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Risks and the Co-Movement of the Malaysian Unit Trust Funds with Shariah Index

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Abstract

Purpose – This study aims to empirically analyze Unit Trust Funds in Malaysia, specifically focusing on Equity Funds and Fixed-Income Funds. The objective is to examine the co-movement of these funds with the Shariah market index and understand its implications for fund performance. **Design/Methodology/Approach** – The study employs a quantitative research design, using time-series data of Unit Trust Funds and market indices. Statistical methods, including correlation analysis, are used to examine the co-movement and its impact on fund performance. The study conducted a detailed analysis of the mutual funds market, evaluating various types, factors, risks, and features that contribute to strategies and innovation. **Findings** – The findings of this study are expected to reveal the nature and extent of co-movement between Unit Trust Funds and the market index. The results will provide insights into how this co-movement influences the performance of Equity Funds and Fixed-Income Funds. The study also aims to identify any significant differences in the co-movement and performance implications between these funds and the respective market indexes. **Originality** – This study is one of the first to provide an empirical analysis of the co-movement between Unit Trust Funds and the market index in the Malaysian context, considering both Equity Funds and Fixed-Income Funds. The findings will contribute to the existing literature on Unit Trust Funds and provide valuable insights for investors, fund managers, and policymakers. **Practical Implication** - The research findings have various real-world applications for different stakeholders. By adjusting the allocation of Equity Funds and Fixed-Income Funds based on their co-movement with the Shariah market index, investors can develop diversified investment strategies. During periods of strong co-movement, risk-averse investors may shift towards more stable Fixed-Income Funds.

Keywords: Unit Trust Funds, Equity Funds, Fixed-Income Funds, Shariah- Market Index, Co-Movement

Introduction

Unit trust funds have become one of the most reliable and resilient investment options since their establishment in Malaysia in the early 20th century, successfully navigating market turbulence. According to a 2022 statement by the Federation of Investment Managers Malaysia (FIMM), unit trust funds have continued their upward growth trend. Furthermore, the FIMM Chairman noted in the organization's latest 2022 report that the year would bring significant changes, adaptations, and challenges both locally and globally (Federation of Investment Managers Malaysia, 2022).

Hence have highlighted some of the major events and issues that occurred in 2022, such as the pandemic becoming endemic and return to normalization (Federation of Investment Managers Malaysia, 2022). Additionally, the 15th General Election in Malaysia and the formation of a Unity Government have created new opportunities and a greater need for financial innovation, with an emphasis on developing more socially responsible investments connecting emerging markets with developed economies. Furthermore, the war in Ukraine and its consequences on the global economy and trade have had both direct and indirect effects on the challenges faced by the Malaysian Unit Trust and Private Retirement Schemes industries, which indicates that 2022 was a turbulent and uncertain year that tested the resilience and adaptability of both people and businesses.

These actions have significant financial and **Sustainable Development Goal (SDG) impacts,** such as **SDG 8: Decent Work and Economic Growth**, which is the motivation of this study to analyse the investors aspects carefully and consider the existing studies to aid present or upcoming research to provide awareness to the investors to adapt and overcome the volatility and the uncertainty of the market with a clearer intent and direction for the future and being open to gain insights which is logical and able to be proactive. Therefore, this study has chosen Malaysia to ensure the validity and originality of the research. However, the country also has a multicultural population, which makes it more important to have widely varied investment options to meet their financial requirements beyond those related to ethnicity. The research will emphasize the uniqueness of the diversified countries' needs to be fulfilled by the types of mutual funds according to investment strategies and factors. Hence, the study will be able to expose the investors to understand the interconnection of mutual fund investment and the market as it allows the investors to access larger expanded options of choices in the pool of funds.

This paper presents a general, comprehensive review, distinct from a meta-analysis, which is a quantitative method that combines and analyses the statistical results of multiple studies on the same topic. A meta-analysis aims to estimate the overall effect size and evaluate the moderating factors of a phenomenon. Yet, a general comprehensive review offers a qualitative and narrative summary of the literature. However, both types of reviews can complement each other and offer valuable insights for researchers and practitioners, particularly focusing on their ability to survive and the variety of products offered by different funds. The primary objective of this review is to examine how the diverse types of mutual fund risks affect their strategies in the market. Additionally, we aim to explore how investors select mutual funds based on their characteristics. However, this review doesn’t investigate how performance, return, and market share impact mutual fund risk. This paper outlines the scope of our analysis and the variables utilized, which are grounded in financial literature that

demonstrates how it affects mutual fund risk. Furthermore, we discuss the key factors and strategies that investors should consider when investing in mutual funds.

