to bank index, Annualized Return using Compounded Annual Growth Rate (CAGR).

1.8.4. Risk-Free Rate Limitations

This study uses a 1-year government bond yield as the risk-free rate in calculating the Sharpe Ratio. This limitation is selected based on the fact that it is needed to match the daily frequency of stock's return data obtained with a short-term, low-risk measure such as 1 year bond yield. During data collection, Türkiye's 1-year bond yield was sourced from TradingView (instead of Investing.com) because the bond expired on March 8, 2023. During data collection, Türkiye's 1-year bond yield was sourced from TradingView and not Investing.com due to the bond expiry on March 8, 2023, while the rest was gathered from Investing.com.

1.9. Conceptual Framework Analysis

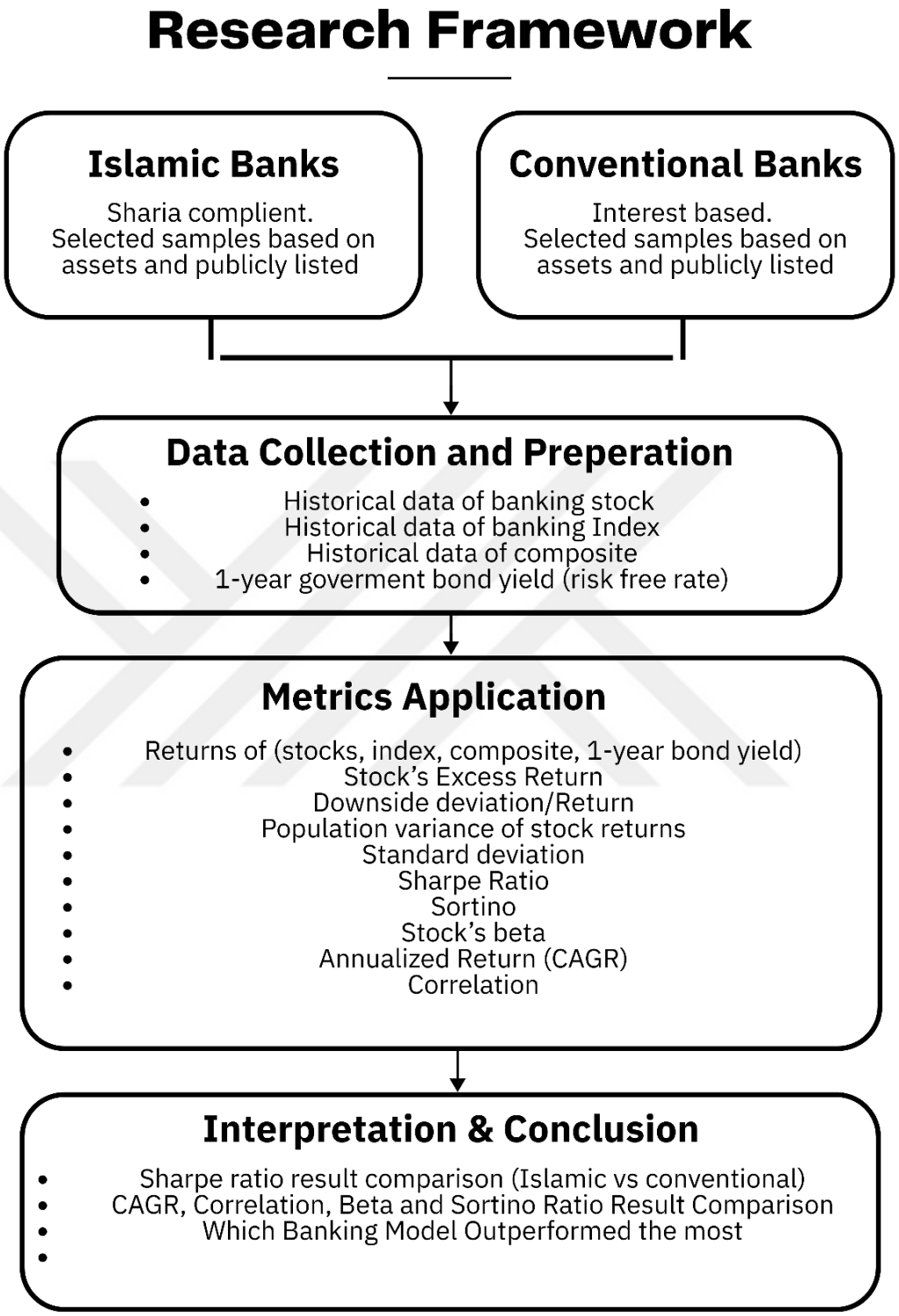

Figure 3. Conceptual Framework Analysis of this study.

CHAPTER TWO

LITERATURE REVIEW

2.1. Theoretical Review

2.1.1. Islamic Banking Concept and Principles

Islamic banking is a financial practices and arrangements that comply fully with Shariah Laws which is the body of Islamic law. Shariah Law regulates not only individual behavior but also the financial transactions between individuals or institutions. This system ensures that its aligned well with ethical, moral, and religious principles. Islamic finance plays significant role in both short-term liquidity and long-term investments with Islamic contracts that are always guided by Shariah laws (Hasan, 2023).

One of the key principle and pillar of Shariah law that governs Islamic finance is the absolute prohibition of interest (Riba) which is mentioned firmly in the Qur'an and the Sunnah. According to the Fatwa Majelis Ulama Indonesia (MUI) No. 1 of 2004: "interest that is also referred to as (*Fa'idah* in Arabic or B*unga* in Indonesian) applied solely in loan transactions whether it is between financial institutions, individuals, or financial and institutions or others is entirely and categorically classified as Riba. This ruling is based on various Qur'anic verses which are *Surah Al-Baqarah (2:275-279)* and *Ali Imran (3:130),* where Almighty Allah clearly distinguishes lawful trade from riba, declaring that riba is forbidden and promising severe consequences and punishment for those who continue engaging in it. Also, reference from hadith where the Prophet Muhammad (ﷺ) said: "'"*Allah has cursed the one who consumes riba, the one who pays it, the one who records it, and the two witnesses to it, and he said: They are all the same (in sin)*" (Sahih Muslim, Book of Transactions, Hadith no. 1598).

This hadith asserting that all parties engaging in this forbidden transaction are all equal in performing this sin. The fatwa emphasizes that engaging in riba invites divine wrath of Allah, for He and His Messenger have declared war on those who refuse to abandon performing the riba once the prohibition reaches them (Fatwa No. 1/DSN-MUI/2004). Islamic scholars generally do agree that this prohibition applies to all types of loans from consumption, production, or even most notable form of money

or commodities. It is noteworthy that this prohibition covers both the charging and acceptance of interest by verbal agreement or in writing as contract.

In definition, profit participation is the concept where an investor or lender earns a return only if the venture or business generates a profit. The lender's return is directly tied to the actual performance of the establishing business. This model illustrates the Islamic principle of risk sharing profits which are shared as per an agreed ratio in a specified timeframe in writing, and any losses that occur will be shared according to each party's capital share or contribution. Usually Profit participation is directly linked with partnership-based contracts in Islamic finance such as *Mudarabah* and *Musharakah* which is defined below.

Mudarabah is the contract where one party provides capital (Rabbu Almaal) and the other provides business contribution (Mudarib). Profits are shared as agreed, losses are distributed in proportion to capital ownership, unless due to negligence by the *Mudarib*. On the other hand, Musharakah is a joint partnership where both provide capital or labor to form a business and manage it. Profits are shared as agreed; losses are shared in proportion to capital contributed (Fatwa No. 115/DSN-MUI/IX/2017).

In Islamic finance, profit participation represents a key principle of Shariah Law that aligns returns with actual business performance that someone intend to invest in. In Qur'an Surah Al-Najm, Ayah 39-41: "*And that man will have nothing except what he strives for, And that his effort is going to be seen, Then he will be recompensed for it with the fullest recompense*".

Also, In Sunnah the Prophet (ﷺ) said "*Nobody has ever eaten a better meal than that which one has earned by working with one's own hands"*, Affirming that a lawful gain must always be linked to a person's effort and contribution. (Sahih al-Bukhari 2072, Book of Sales and Trade, Hadith 25). Therefore, profit all Under this model dictates that an investor or financier earns a return only if the underlying venture generates a genuine profit and losses sharing is taken into account by both capital lender and the partner(s) regarding the established business.

Islamic finance and banking in general in their ethical investment policy which involves directing funding towards ventures must align with moral, religious, and social values. It is prohibited of any type of funding and investment towards any profit participation contracts to be based on forbidden and harmful industries and sectors

such as alcohol, gambling, Pork, tobacco, and many more. Alternatively, Islamic banks tend to focus on industries that support human rights, environmental protection, or social development. These ethical consideration and commitments aligned well with Shariah law principles that was stated in previous paragraphs such as the prohibition of interest (*Riba*). Additionally, there are other forbidden elements which include avoidance of excessive uncertainty (*gharar*), and rejection of speculative transactions (*maysir*). Instead, Islamic finance highly emphasizes fairness, risk sharing, and backing transactions with real economic assets or with an existing underlying asset (Alam, Gupta, & Shanmugam, 2017).

Moreover, Islamic banks promote social justice, reduce inequality, and help alleviate poverty. Islamic banks have services which they offer to their clients as financial social support instruments such as Zakat (obligatory almsgiving), Sadaqah (voluntary charity), and Qard Al-Hasan (interest free loans) to support a more equitable distribution of wealth and provide assistance to the disadvantaged communities locally and internationally. Islamic banking focus on balancing material success along with their moral and spiritual wellbeing which sets them apart from their conventional banking counterparts (Kunhibava, Muneeza, Khalid, Mustapha, & Sen, 2024).

2.1.2. Islamic Financial Standards and Fatwa Bodies

In Islamic financial, standards and fatwas are considered the most important instrument that is used to affirm whether Islamic finance products and institutions do comply with Shariah law principles (Nasir, 2025). On the other hand, fatwas are defined as legal opinion based which clarifies and interpret Islamic law that is issued by qualified Islamic scholars called *Mufti* based on contemporary issues that is not addressed in previous Islamic jurisprudence (Chibololo, 2023). In Islamic finance, their rulings specifically made to interpret whether financial products, services, or contracts conform to Islamic principles and standards. Their legal interpretation guides Islamic financial institutions (IFIs) in structuring their Islamic banking products to ensure that their operations are free from interest, excessive uncertainty, and speculation and other forbidden transactions. Also, Islamic financial standards are established guidelines developed to help provide clearance of vague and emerging financial activities and promoting consistency and best practices in governance, accounting, auditing, and product development (Wani & Dar, 2022). Therefore,

standards and fatwas serve as the main pillar for aligning Shariah compliance with Islamic financial operations across all financial institutions and legal jurisdictions.

In major international standard issuing bodies, there are currently two existing and leading international organizations which play a vital role in setting the Islamic financial standards. These organizations are the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) and the Islamic Financial Services Board (IFSB). AAOIFI established in 1991 in Bahrain and introduced accounting, auditing, ethics, and governance standards that is specifically developed for Islamic financial institutions. Their standards provide a clear framework based on set of rules to promote transparency in Islamic finance operations (AAOIFI, 2025). The IFSB which was founded in 2003 is based in Malaysia. It issues supervisory standards aimed at improving stability and practice in the Islamic financial services industry. Also, it's guidelines align with global financial standards while incorporating their Shariah compliant methods. Both bodies have played in key role towards the development of Islamic finance sector by offering comprehensive structured guidance for regulators and finance institutions worldwide (IFSB, 2025).

In addition to international bodies, the selected individual countries for this study have established their own Shariah supervisory authorities to issue a harmonized and unified national shariah ruling standards and fatwas. These authorities adapt to guidelines by their central bank and global Islamic standards and oversee the implementation within their domestic financial systems. The representing supervisory body in each individual country are listed as follows:

Table 2. Overview of Fatwa issuing authorities for Islamic banks across research sample countries. (Data based on: Indonesia [DSN-MUI], Malaysia [Rosidi, (2024)], Türkiye [Bektas and Yenice (2022)].

Country	Fatwa Issuing Authority	Type of Supervision
ASIA REGION		
Indonesia	Dewan Syariah Nasional Majelis Ulama Indonesia (DSN-MUI)	Centralized

Malaysia	The National Fatwa Committee	Centralized
ASIA-EU REGION		
Türkiye	Internal Shariah Boards	Individual

Additionally, Islamic financial standards and fatwas have a significant impact on the development Islamic finance. They promote standardization which help boost investor confidence and encourage Islamic finance institution innovations within a shariah compliant framework. Furthermore, Both AAOIFI and IFSB standards have been adopted in several countries such as Indonesia and Malaysia to facilitate the development of fatwa and regulations aiming to assist in building better Islamic finance products for market integration. On the other hand, locally issued fatwas ensures that Islamic financial products remain religiously competitive and relevant against conventional financial products. Together, these frameworks enhance the credibility and scalability of Islamic finance that contribute to become resilient and experience rapid growth in both Muslim majority countries and non-Muslim countries. As this industry continue to expand, the progressive development of standards and fatwa governance remains crucial step to maintaining Islamic finance product's integrity, trust, and sustainability.

