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A Comparative Study between Islamic and Conventional Exchange-Traded Funds: Evidence from Global Market Indices*

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Abstract

This study investigates whether the Islamic Exchange-Traded Funds (ETFs) provide significant benefit to investors relative to conventional ETFs. Six pairs of Islamic and conventional ETFs with 10-year daily price data from 2010 to 2019 have been selected from major market indices like MSCI World Index, MSCI Emerging Markets, MyETF Dow Jones Islamic Market Malaysia, MSCI South East Asia and Wahed FTSE Shariah USA Index for this study. For ETFs that are launched after 2010, the price data from launch date to 2019 are used. Our results show: First, Islamic ETFs are more likely to trade at a premium rather than at a discount, implying the investors are willing to pay a premium. Second, it is also found that Islamic ETFs have a relatively shorter period of price deviation from the benchmark, implying more price stability. Third, conventional ETFs have higher return and lower tracking errors relative to Islamic ETFs. These new findings add to the stylized facts of Islamic ETFs in the extant literature for investors, plan sponsors and regulators as to the differences between the ETFs. As policy suggestion, asset management companies can design new investment products to bridge the gap between conventional and Islamic finance.

Keywords: Islamic Finance, Exchange-Traded Fund, Performance Evaluation, Market Indices

JEL Classification Code: C52, G11, G14, G15, G23

1. Introduction

The growing popularity of Islamic finance has led to the development of Shariah-compliant exchange-traded funds (ETFs), which seeks to provide investors with the financial market exposure while adhering to Shariah investment principle. The first Islamic ETF could be traced back to 2006 with the launch of Dow Jones Islamic Market (DJIM) Turkey ETF that listed on the Istanbul Stock Exchange. Unlike conventional ETF, which has the freedom to track any benchmark index regardless of the Shariah status of the underlying securities, Islamic ETF tracks only benchmark index where the component stocks are Shariah-compliant companies.

Over the years, several Islamic ETFs have been created. For instance, iShares MSCI World Islamic UCITS ETF (ISWD), iShares MSCI USA Islamic UCITS (ISUS) and iShares MSCI EM Islamic UCITS (ISDE) were launched in 2007 by iShares, Daiwa FTSE Shariah Japan 100 tracking FTSE Shariah USA Index was listed on the Singapore Stock Exchange in 2008, MyETF MSCI SEA Islamic Dividend

tracking MSCI South East Asia IMI High Dividend Yield 10/40 was listed on Bursa Malaysia in 2015.

Although Islamic ETFs have experienced rapid growth, there are still a limited number of studies investigating them. The existing studies mainly focus on the Islamic mutual fund. For instance, Abdullah et al. (2007) compare the performance between Islamic and conventional mutual fund in the context of the Malaysian capital market. They find that Islamic funds perform better than the conventional

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funds during the bearish market, whereas conventional funds show better performance than Islamic funds during the bullish market.

On the other hand, Hayat and Kraeussl (2011) discover that Islamic equity funds underperform both Islamic and conventional equity benchmarks. They also find that Islamic equity fund managers are bad market timers and suggest Muslim investors invest in Islamic exchange-traded fund rather than to invest in an individual Islamic equity fund.

Diaw et al. (2010) compare the performance of MyETF-DJIM Titan 25 (Islamic) and FBM 30ETF (conventional) in Malaysia. They find that FBM 30ETF performs slightly better than MyETF-DJIM Titan 25. Meanwhile, Alam (2013) analyzes 85 ETFs from UK iShares, including 82 conventional ETFs and three Islamic ETFs and conclude that Islamic ETFs outperform both conventional ETFs and benchmark index based on risk-adjusted performance measures. There are also researchers who look into the asset pricing models in Islamic equity style indices (Shaharuddin, 2020, 2018, 2017a and 2017b; Pojanavatee, 2020) and volatility (Camba, 2020)

This study attempts to add value by using a different set of data to examine whether Islamic exchange-traded fund provides significant benefit compared to a conventional exchange-traded fund. The remaining of the paper is organized as follows. Section 2 describes the methodology, followed by the results. Section 3 concludes the study.

2. Methodology

Given that the ETF is an investment fund aiming to replicate the performance of a benchmark index as closely as possible, the comparison is conducted in two ways. First, the performance of the ETFs is evaluated with respect to their index. Next, the comparison is made between the performances of the two ETFs (Islamic and conventional ETFs).