Investment Funds, especially those that are Shariah-compliant, have gained significant attention in the global financial market. These funds, which adhere to the principles of Islamic law, offer a unique investment avenue that aligns with the ethical and moral values of a large population of investors. In Malaysia, a country with a substantial Muslim population, the demand for Shariah-compliant funds is particularly high. In this context, our research focuses on the co-movement of these funds with the market index. Co-movement, in financial terms, refers to the degree to which the returns of two different assets or asset classes move together (Sahabuddin et al., 2022). Understanding this co-movement is crucial for investors and fund managers as it can provide insights into the diversification benefits and risk-return trade-offs of different investment strategies.

Our research Questions Are

1. Is there a positive or negative correlation between Equity Funds and the Shariah-compliant market index?
2. Is there a positive or negative correlation between Fixed-Income Funds and the Shariah-compliant market index?

These questions aim to shed light on the dynamics of the Malaysian investment fund market, particularly in relation to Shariah-compliant funds. This study is driven by the increasing demand for Shariah-compliant investment options and the need for investors to understand the relationship between mutual funds and market indices. As Islamic finance continues to grow in Malaysia, assessing the performance of equity and bond funds concerning the Shariah market index is essential for making well-informed investment decisions.

By providing empirical data on how different fund types respond to market fluctuations, this study contributes to academic literature and supports investors and portfolio managers in enhancing diversification strategies. Additionally, it equips fund managers with valuable insights for optimizing fund allocation, ultimately improving performance and strengthening risk management within the Malaysian financial market.

The findings of this research can help investors, fund managers, and policymakers make informed decisions and develop effective investment strategies. Through this study, we aim to advance the academic discourse on mutual funds while offering practical implications for the financial industry. The answers to these questions can provide valuable insights for investors, fund managers, and policymakers, enabling them to make informed decisions and develop effective strategies. Through this research, we hope to contribute to the academic literature on investment funds and provide practical implications for the industry.

This study investigates how the types of risks and factors related to mutual funds affect their demand in the market. Mutual funds are a popular and diverse investment vehicle, offering investors a range of investment options, such as Equity Funds, Fixed-Income Funds, and Balanced Funds. However, mutual funds also face various challenges and uncertainties, such as market fluctuations, competition, and regulation, which can threaten their viability and reputation (Amanah et al., 2020). Previous studies have not adequately analyzed the

strategies and capacity/capabilities of mutual funds and how their risk characteristics and strategies approach influence their performance. Therefore, this study aims to fill this gap by conducting a comprehensive analysis of existing mutual fund research, focusing on factors, strategies, performance, return, risk, approaches, and principles.

Therefore, it is crucial to analyze the trends and strategies that have enabled Unit Trust Funds to not only survive but also thrive during the crisis. Our evaluation aims to offer a thorough and objective assessment of the state of scholarly interest in this field. It will identify gaps in the literature that may be critical for both investors and fund managers. By understanding the factors that impact mutual funds' strategies and the key variables that provide stability, investors can make informed decisions when investing. Similarly, fund managers can **optimize** their fund management, ensuring their long-term success. Our review will serve as a valuable resource for both investors and fund managers, offering insights that will guide them in making more effective decisions. Moreover, our review will be especially useful for those interested in the Malaysian economy, as it emphasizes the principles necessary to achieve a mutual understanding of the market.

Literature Review

The Malaysian market demand for Unit Trust Funds has shown a major leap since its early establishment year back in 1959 due to its large diversification (Federation of Investment Managers Malaysia, 2022). Since it was able to gain the trust of the local citizens as a long-worthy investment for over two decades. The market was able to maintain its position strongly by holding up its growth despite the difficulties of the economic factors to do the several respective aspects, which we shall delve deeper by reviewing the principles of the funds based on categories, factors, risks, and strategies. Mutual funds in Malaysia, including those adhering to Islamic principles, operate based on specific principles and categories. This is a condensed explanation:

Mutual Fund Principles: Mutual funds are financial instruments that pool capital from multiple investors to acquire a diverse range of assets. The fund’s management company allocates these assets in alignment with the fund’s objectives, which typically focus on capital appreciation or income generation (Marwan et al., 2023). Investors profit when the fund trades assets that have significantly appreciated, when the Unit Trust Fund’s value increases, or when they receive dividends from the fund's holdings.

