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Balancing risk and return: A case study of Ichimoku trading in the Indonesian Sharia Stock Market

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A B S T R A C T

In line with Sharia principles, this study explores the correlation between increased returns and heightened risks, aligned with Al-Ghunm bi Al-Ghurm. Daily data from the Jakarta Islamic Index 70, spanning December 2021 to November 2023, was analysed using quantitative methods. Four key trading strategies were assessed: buy-and-hold and three Ichimoku strategies (Conservative, Moderate, and Aggressive). The results indicate the effectiveness of a moderate Ichimoku strategy because of its well-balanced approach. Despite no significant performance differences between Ichimoku's trading rules and buy-and-hold, the study emphasizes nuanced decision-making for diverse investor preferences. The insights benefited Indonesian Sharia investors, suggesting enhancements in risk mitigation techniques, and considering external factors. Enriching technical analysis and Sharia-compliant investments, this study underscores the importance of aligning financial objectives with ethical considerations, contributing to the evolving landscape of the Indonesian Sharia stock market.

1. Introduction

The Islamic financial market has demonstrated exceptional performance, consistently outperforming conventional portfolios regarding average return rates, as Ghaemi Asl et al. (2024) documented. Research conducted by Tee et al. (2019), Asutay et al. (2022), and Bossman et al. (2023) reveals that Islamic indices surpass conventional indices during global financial crises and post-crisis phases worldwide, including in the US, Europe, and the Asia-Pacific region. As per the study conducted by Chazi et al. (2023), it has been noted that Islamic indices demonstrate a reduced level of volatility compared to conventional indices. This unique behavior during crisis periods underscores the resilience and distinctiveness of the Islamic financial market, positioning it as a stable alternative amidst economic uncertainties. Over the past five years, there has been a remarkable 211% increase in Sharia investors in Indonesia's financial industry. This surge is evident in the rise of Sharia investors from 44,536 in 2016 to 136,418 as of December 2023 (Joharsoyo, 2024). The noteworthy growth signals an apparent change in investor preferences towards ethical and Sharia-compliant investments. The heightened participation of investors underscores a growing demand for financial instruments aligned with Sharia principles. Investors actively seek opportunities that adhere to Sharia principles (Narayan et al., 2021). Moreover, by transcending religious boundaries, Sharia investments allow all affiliated investors to engage in ethical and Sharia-compliant financial instruments (Elhoudaiby, 2022). This inclusive approach promotes diversity in Islamic capital markets and contributes to the broader goal of encouraging ethical and responsible investment practices. The increasing involvement of investors from diverse religious backgrounds in Sharia-compliant opportunities highlights the market's recognition of the moral dimension and the rising appeal of investments aligned with ethical and Sharia principles.

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One core tenet of Islamic finance is the proscription of undue risk assumption. Understanding the underlying principles of Islamic finance is crucial to comprehend its superiority. Hanif (2019) explained that these principles are deeply rooted in hadiths and fiqh principles. Scholars such as Mohd Noor et al. (2018) and Ambrose et al. (2021) have elucidated the correlation between risk and return within the broader context of jurisprudential principles or *qawa'id fiqhiyyah*. The theory of Islamic trading stock must be based on the hadith of *al-kharaj bi al-daman* (profit is tied to risk) and the *fiqh maxim of al-ghunm bi al-ghurm* (returns are justified by taking risks) approaches (Ahmad & Halim, 2014; Waemustafa & Sukri, 2016). Acknowledging and accepting risk aligns with the Islamic investment ethos, reducing inherent market imperfections in conventional financial systems and forming the basis for a more ethical and sustainable financial approach (Smolo et al., 2023). For investors to balance risk and return, in-depth analysis is crucial. The Ichimoku Kinko Hyo tool, renowned for its comprehensive indicators, offers valuable insights into trend identification, reversal patterns, and risk management (Deng et al., 2021, 2023; Gurrib et al., 2021; Lutey et al., 2020). This methodology thoroughly understands market tendencies, empowering investors to make more informed investment decisions. Ichimoku's average returns with clouds are significantly better than other strategies (Deng & Sakurai, 2014). Ichimoku outperforms all benchmark methods regarding prediction accuracy and profit generation (Deng et al., 2023). The Ichimoku Cloud is significant across all time frames (Lutey & Rayome, 2022). By leveraging Ichimoku, investors can enhance the accuracy and effectiveness of their investment decisions, making technical analysis tools like Ichimoku valuable assets in every investor's portfolio for balancing risk and return. The profitability of Ichimoku-based strategies in the Vietnam stock market during the COVID-19 pandemic is well-documented (Che-Ngoc et al., 2023).