2.1. Data

This study focuses on equity-based exchange-traded funds, and the sample consists of six pairs of Islamic and conventional exchange-traded funds. The sample period will be a total of 10 years daily price data, which starts from the 2010 to 2019. However, some ETFs are only launched after the years 2010. Therefore, the analysis starts from the launch date until the year 2019. A detailed description of the ETF is provided in Table 1.

Table 1: Summary of ETF Ticker Symbol, Name, Benchmark Index and the Date for the First Available Data Point

Islamic				Conventional			
Symbol	**ETF**	**Benchmark**	**Inception date**	**Symbol**	**ETF**	**Benchmark**	**Inception date**
ISWD	iShares MSCI World Islamic UCITS ETF	MSCI World Islamic Index	7 December 2007	URTH	iShares MSCI World ETF	MSCI World Index	10 January 2012
ISUS	iShares MSCI USA Islamic UCITS	MSCI USA Islamic Index	7 December 2007	CSUS	iShares MSCI USA UCITS ETF	MSCI USA Index	12 January 2010
ISDE	iShares MSCI EM Islamic UCITS	MSCI Emerging Markets Islamic Index	7 December 2007	EEM	iShares MSCI Emerging Markets ETF	MSCI Emerging Markets Index	7 April 2003
MYETFDJ	MyETF Dow Jones Islamic Market Malaysia Titans 25	Dow Jones Islamic Market Malaysia Titans 25	21 January 2008	FBM30	FTSE Bursa Malaysia KLCI ETF	FTSE Bursa Malaysia KLCI	19 July 2007
METFSID	MyETF MSCI SEA Islamic Dividend	MSCI South East Asia IMI High Dividend Yield 10/40	7 May 2015	ASEA	Global X FTSE Southeast Asia ETF	FTSE ASEAN 40 Index	16 February 2011
HLAL	Wahed FTSE USA Shariah ETF	FTSE Shariah USA Index	16 July 2019	FLAM	Franklin FTSE US Index ETF	FTSE US Index	20 February 2019

2.2. Annualized Holding Period Return

The performance of the ETF is first examined by annualized holding period return. To calculate the annualized holding period return, we first calculate the total return earned on ETF over its holding period, expressed as a percentage of the initial value of the investment. It is calculated as the sum capital gain and income divided by the opening value of the investment. The formula is expressed as:

$$\text{Holding period return} = \frac{P_1 - P_0 + \text{Income}}{P_1} \quad (1)$$

where P_1 is the value at the start of the holding period, P_0 is the value at the end of the holding period; Income is a dividend or income distributed during the holding period. Next, the holding period return is annualized through the following formula:

$$\text{Annualised holding period return} = (1+\text{HPR})^{\frac{1}{n}} - 1 \quad (2)$$

where HPR is the holding period return, n is the number of years.

2.3. Sharpe ratio

Risk and return trade-off suggest that the returns from investing in risky investments should be high in order to compensate investors for the high level of risks assumed. Thus, investors need to understand how the return of investment compares to its risk.

The Sharpe ratio was developed by William Sharpe in 1966 to measure how much additional returns the investor will receive for the additional risk-taking. A positive Sharpe ratio indicates that the performance of an investment is above the risk-free rate, whereas a negative Sharpe ratio indicates that the performance of an investment is below the risk-free rate.

Besides, if the value of the Sharpe ratio is between zero and one signifies that the returns derived from the investment are better than the risk-free rate, but their excess risks exceed their excess returns. If the value of the Sharpe ratio is above one indicates that the returns are not only better than the risk-free rate, but excess returns are above their excess risks. The following formula gives the Sharpe ratio:

$$\text{Shape ratio} = \frac{R_p - R_f}{\sigma_p} \quad (3)$$

where R_p is the portfolio return, R_f is the risk-free rate, and σ_f is the standard deviation of the portfolio return. The ten-year US Treasury bill rate is taken as the proxy for the risk-free rate (Sharpe, 1966; Lempérière et al., 2017).

2.4. Jensen's Alpha

The concept of Jensen's alpha was developed by Michael Jensen in 1968 to evaluate the performance of an investment portfolio on a risk-adjusted basis. The idea behind it is to determine the excess return of an investment portfolio. The value of alpha represents the ability of fund managers to add value to the investment portfolio concerned. Jensen's alpha formula can be expressed as:

$$R_t - R_f = \alpha + \beta\left(R_m - R_f\right) + \varepsilon_t \quad (4)$$

where R_t is portfolio return, R_f is the risk-free rate, α is risk-adjusted performance (alpha), β is the systematic risk (beta), R_m is market return, ε_t is the error term.