2.1.3. Conventional Banking Principles

The conventional banking system operates based on a capital and interest-based system which aims to maximize profit. Additionally, conventional financial institutions typically collect public funds for the purpose of channeling them back to society through the means of loans and credit without any religious restrictions. They provide these financial products to finance any legal business activity and that they operate based on national banking laws but not sharia principles. Their structure includes the central bank regulations as well as other regulatory bodies that govern commercial banks. The primary goal of conventional banks is raising deposits, providing credit, and facilitating payment systems. This approach makes conventional banks focus entirely on material financial gain and unlike Islamic banks that also considers religious and ethical constraints (Prahendratno, 2023).

2.1.4. Risk-Adjusted Return Measures: Sharpe and Sortino Ratios

Risk-adjusted return measures are widely used to evaluate portfolio performance by considering return together with risk. In the performance measurement literature, the Sharpe ratio is one of the most commonly applied indicators, as it measures the additional (excess) return over the risk-free rate relative to total risk (standard deviation); specifically, it is computed as the risk premium ($\overline{r}_i - \overline{r}_f$) divided by the standard deviation of returns, and a higher value indicates superior risk-adjusted performance (İlhan, 2021).

Similarly, (Öcal and Kamil, 2021) emphasize that from an investor's perspective the Sharpe ratio shows how effectively a stock, fund or portfolio compensates the investor for the risk undertaken, defining it as excess return over the risk-free rate divided by volatility.

In contrast, the Sortino ratio is presented as an improvement or variation of Sharpe by focusing specifically on downside risk, since it considers only unfavorable volatility. It Also evaluates performance using excess return over a minimum acceptable return divided by downside deviation thereby adjusting performance based on negative risk rather than total volatility (İlhan, 2021; Öcal & Kamil, 2021).

2.2. Empirical Literature

2.2.1. Introduction

The objective of this empirical review is to obtain insight from previous literatures that have examined the comparative risk adjusted return performance between Islamic and conventional banking sectors. By integrating the findings obtained from previous study analysis, this section aims to highlight the consistent patterns and reveal areas that previous studies conclusions diverge. Furthermore, this empirical review contributes to the study by extending the analysis of risk adjusted return metrics to several countries banking stocks.

In a study conducted by (Amin et al., 2021) examined the behavior of Shariah compliant stocks through the use of standard risk adjusted performance measures such as Sharpe ratio, Treynor, and Jensen's Alpha in Malaysia. Their findings showed that Islamic stocks typically carry a lower systematic risk that reflected by consistent low beta values across all 12 sectors that the researcher conducted. This suggests that these Islamic stocks and assets are generally less sensitive to overall market fluctuations.

However, despite this stability the authors observe that approximately 91% of total risk that stems from these Sharia stocks are unsystematic components meaning firm specific risk or company specific risk.

When performance was benchmarked against the KLCI index, it showed results that most Islamic sectors slightly outperformed the market, with the property and financial services sectors rankings the highest while consumer and industrial sectors underperformed. As a result, Amin study shows that Islamic equities demonstrate relatively favorable risk adjusted performance when compared to other stocks and market index due to their lower volatility and resilience, making them attractive stocks for risk-averse investors.

Moreover, additional studies have also extended their study on comparative analysis between Islamic and conventional banking stocks. (Al-beity and Mehboob, 2024) study that analyzed Tanzania that is a non-Muslim country with limited Shariah supporting infrastructure found that the conventional banks outperformed Islamic banks across most profitability and liquidity measures, largely due to the regulatory offset that restricted product offerings and also the absence of Shariah compliant liquidity instruments. This study results indicated that conventional banks appear more efficiently liquid and that Islamic banks tent to exhibit lack of stronger credit risk resilience.

In contrast, study by (Mailindra et al., 2023) examined Indonesia's dual banking system and observed that Islamic banks showed superior capital adequacy but underperform in several key profitability indicators such as Return on Assets (ROA) and Net Interest Margin or Net Operating Margin (NIM / NOM) as well as in efficiency and the liquidity ratios. On the other hand, conventional banks consistently achieve higher scores. These statistics by this study shows significant differences in most ratios that favors conventional banks except for Capital Adequacy Ratio (CAR) where Islamic banks still remain competitive. Together, these studies not only illustrate that other metrics can be used beside risk adjusted return to analyze how well performed and underperformed sharia and conventional stock samples.

Additionally, (Zehra and Siddiqui, 2023) expressed in her study that found Islamic and conventional stocks that are listed on the Pakistan Stock Exchange displayed no significant difference in cumulative returns, volatility, or beta, with Sharpe, Treynor, and Jensen's Alpha which shows a similar risk adjusted performance. (Qudratullah, 2021) evaluated Indonesia's Shariah compliant stocks using a modified

Sharpe ratio that replaces the interest-based risk-free rates with zakat, inflation and GDP, or a zero-rate baseline and replaces it with standard deviation using Value at Risk. Their study result showed that Islamic stocks does maintain stable performance across all the modified models which validate the proper use of Islamic compatible risk free within the Shariah asset pricing frameworks.

Also, (Nazri et al., 2019) analyzed Shariah based on risk return principles and mentioned how the Islamic portfolio decisions solely rest on absolutely avoiding speculative elements (Gharar) and prioritizing optimal portfolios under what the researcher called it Markowitz and single index models that help reinforcing Islamic investment decisions by balancing expected return with proper disciplined risk screening more strictly than conventional finance.

Finally, researcher (Agouram et al., 2021) compared the Dow Jones World Index with its Islamic counterpart index and showed that while indeed conventional indices does always outperform Islamic indices during stable periods, despite that, Islamic indices also show lower total risk (VaR and CVaR) therefore making Islamic indices a greater resilience during crises times. This in turn assist in ethical screening that reduces exposure to a highly leveraged and speculative sectors.

Further empirical contributions from (Ahmed et al., 2019) explained his observation that the risk adjusted outcomes he conducted differ across analyzed countries. On one hand, conventional indices outperformed well in the US, Malaysia, and Taiwan, while on the other hand Islamic indices show superior Sharpe or Treynor values in Europe, Kuwait, China, and Qatar, and several markets that also produced an inconclusive mixed ranking. Furthermore, (Camgöz et al., 2019), used a multifactor models and long-horizon data obtained from Türkiye, Malaysia, the US, and UK which found that although Islamic indices often do exhibit lower systematic risk and sometimes comparable or have slightly better crisis period performance. However, most differences show up in the returns, volatility, and alphas where they are most times statistically insignificant.

Study by (Suryadi et al., 2021) also admits that after evaluating Indonesia's JII versus IDX30 using Sharpe ratios, it showed that there are significant differences between the two portfolios, with conventional stocks displaying a higher positive Sharpe value than Islamic equities but Islamic stocks still maintain a competitive edge during certain periods.

In conclusion, these studies not only increase our awareness of the empirical consensus that the Islamic equities do indeed deliver performance comparable to conventional stocks, but with systematically lower downside risk which is driven by Shariah screening mechanisms.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter serves as the foundation of this study and outlines a comprehensive structure and strategy for executing the research. It defines how the research is conducted using comprehensive approach of how data is collected and the analytical techniques used. This chapter focuses on identifying and justifying the methodological framework that guides the study to reach the objective of this research. This chapter not only accounts for the method used but also gives clear indication that this research is scientifically written based on academic standards and guidelines.

3.2. Methodology of the Study

This study uses a comparative, descriptive, and analytical quantitative research method to evaluate and compare the risk adjusted returns of Islamic and conventional banking stocks across 3 selected major Islamic banking countries. These countries include Türkiye, Indonesia, Malaysia. The study uses real world financial data such as historical stock prices, historical banking index prices, historical composite, and historical price of 1 year government bond yield to be used as a benchmark for evaluation and analysis of Sharpe ratio and other metrics mentioned in this study using data analysis software Excel.

3.3. Research Approach

This research uses a quantitative research approach based on the analysis of secondary data. The approach is comparative and descriptive analysis which is used to evaluate the performance of Islamic and conventional banking stocks using risk adjusted return metrics. Data for the study is obtained from historical financial records using Investment.com and TradingView. This research data is obtained with a minimum five years of historical records. The research applies analytical tools mainly Excel to make statistical analysis using financial performance ratios across the selected regions and banking models.

3.4. Population and Sampling Design

The sampling technique that is used are samples gathered from countries with well-established Islamic finance sectors, where both Islamic and conventional banks

are publicly traded stocks with a minimum of five years of historical data, specifically from 2020 - 2025. In addition to that, the selected countries should also have accessible historical data for their 1-year government bond yields covering a minimum period of five years as well. The selected country samples will consist of 3 countries. Each country will conduct analysis using Islamic banking stocks conventional banks indicated in the table below. There are limitations due to lack of publicly traded Islamic banks for the selected countries which reduced the sample size.

Table 3. Sharia and Conventional Banking Stocks, Selection Based on Asset size and publicly available listed Stocks

	Countries		
Type	**Türkiye**	**Malaysia**	**Indonesia**
Sharia	ALBRK	BIMB	BRIS
		MBSB	BBTN
Conventional	AKBNK	CIMB	BBCA
	GARAN	MBBM	BMRI
	YKBNK	PUBM	BBRI

3.5. Research Design

This study uses a comparative and descriptive design. This study compares the historical stock performance of Islamic and conventional banking institutions across countries and the selected timeframe. The design facilitates pattern recognition, risk adjusted return evaluations, and regional performance differences using metrics analysis.

3.6. Data Collection Method

This study uses data that is gathered from secondary sources. These sources include financial databases such as Investing.com, TradingView, using only daily historical data from November, 7th 2020 to November 7th 2025 of all stock prices,

banking index, composite index and 1-year bond yield to compute for risk adjusted return.

Table 4. Research Sample's Data Collection Sources.

Data Collection Sources	
Türkiye	
Period from Nov 7th 2020 – to – Nov 7th 2025	
Type	Source
Daily Historical Stock Price	https://www.investing.com/indices/ise-banks-components
Banking Index daily Price	https://www.investing.com/indices/ise-banks-historical-data
Composite (Market daily Price)	https://www.investing.com/indices/ise-100-historical-data
1 Year Bond yield (Daily)	https://www.tradingview.com/symbols/TVC-TR01Y/
Malaysia	
Daily Historical Stock Price	https://www.investing.com/indices/kl-finance-components
Banking Index daily Price	https://www.investing.com/indices/kl-finance-historical-data
Composite (Market daily Price)	https://www.investing.com/indices/ftse-malaysia-klci-historical-data
1 Year Bond yield (Daily)	https://www.investing.com/rates-bonds/malaysia-1-year-bond-yield-historical-data
Indonesia	
Daily Historical Stock Price	https://www.investing.com/indices/idx-banking-components
Banking Index daily Price	https://www.investing.com/indices/idx-banking-historical-data
Composite (Market daily Price)	https://www.investing.com/indices/idx-composite-historical-data
1 Year Bond yield (Daily)	https://www.investing.com/rates-bonds/indonesia-1-year-bond-yield-historical-data

3.7. Research Instruments

The primary instruments used for analysis in this research is Excel spreadsheets. All the metric of analysis for risk adjusted return are conducted using this platform. In Excel formulas are used for calculating key metrics and then the results are verified for consistency and exported for figure visualization and descriptive reporting.

3.8. Data Analysis

The following are the standard formula used in the analysis of risk adjusted return metrics to compare the performance of Islamic and conventional banking stocks:

- **Returns of (stocks, index, composite, and 1-year bond yield) Formula:**

$$\mathbf{R} = \left(\frac{\boldsymbol{P_2 - P_1}}{\boldsymbol{P_1}}\right) \cdot \mathbf{100}$$

Where:

$\boldsymbol{R}$ = percentage return

$\boldsymbol{P_1}$= price at the beginning of the period

$\boldsymbol{P_2}$ = price at the end of the period

- **Sharpe Ratio Formula:**

$$\textbf{Sharpe Ratio} = \frac{\overline{\boldsymbol{R}}_{\boldsymbol{x}} - \overline{\boldsymbol{R}}_{\boldsymbol{f}}}{\boldsymbol{\sigma}}$$

Where:

$\overline{\boldsymbol{R}}_{\boldsymbol{x}}$= is the average return of the stock over the period analyzed.

$\overline{\boldsymbol{R}}_{\boldsymbol{f}}$= is the average risk-free rate / 1-year bond yield over the same period.

$\boldsymbol{\sigma}$= standard deviation of returns

(Sharpe, 1966) introduced the reward to variability ratio later called the Sharpe Ratio to measure the risk adjusted performance of an investment by comparing excess return over a benchmark commonly the risk-free rate relative to the variability of standard deviation of returns. In another article, (Sharpe, 1994) states that the Sharpe ratio reflects the expected excess return earned for each unit of risk, measured using the variability of excess returns.

$$\sigma_i = \sqrt{\frac{\sum_{t=1}^{n}\left(r_{i,t} - \overline{r_i}\right)^2}{n-1}}$$

σ_i represents the standard deviation of returns and measures the total risk (volatility) of the investment/portfolio, calculated from the deviations of each period return $\left(r_{i,t}\right)$ from the average return $\overline{r_i}$ (İlhan, 2021).