Although the Ichimoku Cloud method has been extensively discussed in financial literature, a notable gap exists in understanding its application within Islamic financial markets, as emphasised by Almeida & Vieira (2023). Prior research underscores the limitations, particularly concerning Islamic stocks. It is crucial to note that the success of Ichimoku analysis can significantly vary based on market characteristics and specific economic conditions. The effectiveness of Ichimoku strategies shows notable variability across different market scenarios. Attempts to purchase recent 'winners' on the Warsaw Stock Exchange prove ineffective with Ichimoku, failing to surpass the benchmark of a buy-and-hold strategy (Fafuła & Drelczuk, 2015). While Ichimoku demonstrates profitability in stock index trading, its efficacy diminishes when applied to currency trading (Deng et al., 2021). Without clouds, Ichimoku results in negative returns for three currency pairs, but including clouds significantly improves returns for all currency pairs except AUD-USD (Deng & Sakurai, 2014), highlighting the nuanced performance of Ichimoku across various currency markets. Furthermore, Ichimoku's predictive and profitable nature is observed in Indonesia, Malaysia, Taiwan, and Thailand. At the same time, the analysis of Ichimoku may encounter challenges in China, Hong Kong, Japan, the Philippines, and Singapore (Alhashel et al., 2018). These findings underscore the importance of considering specific market conditions and characteristics when applying Ichimoku strategies, reinforcing its effectiveness as context dependent.

The study delves into fundamental inquiries in Islamic finance and distinctive features of the Islamic stock market. It outlines how the Ichimoku Cloud method predicts returns in this financial landscape. The study evaluates Ichimoku's Aggressive, Moderate, and Conservative strategies, assessing their impact on returns and risk management in Indonesian Sharia stocks. Additionally, it compares the returns of each Ichimoku strategy with conventional buy-and-hold approaches. Framed within Islamic finance principles, this investigation aims to contribute to understanding Ichimoku strategies in Indonesia's Islamic financial market. The study seeks to assess the effectiveness of the Ichimoku Cloud strategy in predicting returns and managing risk in Islamic financial markets, providing valuable insights and practical guidance for investors adhering to Sharia principles. The significance of this research is crucial to empower Islamic investors, urging them to prioritise ethics and commit to investing according to Sharia principles. By enhancing understanding, the investigation is expected to facilitate investors in making more informed choices. Ultimately, this study aims to bridge the gap between technical analysis and ethical investment approaches, particularly within portfolios adhering to Sharia principles.

The subsequent sections will be structured as follows: Section 2 provides an overview of the Ichimoku chart and related strategies. Section 3 outlines the data and methodology. Results and discussions are in Sections 4 and 5, with the conclusion in Section 6.

2. Background

2.1. Ichimoku Chart

Developed by Goichi Hosoda, the Ichimoku Kinko Hyo is a Japanese technical indicator renowned for providing comprehensive insights into market trends. Comprising five lines, it facilitates a multifaceted analysis of price movements, potential trend directions, and determining entry and exit signals. The following sections elaborate on each component of the Ichimoku chart.

2.2. **Tenkan-sen (TK)**

In technical analysis, the Tenkan-sen is a crucial indicator, symbolising the average of the highest and lowest prices observed over the preceding nine trading sessions. The symbols max($P(T)$) and min($P(T)$) specifically denote the highest and lowest

prices recorded during the last nine trading periods. This calculation method provides valuable insights into market trends and aids traders in making informed decisions based on recent price movements.

$$Tenkan - sen = \frac{\max\left(P(t)\big|_{t=T-8}^{t=T}\right) + \min\left(P(t)\big|_{t=T-8}^{t=T}\right)}{2} \quad (1)$$

2.1.1. *Kijun-sen (KJ)*

Similar to the Tenkan-sen, the Kijun-sen is determined by averaging the highest and lowest prices over a specific period, traditionally spanning 26 trading sessions. This calculation method aligns with the technical analysis of the Ichimoku Kinko Hyo, where both lines play crucial roles in providing insights into market trends and potential entry and exit signals. The Kijun-sen, representing the baseline or standard line, contributes to the overall understanding of price movements and assists traders in making informed decisions within the specified timeframe. The Kijun-sen formula is expressed as follows:

$$Kijun - sen = \frac{\max\left(P(t)\big|_{t=T-25}^{t=T}\right) + \min\left(P(t)\big|_{t=T-25}^{t=T}\right)}{2} \quad (2)$$