A positive Jensen's alpha indicates that the ETF is earning excess returns, whereas a negative Jensen's alpha indicates that the ETF is earning less than the market return. Besides, a positive beta of one indicates that the ETF perfectly follows its benchmark index. In the absence of an abnormal return, coefficients of alpha and beta are expected to be zero and one, respectively.

2.5. Measurement of Market Timing

In this study, the Treynor and Mazuy (1966) model is employed to examine the market timing performance of each exchange-traded fund. The formula of market timing is defined as follows:

$$R_{pt} - R_{ft} = \alpha + \beta\left(R_{mt} - R_{ft}\right) + \gamma\left(R_{mt} - R_{ft}\right)^2 + \mu_t \quad (5)$$

where R_{pt} is the portfolio return at time t, R_f is the risk-free rate of return at time t; R_m is the return on the stock market at time t. α, β and γ are coefficients indicating stock selection ability, systematic risk, and market timing ability respectively, and μ_t is an error term. A positive and significant α and γ indicate superior selectivity and market-timing skills, respectively. Besides, a beta coefficient that closer to one indicates that the portfolio replicates its benchmark well.

2.6. Tracking Error

The exchange-traded fund is a passively-managed fund, which is expected to deliver returns similar to those of the benchmark index. However, existing studies (Shin & Soydemir, 2010; Shanmugham & Zabiulla, 2012;

Singh & Kaur, 2016; Almudhaf, 2019, Diaw, 2019) argue that ETFs do not fully replicate the return exactly with the benchmark index. Instead, there is pricing inefficiencies persist in an ETF with significant tracking errors.

Tracking error refers to the difference between the return of an ETF and that of its benchmark index**.** To assess the tracking error of Islamic and conventional ETFs, the following formula is used:

$$\text{Tracking error} = \sqrt{\frac{\sum_{t=1}^{n}\left(R_p - R_b\right)^2}{n-1}} \quad (6)$$

where R_p is the returns of ETF, R_b is the returns of the benchmark index, n is the number of observations.

2.7. Premium/Discount

Conceptually, the value of an exchange-traded fund is based on the net asset value of the portfolio of securities in the fund. Therefore, the market value of an exchange-traded fund should be close to its net asset value. However, due to the supply and demand forces in the securities market, the market value of an ETF can deviate from its net asset value. The existence of this deviation is well documented by recent studies (Levy & Lieberman, 2013; Broman, 2016; Piccotti, 2018). The following formula can measure the percentage price deviation between ETF and net asset value:

$$P_t = \frac{P_t - \text{NAV}_\text{t}}{\text{NAV}_\text{t}} \times 100 \quad (7)$$

where P_t is the price of ETF and NAV_t is the net asset value per share. A positive value indicates that the ETF trades at a premium, whereas a negative value indicates that the ETF trades at a discount.

2.8. Persistence of Premium and Discounts

We follow Kayali (2007) to examine which ETFs tend to have the most persistent premium/discount. The persistence of premium/discount is tested using the following equation:

$$PD_t = \alpha + \beta PD_{t-1} + \varepsilon_t \quad (8)$$

where α is constant, PD_t is the premium/discount on day t, PD_{t-1} is the premium/discount on day t, β is the coefficient of PD_{t-1} and ε_t is the error term. A significant β indicates there is persistence in the premium or discount.

3. Empirical Results and Discussion

In this section, we first present summary statistics of ETF and benchmark index for both Islamic and conventional ETFs. Next, we perform the unconditional correlation coefficients to analyze the connectedness between ETF and benchmark index prices for both Islamic and conventional ETFs. Further, we compare the performance of Islamic and conventional ETFs in terms of risk and return, market timing performance, tracking error, as well as price deviation.

3.1. Descriptive Statistics

Table 2 shows the average daily returns of ETF and benchmark index for Islamic and conventional ETFs. It can be observed that all the returns have negative skewness, implying that the distribution of data mostly towards the right side. The kurtosis values are high in all returns implying that the distribution of data is concerted around the mean with thicker tails. The Jarque-Bera statistics significantly reject the normal distribution of all the returns indicating a non-normality of distributions.