- **Stock's Excess Return Formula:**

$$\textbf{Excess Return} = R_p - R_f$$

Where:

$\boldsymbol{R_p}$= portfolio (or stock) return

$\boldsymbol{R_f}$= risk-free rate

- **Sortino Ratio Formula:**

$$\mathbf{S} = \frac{\overline{\boldsymbol{R}}_{\boldsymbol{x}} - \overline{\boldsymbol{R}}_{\boldsymbol{f}}}{\boldsymbol{\sigma_d}}$$

Where:

$\boldsymbol{S}$= Sortino ratio

$\overline{\boldsymbol{R}}_{\boldsymbol{x}}$= Average portfolio / asset return

$\overline{\boldsymbol{R}}_{\boldsymbol{f}}$= Average risk-free rate

$\boldsymbol{\sigma_d}$ = downside deviation (standard deviation that are negative only)

The Sortino ratio evaluates performance by comparing excess return above a minimum acceptable return (MAR) to downside deviation, so only returns below the target are treated as risk (Sortino & Price, 1994).

$$\sigma_d = \sqrt{\frac{\sum_{t=1}^{n} \min[(r_i - r_t), 0]^2}{n-1}}$$

σ_d denotes downside risk (downside deviation) and is computed using only returns that fall below the benchmark/target return; negative deviations are included while positive deviations are treated as zero, meaning the measure captures only unfavorable volatility (İlhan, 2021).

- **Correlation**

$$\rho_{XY} = \frac{cov(X,Y)}{\sigma_X \sigma_Y}$$

The Pearson correlation coefficient ρ_{XY} measures the degree of linear association between two variables by standardizing their covariance with the product of their standard deviations, producing a unit-free value bounded between −1 and +1 (Pearson, 1896).

These metrics are calculated for each bank from the year 2020–2025 period. Comparative tables will be used to visualize and interpret the differences. Descriptive analysis will be provided in chapter 4 and 5. This chapter of methodology is entirely built on the foundation laid in Chapter 1 by applying rigorous financial and statistical techniques to a well-defined sample gathered from different Islamic and conventional banking stocks over different countries along with their bond yields. This analysis

process enables this study to be a robust comparison of return efficiency and risk performance based on the data gathered between these banks in the given timeframe.

3.9. Data Analysis Technique

In this study, it is best to keep a note that the actual calculations applied for analysis relied solely and entirely on a more practical implementation. Specifically, return, standard deviation, Sharpe ratio, Sortino ratio, and the rest of the statistical performance metrics which were heavily computed using Excel spreadsheet functions to ensure accuracy and efficiency for this research. Additionally, the analysis technique used for this research is in two phases. The first phase works on evaluating each country independently. The results based on these countries Türkiye, Malaysia, and Indonesia are examined across short period intervals which is divided into three intervals, 1 year, 6 months, and 3 months periods. Each interval both the Islamic and the conventional banking stocks are analyzed individually using their computed metrics results. Moreover, a descriptive comparative narrative will be carried out to provide insight and highlight which banks delivered stronger performance over the period selected and which were more volatile and how Islamic banks compared to their conventional counterparts during each period.

The second phase analysis kicks off by combining all banks results from the three countries into a one single unified comparison. In this particular stage the Sharpe ratios of every single bank in the sample are ranked collectively to identify which are the strongest and weakest performers in the overall banking stock samples. Then will be followed up by discussion where the researcher would highlight the most dominant banking models, and the region that performed the most based on risk-adjusted efficiency.

CHAPTER FOUR

STUDY FINDINGS AND DISCUSSION

4.1. Introduction

This chapter reveals the result of the data analyzed based on the risk adjusted return metrics that is applied to the Islamic and the conventional banking stocks across the selected countries Türkiye, Malaysia, and Indonesia. The analysis performance will be mainly depicted using the Sharpe ratio as the primary performance indicator and additional supportive metrics were taken into account to assist in better overall illustration of performance of the stocks such as standard deviation, excess return, downside deviation, Sortino, stock beta, correlation, and CAGR. These following tables are the results of this study analysis based on the selected analysis and countries.

Analysis of Turkish Banking Stocks for Risk Adjusted Return (1 Year Period Averaged)

	Stock				**BIST100**		**BISTBANKS**		**Stock-Bank IDX**
Type	Code	Sharpe	Sortino	CAGR	Sharpe	CAGR	Sharpe	CAGR	Beta
Sharia	ALBRK	0.272	0.307	42.64%	0.467	62.43%	0.329	71.55%	0.403
Conv.	AKBNK	0.298	0.308	72.71%	0.467	62.43%	0.329	71.55%	0.618
	GARAN	0.252	0.291	86.60%	0.467	62.43%	0.329	71.55%	0.542
	YKBNK	0.269	0.294	83.05%	0.467	62.43%	0.329	71.55%	0.603

Analysis of Turkish Banking Stocks for Risk Adjusted Return (6 Months Period Averaged)

	Stock				**BIST100**		**BISTBANKS**		**Stock-Bank IDX**
Type	Code	Sharpe	Sortino	CAGR	Sharpe	CAGR	Sharpe	CAGR	Beta
Sharia	ALBRK	0.261	0.298	58.53%	0.435	70.92%	0.304	88.97%	0.380
Conv.	AKBNK	0.281	0.310	96.98%	0.435	70.92%	0.304	88.97%	0.606
	GARAN	0.235	0.282	94.60%	0.435	70.92%	0.304	88.97%	0.531
	YKBNK	0.250	0.280	107.66%	0.435	70.92%	0.304	88.97%	0.581

Analysis of Turkish Banking Stocks for Risk Adjusted Return (3 Months Period Averaged)

	Stock				**BIST100**		**BISTBANKS**		**Stock-Bank IDX**
Type	Code	Sharpe	Sortino	CAGR	Sharpe	CAGR	Sharpe	CAGR	Beta
Sharia	ALBRK	0.264	0.412	95.95%	0.411	92.64%	0.330	112.09%	0.383
Conv.	AKBNK	0.317	0.526	146.49%	0.411	92.64%	0.330	112.09%	0.612
	GARAN	0.260	0.456	149.58%	0.411	92.64%	0.330	112.09%	0.536
	YKBNK	0.301	0.458	150.02%	0.411	92.64%	0.330	112.09%	0.595

4.2. Sharpe Ratio Analysis - Türkiye

For the 1-year period, based on the risk adjusted return metric the strongest Sharpe ratio is AKBNK (0.298). However, it couldn't outperform both the BIST100 at (0.467) and the BISTBANKS at (0.329) benchmarks, Furthermore, ALBRK as the sole sharia banking stock in this analysis scored (0.272) and remained a competitive to their conventional counterpart ranking the second after AKBNK and below both BIST100 and BISBANKS benchmarks which suggests a moderate performance relative to the market and the sector. On the other hand, YKBNK at (0.269) are ranked third and GARAN at (0.252) at fourth. Both fell below ALBRK and AKBNK index Sharpe levels reflected by weaker risk return outcomes.

For 6 months period, AKBNK scored the highest again at (0.281) compared to ALBRK (0.261) second. Followed by YKBNK (0.25) third, and at last GARAN (0.235). Unfortunately, all these banking stocks could not outperform the BIST100 (0.435) and BISTBANKS (0.304). Moreover, for 3 months period, the highest performing Sharpe ratio results is AKBNK once again scoring (0.317) followed by YKBNK at (0.301) and ALBRK (0.264) as the third and GARAN (0.260) in the last position. Based on the 1 year, 6 months and 3 months period it can be observed that the selected banking stocks did not overperform the BIST100 and BISTBANKS due to their lower Sharpe ratio.

4.3. Sortino Ratio Analysis - Türkiye

Based on the 1-year period for downside risk efficiency, AKBNK (0.308) scores the highest followed by ALBRK (0.307) which both showed efficient control over downside volatility. This means that losses occur less frequently or with lower level. YKBNK Sortino is (0.294) as the third and GARAN (0.291) last. Generally, risk-averse investor wants higher Sortino values which signals a better protection against negative returns. Additionally, in the 6 months period it can be observed that AKBNK still maintained the highest score among this list at (0.310) followed by ALBRK (0.298) as second and GARAN (0.282) and at last YKBNK (0.280). For the 3 months period, AKBNK still scores the highest at (0.526), followed by YKBNK (0.458) and GARAN at (0.456) and lastly ALBRK at (0.412). In the overall Sortino analysis results over the course of selected periods, it can be concluded that AKBNK scored the highest each time. Therefore, it is considered to be the strongest downside risk adjusted performance stock in this category outperforming sharia banking stock ALBRK in terms of Sharpe ratio and Sortino.

Analysis of Malaysia Banking Stocks for Risk Adjusted Return (1 Year Period)

		Stock			**KLSE Bursa**		**KLFI Index**		**Stock-Bank IDX**
Type	Code	Sharpe	Sortino	CAGR	Sharpe	CAGR	Sharpe	CAGR	Beta
Sharia	BIMB	0.045	0.068	0.18%	0.053	1.52%	0.026	9.00%	0.562
	MBSB	0.019	0.025	8.07%	0.053	1.52%	0.026	9.00%	0.958
Conv.	CIMB	-0.015	-0.016	22.46%	0.053	1.52%	0.026	9.00%	1.469
	MBBM	0.026	0.023	7.28%	0.053	1.52%	0.026	9.00%	0.884
	PUBM	0.03	0.039	7.74%	0.053	1.52%	0.026	9.00%	1.233

Analysis of Malaysia Banking Stocks for Risk Adjusted Return (6 Months Period)

		Stock			**KLSE Bursa**		**KLFI Index**		**Stock-Bank IDX**
Type	Code	Sharpe	Sortino	CAGR	Sharpe	CAGR	Sharpe	CAGR	Beta
Sharia	BIMB	0.055	0.08	2.45%	0.046	2.05%	0.027	10.06%	0.542
	MBSB	0.022	0.022	8.60%	0.045	2.05%	0.027	10.06%	0.924
Conv.	CIMB	-0.023	-0.03	24.95%	0.04	2.05%	0.02	10.06%	1.487
	MBBM	0.029	0.018	8.56%	0.045	2.05%	0.027	10.06%	0.87
	PUBM	0.032	0.041	9.58%	0.045	2.05%	0.027	10.06%	1.24

Analysis of Malaysia Banking Stocks for Risk Adjusted Return (3 Months Period)

	Stock				KLSE Bursa		KLFI Index		Stock-Bank IDX
Type	Code	Sharpe	Sortino	CAGR	Sharpe	CAGR	Sharpe	CAGR	Correlation
Sharia	BIMB	0.063	0.097	6.08%	0.047	1.82%	0.032	10.77%	0.519
	MBSB	0.028	0.034	11.22%	0.047	1.82%	0.032	10.77%	0.918
Conv.	CIMB	-0.015	-0.028	27.68%	0.047	1.82%	0.032	10.77%	1.49
	MBBM	0.032	0.023	7.77%	0.047	1.49%	0.032	10.37%	0.885
	PUBM	0.042	0.051	13.17%	0.047	1.82%	0.032	10.77%	1.229

4.4. Sharpe Ratio Analysis – Malaysia

In the 1-year period BIMB at (0.045) delivered the highest Sharpe ratio among the Malaysian banking stocks even though it still remains below both the KLSE Bursa market benchmark at (0.053) and the KLFI index benchmark at (0.026). This indicates that BIMB is top performing individual stock in the list based on risk adjusted performance. MBSB scored (0.019), MBBM at (0.026) and PUBM at (0.030) which also remained below benchmark Sharpe levels. While the worst performer was CIMB with (-0.015) a record of negative Sharpe ratio reflecting insufficient returns relative to its volatility.

In the 6 months period, BIMB scores (0.055) another record with highest Sharpe ratio exceeding all other banks and all other benchmarks. KLSE Bursa benchmark fell short against BIMB at (0.046) as well as the KLFI benchmark at (0.027). Additionally, PUBM scored (0.032), MBBM at (0.029), and MBSB at (0.022) with all of them showing moderate scores. Once again, CIMB scores another negative Sharpe ratio at (-0.023) maintaining its negative trend that reflecting continued underperformance relative to its risk level.

For the 3 months period, BIMB stayed in its uptrend course scoring a Sharpe ratio of (0.063) which it continues to outperform the other Malaysian conventional and sharia banking stocks listed in the table on a risk adjusted basis. PUBM delivered score of (0.042) while MBBM scored (0.032), and MBSB at (0.028) all remaining moderate result. Unfortunately, even in the 3 months period CIMB scoring (-0.015) still remains a negative in risk adjusted performance showing that despite strong price movements indicated by CAGR its volatility does outweighs its returns. BIMB demonstrated as a sharia banking stock to be the most stable and consistent risk adjusted performance across all period and against all other banking stocks. While CIMB as a conventional

banking stock showed a negative Sharpe ratio across all period despite significant growth rate.

4.5. Sortino Ratio Analysis – Malaysia

BIMB again shows consistent record of top performance in the Sortino ratios it demonstrating the strongest downside risk efficiency among Malaysian banking stocks that are analyzed in the table. For the 1-year period, BIMB scored (0.068). While PUBM scoring (0.039), MBSB at (0.025), and MBBM at (0.023) all showing a moderate downside protection. On the other hand, CIMB scored (-0.016) exhibiting a negative downside performance. Lastly, For the 6 months period, BIMB yet again scored the highest at (0.080) continuing the uptrend performance of downside deviation to deliver the strongest Sortino value. This alone reflect a much stable and controlled downside volatility over the shorter horizon as well. Furthermore, PUBM scored (0.041) and MBBM (0.018) both showing a moderate downside efficiency, while MBSB scored (0.022) by remaining steady. CIMB on the other hand scored yet again (-0.030) a negative Sortino. In the 3 months period, BIMB scores (0.097) showing strength in its leading position with the highest Sortino ratio across all analyzed stocks. This indicates BIMB a sharia banking stock in Malaysia maintains losses to a minimal relative to its positive returns during the 1 year, 6 months and 3 months periods. PUBM scored in 3 months period a (0.051), while MBSB scored (0.034), and MBBM (0.023) displaying improvement over the downside risk behavior compared to earlier periods. CIMB unfortunately still maintains negative score at (-0.028), it continues to reflect weak downside protection.