2.1.2. *Chikou-span (CK)*

The Chikou span, commonly called the 'lagging span,' is generated by plotting closing prices 26 periods behind an asset's most recent closing price. This strategic placement enables traders to visually assess the correlation between current and past trends, facilitating the identification of potential trend reversals. The Chikou-span formula is expressed as follows:

$$Chikou - span(T - 25) = P_{close}(T) \quad (3)$$

2.1.3. *Senkou-span A (SKA) and Senkou-span B (SKB)*

Senkou Span A and Senkou Span B together form the Kumo component of Ichimoku, signifying upcoming support and resistance levels. The original period length parameters of 9, 26, and 52 are integrated into the formulas, representing the averages of the Tenkan-sen and Kijun-sen and the averages of the highest and lowest prices, respectively. The Senkou Span A and Senkou Span B formula is expressed as follows:

$$Span - A = \frac{Tenkan - Sen + Kijun - Sen)}{2} \quad (4)$$

$$Span - B = \frac{\max\left(P(t)\big|_{t=T-51}^{t=T}\right) + \min\left(P(t)\big|_{t=T-51}^{t=T}\right)}{2} \quad (5)$$

Fig. 1. Ichimoku Kinko Hyo Elements

Fig. 1 illustrates the five elements and the 'Kumo' of Ichimoku Kinko Hyo, employing default parameter settings of 9, 26, and 52. The chart depicts the price movement of Ace Hardware Indonesia Tbk from February 2023 to February 2024.

Trading Strategies

This study contrasts the buy-and-hold strategy with three Ichimoku strategies – Conservative, Moderate, and Aggressive (Deng & Sakurai, 2014). Each strategy embodies a distinct approach to risk and return, offering a nuanced insight into the suitability of Ichimoku in Sharia stocks. Table 1 delineates the trading signal conditions for each strategy, with P(*T*) representing the closing price at time *T*.

Table 1
The trading signals using the Ichimoku method

Trading strategy	Trading signal	Condition (P(*T*) is the close exchange rate in period *T*	Description
Conservative Ichimoku (CIS)	Buy	P(*T*)>*T*enkan-sen(*T*)>Kijun-sen(*T*) & P(*T*)>Senkou-Span A(*T*)>Senkou-Span B(*T*) & Chikou span (*T*)> P(*T*-25)	Implements Ichimoku rules with a conservative approach, prioritising risk mitigation and long-term stability.
	Sell	P(*T*)<*T*enkan-sen(*T*)<Kijun-sen(*T*) & P(*T*)<Senkou-Span A(*T*)<Senkou-Span B(*T*) & Chikou span (*T*)< P(*T*-25)	
Moderate Ichimoku (MIS)	Buy	P(*T*)>*T*enkan-sen(*T*)>Kijun-sen(*T*) & Chikou span (*T*)> P(*T*-25)	Strikes a balance between risk and return, leveraging Ichimoku's indicators for informed trading decisions.
	Sell	P(*T*)<*T*enkan-sen(*T*)<Kijun-sen(*T*) & Chikou span (*T*)< P(*T*-25)	
Aggressive Ichimoku (AIS)	Buy	P(*T*)>*T*enkan-sen(*T*)>Kijun-sen(*T*)	Adopts a proactive stance, aiming for higher returns by taking calculated risks based on Ichimoku's signals.
	Sell	P(*T*)<*T*enkan-sen(*T*)<Kijun-sen(*T*)	

2.2. Comparative Ratios

Numerous metrics are frequently used in current literature to evaluate trading strategies. These metrics include the continuously compounded return (*Ri*), the Accumulated Return (*AR*), the Sharpe Ratio (*ShR*), and the Sortino Ratio (*SoR*). Collectively, these measures provide a thorough framework for assessing the performance and efficacy of diverse trading strategies.

Applying the natural logarithm to the ratio of closing prices in periods *t* and *t−1* (*Pt* and *Pt−1*) produces the continuously compounded return (*Ri*) (Metghalchi et al., 2021). This calculation offers a precise mathematical representation of the relative alteration in closing prices over sequential periods. Using natural logarithms enhances accuracy in the calculation, providing a more refined insight into the continuous return patterns within the designated timeframe.

$$R_i = ln\left(\frac{P_t}{P_{t-1}}\right) \tag{6}$$

The investment period experiences cumulative gains or losses, which the Accumulated Return (*AR*) comprehensively captures (Che-Ngoc et al., 2023). Its calculation involves determining the ratio of the difference in closing prices at the commencement (*P0*) and conclusion (*P1*) of the designated study period. This metric offers a holistic view of the investment's overall performance, providing valuable insights into the trajectory of the investment strategy throughout the specified timeframe.

$$AR(t) = \frac{P(t) - P(0)}{P(0)} \tag{7}$$

The Sharpe Ratio (*ShR*), formulated by Nobel laureate William F. Sharpe, is a vital metric for evaluating risk-adjusted returns (Deng et al., 2023; Gurrib et al., 2021; Ma et al., 2022). Its computation involves assessing the average return (*R*) concerning the risk-free rate (*Rf*) for each unit of volatility or total risk (*σR*). This ratio provides a valuable indicator of an investment's performance, considering both returns and the associated level of risk. The Sharpe Ratio remains a crucial tool in portfolio analysis, helping investors assess the effectiveness of their investment strategies and risk management.