Panel A of Table 2 indicates that all the Islamic ETFs exhibit positive average daily return except ISDE and METFSID. The standard deviation of return is relatively higher for ISDE and METFSID as compared to other Islamic ETFs. Besides, the standard deviation of return of the ISDE and METFSID is relatively higher than their benchmark index return. The higher the standard deviation of return in ETF as opposed to the benchmark index return indicates that the ETF has more exposure to total risk. Looking at the average return and standard deviation of return of the ISDE and METFSID, it can be understood that ISDE and METFSID are generally riskier than other ETFs.

Panel B of Table 2 indicates that all the conventional ETFs exhibit positive average daily return. In general, the standard deviation of returns of conventional ETFs is relatively higher than the standard deviation of returns of conventional benchmark indexes. These results suggest that the returns of conventional ETFs are more volatile than the returns of conventional benchmark indexes.

On average, the conventional ETFs have a higher daily return of 0.0317% as compared to Islamic ETFs with 0.0258%. Meanwhile, the conventional benchmark indexes have a higher daily return of 0.0262% as compared to Islamic benchmark indexes with 0.0240%. It can be understood that the conventional stock market, in general, performs better than the Islamic stock market.

Table 2: Descriptive statistics of daily returns for Islamic and conventional ETFs

	Mean	Max	Min	Std. Dev.	Skewness	Kurtosis	Jarque-Bera
Panel A: Islamic							
Symbol: ISWD							
ETF	0.027	4.113	–5.254	0.9039	–0.3427	5.6386	795.5087*
Benchmark	0.028	4.202	–5.038	0.8241	–0.4752	6.9935	1803.819*
Symbol: ISUS							
ETF	0.035	4.565	–5.001	0.8681	–0.3379	5.7432	854.4271*
Benchmark	0.036	5.773	–6.294	0.9130	–0.3802	7.2696	2013.182*
Symbol: ISDE							
ETF	–0.003	5.974	–7.599	1.2368	–0.2224	5.4753	671.7763*
Benchmark	0.008	2.947	–4.918	0.7674	–0.3445	5.2268	577.0404*
Symbol: MYETFDJ							
ETF	0.020	6.395	–7.276	0.7540	–0.3534	19.0041	27876.53*
Benchmark	0.003	5.229	–4.846	0.8096	–0.0821	6.3409	1215.347*
Symbol: METFSID							
ETF	–0.011	18.633	–20.457	1.1767	–0.9262	184.2367	1658933*
Benchmark	–0.014	2.108	–3.602	0.5726	–0.2788	5.1938	258.7426*
Symbol: HLAL							
ETF	0.087	2.779	–3.352	0.9269	–0.7414	5.9293	53.8970*
Benchmark	0.083	2.188	–3.865	0.9520	–1.0509	5.9831	66.5792*
Panel B: Conventional							
Symbol: URTH							
ETF	0.042	5.282	–5.746	0.9180	–0.2905	7.5500	1756.829*
Benchmark	0.033	2.939	–5.029	0.7043	–0.5857	6.4537	1110.545*
Symbol: CSUS							
ETF	0.047	5.079	–6.193	0.9190	–0.5441	8.5035	3329.506*
Benchmark	0.041	5.697	–6.960	0.9302	–0.4880	7.9710	2715.020*
Symbol: EEM							
ETF	0.010	6.953	–8.706	1.3287	–0.2895	6.0076	983.0151*
Benchmark	0.004	4.810	–6.524	0.9719	–0.3936	5.6500	800.8231*
Symbol: FBM30							
ETF	0.013	6.244	–6.241	0.7590	–0.2791	19.6226	30048.18*
Benchmark	0.009	3.322	–3.237	0.5508	–0.3774	6.0464	1069.987*
Symbol: ASEA							
ETF	0.013	5.686	–7.260	1.0774	–0.2722	6.5833	1266.027*
Benchmark	0.004	4.722	–5.131	0.8469	–0.2015	6.8101	1414.717*
Symbol: FLAM							
ETF	0.065	2.342	–2.304	0.6891	–0.1899	4.9303	36.1226*
Benchmark	0.066	2.144	–3.041	0.7467	–0.9593	6.0157	119.2386*