Analysis of Indonesia Banking Stocks for Risk Adjusted Return (1 Year Period)

	Stocks				**JKSE**		**JKBANK15**		**Stock – Bank IDX**
Type	Code	Sharpe	Sortino	CAGR	Sharpe	CAGR	Sharpe	CAGR	Beta
Sharia	BRIS	-0.001	-0.002	25.56%	-0.023	9.81%	0.001	4.31%	0.892
	BBTN	0.027	0.025	-1.25%	-0.022	9.91%	0.001	4.17%	0.235
Conv.	BBCA	-0.012	-0.010	7.51%	-0.023	9.81%	0.001	4.31%	0.826
	BMRI	0.006	0.027	1.33%	-0.023	9.81%	0.001	4.31%	1.254
	BBRI	0.008	0.012	3.32%	-0.020	9.81%	0.004	4.31%	1.121

Analysis of Indonesia Banking Stocks for Risk Adjusted Return (6 Months Period)

	Stocks				JKSE		JKBANK15		Stock - Bank IDX
Type	Code	Sharpe	Sortino	CAGR	Sharpe	CAGR	Sharpe	CAGR	Beta
Sharia	BRIS	0.004	0.013	45.13%	-0.033	11.54%	-0.001	5.79%	0.885
	BBTN	0.038	0.040	-0.25%	-0.033	11.64%	-0.001	5.65%	0.222
Conv.	BBCA	-0.012	-0.005	9.11%	-0.033	11.54%	-0.001	5.79%	0.824
	BMRI	-0.007	0.030	8.60%	-0.033	11.54%	-0.001	5.79%	1.236
	BBRI	0.005	0.012	5.27%	-0.033	11.54%	-0.001	5.79%	1.133

Analysis of Indonesia Banking Stocks for Risk Adjusted Return (3 Months Period)

	Stocks				JKSE		JKBANK15		Stock - Bank IDX
Type	Code	Sharpe	Sortino	CAGR	Sharpe	CAGR	Sharpe	CAGR	Beta
Sharia	BRIS	0.018	0.028	159.17%	-0.027	13.06%	-0.007	10.09%	0.856
	BBTN	0.032	0.050	2.85%	-0.027	13.18%	-0.007	9.96%	0.223
Conv.	BBCA	-0.013	0.007	12.44%	-0.027	13.06%	-0.007	10.09%	0.825
	BMRI	-0.013	0.045	16.94%	-0.027	13.06%	-0.007	10.09%	1.270
	BBRI	0.003	0.028	12.94%	-0.027	13.06%	-0.007	10.09%	1.108

4.6. Sharpe Ratio Analysis – Indonesia

In the 1-year period, BBTN scores (0.027), while BMRI is at (0.006), and BBRI at (0.008) all outperform both JKSE benchmarks that are (–0.023), (-0.020), and (-0.022) and also the JKBANK15 which scored (0.001). BBTN, BMRI, and BBRI stocks indicate a stronger return generation relative to its volatility. However, BRIS with (–0.001) and BBCA (–0.010), although it shows negative performance BRIS and BBCA still outperformed the JKSE benchmark because their Sharpe ratios are less negative, but still underperformed slightly below the JKBANK15 sector benchmark. For 6 months period, the majority of the stocks analyzed report positive Sharpe ratios, which places them clearly above both JKSE (–0.033) and JKBANK15 (–0.001). BBTN obtained (0.038), BRIS at (0.004), and BBRI at (0.005) all outperforming both benchmarks. While BBCA (–0.012) and BMRI (–0.007) outperform JKSE but remained marginally below the JKBANK15 benchmark.

Lastly, in the 3 months period, the top performing Sharpe ratio BRIS (0.018), BBTN (0.032), and BBRI (0.003) all outperform both the JKSE composite with (–0.027) and JKBANK15 with (–0.007), confirming that superior short-term risk adjusted performance. In contrast, BBCA scored (–0.013) and BMRI (–0.013) both showing negative Sharpe ratios. In the light of that, they still outperform JKSE because

their negative values are smaller, however they still are below the JKBANK15 sector benchmark. In the overall analysis, Indonesian banking stocks showed stronger risk adjusted results than both benchmarks in most periods specifically when benchmark Sharpe values are negative. BBTN a sharia banking stock showed consistently as the emerging stock and the strongest performer across the evaluated periods.

4.7. Sortino Ratio Analysis – Indonesia

In the 1-year period the downside risk performance for Indonesian banking stocks shows a mixed value. Starting with BMRI with a score of (0.027) followed by BBTN at (0.025), and BBRI at (0.012) all showing a better control over its negative returns. While on the other hand, BRIS (–0.002) and BBCA (–0.010) indicated by their negative Sortino output shows a higher downside vulnerability. In the 6 months period Sortino ratios improved a lot for most stocks which is led by BBTN at (0.040) and BMRI at (0.030). However, BBCA at (–0.005) still continuously shows a weaker downside risk performance compared to its conventional counterpart. Lastly, in the 3 months period, all banking stocks listed shows stability and strength in this short-term period. Notably, BRIS scored (0.028), BBTN (0.050), BMRI (0.045) and BBRI (0.028) records the same score as BRIS all showing strong improvements, whereas BBCA (0.007) remains firmly positive with comparatively low Sortino in the group. In summary, BBTN always consistently demonstrated the strongest downside risk efficiency compared to its Sharia counterpart and conventional banking stocks. Conversely, BRIS and BBCA were among the weakest showing a low negative performance in longer horizons but improved over the shorter periods.

The following tables ranks all the stocks based on their risk adjusted performances by country, banking model, and researched period from 1 year, 6 months, 3 months:

Stocks of (Türkiye, Malaysia, Indonesia)				**Country**	**Period**
By Rank	Code	Sharpe	Model	TR	1 Y
1	AKBNK	0.298	Conven	TR	1 Y
2	ALBRK	0.272	Sharia	TR	1 Y
3	YKBNK	0.269	Conven	TR	1 Y
4	GARAN	0.252	Conven	TR	1 Y
5	BIMB	0.045	Sharia	MY	1 Y
6	PUBM	0.03	Conven	MY	1 Y
7	BBTN	0.02681	Sharia	ID	1 Y
8	MBBM	0.026	Conven	MY	1 Y

9	MBSB	0.019	Sharia	MY	1 Y
10	BBRI	0.00816	Conven	ID	1 Y
11	BMRI	0.00647	Conven	ID	1 Y
12	BRIS	-0.00075	Sharia	ID	1 Y
13	BBCA	-0.01177	Conven	ID	1 Y
14	CIMB	-0.015	Conven	MY	1 Y

Stocks of (Türkiye, Malaysia, Indonesia)				Country	Period
By Rank	Code	Sharpe	Model	TR	6 M
1	AKBNK	0.281	Conven	TR	6 M
2	ALBRK	0.261	Sharia	TR	6 M
3	YKBNK	0.25	Conven	TR	6 M
4	GARAN	0.235	Conven	TR	6 M
5	BIMB	0.055	Sharia	MY	6 M
6	BBTN	0.0381	Sharia	ID	6 M
7	PUBM	0.032	Conven	MY	6 M
8	MBBM	0.029	Conven	MY	6 M
9	MBSB	0.022	Sharia	MY	6 M
10	BBRI	0.00515	Conven	ID	6 M
11	BRIS	0.00406	Sharia	ID	6 M
12	BMRI	-0.0068	Conven	ID	6 M
13	BBCA	-0.01196	Conven	ID	6 M
14	CIMB	-0.023	Conven	MY	6 M

Stocks of (Türkiye, Malaysia, Indonesia)				Country	Period
Ranking	Code	Sharpe	Model	TR	3 M
1	AKBNK	0.317	Conven	TR	3 M
2	YKBNK	0.301	Conven	TR	3 M
3	ALBRK	0.264	Sharia	TR	3 M
4	GARAN	0.26	Conven	TR	3 M
5	BIMB	0.063	Sharia	MY	3 M
6	PUBM	0.042	Conven	MY	3 M
7	BBTN	0.0322	Sharia	ID	3 M
8	MBBM	0.032	Conven	MY	3 M
9	MBSB	0.028	Sharia	MY	3 M
10	BRIS	0.0179	Sharia	ID	3 M
11	BBRI	0.0028	Conven	ID	3 M
12	BBCA	-0.013	Conven	ID	3 M
13	BMRI	-0.0131	Conven	ID	3 M
14	CIMB	-0.015	Conven	MY	3 M

Across all three selected periods the tables shows that AKBNK which is a conventional bank that is consistently ranked as the top performer of risk adjusted return analysis followed closely by ALBRK which is a Sharia bank and several other

strong Turkish conventional banks which are YKBNK and GARAN. In the middle section part of the tables rankings is heavily occupied by a mix of Sharia banks that are (BIMB, MBSB, BBTN, BRIS) and several conventional banks which are (PUBM, MBBM). They are all showing a moderate but positive Sharpe ratios. However, at the lower part of the rankings the weakest results of Sharpe ratio in risk adjusted return comes from mainly conventional banks from Indonesia such as BBCA, BBRI, BMRI, and especially from Malaysia CIMB which constantly capture the most negative Sharpe ratios in every single period. In conclusion, the tables significantly shows that Turkish conventional banks dominate the top positions followed by Sharia banks that maintain steady mid-tier performance, while several Malaysian and Indonesian conventional banks consistently fall to the bottom of the ranking based on their Sharpe ratio.

Correlation between Stock – Bank Index (Türkiye)

Type	Bank Code	Period of Analysis		
		1 Year	6 Months	3 Months
Sharia	ALBRK	0.402	0.392	0.396
Conventional	AKBNK	0.542	0.529	0.534
	GARAN	0.505	0.486	0.490
	YKBNK	0.530	0.516	0.529

All the selected bank stocks exhibit positive and moderate correlations with the banking market benchmark across the selected 1 year, 6 months and 3 months periods, meaning that their returns generally move along in the same direction as the overall banking sector. The conventional banks such as AKBNK, GARAN, YKBNK consistently recorded the strongest correlations of (≈0.49–0.54) than the Sharia compliant bank ALBRK with (≈0.39–0.40), indicating that the conventional bank stocks are more closely tied to market wide banking movements, while ALBRK shows relatively lower sensitivity.

Correlation between Stock – Bank Index (Malaysia)

Type	Bank Code	Period of Analysis		
		1 Year	6 Months	3 Months
Sharia	**BIMB**	0.313	0.291	0.271
	MBSB	0.45	0.432	0.422
Conventional	**CIMB**	0.808	0.803	0.797
	MBBM	0.815	0.794	0.786
	PUBM	0.805	0.804	0.796

All banks move positively with the banking market. However, Conventional banks such as CIMB, MBBM, PUBM are very highly correlated (≈0.79–0.82) across all periods, while Sharia banks are the lowest—BIMB weakest with (≈0.27–0.31) and MBSB moderate (≈0.42–0.45).

Correlation between Stock – Bank Index (Indonesia)

Type	Bank Code	Period of Analysis		
		1 Year	6 Months	3 Months
Sharia	**BRIS**	0.676	0.427	0.434
	BBTN	0.228	0.261	0.229
Conventional	**BBCA**	0.802	0.739	0.728
	BMRI	0.871	0.746	0.771
	BBRI	0.798	0.798	0.785

The analyzed banks show also a positive correlation with the banking benchmark. Conventional banks such as BBCA, BMRI, BBRI exhibits a very strong correlations of (≈0.73–0.87) across all periods, meaning they closely track market movements. Sharia banks are weaker and more mixed—BRIS is moderate to strong at (≈0.43–0.68) while BBTN is the lowest at (≈0.23–0.26).

Overall, conventional stocks from Türkiye, Malaysia, and Indonesia are much more sensitive to market wide banking changes than Sharia banks, because they are

more fully integrated into the broader interest-based banking system, so that their earnings and valuations react more directly to sector wide market and the macroeconomic shocks than most Sharia banks.