Shariah-Compliant Funds: These are a specific type of mutual fund that adheres to Shariah, or Islamic law. They refrain from investing in companies or ventures prohibited by Shariah, such as those involved in gambling, alcohol, pork, or interest-based financial services (Abd-Mutalib et al., 2019). They also avoid highly leveraged corporations and fixed-income securities. In Malaysia, Shariah-compliant funds follow a list of Shariah-compliant stocks on Bursa Malaysia, issued by the Shariah Advisory Council (SAC) of the Securities Commission Malaysia (Marwan et al., 2023). The Shariah committee or the relevant Shariah board of the fund determines the screening process for unregistered shares and holdings in foreign-listed equities.

Recent studies have shed light on the performance of mutual funds in Malaysia. For instance, Rahim et al. (2019) found that locally focused funds outperformed internationally focused

funds due to the informational advantage they had in selecting stocks from their market. Another study by Azaliney et al. (2020) found that mutual fund characteristics showed different effects on performance, with conventional funds demonstrating higher performance than Islamic funds (Sanusi et al., 2013). Yet another study found that the performance of debt-focused assets reached the benchmark, indicating a positive alpha. These findings offer valuable insights for investors and fund managers in making informed investment decisions.

The types of risks commonly encountered in the mutual fund market are as follows. The SC strongly urges investors to avoid dealing with or investing through any unauthorized platform and to trade only with RMOs that the SC has officially registered and authorized. Investors who deal with unlicensed or unauthorized entities are vulnerable to various risks, including fraud and swindles. Another significant risk is market volatility, which refers to the potential for investors to lose money due to poor market performance. This can be affected by various factors, such as inflation, recession, interest rate fluctuations, political unrest and natural disasters. Market risk is a type of systematic risk that affects most assets and is out of the investors' control. The study by Ishak, Japang, et al. (2022) uses high-frequency data for U.S. industry indexes and various models to show that most industries can predict future aggregate market volatility. Consumer services are the most informative when it comes to market volatility caused by fluctuations in cash flow, while the oil and gas industry has a greater impact on the portion of aggregate market volatility linked to changes in discount rates. The predictive information captured by industries not only improves volatility forecasts for the stock market but also generates significant economic benefits for investors who use these volatility forecasts in their asset allocation strategies (Ishak, Shari, et al., 2022).

Liquidity risk refers to the inability to sell or redeem an investment quickly and easily without incurring a loss. This risk can be influenced by factors such as the demand and supply of the investment, trading volume, market conditions, and the fund's policies. A study by Atasoy et al. (2024) introduces a novel contagion metric based on quantile-connectedness and explores the drivers of systemic risk contagion using methodologies that address endogeneity and time variation. The analysis examines data from 27 international banks over two decades, incorporating variables derived from balance sheets. The findings suggest that credit risk and leverage were key drivers of contagion from 2004 to 2021, while the influence of size and capital adequacy diminished after 2012. The funding structure and profitability had significant effects only during the periods 2014–2017 and during the COVID-19 pandemic, respectively. Each bank's systemic risk propagation exhibited distinct peaks and troughs, though they shared commonalities with other banks. The paper proposes a comprehensive model for systemic risk surveillance that integrates multiple risk variables and utilizes high-frequency data.

Credit risk is the possibility of suffering financial loss as a result of the security's issuer defaulting or being downgraded, particularly in the case of debt or fixed-income instruments. Credit risk can be affected by the issuer's financial condition, credit rating, and ability to repay the principal and interest. The study from Patel et al. (2023) is about the investment style and performance of Indian fixed-income mutual funds (MFs) from April 2015 to March 2020. The key findings are as follows: fund managers select securities, but this does not improve their risk-adjusted returns; higher style consistency leads to better risk-adjusted performance and

both investment style and consistency significantly impact fund performance. These factors affect the returns and risks associated with lending and investing activities. Managers are correct in noting that investing in high-quality, highly rated securities or funds can help mitigate credit risk, as these tend to have a lower probability of default or downgrade. However, this strategy may also result in lower returns, as the interest rates or yields on such securities or funds are generally lower compared to riskier alternatives.

Interest rate risk refers to the possibility of incurring financial losses due to fluctuations in interest rates, which can affect the returns and value of assets, particularly debt or fixed-income instruments. This risk can be influenced by factors such as monetary policy, the inflation rate, economic growth, and market expectations.
A study by Wang (2023) examined a sample of 3,000 mutual funds from 2000 to 2019 and measured their strategy distinctiveness using a novel index. The study also controlled for various fund characteristics and macroeconomic factors. The findings revealed that bank-affiliated funds tend to have more unique investment strategies compared to non-affiliated funds, which in turn leads to better performance. The study further found that this effect is more pronounced around macroeconomic releases, during periods of high economic policy uncertainty, and for funds located closer to their parent bank's headquarters. Wang attributes this advantage to the information available to affiliated fund managers or the specific talent they possess. Additionally, affiliated funds with greater strategy distinctiveness tend to attract more net inflows and exhibit lower risk exposure (Wang, 2023).