* denotes rejection at 5% significance level

Table 3: Correlations of the benchmark index and ETF prices

Islamic		Conventional	
Symbol	**Correlation**	**Symbol**	**Correlation**
ISWD	0.9997	URTH	0.9955
ISUS	0.9997	CSUS	0.9992
ISDE	0.4982	EEM	0.8751
MYETFDJ	0.9955	FBM30	0.9034
METFSID	0.8881	ASEA	0.8197
HLAL	0.9900	FLAM	0.9730

Table 4: Comparisons of annualized holding period return for Islamic and conventional ETFs

Islamic		Conventional	
Symbol	**(%)**	**Symbol**	**(%)**
ISWD	7.04	URTH	11.15
ISUS	9.52	CSUS	12.55
ISDE	–0.70	EEM	2.61
MYETFDJ	5.47	FBM30	3.47
METFSID	–2.93	ASEA	3.50
HLAL	25.48	FLAM	18.17
Average	7.31	Average	8.58

3.2. Correlation Matrix

Table 3 reports the correlation matrix between the benchmark index and ETFs price for both Islamic and conventional ETFs. It can be noticed that the correlation coefficients for both Islamic and conventional ETFs are above 0.800 except ISDE, implying that in general, the prices of the benchmark index and ETF tend to move in the same direction.

Looking separately at the six pairs of ETFs, the correlation coefficients of ISWD are higher than URTH by 0.027, ISUS is higher than CSUS by 0.005, MYETFDJ is higher than FBM30 by 0.0921, METFSID is higher than ASEA by 0.0684, HLAL is higher than FLAM by 0.017 while ISDE is lower than EEM by 0.3769. It can be understood that the relationship between Islamic ETFs and their Islamic benchmark indexes are relatively more robust than conventional ETFs and their conventional benchmark indexes.

3.3. Annualized Holding Period

Table 4 presents the annualized holding period return for Islamic and conventional ETFs. It can be observed that all the conventional ETFs exhibit positive annualized holding period return with FLAM achieves the highest annualized holding period return of 18.17%, followed by CSUS with 12.55%. Looking separately at the six pairs of ETFs, URTH outperforms ISWD by 4.11%, CSUS outperforms ISUS by 3.03%, EEM outperforms ISDE by 3.31%, ASEA outperforms METFSID 6.43% while FBM30 underperforms MYETFDJ by 2.00% and FLAM underperforms HLAL by 7.31%.

On average, the annualized holding period return of conventional ETFs outperforms the Islamic ETFs by 1.26%, which suggests that conventional ETFs provide better profit than Islamic ETFs. The higher annualized holding period return in conventional ETFs may be due to the flexibility of conventional ETFs to invest in any stocks, including those with higher risk exposure as compared to limited investment choices in Islamic ETFs.

3.4. Sharpe Ratio

In order to assess the risk inherited in the ETF, the Sharpe ratio is employed. The Sharpe ratio is a measure of excess mean return of an investment over the risk-free rate relative to its standard deviation.

Table 5 reports the results of Sharpe ratio for both Islamic and conventional ETFs. It can be observed that all the ETFs exhibit positive Sharpe ratio except ISDE and METFSID.

HLAL achieves the highest Sharpe ratio of 1.4066, followed by FLAM with 1.3972. A Sharpe ratio above one indicates that the returns of the ETF are not only better than the risk-free rate, but the excess returns of the ETF are above their excess risks.

Meanwhile, ISWD, ISUS, MYETFDJ, URTH, CSUS, EEM, FBM30 and ASEA exhibit positive Sharpe ratio with the values above zero but below one, implying that the returns derived from the ETFs are better than the risk-free rate, but their excess risks exceed their excess returns.

Comparing the Sharpe ratio between Islamic and conventional ETFs, the average Sharpe ratio of conventional ETFs is relatively higher than Islamic ETFs by 0.1278. A higher value of Sharpe ratio implies lower volatility of return or higher risk-adjusted return of conventional ETFs as compared to Islamic ETFs.

3.5. Jensen's Alpha

Table 6 displays the results of Jensen's alpha for both Islamic and conventional ETFs. A significant and positive alpha indicates that the ETF performs better than the benchmark index, whereas a significant negative alpha indicates that the ETF is inferior to the benchmark index. Table 6 highlights that all the conventional ETFs exhibit positive Jensen's alpha, which indicates that the fund managers of conventional ETFs achieve relatively higher returns concerning the benchmark indexes, though this result is not statistically significant.