Türkiye Banking Stocks: Risk Adjusted Analysis of Daily Historical Data – Non-Averaged Computation (Year to Year):

Historical Data (2025-2024)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	**ALBRK**	-0.080	-0.110	-0.083	-0.103	-0.052	-0.072
Conv.	**AKBNK**	-0.040	-0.059	-0.083	-0.103	-0.052	-0.072
	GARAN	-0.047	-0.067	-0.083	-0.103	-0.052	-0.072
	YKBNK	-0.054	-0.077	-0.083	-0.103	-0.052	-0.072
Historical Data (2024-2023)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	**ALBRK**	-0.026	-0.038	-0.017	-0.024	-0.055	-0.083
Conv.	**AKBNK**	-0.059	-0.091	-0.017	-0.024	-0.055	-0.083
	GARAN	-0.115	-0.168	-0.017	-0.024	-0.055	-0.083
	YKBNK	-0.041	-0.064	-0.017	-0.024	-0.055	-0.083
Historical Data (2023-2022)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	**ALBRK**	0.130	0.081	0.161	0.078	0.107	0.073

Conv.	**AKBNK**	0.098	0.070	0.161	0.078	0.107	0.073
	GARAN	0.099	0.072	0.161	0.078	0.107	0.073
	YKBNK	0.107	0.076	0.161	0.078	0.107	0.073
Historical Data (2022-2021)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	**ALBRK**	-0.064	-0.080	-0.231	-0.245	-0.143	-0.163
Conv.	**AKBNK**	-0.114	-0.158	-0.231	-0.245	-0.143	-0.163
	GARAN	-0.117	-0.146	-0.231	-0.245	-0.143	-0.163
	YKBNK	-0.139	-0.191	-0.231	-0.245	-0.143	-0.163
Historical Data (2021-2020)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	**ALBRK**	1.401	1.682	2.505	2.595	1.750	2.381
Conv.	**AKBNK**	1.603	1.778	2.505	2.595	1.750	2.381
	GARAN	1.440	1.763	2.505	2.595	1.750	2.381
	YKBNK	1.473	1.724	2.505	2.595	1.750	2.381

Over the year-to-year of five-year period, based on non-averaged risk-adjusted performance of the Turkish banking stocks showcased two exceptionally strong years during the (2021-2020 and the 2023-2022). On the other hand, during the one deep downturn which is (2022-2021) and also two mildly negative years that is (2024-2023 and 2025-2024). During the positive years, the banks achieved a good and strong risk adjusted performance with 2023–2022 showing a moderate Sharpe and Sortino ratio gains, while 2021–2020 delivered exceptionally high values reflecting strong returns and controlled downside risk based on the Sharpe ratio. However, in both periods, the

BIST100 and BISTBANKS benchmarks still outperformed individual stocks, indicating that the broader market and sector delivered superior risk-adjusted returns during these favorable conditions. However, in downturn periods banks generally performed better than market index BIST100 but appeared to have failed to outperform the banking benchmark BISTBANKS with the Sharia stock ALBRK showing a smallest loss and a stronger resilience.

Indonesia Banking Stocks: Risk Adjusted Analysis of Daily Historical Data – Non-Averaged Computation (Year to Year):

Historical Data (2025-2024)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.018	-0.027	-0.150	-0.176	-0.031	-0.041
	BBTN	-0.035	-0.043	-0.150	-0.176	-0.031	-0.041
Conv.	BBCA	-0.031	-0.040	-0.150	-0.176	-0.031	-0.041
	BMRI	0.005	0.008	-0.150	-0.176	-0.031	-0.041
	BBRI	-0.024	-0.033	-0.150	-0.176	-0.031	-0.041
Historical Data (2024-2023)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.107	-0.146	-0.071	-0.066	-0.055	-0.040
	BBTN	0.032	0.032	-0.071	-0.066	-0.055	-0.040
Conv.	BBCA	-0.052	-0.062	-0.071	-0.066	-0.055	-0.040
	BMRI	-0.025	-0.039	-0.071	-0.066	-0.055	-0.040
	BBRI	0.026	0.038	-0.071	-0.066	-0.055	-0.040
Historical Data (2023-2022)							

Stock				JKSE		JKBANK15	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	0.026	0.037	0.136	0.099	0.080	0.073
	BBTN	0.078	0.082	0.136	0.099	0.080	0.073
Conv.	BBCA	0.056	0.059	0.136	0.099	0.080	0.073
	BMRI	0.015	0.020	0.136	0.099	0.080	0.073
	BBRI	0.020	0.024	0.136	0.099	0.080	0.073
Historical Data (2022-2021)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	0.142	0.180	0.134	0.089	0.080	0.074
	BBTN	0.135	0.111	0.133	0.089	0.081	0.076
Conv.	BBCA	0.059	0.064	0.134	0.089	0.080	0.074
	BMRI	-0.010	-0.011	0.134	0.089	0.080	0.074
	BBRI	0.067	0.078	0.134	0.089	0.080	0.074
Historical Data (2021-2020)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.046	-0.056	-0.161	-0.085	-0.092	-0.067
	BBTN	-0.077	-0.059	-0.160	-0.084	-0.092	-0.067
Conv.	BBCA	-0.092	-0.072	-0.161	-0.085	-0.092	-0.067
	BMRI	0.048	0.158	-0.161	-0.085	-0.092	-0.067
	BBRI	-0.049	-0.048	-0.146	-0.078	-0.080	-0.059

The analysis of Indonesian banking stocks during the 2020-2025 using Sharpe and Sortino ratios showed that certain individual banking stocks frequently displayed superior risk adjusted returns compared to the market index JKSE and the banking index JKBANK15 which often shows negative ratios output. Based on the analysis, the most performing stocks which are identified by their highest positive risk adjusted returns were somewhat split between the Sharia bank BBTN and the Conventional bank BMRI. BBTN experienced a peak efficiency in the 2022-2021 phase achieving a sector high Sharpe Ratio of 0.135. Conversely, BMRI also proved to be the most resilient performer among these stocks recording the only positive risk adjusted return of 0.005 during the volatile period of 2025-2024.

Malaysia Banking Stocks: Risk Adjusted Analysis of Daily Historical Data – Non-Averaged Computation (Year to Year):

Historical Data (2025-2024)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.063	0.106	-0.002	-0.003	0.023	0.035
	MBSB	0.009	0.014	-0.002	-0.003	0.023	0.035
Conv.	CIMB	0.028	0.046	-0.002	-0.003	0.023	0.035
	MBBM	0.026	0.039	-0.002	-0.003	0.023	0.035
	PUBM	0.020	0.032	-0.002	-0.003	0.023	0.035
Historical Data (2024-2023)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	-0.069	-0.105	-0.094	-0.129	-0.126	-0.163
	MBSB	-0.006	-0.010	-0.094	-0.129	-0.126	-0.163

Conv.	CIMB	-0.147	-0.203	-0.094	-0.129	-0.126	-0.163
	MBBM	-0.107	-0.144	-0.094	-0.129	-0.126	-0.163
	PUBM	-0.035	-0.053	-0.094	-0.129	-0.127	-0.164
Historical Data (2023-2022)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.063	0.088	0.055	0.064	0.055	0.065
	MBSB	-0.028	-0.043	0.055	0.064	0.055	0.065
Conv.	CIMB	0.016	0.023	0.055	0.064	0.055	0.065
	MBBM	0.011	0.015	0.055	0.064	0.055	0.065
	PUBM	0.061	0.084	0.055	0.064	0.055	0.065
Historical Data (2022-2021)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.204	0.296	0.285	0.307	0.244	0.236
	MBSB	0.146	0.199	0.285	0.307	0.244	0.236
Conv.	CIMB	0.128	0.188	0.285	0.307	0.244	0.236
	MBBM	0.226	0.241	0.285	0.307	0.244	0.236
	PUBM	0.159	0.199	0.285	0.307	0.244	0.236
Historical Data (2021-2020)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	-0.034	-0.045	0.019	0.025	-0.065	-0.079

	MBSB	-0.026	-0.036	0.019	0.024	-0.064	-0.077
Conv.	CIMB	-0.098	-0.134	0.019	0.024	-0.064	-0.077
	MBBM	-0.027	-0.034	0.019	0.024	-0.064	-0.077
	PUBM	-0.055	-0.069	0.019	0.024	-0.064	-0.077

During the 2021–2025 periods, the sharia banking stock BIMB delivered s superior risk adjusted performance compared to other main conventional banking stocks and sometimes even outperforms both the market KLSE Bursa and the banking KLFI indices. Throughout 2025–2024 BIMB recorded the highest Sharpe and Sortino ratios in that time period exceeding its counterpart conventional banks as well as both benchmarks. While indeed in the loss period of 2024–2023 period its ratios are less negative than those of the benchmarks and several key conventional peers such as CIMB and MBBM. In summary, BIMB is at or near the top in terms of Sharpe and Sortino which indicates stronger risk adjusted performance as well as downside protection and is clearly more efficient of compensation for risk. Overall, these analyzed results suggest that the leading Sharia banking stock BIMB tends to exhibit and display on average a more favorable risk adjusted and downside risk characteristics than the majority of the conventional banking stock over the sample period.

CONCLUSION AND RECOMMENDATIONS

Conclusions

This study analyzed the risk adjusted performance between Shariah and conventional banking stocks across the selected country of Türkiye, Malaysia, and Indonesia by using Sharpe and Sortino ratios as the main indicator for this analysis in the 1-year, 6 months, and 3 months periods. The results of this analysis showed that performance varied across these countries and the selected periods.

In the case of Türkiye, AKBNK a conventional bank that is consistently had achieved the highest Sharpe and Sortino ratios across all its periods. This confirms its position as the strongest conventional stock in both the overall Risk adjusted performance and downside risk performance. Followed by that, ALBRK, the only Shariah stock examined delivered a competitive and yet frequent ranking score becoming the second after AKBNK in the 1 year and 6 months period but fell short in the 3 months period in terms of risk adjusted performance. However, all the listed stocks underperformed against the BIST100 and BISTBANKS benchmarks across the analyzed periods. On the other hand, despite moderate CAGR results by GARAN it showed a weaker risk return result relative to AKBNK and ALBRK.

For the Malaysia stock market, BIMB demonstrated that it is the most consistent and stable risk adjusted performance over its counterpart Sharia and conventional banking stocks. It delivered a top Sharpe and Sortino ratios in the 1-year, 6 months and 3 months periods even outperforming both the composite benchmarks and the sector index in 6 months and 3 months period, while in 1-year only beat the sector benchmark. PUBM, MBSB, and MBBM performed moderately, while CIMB was the most consistent in terms of negative Sharpe and Sortino values across all the periods. These negative results shows that CIMB’s volatility strongly outweighed its returns in risk adjusted despite showing a strong price appreciation that is reflected in CAGR. Therefore, BIMB as a Sharia banking stock emerges as the strongest Malaysian performer from the Malaysian stocks showing both stability and superior downside risk management.

Regarding Indonesian stocks, in the 1-year period several banking stocks outperformed the JKSE composite while underperformed against JKBANK15 banking sector indices. During the 6 months and 3 months period some stocks outperformed

both benchmarks particularly when the benchmarks reported negative Sharpe ratios in shorter terms. BBTN consistently recorded the highest Sharpe ratios in all the periods, confirming its place as the leading Indonesian stock in risk adjusted returns analysis. BRIS and BBCA showed weaker performance due to negative results in certain periods but still outperformed the composite index and sector index in shorter periods due to the benchmark's deeper decline in negative Sharpe ratios. Similarly, in Sortino ratio analysis it is highlighted by BBTN and BMRI as the strongest downside risk performers, while BBCA displayed the weakest.

In summary, Türkiye's selected banking stocks showed a stable internal ranking but consistently underperformed relative to market and sector indices. In the case of Malaysia, it showcased a strong performance from its Shariah sector which is specifically BIMB, while CIMB a conventional banking stock continuously delivered negative results. Lastly, Indonesia experienced moderate performance by Shariah and conventional stocks outperforming the benchmarks due to the negative Sharpe ratio values in the shorter terms. Overall, ALBRK, BIMB and BBTN Sharia banks tended to showed positive Sharpe ratio and stability overtime and downside risk protection, while in conventional banks AKBNK was stronger performer. These results that are illustrated by the stock market structure, its volatility, and sector behavior influence relative stock performances.

Recommendations

Investors seeking a stable and lower risk portfolios should prioritize the Shariah banking stocks such as ALBRK (Türkiye), BIMB (Malaysia) and BBTN (Indonesia) which are consistently show a moderate Sharpe values and higher Sortino ratios which demonstrated a moderate risk return performance and stronger downside protection. On the other hand, any investors pursuing higher potential returns with consistent top Sharpe and Sortino may consider conventional banks such as AKBNK from Türkiye in the investment of banking sector.

From Bank management prospective, conventional banks in Malaysia such as CIMB, BBCA from Indonesia and GARAN from Türkiye all reported low risk adjusted performance. These banks may need to reevaluate their stocks and enhance their risk return performance by reducing volatility exposure and improving risk management practices. For future researchers, they can work on extending this research to more countries that has all the data available and is accessible and

incorporate other ratios for analysis to determine whether some Sharia banking stocks does outperform several key conventional banking stocks to gain deeper insight. Based on this study, it is determined that not all Sharia banks underperform its counterpart in terms of risk adjusted return.