$$ShR = \frac{\bar{R} - Rf}{\sigma R} \tag{8}$$

The Sortino Ratio, an adaptation of the Sharpe ratio, evaluates investment performance with specific consideration for downside deviation (Ghaemi Asl et al., 2024; Gurrib et al., 2021). It computes the return ($\bar{\boldsymbol{R}}$), deducts the risk-free rate (*Rf*),

and divides this result by the asset's downside deviation (σR downside). By focusing on negative deviations from the anticipated return, the Sortino Ratio provides a more nuanced evaluation of risk-adjusted performance, offering investors insights into the downside risk associated with a specific investment. This metric is valuable in guiding investment decisions, particularly for those prioritizing mitigating downside risk in their portfolios.

$$SoR = \frac{\bar{R} - Rf}{\sigma R\ (downside\ )} \tag{9}$$

The Kruskal-Wallis test is a non-parametric statistical approach used to examine whether there is a notable distinction among the medians of three or more groups. This test is often chosen as an alternative to ANOVA when data do not meet normality or variance homogeneity assumptions. It is suitable for situations where data are ordinal or interval.

The first step in the Kruskal-Wallis test calculation involves ranking the data (Kamarudin et al., 2017; Kruskal & Wallis, 1952; Mann-Whitney U Test and Kruskal-Wallis Test Should Be Used for Comparisons of Differences in Medians, Not Means: Comment on the Article by van Der Helm-van Mil et Al, 2009). This includes combining all data from different groups, sorting the data from smallest to most significant, and assigning ranks to each value without considering their original groups. The next stage involves determining the mean ranks for each group.

The core formula for Kruskal-Wallis, central to this test, is expressed as:

$$H = \frac{12}{N(N+1)}\left[\sum \frac{{r_1}^2}{n_i} - 3(N-1)\right] \tag{10}$$

where H is the value of the Kruskal-Wallis test, N is the total number of observations, Ri is the sum of ranks for the i group, and *ni* is the number of observations in the i group.

After calculating the test value, the subsequent step involves determining the degrees of freedom (df), calculated as k-1, where k denotes the number of groups. The p-value can be obtained by consulting the chi-square distribution table with the relevant degrees of freedom. The decision-making process entails comparing the p-values to the predetermined significance level. If the p-value is below the selected significance level (α=0.05), the null hypothesis is rejected, indicating a significant difference among at least two groups. Conversely, if the p-value exceeds α, the null hypothesis is accepted, suggesting no substantial difference between the groups.

The Kruskal-Wallis formula forms a robust foundation for analysing performance disparities among trading strategies such as Buy and Hold, Conservative, Moderate, and Aggressive. The results offer insights into median distinctions and serve as a basis for improved investment decision-making, particularly in the presence of uncertainty and variability within the data.

If the Kruskal-Wallis test indicates significance, the subsequent step involves conducting post-hoc tests, such as the Dunn test, to identify meaningful distinctions among groups. Without substantial results, the conclusion is drawn that the groups exhibit no significant differences. The Dunn test (Elliott & Hynan, 2011), commonly employed following the Kruskal-Wallis test, helps pinpoint specific differences between pairs of groups, facilitating the identification of essential distinctions after the overall test indicates variability.

A comprehensive consideration of various measures has been undertaken to evaluate the effectiveness of the trading strategy. This thorough assessment encompasses the analysis of returns and associated risks, adopting a holistic approach to provide a nuanced understanding of the strategy's overall performance. The examination involves a nuanced consideration of the interplay between returns and risks, ensuring a well-rounded and comprehensive perspective on the trading strategy's efficacy.

3. Data and Methodology

The research embraced a quantitative approach to thoroughly evaluate the effectiveness of Ichimoku Cloud strategies in predicting returns and managing risks within the distinctive context of the Islamic stock market.

3.1. Data Collection

This study utilizes quantitative methods to assess the effectiveness of Ichimoku Cloud-based trading strategies in the Indonesian Sharia stock market. We selected Sharia-compliant stocks based on predefined criteria, considering market capitalization, liquidity, and adherence to Islamic financial principles. The analysis used daily stock prices that consistently fell within the Jakarta Islamic Index 70 (JII-70) during the study period. The selected timeframe for this study covers December 2021 to November 2023.