Finally, it is essential to consider inflation risk, which refers to the potential loss of purchasing power due to inflation. To mitigate this risk, investors can focus on inflation-linked securities, growth-oriented funds, or those offering high-yield returns. By understanding these various risks and adopting strategies such as careful planning and diversification, investors can make informed decisions that align with their financial goals while minimizing potential losses resulting from factors like interest rate fluctuations, political unrest, or natural disasters. For instance, a study by Zhang et al. (2023) evaluates the effectiveness of big data in investment decision-making. The study finds that traditional human-managed funds outperform big data-driven funds in terms of performance. Moreover, the study reveals that the performance of big data funds is heavily dependent on the abilities of their fund managers and that big data does not significantly enhance these funds' ability to select stocks. The analysis concludes that, despite its potential, big data technologies have not significantly enhanced fund performance. Additionally, the development of Shariah-compliant investment products can align with the financial objectives of Muslim investors, thereby contributing to the growth of Islamic finance. These insights are crucial for policymakers in designing regulations that promote market competitiveness and stability. Furthermore, by integrating co-movement data, financial analysts can refine market forecasting models and provide more accurate investment recommendations. Additionally, by implementing regulations that promote transparency in fund management and require the regular publication of co-movement metrics, regulatory bodies can strengthen market stability. Finally, investor education programs that emphasize the importance of understanding market dynamics and the impact of co-movement on fund performance will help investors make more informed decisions.

In a study by Khairudin & Mohamad Shariff (2023), the authors investigated the impact of COVID-19 on the volatility of the Kuala Lumpur Composite Index (KLCI) and 13 sectoral indices. They also explored which sectors were more significantly affected by the pandemic in comparison to the KLCI. Using the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model, they analyzed the volatility of stock market returns throughout the epidemic. Their findings indicated that COVID-19 had a substantial impact on stock market returns, with consumer goods and services, healthcare, and technology being the sectors most affected.

Subsequently, Abdullah & Shari (2020) Examined the impact of the COVID-19 pandemic on the performance of Equity and Fixed-Income Islamic Unit Trusts in Malaysia. They conducted a comprehensive performance review of Islamic Unit Trusts using a systematic literature review and employed traditional analytical methods, such as Sharpe, Treynor, and Jensen ratios, to compare the performance of Malaysian Islamic fixed-income and Islamic equity Unit Trust Funds in 2019 and 2020. Their analysis revealed that during the COVID-19 pandemic, both fixed-income and equity Islamic Unit Trust Funds outperformed their benchmarks, demonstrating strong performance relative to expectations.

Halim et al. (2021) Conducted a study aimed at constructing the optimal portfolio using the Sharpe Ratio Maximization model and the Naïve (1/N) portfolio. They compared the performance of these two portfolios using the Moving Average Crossover strategy. Their findings indicated that the best Moving Average Crossover strategy, which provided plausible trading frequencies and the highest returns to investors, was the (1, 100, 0.01) strategy.

In addition, Sofi & Yahya (2020) Explored the effect of the Shariah Advisory Panel (SAP) on both the level of agency costs and fund performance, comparing it with conventional corporate governance. This comparison was made within the context of both corporate and Shariah governance settings, between Shariah and conventional mutual funds (CMFs), in the emerging economy of Malaysia during the period 2008-2015. To address potential bias caused by unobserved heterogeneity effects, they employed panel data regression. They analyzed 2,016 fund-year observations by collecting secondary data from the annual reports and master prospectuses of 172 CMFs and 80 Shariah mutual funds. Their analysis revealed that the SAP had a positive impact on agency costs but had a negative and minimal effect on fund performance. This led them to conclude that the Shariah monitoring proxy is an ineffective method for reducing agency costs that conflict with performance-maximizing goals.

On the other hand, Shaliza Alwi et al. (2019) analyzed the performance of 200 Islamic mutual funds (IMFs) and conventional mutual funds (CMFs) from 2007 to 2015. The performance of the funds was compared between the 2007–2008 financial crisis phase and the subsample period of 2007–2015. A range of performance metrics, including the Treynor, Jensen, Sortino, and Sharpe ratios, were employed. They stated that from 2007 to 2015, all varieties of mutual funds outperformed one another and that there was no discernible difference between IMFs and CMFs. The authors proposed that these results provide valuable insights for market participants and investors when selecting asset funds.