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APPENDIX

Türkiye Banking Stocks: Risk Adjusted Analysis of Daily Historical Data – Non-Averaged Computation (Semi Annual – Semi Annual):

Historical Data (2025)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.111	-0.136	-0.150	-0.151	-0.119	-0.144
Conv.	AKBNK	-0.093	-0.121	-0.150	-0.151	-0.119	-0.144
	GARAN	-0.121	-0.146	-0.150	-0.151	-0.119	-0.144
	YKBNK	-0.134	-0.162	-0.150	-0.151	-0.119	-0.144
Historical Data (2025-2024)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.049	-0.080	-0.024	-0.039	0.011	0.017
Conv.	AKBNK	0.005	0.009	-0.024	-0.039	0.011	0.017
	GARAN	0.022	0.038	-0.024	-0.039	0.011	0.017
	YKBNK	0.015	0.025	-0.024	-0.039	0.011	0.017
Historical Data (2024)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.070	-0.104	0.004	0.006	0.003	0.005

Conv.	AKBNK	0.026	0.043	0.004	0.006	0.003	0.005
	GARAN	-0.098	-0.144	0.004	0.006	0.003	0.005
	YKBNK	0.043	0.069	0.004	0.006	0.003	0.005
Historical Data (2024-2023)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	0.023	0.032	-0.039	-0.051	-0.116	-0.167
Conv.	AKBNK	-0.149	-0.215	-0.039	-0.051	-0.116	-0.167
	GARAN	-0.133	-0.194	-0.039	-0.051	-0.116	-0.167
	YKBNK	-0.135	-0.201	-0.039	-0.051	-0.116	-0.167
Historical Data (2023)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	0.267	0.120	0.296	0.112	0.211	0.117
Conv.	AKBNK	0.191	0.119	0.296	0.112	0.211	0.117
	GARAN	0.194	0.124	0.296	0.112	0.211	0.117
	YKBNK	0.210	0.124	0.296	0.112	0.211	0.117
Historical Data (2023-2022)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	0.025	0.023	0.033	0.023	0.010	0.009

Conv.	AKBNK	0.0010	0.0009	0.033	0.023	0.010	0.009
	GARAN	-0.002	-0.002	0.033	0.023	0.010	0.009
	YKBNK	0.011	0.010	0.033	0.023	0.010	0.009
Historical Data (2022)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.259	-0.275	-0.484	-0.386	-0.239	-0.268
Conv.	AKBNK	-0.196	-0.261	-0.484	-0.386	-0.239	-0.268
	GARAN	-0.174	-0.222	-0.484	-0.386	-0.239	-0.268
	YKBNK	-0.230	-0.295	-0.484	-0.386	-0.239	-0.268
Historical Data (2022-2021)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	0.139	0.229	-0.039	-0.057	-0.014	-0.017
Conv.	AKBNK	-0.006	-0.009	-0.039	-0.057	-0.014	-0.017
	GARAN	-0.025	-0.031	-0.039	-0.057	-0.014	-0.017
	YKBNK	-0.032	-0.050	-0.039	-0.057	-0.014	-0.017
Historical Data (2021)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	0.699	0.890	1.621	1.870	1.050	1.370

Conv.	AKBNK	1.013	1.384	1.621	1.870	1.050	1.370
	GARAN	0.822	1.206	1.621	1.870	1.050	1.370
	YKBNK	0.839	1.114	1.621	1.870	1.050	1.370
Historical Data (2021-2020)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	1.944	2.284	3.129	3.214	2.240	3.101
Conv.	AKBNK	2.015	2.153	3.129	3.214	2.240	3.101
	GARAN	1.868	2.192	3.129	3.214	2.240	3.101
	YKBNK	1.912	2.166	3.129	3.214	2.240	3.101

Türkiye Banking Stocks: Risk Adjusted Analysis of Daily Historical Data – Non-Averaged Computation (Quarterly – Quarterly):

Historical Data (2025 – Q4)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	0.093	0.141	0.012	0.015	0.067	0.104
Conv.	AKBNK	0.082	0.143	0.012	0.015	0.067	0.104
	GARAN	0.074	0.112	0.012	0.015	0.067	0.104
	YKBNK	0.016	0.023	0.012	0.015	0.067	0.104

Historical Data (2025 – Q3)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.310	-0.329	-0.319	-0.278	-0.331	-0.328
Conv.	AKBNK	-0.288	-0.303	-0.319	-0.278	-0.331	-0.328
	GARAN	-0.316	-0.328	-0.319	-0.278	-0.331	-0.328
	YKBNK	-0.310	-0.315	-0.319	-0.278	-0.331	-0.328
Historical Data (2025 – Q2)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	0.095	0.190	0.139	0.316	0.198	0.462
Conv.	AKBNK	0.184	0.441	0.139	0.316	0.198	0.462
	GARAN	0.199	0.419	0.139	0.316	0.198	0.462
	YKBNK	0.166	0.367	0.139	0.316	0.198	0.462
Historical Data (2025 – Q1 – 2024 – Q4)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.242	-0.302	-0.303	-0.312	-0.244	-0.278
Conv.	AKBNK	-0.227	-0.262	-0.303	-0.312	-0.244	-0.278
	GARAN	-0.234	-0.297	-0.303	-0.312	-0.244	-0.278
	YKBNK	-0.163	-0.212	-0.303	-0.312	-0.244	-0.278

Historical Data (2024 – Q4)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	0.027	0.042	0.057	0.087	0.038	0.064
Conv.	AKBNK	0.037	0.063	0.057	0.087	0.038	0.064
	GARAN	0.007	0.011	0.057	0.087	0.038	0.064
	YKBNK	0.056	0.094	0.057	0.087	0.038	0.064
Historical Data (2024 – Q3)							
Stock				**BIST100**		**BISTBANKS BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.156	-0.229	-0.053	-0.074	-0.034	-0.050
Conv.	AKBNK	0.015	0.023	-0.053	-0.074	-0.034	-0.050
	GARAN	-0.194	-0.273	-0.053	-0.074	-0.034	-0.050
	YKBNK	0.030	0.046	-0.053	-0.074	-0.034	-0.050
Historical Data (2024 – Q2)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	0.077	0.111	0.054	0.072	-0.089	-0.134
Conv.	AKBNK	-0.140	-0.208	0.054	0.072	-0.089	-0.134
	GARAN	-0.105	-0.154	0.054	0.072	-0.089	-0.134

	YKBNK	-0.109	-0.174	0.054	0.072	-0.089	-0.134
Historical Data (2024 – Q1 – 2023 – Q4)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.049	-0.066	-0.121	-0.156	-0.143	-0.198
Conv.	AKBNK	-0.158	-0.222	-0.121	-0.156	-0.143	-0.198
	GARAN	-0.156	-0.229	-0.121	-0.156	-0.143	-0.198
	YKBNK	-0.160	-0.225	-0.121	-0.156	-0.143	-0.198
Historical Data (2023 – Q4)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	0.873	1.211	1.285	1.658	0.954	1.424
Conv.	AKBNK	0.930	1.451	1.285	1.658	0.954	1.424
	GARAN	0.925	1.698	1.285	1.658	0.954	1.424
	YKBNK	0.968	1.590	1.285	1.658	0.954	1.424
Historical Data (2023 – Q3)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.519	-0.152	-0.678	-0.190	-0.423	-0.189
Conv.	AKBNK	-0.407	-0.210	-0.678	-0.190	-0.423	-0.189
	GARAN	-0.406	-0.212	-0.678	-0.190	-0.423	-0.189

	YKBNK	-0.364	-0.181	-0.678	-0.190	-0.423	-0.189
Historical Data (2023 – Q2)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	0.460	0.295	0.389	0.190	0.197	0.120
Conv.	AKBNK	0.161	0.102	0.389	0.190	0.197	0.120
	GARAN	0.076	0.053	0.389	0.190	0.197	0.120
	YKBNK	0.121	0.073	0.389	0.190	0.197	0.120
Historical Data (2023 – Q1 – 2022 – Q4)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.222	-0.249	-0.204	-0.231	-0.114	-0.166
Conv.	AKBNK	-0.109	-0.136	-0.204	-0.231	-0.114	-0.166
	GARAN	-0.065	-0.081	-0.204	-0.231	-0.114	-0.166
	YKBNK	-0.056	-0.074	-0.204	-0.231	-0.114	-0.166
Historical Data (2022 – Q4)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.279	-0.298	-0.576	-0.449	-0.250	-0.290
Conv.	AKBNK	-0.244	-0.339	-0.576	-0.449	-0.250	-0.290
	GARAN	-0.218	-0.289	-0.576	-0.449	-0.250	-0.290

	YKBNK	-0.278	-0.375	-0.576	-0.449	-0.250	-0.290
Historical Data (2022 – Q3)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.245	-0.270	-0.367	-0.308	-0.253	-0.267
Conv.	AKBNK	-0.125	-0.155	-0.367	-0.308	-0.253	-0.267
	GARAN	-0.108	-0.129	-0.367	-0.308	-0.253	-0.267
	YKBNK	-0.165	-0.197	-0.367	-0.308	-0.253	-0.267
Historical Data (2022 – Q2)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	0.147	0.236	0.014	0.020	0.041	0.050
Conv.	AKBNK	0.054	0.077	0.014	0.020	0.041	0.050
	GARAN	-0.043	-0.043	0.014	0.020	0.041	0.050
	YKBNK	0.011	0.015	0.014	0.020	0.041	0.050
Historical Data (2022 – Q1 – 2021 – Q4)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	0.130	0.224	-0.076	-0.115	-0.057	-0.068
Conv.	AKBNK	-0.055	-0.094	-0.076	-0.115	-0.057	-0.068
	GARAN	-0.011	-0.016	-0.076	-0.115	-0.057	-0.068

	YKBNK	-0.062	-0.108	-0.076	-0.115	-0.057	-0.068
Historical Data (2021 – Q4)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.191	-0.235	-0.286	-0.264	-0.190	-0.227
Conv.	AKBNK	-0.206	-0.262	-0.286	-0.264	-0.190	-0.227
	GARAN	-0.171	-0.247	-0.286	-0.264	-0.190	-0.227
	YKBNK	-0.255	-0.326	-0.286	-0.264	-0.190	-0.227
Historical Data (2021 – Q3)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	2.268	3.327	3.694	6.874	2.764	4.534
Conv.	AKBNK	2.752	4.660	3.694	6.874	2.764	4.534
	GARAN	2.138	3.301	3.694	6.874	2.764	4.534
	YKBNK	2.423	3.654	3.694	6.874	2.764	4.534
Historical Data (2021 – Q2)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	3.539	4.789	5.877	7.547	4.595	8.566
Conv.	AKBNK	4.260	5.907	5.877	7.547	4.595	8.566
	GARAN	4.014	6.016	5.877	7.547	4.595	8.566

	YKBNK	4.263	5.604	5.877	7.547	4.595	8.566
Historical Data (2021 – Q1 – 2020 – Q4)							
Stock				**BIST100**		**BISTBANKS**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	ALBRK	-0.209	-0.194	-0.319	-0.257	-0.123	-0.140
Conv.	AKBNK	-0.172	-0.155	-0.319	-0.257	-0.123	-0.140
	GARAN	-0.200	-0.200	-0.319	-0.257	-0.123	-0.140
	YKBNK	-0.112	-0.117	-0.319	-0.257	-0.123	-0.140

Indonesia Banking Stocks: Risk Adjusted Analysis of Daily Historical Data – Non-Averaged Computation (Semi Annual to Semi Annual):

Historical Data (2025)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	**BRIS**	**-0.050**	**-0.079**	**-0.389**	**-0.412**	**-0.063**	**-0.081**
	BBTN	**-0.071**	**-0.090**	**-0.440**	**-0.431**	**-0.157**	**-0.194**
Conv.	**BBCA**	**-0.119**	**-0.149**	**-0.440**	**-0.431**	**-0.157**	**-0.194**
	BMRI	**-0.109**	**-0.152**	**-0.440**	**-0.431**	**-0.157**	**-0.194**
	BBRI	**-0.127**	**-0.164**	**-0.440**	**-0.431**	**-0.157**	**-0.194**
Historical Data (2025-2024)							
Stock				**JKSE**		**JKBANK15**	

Type	Code	Sharpe	Sortino	Sharpe	Sortino	Sharpe	Sortino
Sharia	BRIS	-0.015	-0.018	0.223	0.258	0.194	0.254
	BBTN	0.022	0.026	0.024	0.030	0.067	0.090
Conv.	BBCA	0.044	0.057	0.024	0.030	0.067	0.090
	BMRI	0.089	0.144	0.024	0.030	0.067	0.090
	BBRI	0.059	0.088	0.024	0.030	0.067	0.090
Historical Data (2024)							
Stock				JKSE		JKBANK15	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.021	-0.031	-0.142	-0.132	-0.139	-0.154
	BBTN	-0.014	-0.013	-0.099	-0.092	-0.074	-0.087
Conv.	BBCA	-0.088	-0.100	-0.099	-0.092	-0.074	-0.087
	BMRI	-0.029	-0.041	-0.099	-0.092	-0.074	-0.087
	BBRI	-0.012	-0.016	-0.099	-0.092	-0.074	-0.087
Historical Data (2024-2023)							
Stock				JKSE		JKBANK15	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.410	-0.479	-0.403	-0.287	-0.379	-0.398
	BBTN	0.099	0.102	-0.035	-0.033	0.016	0.024
Conv.	BBCA	-0.013	-0.017	-0.035	-0.033	0.016	0.024
	BMRI	-0.021	-0.036	-0.035	-0.033	0.016	0.024