3.2. Methodology

The study meticulously evaluates the performance of four prominent trading strategies in the financial landscape. These include the traditional buy-and-hold strategy alongside three distinct Ichimoku Cloud strategies classified as Conservative, Moderate, and Aggressive. The study uses a continuously compounded return calculation to assess the efficacy of the Ichimoku Cloud strategy. Notably, in contrast to conventional approaches, this research uniquely incorporates the buy-and-hold method advocated by Khan and Mehlawat (2022). The buy-and-hold method, assessed through the Accumulated Return (*AR*), acts as a benchmark for a meticulous comparison of the effectiveness of the Ichimoku Cloud strategies, providing a comprehensive and nuanced analysis of their respective performances.

In addition to *Ri* and *AR*, other standard measures such as *ShR* and *SoR* are employed to assess the performance of the Ichimoku Cloud-based strategy. The Kruskal-Wallis test is selected to reveal potential statistical differences among Ichimoku Cloud-based strategies. Acknowledging that the profitability distribution from these strategies often deviates from the Normal or Student t-distribution, the research strategically opts for a non-parametric Kruskal-Wallis test over an independent sample t-test. This methodological choice aligns with the inherent characteristics of the data, contributing to a robust and reliable evaluation of the performance of Ichimoku Cloud-based strategies within the unique context of the JII-70. Applying this statistical approach reinforces the validity of the findings and enhances the research's credibility in discerning nuanced differences among various strategies.

4. Results

The analysis of various Ichimoku Cloud-based investment strategies, including 'Buy and Hold,' 'Conservative,' 'Moderate,' and 'Aggressive,' entailed a meticulous examination of data. This thorough assessment revealed distinctive performance characteristics inherent in each strategy. The relevant statistical metrics for each strategy are explicitly outlined in Table 2, providing a detailed overview of their respective performances.

The buy-and-hold strategy demonstrates a 5.28% average return, indicating positive growth. However, a comprehensive 95% confidence interval (-18.63% to 29.19%) introduces considerable uncertainty. The 5% Trimmed Mean and Median, at -6.23% and -7.38%, respectively, indicate the central data tendency. Noteworthy fluctuations are observed, featuring a high variance (7077.615) and a standard deviation of 84.13%. Positive skewness (5.001) suggests a right-leaning distribution and high kurtosis (30.214) indicates potentially elevated risk.

Table 2
Description of the Return of all Strategies tested

		Buy and Hold Strategy	Ichimoku Strategies		
			Conservative	Moderate	Aggressive
Mean		5.28%	5.99%	9.73%	5.53%
95% Confidence Interval for Mean	Lower Bound	-18.63%	-18.48%	-25.28%	-20.25%
	Upper Bound	29.19%	30.45%	44.74%	31.31%
5% Trimmed Mean		-6.23%	-5.73%	-7.15%	-6.73%
Median		-7.38%	-6.02%	-9.94%	-11.00%
Variance		7077.615	7412.3	15174.933	8229.2
Std. Deviation		84.13%	86.09%	123.19%	90.71%
Minimum		-66.70%	-42.88%	-64.24%	-56.31%
Maximum		523.33%	583.01%	845.82%	608.42%
Range		590.03%	625.89%	910.06%	664.73%
Interquartile Range		41.67%	30.91%	34.00%	44.01%
Skewness		5.001	6.379	6.631	6.219
Kurtosis		30.214	43.369	45.768	41.832
% Positive Return		34.00%	36.00%	36.00%	34.00%

Transitioning to the 'Conservative' strategy demonstrates a 5.99% average return, with a comprehensive 95% confidence interval (-18.48% to 30.45%) indicating significant uncertainty. The 5% Trimmed Mean (-5.73%) and Median (-6.02%) reinforce a cautious approach. Noteworthy fluctuations are observed, featuring a high variance (7412.3) and a standard deviation of 86.09%. Positive skewness (6.379) and high kurtosis (43.369) indicate a right-leaning distribution, suggesting heightened risk.

The 'Moderate' strategy demonstrates an average return of 9.73%, signifying growth. However, a comprehensive 95% confidence interval (-25.28% to 44.74%) implies considerable uncertainty. Caution is necessary, as highlighted in the 5% Trimmed Mean (-7.15%) and Median (-9.94%). The strategy displays significant fluctuations, with a high variance (15174.933) and a standard deviation of 123.19%. Positive skewness (6.631) and high kurtosis (45.768) indicate a right-leaning distribution, suggesting a higher potential risk associated with the strategy.

The 'Aggressive' strategy demonstrates growth with a 5.53% average return. However, there is uncertainty in the 95% confidence interval (-20.25% to 31.31%). Caution is necessary, as indicated by the 5% Trimmed Mean (-6.73%) and Median (-10.9988%). The strategy displays substantial fluctuations, with a high variance (8229.200) and a standard deviation of

90.71%. Positive skewness (6.219) and high kurtosis (41.832) indicate a right-leaning distribution, suggesting elevated risk associated with the strategy.