Methodology

Secondary data analysis is a valuable research method as it saves time and provides reliable information for studies (Fei et al. 2013; Lai & Lau, 2010). A study on secondary data analysis discusses the potential of these data sources to address some of the most pressing questions in science and society (Baldwin et al., 2022).

Secondary Data

The paper also discusses the challenges associated with secondary data analysis, offering fresh ideas and alternative strategies. It highlights potential biases and difficulties that researchers should consider when utilizing secondary data, along with emphasizing its significance in research. The report provides a comprehensive analysis of fund and index performance over ten years, from January 2013 to December 2023, covering a variety of market cycles. Focusing on the past decade is both relevant and logical for our study. A ten-year span is long enough to capture different market cycles, such as bull markets (rising prices), bear markets (falling prices), and periods of market volatility, allowing the study to assess fund and index performance under varying market conditions (Alqaralleh & Canepa, 2021). A long-term perspective, such as this 10-year timeframe, is critical for studying financial markets. Long-term data can reveal trends and patterns that short-term data may not. Additionally, the larger dataset enhances the reliability of the statistical analysis, improving the study's conclusions. A ten-year investment horizon is a key element of many investment strategies, especially those involving mutual funds, making this timeframe significant for institutional and individual investors.

Variables

The study's relevance and applicability are strengthened by the selection of a ten-year timeframe, enhancing the value of its conclusions for investors, financial institutions, and regulators. By using daily data, the research captures short-term fluctuations and provides a detailed analysis of the volatility of both funds and indices. Thomson Reuters Datastream serves as the primary data source, ensuring the reliability and comprehensiveness of the study. The research aligns with the growing interest in Islamic finance by incorporating the Shariah Index. Grounded in recent findings from studies conducted between 2019 and 2024, this research is informed by the latest advancements in the field. The factors chosen for this study are particularly significant. Specifically, the returns from Fixed-Income Funds and Equity Funds, which are the independent variables, offer valuable insights into fund performance.

To analyze market dynamics and investment strategies, Equity Funds provide valuable insights into stock market performance and trends. Fixed-Income Funds, on the other hand, play a crucial role in assessing the stability and potential risks of fixed-income securities. Additionally, the Shariah Emas Index (SI), which tracks the performance of the top 40 Shariah-compliant companies listed on Bursa Malaysia, serves as a key dependent variable in understanding trends and performance within the Shariah-compliant business sectors (Albaity & Ahmad, 2008). Recent research has emphasized the importance of considering various control factors when analyzing the impact of mutual funds on returns. These control variables include inflation rates, GDP, Environmental, Social, and Governance (ESG) performance, risk-adjusted performance, market timing, selectivity, and liquidity timing (Tampakoudis et al., 2023).

Econometric Methodology

The time-variation in correlations was estimated using econometric methods. The study calculated the correlation dispersion between asset pairs at each time point and analyzed how this dispersion evolved throughout the investigation. It utilized daily returns from mutual funds and the Shariah index, along with daily Pearson correlations between the returns of Equity Funds and Fixed-Income Funds.

The research follows the methodologies of Christoffersen et al. (2014), Dimic et al. (2016), and Cho et al. (2016) to assess the inter-asset relationships among the key variables, thus narrowing the scope of the investigation. The study will then examine the correlation patterns between the returns of Equity Funds and Fixed-Income Funds and the Shariah index and how these patterns change over different time periods and investment horizons.

The research conducted a correlation analysis to examine the relationship between Shariah market indexes and the performance of Equity Funds and Fixed-Income Funds (Mestre, 2021; Mahat et al., 2020). Using this approach, the study explored the interactions between mutual funds and the capital market, aiming to track changes in cross-correlation patterns over time. To analyze the relationship between the Shariah and composite indices, the study divided the daily returns into segments. Consequently, the correlation coefficient was defined as follows:

$$\rho_{ik} = \frac{covariance_{ik}}{standard\ deviation_i \times standard\ deviation_k}$$

$$\rho_{ik} = \frac{\sigma_{ik}}{\sigma_i \times \sigma_k}$$

The correlation coefficient, which is represented by the symbol ρ_{ik}, measures the linear relationship between two variables. It is calculated by dividing the product of the standard deviations of the two variables, σ_i and σ_k, by the covariance of the two variables, σ_{ik}. In other words, covariance σ_{ik} reflects how much the two variables change together. A positive covariance indicates that the variables tend to increase or decrease together, while a negative covariance suggests that one variable increase when the other decreases. The standard deviations, σ_i and σ_k, represent the degree of variation or dispersion of each variable in the dataset.