	BBRI	**0.068**	**0.108**	**-0.035**	**-0.033**	**0.016**	**0.024**
Historical Data (2023)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	**BRIS**	**0.036**	**0.066**	**-0.121**	**-0.067**	**-0.242**	**-0.147**
	BBTN	**0.055**	**0.047**	**0.132**	**0.084**	**0.064**	**0.048**
Conv.	**BBCA**	**0.081**	**0.075**	**0.132**	**0.084**	**0.064**	**0.048**
	BMRI	**-0.019**	**-0.023**	**0.132**	**0.084**	**0.064**	**0.048**
	BBRI	**0.049**	**0.058**	**0.132**	**0.084**	**0.064**	**0.048**
Historical Data (2023-2022)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	**BRIS**	**0.053**	**0.067**	**0.161**	**0.129**	**0.106**	**0.105**
	BBTN	**0.097**	**0.120**	**0.141**	**0.114**	**0.094**	**0.099**
Conv.	**BBCA**	**0.038**	**0.043**	**0.141**	**0.114**	**0.094**	**0.099**
	BMRI	**0.040**	**0.058**	**0.141**	**0.114**	**0.094**	**0.099**
	BBRI	**-0.007**	**-0.008**	**0.141**	**0.114**	**0.094**	**0.099**
Historical Data (2022)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	**BRIS**	**-0.037**	**-0.043**	**-0.203**	**-0.113**	**-0.110**	**-0.081**

	BBTN	**0.074**	**0.057**	**0.105**	**0.058**	**0.088**	**0.067**
Conv.	**BBCA**	**0.0003**	**0.0003**	**0.105**	**0.058**	**0.088**	**0.067**
	BMRI	**-0.033**	**-0.032**	**0.105**	**0.058**	**0.088**	**0.067**
	BBRI	**0.068**	**0.067**	**0.105**	**0.058**	**0.088**	**0.067**
Historical Data (2022-2021)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	**BRIS**	**0.097**	**0.156**	**-0.315**	**-0.322**	**-0.274**	**-0.322**
	BBTN	**0.245**	**0.272**	**0.163**	**0.178**	**0.075**	**0.105**
Conv.	**BBCA**	**0.124**	**0.189**	**0.165**	**0.179**	**0.072**	**0.101**
	BMRI	**0.014**	**0.018**	**0.165**	**0.179**	**0.072**	**0.101**
	BBRI	**0.066**	**0.101**	**0.165**	**0.179**	**0.072**	**0.101**
Historical Data (2021)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	**BRIS**	**-0.073**	**-0.100**	**-0.490**	**-0.179**	**-0.191**	**-0.107**
	BBTN	**-0.005**	**-0.003**	**-0.161**	**-0.065**	**-0.102**	**-0.062**
Conv.	**BBCA**	**-0.120**	**-0.078**	**-0.164**	**-0.066**	**-0.101**	**-0.061**
	BMRI	**-0.084**	**-0.068**	**-0.164**	**-0.066**	**-0.101**	**-0.061**
	BBRI	**-0.052**	**-0.043**	**-0.164**	**-0.066**	**-0.101**	**-0.061**
Historical Data (2021-2020)							

Stock				JKSE		JKBANK15	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	**BRIS**	**-0.199**	**-0.242**	**-0.211**	**-0.149**	**-0.155**	**-0.136**
	BBTN	**-0.121**	**-0.118**	**-0.162**	**-0.112**	**-0.084**	**-0.077**
Conv.	**BBCA**	**-0.067**	**-0.067**	**-0.162**	**-0.112**	**-0.084**	**-0.077**
	BMRI	**0.084**	**0.432**	**-0.162**	**-0.112**	**-0.084**	**-0.077**
	BBRI	**-0.059**	**-0.070**	**-0.162**	**-0.112**	**-0.084**	**-0.077**

Indonesia Banking Stocks: Risk Adjusted Analysis of Daily Historical Data – Non-Averaged Computation (Quarterly to Quarterly):

Historical Data (2025 – Q4)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.108	-0.136	-0.484	-0.460	-0.235	-0.284
	BBTN	-0.206	-0.249	-0.484	-0.460	-0.235	-0.284
Conv.	BBCA	-0.182	-0.229	-0.484	-0.460	-0.235	-0.284
	BMRI	-0.174	-0.238	-0.484	-0.460	-0.235	-0.284
	BBRI	-0.199	-0.257	-0.484	-0.460	-0.235	-0.284
Historical Data (2025 – Q3)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**

Sharia	BRIS	-0.050	-0.079	-0.389	-0.412	-0.063	-0.081
	BBTN	-0.006	-0.008	-0.389	-0.412	-0.063	-0.081
Conv.	BBCA	-0.015	-0.020	-0.389	-0.412	-0.063	-0.081
	BMRI	-0.045	-0.064	-0.389	-0.412	-0.063	-0.081
	BBRI	-0.048	-0.063	-0.389	-0.412	-0.063	-0.081
Historical Data (2025 – Q2)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	0.039	0.065	-0.078	-0.104	-0.020	-0.027
	BBTN	-0.049	-0.057	-0.078	-0.104	-0.020	-0.027
Conv.	BBCA	-0.026	-0.037	-0.078	-0.104	-0.020	-0.027
	BMRI	0.002	0.003	-0.078	-0.104	-0.020	-0.027
	BBRI	0.003	0.005	-0.078	-0.104	-0.020	-0.027
Historical Data (2025 – Q1 – 2024 – Q4)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.015	-0.018	0.223	0.258	0.194	0.254
	BBTN	0.132	0.194	0.223	0.258	0.194	0.254
Conv.	BBCA	0.137	0.157	0.223	0.258	0.194	0.254
	BMRI	0.204	0.367	0.223	0.258	0.194	0.254
	BBRI	0.143	0.191	0.223	0.258	0.194	0.254

Historical Data (2024 – Q4)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.093	-0.119	-0.051	-0.048	0.001	0.001
	BBTN	-0.012	-0.011	-0.051	-0.048	0.001	0.001
Conv.	BBCA	0.006	0.009	-0.051	-0.048	0.001	0.001
	BMRI	0.064	0.101	-0.051	-0.048	0.001	0.001
	BBRI	0.023	0.035	-0.051	-0.048	0.001	0.001
Historical Data (2024 – Q3)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.021	-0.031	-0.142	-0.132	-0.139	-0.154
	BBTN	-0.016	-0.016	-0.142	-0.132	-0.139	-0.154
Conv.	BBCA	-0.171	-0.175	-0.142	-0.132	-0.139	-0.154
	BMRI	-0.104	-0.142	-0.142	-0.132	-0.139	-0.154
	BBRI	-0.044	-0.058	-0.142	-0.132	-0.139	-0.154
Historical Data (2024 – Q2)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	0.030	0.044	0.312	0.403	0.329	0.655
	BBTN	0.360	0.559	0.312	0.403	0.329	0.655

Conv.	BBCA	0.170	0.237	0.312	0.403	0.329	0.655
	BMRI	0.211	0.478	0.312	0.403	0.329	0.655
	BBRI	0.327	0.660	0.312	0.403	0.329	0.655
Historical Data (2024 – Q1 – 2023 – Q4)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.410	-0.479	-0.403	-0.287	-0.379	-0.398
	BBTN	-0.203	-0.149	-0.403	-0.287	-0.379	-0.398
Conv.	BBCA	-0.260	-0.291	-0.403	-0.287	-0.379	-0.398
	BMRI	-0.328	-0.398	-0.403	-0.287	-0.379	-0.398
	BBRI	-0.244	-0.292	-0.403	-0.287	-0.379	-0.398
Historical Data (2023 – Q4)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	0.237	0.327	0.306	0.216	0.258	0.220
	BBTN	0.334	0.271	0.306	0.216	0.258	0.220
Conv.	BBCA	0.201	0.199	0.306	0.216	0.258	0.220
	BMRI	0.147	0.180	0.306	0.216	0.258	0.220
	BBRI	0.215	0.275	0.306	0.216	0.258	0.220
Historical Data (2023 – Q3)							
Stock				**JKSE**		**JKBANK15**	

Type	Code	Sharpe	Sortino	Sharpe	Sortino	Sharpe	Sortino
Sharia	BRIS	0.036	0.066	-0.121	-0.067	-0.242	-0.147
	BBTN	-0.207	-0.179	-0.121	-0.067	-0.242	-0.147
Conv.	BBCA	-0.074	-0.062	-0.121	-0.067	-0.242	-0.147
	BMRI	-0.210	-0.244	-0.121	-0.067	-0.242	-0.147
	BBRI	-0.163	-0.175	-0.121	-0.067	-0.242	-0.147
Historical Data (2023 – Q2)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.129	-0.192	0.115	0.095	0.077	0.096
	BBTN	-0.003	-0.004	0.115	0.095	0.077	0.096
Conv.	BBCA	-0.002	-0.002	0.115	0.095	0.077	0.096
	BMRI	0.020	0.032	0.115	0.095	0.077	0.096
	BBRI	-0.063	-0.082	0.115	0.095	0.077	0.096
Historical Data (2023 – Q1 – 2022 – Q4)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	0.053	0.067	0.161	0.129	0.106	0.105
	BBTN	0.166	0.210	0.161	0.129	0.106	0.105
Conv.	BBCA	0.062	0.075	0.161	0.129	0.106	0.105
	BMRI	0.056	0.075	0.161	0.129	0.106	0.105

	BBRI	0.033	0.036	0.161	0.129	0.106	0.105
Historical Data (2022 – Q4)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	0.358	0.414	0.617	0.338	0.348	0.283
	BBTN	0.191	0.192	0.617	0.338	0.348	0.283
Conv.	BBCA	0.168	0.172	0.617	0.338	0.348	0.283
	BMRI	0.082	0.078	0.617	0.338	0.348	0.283
	BBRI	0.208	0.194	0.617	0.338	0.348	0.283
Historical Data (2022 – Q3)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.037	-0.043	-0.203	-0.113	-0.110	-0.081
	BBTN	-0.099	-0.054	-0.203	-0.113	-0.110	-0.081
Conv.	BBCA	-0.132	-0.115	-0.203	-0.113	-0.110	-0.081
	BMRI	-0.116	-0.117	-0.203	-0.113	-0.110	-0.081
	BBRI	-0.028	-0.028	-0.203	-0.113	-0.110	-0.081
Historical Data (2022 – Q2)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	0.325	0.512	0.586	0.665	0.352	0.567

	BBTN	0.674	0.725	0.586	0.665	0.352	0.567
Conv.	BBCA	0.392	0.700	0.586	0.665	0.352	0.567
	BMRI	0.231	0.292	0.586	0.665	0.352	0.567
	BBRI	0.268	0.499	0.586	0.665	0.352	0.567
Historical Data (2022 – Q1 – 2021 – Q4)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	0.097	0.156	-0.315	-0.322	-0.274	-0.322
	BBTN	-0.170	-0.196	-0.323	-0.331	-0.272	-0.319
Conv.	BBCA	-0.144	-0.192	-0.315	-0.322	-0.274	-0.322
	BMRI	-0.226	-0.340	-0.315	-0.322	-0.274	-0.322
	BBRI	-0.201	-0.239	-0.315	-0.322	-0.274	-0.322
Historical Data (2021 – Q4)							
Stock				**JKSE**		**JKBANK15**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	0.214	0.210	0.124	0.055	-0.013	-0.008
	BBTN	0.298	0.156	0.124	0.055	-0.013	-0.008
Conv.	BBCA	-0.042	-0.030	0.124	0.055	-0.013	-0.008
	BMRI	-0.010	-0.008	0.124	0.055	-0.013	-0.008
	BBRI	0.029	0.024	0.124	0.055	-0.013	-0.008
Historical Data (2021 – Q3)							

Stock				JKSE		JKBANK15	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.073	-0.100	-0.490	-0.179	-0.191	-0.107
	BBTN	-0.265	-0.136	-0.490	-0.179	-0.191	-0.107
Conv.	BBCA	-0.213	-0.122	-0.490	-0.179	-0.191	-0.107
	BMRI	-0.151	-0.124	-0.490	-0.179	-0.191	-0.107
	BBRI	-0.123	-0.100	-0.490	-0.179	-0.191	-0.107

Historical Data (2021 – Q2)

Stock				JKSE		JKBANK15	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	0.105	0.139	-0.098	-0.067	0.009	0.009
	BBTN	-0.147	-0.119	-0.098	-0.067	0.009	0.009
Conv.	BBCA	-0.021	-0.024	-0.098	-0.067	0.009	0.009
	BMRI	0.130	1.023	-0.098	-0.067	0.009	0.009
	BBRI	0.066	0.098	-0.098	-0.067	0.009	0.009

Historical Data (2021 – Q1 – 2020 – Q4)

Stock				JKSE		JKBANK15	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BRIS	-0.199	-0.242	-0.211	-0.149	-0.155	-0.136
	BBTN	-0.128	-0.133	-0.211	-0.149	-0.155	-0.136
Conv.	BBCA	-0.114	-0.101	-0.211	-0.149	-0.155	-0.136

	BMRI	-0.043	-0.050	-0.211	-0.149	-0.155	-0.136
	BBRI	-0.145	-0.160	-0.211	-0.149	-0.155	-0.136

Malaysia Banking Stocks: Risk Adjusted Analysis of Daily Historical Data – Non-Averaged Computation (Semi Annual to Semi Annual):

Historical Data (2025)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.071	0.116	-0.059	-0.091	-0.007	-0.010
	MBSB	-0.011	-0.017	-0.059	-0.091	-0.007	-0.010
Conv.	CIMB	-0.051	-0.073	-0.059	-0.091	-0.007	-0.010
	MBBM	0.009	0.014	-0.059	-0.091	-0.007	-0.010
	PUBM	0.043	0.070	-0.059	-0.091	-0.007	-0.010
Historical Data (2025-2024)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.061	0.103	0.032	0.047	0.043	0.067
	MBSB	0.024	0.039	0.032	0.047	0.043	0.067
Conv.	CIMB	0.085	0.147	0.032	0.047	0.043	0.067
	MBBM	0.038	0.057	0.032	0.047	0.043	0.067
	PUBM	-0.002	-0.003	0.032	0.047	0.043	0.067