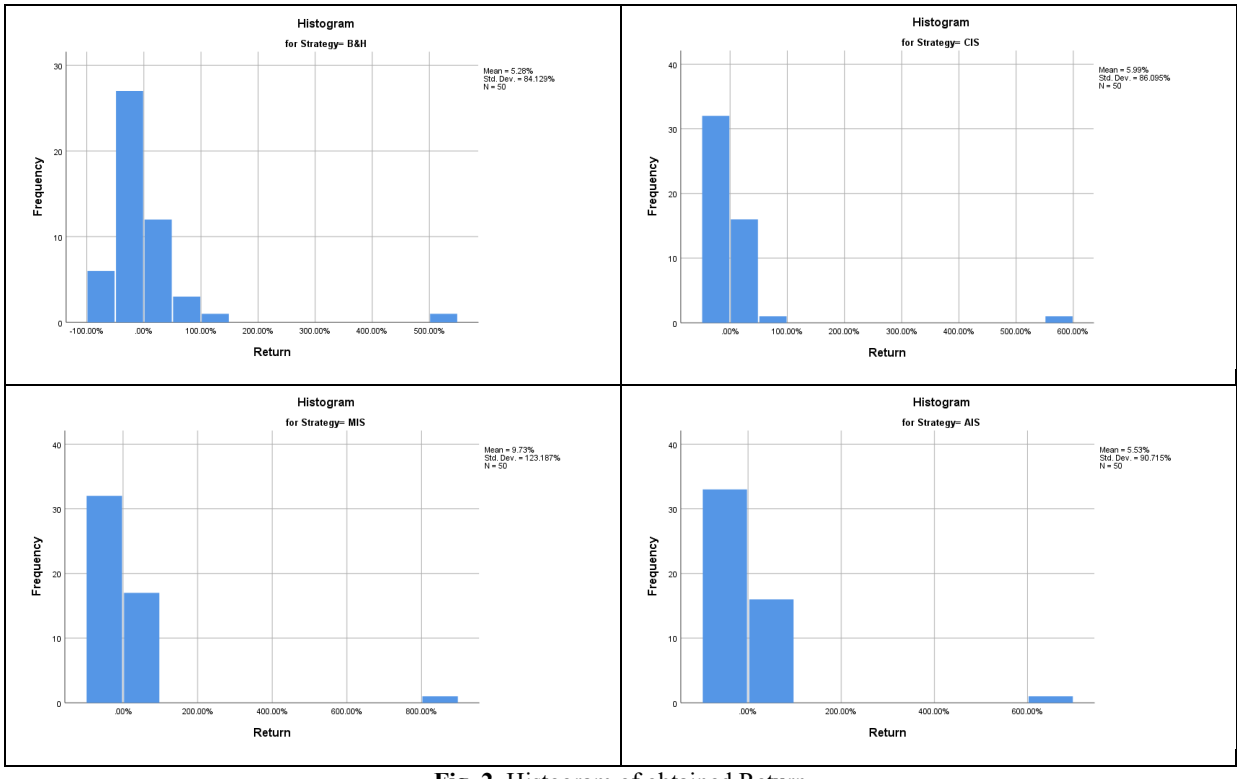

Fig. 2. Histogram of obtained Return

In analyzing risk-adjusted performance, the Sortino Ratios for 'Aggressive,' 'Moderate,' and 'Conservative' are 1.34, 7.32, and 0.41, respectively. Simultaneously, the Sharpe Ratios are 1.06, 3.96, and 0.36 for the corresponding strategies, as presented in Table 2. Interestingly, despite a lower ratio, the 'Aggressive' strategy exhibits positive risk-adjusted performance.

Table 2
The Sharpe and Sortino Ratios of the Ichimoku Cloud Strategies

	Ichimoku Strategies - Conservative	Ichimoku Strategies - Moderate	Ichimoku Strategies - Aggressive
Sharpe Ratio	1.06	3.96	0.36
Sortino Ratio	1.34	7.32	0.41

Table 1 highlights that all the tested strategies, including Buy and Hold, Conservative, Moderate, and Aggressive, demonstrate low win rates, measured by the percentage of stocks generating positive returns. More specifically, Buy and Hold and Aggressive Strategies have a win rate of 34.00%, while Conservative and Moderate Strategies boast a slightly higher win rate of 36.00%. Figure 2 shows that the strategy's 4th histogram has a mode value smaller than 0. However, some stocks were able to generate positive returns of more than 800% during the study period.

The findings indicate no significant performance differences between the Ichimoku and buy-and-hold strategies. Table 3 presents the statistical analysis employing the Kruskal-Wallis test, revealing a p-value of 0.208 and 3 degrees of freedom, suggesting no significant difference among the strategies. The high asymptotic significance value of 0.976 further supports this finding, implying similar performance characteristics among the strategy.