Empirical Results

Unit Root Test

The Unit Root Test is an indispensable tool in econometrics, frequently used in academic studies and analyses. It is crucial for determining whether a time series has a unit root or is stationary, which is essential for precise modelling and forecasting. A unit root means that a variable lacks long-term stability or a trend, as it eventually returns to its mean after being affected by random shocks. In other words, non-stationary series, or those with a unit root, exhibit statistical properties that change over time, which can lead to biased regression results and inaccurate predictions.

Therefore, unit root tests improve prediction accuracy, validate statistical analysis, and provide a reliable foundation for economic studies and policy decision-making. These tests also help to identify issues related to autocorrelations by determining whether the time series is covariance-stationary. This can be achieved through methods such as the Dickey-Fuller test or by constructing an autoregressive (AR) model and examining autocorrelation.

Table 1
Augmented Dickey-Fuller (ADF) and Philips-Perron Test (PP)

	Augmented Dickey-Fuller (ADF)		**Philips-Perron Test (PP)**	
	Level			
Variables	Constant Without Trend	Constant With Trend	Constant Without Trend	Constant With Trend
EI	-1.170 (1)	-0.921 (1)	-1.226 (6)	-0.914 (6)
FI	-1.502 (4)	-1.494 (4)	-1.554 (25)	-1.461 (25)
SI	-2.586 (1)*	-3.399 (1)*	-2.662 (7)*	-3.453 (7)**
	First Difference			
EI	- 49.893 (0)***	- 49.901 (0)***	- 49.934 (3)***	- 49.949 (2)***
FI	-19.969 (3)***	- 19.994 (3)***	- 45.194 (3)***	- 45.146(23)***
SI	- 50.883 (0)***	- 50.884 (0)***	- 50.910 (2)***	- 50.911 (2)***

Note ***, ** &* denotes significance at 1%, 5% and 10% levels respectively the figures in parentheses (...) represent the optimum length selected based on the minimum value of the chosen information criterion.

Table 1 presents the results of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests for unit roots applied to different financial assets. The t-values are compared to critical values to assess stationarity, with and without considering trends. The results support the notion that the log return time series exhibits stationary initial differences, as evidenced by both the ADF and PP test outcomes. This stationarity is crucial as it ensures the series can be modeled to produce the white noise residuals needed for assessing conditional correlations. Since the series passes both the autocorrelation and unit root tests, it is deemed suitable for further analysis.

Descriptive Statistics

Descriptive statistics play a crucial role in analyzing large datasets, providing valuable insights for investors and stakeholders to interpret the data effectively. The following summaries will include both visual (tables, graphs, charts, etc.) and quantitative information (such as mean, median, mode, etc.). These summaries provide clear overviews of the key measurements and variables being studied, such as the Equity Fund Return and Fixed Income Return (Emas Shariah Index). They offer essential insights into the distribution and central tendencies of

our data, which is a critical first step before conducting any further analysis (Shrestha, 2020). For example, we may examine the mean or median of the returns to assess their central tendency or analyze the standard deviation to gauge the dispersion or volatility of the returns.

Table 2
Descriptive Statistics for the Daily Returns

Variables	Observation	Minimum	Maximum	Mean	Std. Deviation	VIF
EI	2853	-153.5053	160.1935	0.014618	7.761022	2.742420
FI	2865	-94.97655	103.9701	-0.004063	3.820154	1.204079
SI	2868	-2.316652	2.514504	-0.000716	0.300040	
CPI	48	-143.1798	46.53829	-18.98699	40.33463	1.254191
CSI	48	-4.575749	162.2214	94.16975	36.38773	8.270570
GDP	40	299.4317	473.6110	375.3739	34.79013	8.776208

Table 2 displays the descriptive statistics for the daily returns of various financial assets, categorizing them into independent, dependent, or constant variables. It also includes the Variance Inflation Factor (VIF) values for each key variable, which are essential for detecting potential multicollinearity among independent variables. Based on a preliminary test, multicollinearity does not appear to be a concern, as the VIF values for most variables remain well below the critical threshold of 10. This ensures that the regression results are unbiased and consistent, leading to reliable conclusions. The findings in this table are also significant for future research, as modern methods may be explored based on this data. Additionally, since the dataset incorporates both active and inactive funds during the specified period, it guarantees that survivorship bias is avoided, ensuring impartial results.