Historical Data (2024)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	-0.072	-0.100	-0.049	-0.064	-0.137	-0.169
	MBSB	0.019	0.031	-0.049	-0.064	-0.137	-0.169
Conv.	CIMB	-0.143	-0.192	-0.049	-0.064	-0.137	-0.169
	MBBM	-0.108	-0.140	-0.049	-0.064	-0.137	-0.169
	PUBM	-0.059	-0.088	-0.049	-0.065	-0.139	-0.170
Historical Data (2024-2023)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	-0.066	-0.113	-0.176	-0.268	-0.119	-0.188
	MBSB	-0.053	-0.088	-0.176	-0.268	-0.119	-0.188
Conv.	CIMB	-0.163	-0.250	-0.176	-0.268	-0.119	-0.188
	MBBM	-0.110	-0.166	-0.176	-0.268	-0.119	-0.188
	PUBM	0.006	0.011	-0.176	-0.268	-0.119	-0.188
Historical Data (2023)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	-0.034	-0.045	0.026	0.024	-0.021	-0.020
	MBSB	-0.038	-0.052	0.026	0.024	-0.021	-0.020

Conv.	CIMB	-0.089	-0.115	0.026	0.024	-0.021	-0.020
	MBBM	-0.014	-0.017	0.026	0.024	-0.021	-0.020
	PUBM	-0.015	-0.019	0.026	0.024	-0.021	-0.020
Historical Data (2023-2022)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.199	0.328	0.078	0.106	0.112	0.161
	MBSB	-0.020	-0.033	0.078	0.106	0.112	0.161
Conv.	CIMB	0.099	0.153	0.078	0.106	0.112	0.161
	MBBM	0.033	0.051	0.078	0.106	0.112	0.161
	PUBM	0.124	0.187	0.078	0.106	0.112	0.161
Historical Data (2022)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.355	0.415	0.403	0.359	0.459	0.332
	MBSB	0.264	0.273	0.403	0.359	0.459	0.332
Conv.	CIMB	0.213	0.222	0.403	0.359	0.459	0.332
	MBBM	0.432	0.362	0.403	0.359	0.459	0.332
	PUBM	0.289	0.332	0.403	0.359	0.459	0.332
Historical Data (2022-2021)							
Stock				**KLSE Bursa**		**KLFI**	

Type	Code	Sharpe	Sortino	Sharpe	Sortino	Sharpe	Sortino
Sharia	BIMB	0.091	0.160	0.152	0.259	0.059	0.088
	MBSB	0.074	0.122	0.152	0.259	0.059	0.088
Conv.	CIMB	0.081	0.151	0.152	0.259	0.059	0.088
	MBBM	0.034	0.052	0.152	0.259	0.059	0.088
	PUBM	0.008	0.011	0.152	0.259	0.059	0.088
Historical Data (2021)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.010	0.015	0.051	0.066	-0.034	-0.040
	MBSB	0.002	0.004	0.048	0.060	-0.032	-0.038
Conv.	CIMB	-0.169	-0.221	-0.004	-0.004	-0.101	-0.108
	MBBM	0.034	0.041	0.048	0.060	-0.032	-0.038
	PUBM	0.022	0.030	0.048	0.060	-0.032	-0.038
Historical Data (2021-2020)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	-0.062	-0.079	-0.002	-0.003	-0.085	-0.104
	MBSB	-0.046	-0.059	-0.002	-0.003	-0.085	-0.104
Conv.	CIMB	-0.090	-0.124	-0.002	-0.003	-0.085	-0.104
	MBBM	-0.055	-0.071	-0.002	-0.003	-0.085	-0.104

	PUBM	-0.092	-0.117	-0.002	-0.003	-0.085	-0.104

Malaysia Banking Stocks: Risk Adjusted Analysis of Daily Historical Data – Non-Averaged Computation (Quarterly to Quarterly):

Historical Data (2025 – Q4)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.045	0.067	-0.138	-0.219	-0.133	-0.208
	MBSB	-0.078	-0.114	-0.138	-0.219	-0.133	-0.208
Conv.	CIMB	-0.134	-0.219	-0.138	-0.219	-0.133	-0.208
	MBBM	-0.081	-0.124	-0.138	-0.219	-0.133	-0.208
	PUBM	0.031	0.060	-0.138	-0.219	-0.133	-0.208
Historical Data (2025 – Q3)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.093	0.170	-0.0002	-0.0003	0.083	0.121
	MBSB	0.069	0.121	-0.0002	-0.0003	0.083	0.121
Conv.	CIMB	0.018	0.024	-0.0002	-0.0003	0.083	0.121
	MBBM	0.078	0.114	-0.0002	-0.0003	0.083	0.121
	PUBM	0.052	0.080	-0.0002	-0.0003	0.083	0.121
Historical Data (2025 – Q2)							

Stock				KLSE Bursa		KLFI	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	-0.010	-0.015	0.008	0.011	0.053	0.082
	MBSB	-0.00007	-0.0001	0.008	0.011	0.053	0.082
Conv.	CIMB	0.138	0.249	0.008	0.011	0.053	0.082
	MBBM	0.043	0.064	0.008	0.011	0.053	0.082
	PUBM	-0.029	-0.046	0.008	0.011	0.053	0.082

Historical Data (2025 – Q1 – 2024 – Q4)

Stock				KLSE Bursa		KLFI	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.144	0.356	0.096	0.184	0.035	0.063
	MBSB	0.062	0.101	0.096	0.184	0.035	0.063
Conv.	CIMB	-0.020	-0.029	0.096	0.184	0.035	0.063
	MBBM	0.034	0.057	0.096	0.184	0.035	0.063
	PUBM	0.037	0.065	0.096	0.184	0.035	0.063

Historical Data (2024 – Q4)

Stock				KLSE Bursa		KLFI	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	-0.135	-0.188	-0.167	-0.156	-0.210	-0.222
	MBSB	-0.022	-0.032	-0.167	-0.156	-0.210	-0.222
Conv.	CIMB	-0.179	-0.217	-0.167	-0.156	-0.210	-0.222

	MBBM	-0.149	-0.172	-0.167	-0.156	-0.210	-0.222
	PUBM	-0.100	-0.147	-0.171	-0.158	-0.215	-0.225
Historical Data (2024 – Q3)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.002	0.002	0.039	0.078	-0.048	-0.090
	MBSB	0.045	0.083	0.039	0.078	-0.048	-0.090
Conv.	CIMB	-0.098	-0.175	0.039	0.078	-0.048	-0.090
	MBBM	-0.057	-0.098	0.039	0.078	-0.048	-0.090
	PUBM	0.012	0.022	0.039	0.078	-0.048	-0.090
Historical Data (2024 – Q2)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	-0.108	-0.182	-0.203	-0.318	-0.109	-0.180
	MBSB	-0.099	-0.147	-0.203	-0.318	-0.109	-0.180
Conv.	CIMB	-0.166	-0.255	-0.203	-0.318	-0.109	-0.180
	MBBM	-0.109	-0.189	-0.171	-0.282	-0.070	-0.131
	PUBM	0.090	0.167	-0.203	-0.318	-0.109	-0.180
Historical Data (2024 – Q1 – 2023 – Q4)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**

Sharia	BIMB	-0.004	-0.008	-0.146	-0.219	-0.131	-0.200
	MBSB	-0.006	-0.012	-0.146	-0.219	-0.131	-0.200
Conv.	CIMB	-0.161	-0.248	-0.146	-0.219	-0.131	-0.200
	MBBM	-0.114	-0.149	-0.181	-0.258	-0.165	-0.232
	PUBM	-0.091	-0.145	-0.146	-0.219	-0.131	-0.200
Historical Data (2023 – Q4)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	-0.044	-0.070	-0.014	-0.022	-0.026	-0.040
	MBSB	0.029	0.050	-0.014	-0.022	-0.026	-0.040
Conv.	CIMB	-0.053	-0.087	-0.014	-0.022	-0.026	-0.040
	MBBM	-0.044	-0.093	-0.014	-0.022	-0.026	-0.040
	PUBM	-0.029	-0.045	-0.014	-0.022	-0.026	-0.040
Historical Data (2023 – Q3)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	-0.027	-0.033	0.065	0.049	-0.017	-0.013
	MBSB	-0.101	-0.123	0.065	0.049	-0.017	-0.013
Conv.	CIMB	-0.125	-0.140	0.065	0.049	-0.017	-0.013
	MBBM	0.016	0.016	0.065	0.049	-0.017	-0.013
	PUBM	0.0004	0.0004	0.065	0.049	-0.017	-0.013

Historical Data (2023 – Q2)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.289	0.518	0.068	0.098	0.039	0.061
	MBSB	-0.045	-0.078	0.068	0.098	0.039	0.061
Conv.	CIMB	0.111	0.214	0.068	0.098	0.039	0.061
	MBBM	-0.034	-0.051	0.068	0.098	0.039	0.061
	PUBM	0.047	0.076	0.068	0.098	0.039	0.061
Historical Data (2023 – Q1 – 2022 – Q4)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.128	0.202	0.088	0.116	0.178	0.244
	MBSB	0.053	0.073	0.088	0.116	0.178	0.244
Conv.	CIMB	0.092	0.132	0.088	0.116	0.178	0.244
	MBBM	0.111	0.183	0.088	0.116	0.178	0.244
	PUBM	0.188	0.273	0.088	0.116	0.178	0.244
Historical Data (2022 – Q4)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.109	0.241	0.077	0.138	0.085	0.154
	MBSB	0.018	0.036	0.077	0.138	0.085	0.154

Conv.	CIMB	-0.030	-0.051	0.077	0.138	0.085	0.154
	MBBM	0.114	0.301	0.077	0.138	0.085	0.154
	PUBM	0.089	0.089	0.077	0.138	0.085	0.154
Historical Data (2022 – Q3)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.647	0.531	0.712	0.486	0.809	0.442
	MBSB	0.470	0.395	0.712	0.486	0.809	0.442
Conv.	CIMB	0.495	0.378	0.712	0.486	0.809	0.442
	MBBM	0.728	0.455	0.712	0.486	0.809	0.442
	PUBM	0.500	0.448	0.712	0.486	0.809	0.442
Historical Data (2022 – Q2)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.179	0.389	0.090	0.158	0.014	0.021
	MBSB	0.020	0.031	0.090	0.158	0.014	0.021
Conv.	CIMB	0.122	0.242	0.090	0.158	0.014	0.021
	MBBM	-0.042	-0.069	0.090	0.158	0.014	0.021
	PUBM	-0.053	-0.077	0.090	0.158	0.014	0.021
Historical Data (2022 – Q1 – 2021 – Q4)							
Stock				**KLSE Bursa**		**KLFI**	

Type	Code	Sharpe	Sortino	Sharpe	Sortino	Sharpe	Sortino
Sharia	BIMB	0.005	0.008	0.218	0.362	0.119	0.175
	MBSB	0.120	0.209	0.218	0.362	0.119	0.175
Conv.	CIMB	0.028	0.046	0.218	0.362	0.119	0.175
	MBBM	0.134	0.189	0.218	0.362	0.119	0.175
	PUBM	0.094	0.132	0.218	0.362	0.119	0.175
Historical Data (2021 – Q4)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.013	0.019	0.004	0.008	-0.019	-0.031
	MBSB	0.00002	0.00004	0.004	0.007	-0.017	-0.028
Conv.	CIMB	-0.094	-0.153	0.004	0.007	-0.017	-0.028
	MBBM	0.041	0.070	0.004	0.007	-0.017	-0.028
	PUBM	-0.002	-0.003	0.004	0.007	-0.017	-0.028
Historical Data (2021 – Q3)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.008	0.010	0.108	0.104	-0.053	-0.046
	MBSB	0.004	0.007	0.108	0.104	-0.053	-0.046
Conv.	CIMB	-0.145	-0.174	0.108	0.104	-0.053	-0.046
	MBBM	0.027	0.022	0.108	0.104	-0.053	-0.046

	PUBM	0.052	0.063	0.108	0.104	-0.053	-0.046
Historical Data (2021 – Q2)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	0.077	0.111	0.136	0.245	0.160	0.269
	MBSB	0.145	0.254	0.135	0.243	0.159	0.266
Conv.	CIMB	0.086	0.155	0.135	0.243	0.159	0.266
	MBBM	0.048	0.074	0.135	0.243	0.159	0.266
	PUBM	0.142	0.242	0.135	0.243	0.159	0.266
Historical Data (2021 – Q1 – 2020 – Q4)							
Stock				**KLSE Bursa**		**KLFI**	
Type	**Code**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**	**Sharpe**	**Sortino**
Sharia	BIMB	-0.155	-0.192	-0.093	-0.117	-0.188	-0.230
	MBSB	-0.126	-0.164	-0.093	-0.117	-0.188	-0.230
Conv.	CIMB	-0.186	-0.250	-0.093	-0.117	-0.188	-0.230
	MBBM	-0.110	-0.142	-0.093	-0.117	-0.188	-0.230
	PUBM	-0.181	-0.233	-0.093	-0.117	-0.188	-0.230