Table 3
Kruskal-Wallis Test

Rank		Test Statistic	
Strategy	Mean Rank		Return
BnH	99.42	Kruskal-Wallis H	0.208
CIS	103.66	df	3
MIS	100.02	Asymptotic. Significant	0.976
AIS	98.90		

In this context, as the Kruskal-Wallis test results showed no significant differences between Ichimoku strategies and buy-and-hold strategies, post hoc analysis was not conducted. Typically, post hoc analysis is employed to identify specific differences among three or more average groups when significant outcomes are observed from the Kruskal-Wallis test.

5. Discussion

This research aims to illuminate the specific contribution of the Ichimoku Cloud method in predicting returns within the distinctive context of the Islamic stock market. This entails a comprehensive exploration of how this technical analysis tool adeptly navigates the intricacies of the Islamic financial landscape, providing valuable insights into return predictions.

In conducting a comparative analysis, this study evaluates the effectiveness of the Ichimoku Cloud method by comparing it with the traditional 'Buy and Hold' strategy. The 'Buy and Hold' strategy, utilized as a benchmark, embodies a passive investment approach, steadfastly retaining assets irrespective of market fluctuations. This deliberate comparison serves as a means to determine whether strategies based on the Ichimoku Cloud method can outperform the conventional 'Buy and Hold' approach. Exploring these differing methodologies aims to shed light on the relative efficacy of Ichimoku Cloud-based strategies in navigating dynamic market conditions.

Upon scrutinising performance metrics, it is evident that Ichimoku Cloud-based strategies vary in their success compared to the 'Buy and Hold' approach. The 'Moderate' Ichimoku Cloud strategy stands out, showcasing a substantial average return of 9.73%. This highlights the potential superiority of actively managed Ichimoku Cloud strategies, aligning with the findings of Gurrib et al. (2020). Notably, conservative strategies tend to have extended periods for entry and exit signals. The Ichimoku method can effectively signal to buy and sell opportunities during bullish and bearish trends (Almudhaf, 2018; Che-Ngoc et al., 2023; Gurrib et al., 2021). However, caution is warranted with aggressive strategies relying on Tenkan and Kijun crossovers, as they have proven unreliable. Additionally, the application of tighter entry or exit strategies, which generally increases profitability (Deng et al., 2021), may not yield the same results in the specific context of Sharia stock trading in Indonesia.

The second research question explores the nuanced realm of Ichimoku Cloud strategies – Aggressive, Moderate, and Conservative – and their impact on returns and risk management in Sharia stocks within the Indonesian financial market. The objective is to comprehensively assess how each strategy influences these crucial aspects, providing insights into the practical implications of employing Ichimoku Cloud strategies in the Islamic financial landscape while adhering to ethical principles and managing risks effectively. Several factors contribute to the dominance of the 'Moderate' Ichimoku Strategy. Its capability to capture market trends while maintaining a vigilant stance aligns seamlessly with the principles of Islamic finance, where the emphasis on risk management is paramount.

Risk is an inherent aspect that demands acknowledgment from all investors, transcending age considerations and aligning with the fundamental principles of Islamic finance, namely *al ghunm bil al ghurm and al kharaj bi al daman*. These principles underscore the interconnectedness of profits, responsibility, and risk within the Islamic financial framework.

In this context, the Moderate Ichimoku Strategy emerges as a compelling option, embodying a balanced approach that harmonises risk and return. By striking this delicate equilibrium, investors can adeptly navigate the dynamic landscape of financial markets while steadfastly adhering to the principles of Islamic finance. The essence of prudent risk management is encapsulated within the Moderate Ichimoku Strategy, enabling investors to optimise returns without compromising ethical considerations.

Recognising the intricacies inherent in the Islamic financial landscape, the 'Moderate' strategy becomes a beacon of financial prudence, skilfully balancing risk and return. This approach aligns seamlessly with the ethos of Islamic finance, where capital preservation and risk mitigation take precedence. Embracing the Moderate Ichimoku Strategy empowers investors to make informed decisions, thereby fostering financial resilience and upholding adherence to the ethical standards inherent in their investment endeavours.

The analysis across various strategies, including Buy and Hold, Conservative, Moderate, and Aggressive, reveals low win rates, indicating that only a fraction generates positive returns, regardless of the specific strategy used. Our most significant finding is the result of the Kruskal-Wallis test, which showed no significant difference between Buy and Hold, Conservative, Moderate, and Aggressive strategies. This challenges the conventional belief that active trading strategies, especially those rooted in the Ichimoku indicator, will yield superior results compared to the passive buy-and-hold approach in the Indonesian Sharia stock market.