Multicollinearity

This phenomenon occurs when one predictor variable in a multiple regression model can be linearly predicted with high accuracy from the other predictors. In these cases, the coefficient estimates in the regression model may exhibit significant variability in response to minor changes in the model or the data. While multicollinearity affects the precision of individual predictor coefficients, it does not influence the overall predictive power or reliability of the model. In our study, multicollinearity could arise from a strong correlation between Fixed Income (FI) and Equity Index (EI), which might obscure the interpretation of their separate effects on the dependent variables (Shariah Index, SI, and Composite Index, CI). This would make it difficult to isolate the individual impact of each independent variable. Therefore, examining multicollinearity is crucial to ensure the accuracy and stability of our regression results (Shrestha, 2020).

Table 3
Results of the correlation

Variables	LCPI	LCSI	LEI	LFI	LGDP	LSI
LCPI	1.00					
LCSI	0.19	1.00				
LEI	0.08	-0.08	1.00			
LFI	-0.06	0.07	-0.40	1.00		
LGDP	0.27	0.16	0.27	-0.15	1.00	
LSI	0.00	0.01	0.77	-0.32	0.20	1.00

The correlation coefficient indicates a positive relationship between the Equity Fund (EI) and the Shariah Index (SI). These results indicate that the performance of the Shariah Index tends to increase in tandem with the Equity Fund's returns. Overall, equity price returns are statistically significant and show a strong positive correlation, which aligns with our hypothesis. The co-movement between these assets is often used to identify a positive correlation between equity returns and the market index. Investors typically perceive these assets as part of the same category, allowing them to shift financial assets between different fund categories if they seek lower risk and shorter-term returns.

The results show that the Fixed Income return is negatively correlated with the Shariah index, indicating a weak negative association between the returns of both indices. In other words, the correlation coefficient between the Fixed Income returns and these indices is weakly negative. This suggests that when the returns of the Shariah index decline, the Fixed Income returns may also fall, and vice versa, due to the weak negative correlation between the two. This could be attributed to various factors, such as differing market conditions, changing investor sentiments, or regulatory shifts that impact the indices in distinct ways. It is important to note that while diversification can reduce risk, it does not guarantee success or protect against all losses. Unexpected results and fluctuations in correlations may arise from evolving market conditions, changes in economic policies, and shifting investor perspectives. As a result of this negative correlation, investors might be able to improve their returns by diversifying their portfolios. This strategy can help mitigate risk and stabilize returns over time (Rana & Akhter, 2015).

Similarly, a previous study on the U.S. by S & P Dow Jones Indices (2021) revealed equity returns over the past four decades and revealed that long-term investors in large-cap U.S. stocks would have benefited more from passive management than active management. This result might have been unexpected for many, considering the prevalent notion that active management is superior. This evidence supports that while correlations can offer valuable insights, they are not always dependable indicators of future results. Shifts in investor attitudes, economic policies, and market conditions can all lead to unforeseen impacts and cause correlations to change. Nonetheless, past performance can only act as a caution to investors about potential outcomes and associated risks; it cannot be used to formulate investment strategies.

Discussions

In terms of economic influence, which is also reflected in the Shariah indices, Equity Funds typically invest across a broad range of sectors to mirror the overall economy. As a result, the

stimulus impact from recent government initiatives has injected liquidity into capital markets, boosting investor confidence and market activity, which positively affects Equity Funds returns. Lastly, it can be concluded that the Shariah and EI fund returns exhibit a positive correlation due to their shared sensitivity to market liquidity and economic policies.

Investors can leverage the relationship between the returns of Equity Index funds and the Shariah indices to potentially achieve higher returns by diversifying their portfolios with investments in various fund types that are positively correlated. This strategy enables them to spread risk and potentially enhance rewards. Understanding this correlation can help investors determine the optimal time to invest. For example, if the Shariah indices are performing well, it might present a good opportunity to invest in Equity Index funds (Shari & Mahat, 2020). This correlation can thus serve as a risk management tool. If investors anticipate poor performance of an index, they may reduce their exposure to funds that are strongly correlated with that index. Additionally, investors can use this correlation to inform their asset allocation decisions. If the Equity Index fund shows a high correlation with the Shariah indices, investors may choose to allocate a larger portion of their portfolio to these funds (Sofi & Yahya, 2020). The findings indicate a strong positive relationship between the Equity Index fund and the Shariah indices, suggesting that an increase in these indices would likely lead to a corresponding rise in the Equity Index fund.