These findings raise questions about the effectiveness of both Ichimoku-based and buy-and-hold strategies, emphasising the inherent uncertainties in stock market investments. With Islamic principles such as *fiqh daman al-milkiyyah* (ownership risk) (Razak & Saupi, 2017), investors are urged to manage their investments to balance risk and return actively. The absence of significant differences between Ichimoku strategies and the buy-and-hold approach calls for a deeper exploration into the factors influencing their performance. Further research and analysis may offer valuable insights for refining these

strategies or exploring alternative approaches that better align with the distinctive characteristics of Indonesia's Sharia stock market.

Islamic stocks stress the importance of achieving returns by aligning performance with risk and momentum gain, rather than linking it with pricing errors (Narayan et al., 2017). This nuanced approach reflects a fundamental philosophy in Islamic finance, where the relationship between risk and performance is carefully calibrated. In this paradigm, returns are seen as a balanced response to the undertaken risk, contributing to the integrity of Islamic financial principles and positioning Sharia-compliant stocks as strategic and ethical investment choices within the broader financial landscape.

The primary goal of Islamic investment is to balance gaining profits and wisely managing risks (Hashim et al., 2015). This balance reflects financial intelligence and a commitment to ethical considerations. The principles of Islamic finance embody a holistic worldview that integrates ethical considerations, risk management, and the pursuit of returns. These principles signify more than mere regulations; they portray a deep-rooted philosophical foundation. Islamic stocks attract investors seeking superior returns and serve as markers of stability and resilience, especially in the face of global financial challenges. The diverse advantages of the Islamic market, from consistent performance to lower volatility and effective risk hedging, make it an enticing option in the broader financial landscape.

Given these implications, professionals and policymakers in the Islamic financial sector can take proactive measures to improve efficiency, sustainability, and adherence to Sharia principles in their investment strategies. These steps involve a comprehensive evaluation and potential adjustment of existing practices to ensure alignment with ethical guidelines and market sustainability. Practitioners in the financial sector may find it prudent to refine their investment methodologies based on insights from this research, particularly regarding the potential superiority of the Moderate Ichimoku Strategy. This balanced approach seamlessly integrates into investment portfolios, promising a harmonious synthesis of robust risk management practices and optimised returns. In practical terms, the research suggests that the Moderate Ichimoku Strategy can be a valuable addition to practitioners' toolkits, providing a strategic approach beyond mere adherence to market trends. Its blend of risk management and return optimisation makes it a versatile strategy capable of adapting to the distinctive challenges and opportunities in the Islamic financial landscape. By integrating the Moderate Ichimoku Strategy, practitioners may cultivate a nuanced and practical approach aligning with the principles of Islamic finance.

Moreover, policymakers could delve into regulatory enhancements to promote the integration of Islamic finance principles into investment frameworks. This might involve developing or refining guidelines and standards that explicitly endorse strategies such as the Moderate Ichimoku Strategy, thereby aligning investment practices more closely with Sharia principles. Additionally, emphasising transparency, fairness, and effective risk management in Islamic financial practices highlights the need for ongoing education and awareness within the financial community. Initiatives, including training programs and seminars, could be introduced to acquaint professionals with the intricacies of ethical investment practices and the potential advantages of approaches like the Moderate Ichimoku Strategy. By implementing these comprehensive measures, practitioners and policymakers contribute to fostering a more resilient and ethically aligned Islamic financial market, enhancing efficiency, sustainability, and adherence to Sharia principles within the financial ecosystem.

By implementing these proactive measures, practitioners and policymakers can significantly contribute to cultivating a more resilient and ethically aligned Islamic financial market. Such initiatives enhance the efficiency and sustainability of investment practices and fortify the adherence to Sharia principles, thereby fostering a resilient and responsible financial ecosystem.

6. Conclusion

In conclusion, this analysis focuses on the contribution of the Ichimoku Cloud method to predicting returns in the Islamic stock market, highlighting the 'Moderate' Ichimoku Strategy as a compelling choice with its balanced risk-return approach. By aligning risk assessment with Aligned with Sharia principles, this strategy presents a prudent choice for ethical investing. In the future, practitioners may contemplate refining their investment methodologies and incorporating the 'Moderate' Ichimoku Strategy into portfolios for optimal risk management and returns. Policymakers could support such strategies, promoting alignment with Sharia principles in investment practices. These proactive measures contribute to a resilient and ethically aligned Islamic financial market, emphasising ongoing education and regulatory enhancements.

These findings underscore the significance of a diverse range of Ichimoku strategies, providing Islamic investors with options that cater to varying risk tolerances. As the market navigates the dynamic landscape of Islamic finance, embracing balanced approaches like the 'Moderate' Ichimoku Strategy becomes pivotal. This research guides practitioners and policymakers in enhancing efficiency and sustainability, encouraging harmonising financial objectives with ethical considerations in the evolving Islamic financial ecosystem.

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