However, diversifying a portfolio with international bonds can have tax consequences such as Germany levies a 25% withholding tax and a 5.5% solidarity surcharge on investment income from foreign bonds, for a total of 26.375%, according to PwC's Worldwide Tax Summaries (PwC, 2024). However, the USA IRS offers comprehensive details on the Foreign Tax Credit, which enables taxpayers to deduct a portion of the foreign taxes paid on capital gains on overseas bonds and investment income (IRS, 2024). Lastly, the Malaysian Ministry of Finance declared that unit trusts would not be subject to the new capital gains tax (CGT) (FIMM, 2024). However, unit trust funds that have foreign exposure are still subject to the CGT system, which taxes capital gains repatriated to Malaysia at a rate of 24% income tax (Ministry Of Finance, 2024). The specifics vary depending on the investor's country of residence and the bond issuer's jurisdiction (Tamplin, 2023). In general, interest from Fixed Income investments is typically taxed as income. In the United States, interest income from fixed-income investments, such as bonds, is taxed as ordinary income, with tax rates ranging from 10% to 37%, depending on the investor's federal income tax bracket (IRS, 2024). In Malaysia, interest income from fixed-income investments is generally subject to income tax, with rates ranging from 0% to 30%, based on the investor's total income and tax bracket (FIMM, 2024). Additionally, if bonds are sold at a profit, the investor may be liable for capital gains tax on the earnings. Investors may also face double taxation—once in their home country and again in the foreign country—though tax treaties or tax credits may help mitigate this. Investing in tax-advantaged accounts can also provide relief from certain tax obligations. There are several ways investors can effectively use these correlations to diversify their investments. Based on the correlation between assets, investors might allocate a portion of their portfolio to Fixed Income (FI) funds and investments tied to the Shariah index. If one investment underperforms and the other outperforms, the overall portfolio performance may be balanced, especially if there is a negative correlation between them. These correlations can serve as a valuable hedging strategy. For example, if an investor holds a significant position in Fixed-Income Funds and anticipates underperformance, they may

allocate funds to assets linked to the Shariah index as a hedge against potential losses. A deeper understanding of these correlations enables investors to assess and manage portfolio risk more effectively. By analyzing the relationships between asset classes, investors can identify opportunities to counterbalance underperformance with gains, creating a more balanced portfolio, reducing risk, and potentially enhancing returns.

Investing in a diversified portfolio of assets with low or negative correlations is one effective way to mitigate risk. These correlations can help guide investors in determining the right time to purchase specific assets. For example, if an increase in these indices is anticipated, and given their negative correlation with Fixed Income returns, it may be wise to increase holdings in assets linked to the Shariah index while reducing exposure to Fixed-Income Funds.

Conclusion

In conclusion, our comprehensive study of Malaysia's mutual fund industry has provided valuable insights into the various risks and investment strategies associated with it. We have highlighted key strategies that can effectively mitigate market complexity and addressed the challenges faced by organizations such as FIMM, SC, and others. Our analysis emphasizes the need for a more reliable and consistent approach, along with modern analytical methods, to gain deeper insights into the industry. The study also indicates significant growth potential in the mutual fund sector, suggesting that it would be advantageous for investors to explore the performance of mutual funds in comparison to other asset classes and investment strategies.

Therefore, to address the diverse needs of Malaysian investors, we strongly recommend that FIMM, SC, and other relevant authorities work closely together to enhance their understanding of the mutual fund industry, implement effective risk mitigation strategies, and focus on Shariah-compliant funds. The risk exposure of unit trusts suggests that factor portfolios may inadvertently expose investors to specific risks, such as the underperformance of value stocks in Equity Funds during growth-driven cycles (Naka & Noman, 2017). Additionally, timing factors can be challenging, as the popularity of factors can shift over time (Hutabarat et al., 2023). Furthermore, data mining—used to identify robust and persistent factors—requires rigorous research (Ng et al., 2021).

Costs may increase if frequent rebalancing is required to maintain factor exposure. Additionally, "crowding"—a phenomenon where too many investors pursue the same strategies, diminishing their effectiveness—underscores the need for the government to reconsider its policies. This revision should not only focus on improving investor education but also take into account the uncertainties associated with Unit Trust Funds and the global risks involved. The importance of policymaking is highlighted by the potential for tax reductions on investments, which could encourage investors to explore a diversified portfolio based on the Shariah index, in line with current trends.

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