Meanwhile, only half of the Islamic ETFs exhibit positive Jensen's alpha with ISUS (0.0116), MYETFDJ (0.0110) and HLAL (0.0163) while half of the Islamic ETFs exhibit negative Jensen's alpha with ISWD (–0.0002), ISDE (–0.0119) and METFSID (–0.0055). On average, the abnormal return as measured by Jensen's alpha is higher in conventional ETFs compared to Islamic ETFs, demonstrating that the fund managers of conventional ETFs achieve relatively higher returns with respect to the benchmark index as compared to the fund managers of Islamic ETFs.

When evaluating systematic risk, we note that the beta for all the ETFs is significantly smaller than one except ISDE, which implies that in general all the ETFs in our sample are significantly less risky than their corresponding benchmark indexes. Besides, the average beta values of Islamic ETFs and conventional ETFs are 0.7116 and 0.6308, respectively. The relatively lower average beta value suggests that conventional ETFs are less sensitive to changes in the market as compared to Islamic ETFs.

Table 5: Results of Sharpe Ratio

Islamic		Conventional	
Symbol	**Sharpe Ratio**	**Symbol**	**Sharpe ratio**
ISWD	0.3853	URTH	0.6509
ISUS	0.5641	CSUS	0.7257
ISDE	–0.0939	EEM	0.0683
MYETFDJ	0.3342	FBM30	0.1783
METFSID	–0.2157	ASEA	0.1272
HLAL	1.4066	FLAM	1.3972
Average	0.3968	Average	0.5246

Table 6: Results of Jensen's Alpha

Islamic			Conventional		
Symbol	**Jensen's Alpha**	**Beta**	**Symbol**	**Jensen's Alpha**	**Beta**
ISWD	–0.0002	0.9396*	URTH	0.0145	0.9612*
ISUS	0.0116	0.6062*	CSUS	0.0286	0.3681*
ISDE	–0.0119	1.2684*	EEM	0.0061	0.9328*
MYETFDJ	0.0110	0.2338*	FBM30	0.0074	0.2903*
METFSID	–0.0055	0.3186*	ASEA	0.0090	0.6771*
HLAL	0.0163	0.9031*	FLAM	0.0309	0.5552*
Average	0.0036	0.7116	Average	0.0161	0.6308

* denotes rejection at 5% significance level

3.6. Market Timing Ability

Next, we employ Treynor and Mazuy (1966) model to assess the market timing ability of fund managers for both Islamic and conventional ETFs. As reported in Table 7, almost all the ETFs exhibit negative gamma except METFSID, HLAL, EEM and FLAM. On average, both Islamic and conventional ETFs have a negative value of gamma of –0.0015 and –0.0094, respectively. These results suggest that the fund managers of both Islamic and conventional ETFs on average are not able to outguess the market.

Looking separately at the six pairs of ETFs, the HLAL and FLAM show positive values of alpha and gamma. These results suggest superior security selectivity and market-timing skills of fund managers of HLAL and FLAM. Although both fund managers have superior selectivity and market timing, the security selection and market timing abilities of FLAM seem to be better than HLAL.

On the other hand, EEM exhibits positive alpha and gamma as compared to Islamic counterpart, i.e. ISDE with negative alpha and gamma. These results suggest that the security selection and market timing ability of fund managers of EEM are relatively better than the fund manager of the ISDE, which focuses on the similar stock market in emerging stock market.

It is important to note that when we apply the Jensen's alpha to examine the abnormal return on the Islamic and conventional ETFs, we discover that almost all alphas are positive but not significant. As a robustness check, the Treynor and Mazuy (1966) model is also used to confirm whether our conclusions are drawn regarding abnormal return (alpha) still hold when allowing for varying systematic risk. Overall, the results of Treynor-Mazuy model are consistent with the results of Jensen's alpha that the selection abilities of conventional fund managers are comparatively better than Islamic fund managers.

3.7. Tracking Error

The tracking error is a measure of the risk in an investment portfolio arising from operational management decisions made by the portfolio manager. Examining the tracking error allows the ETF investors to assess whether the fund manager is actively tracking the benchmark or putting his style in managing the ETF portfolio.

Conceptually, the tracking error of ETF should be zero, given that the design of the ETF is to replicate the performance of its benchmark index. However, many factors contribute to these differences such as the number of index revisions, share issuances, share repurchases, spin-offs, the strategy of index replicating, fund size, dividend policy, premium and discount to net asset value, and season of the year (Dorocáková, 2017).

Table 8 reveals that the tracking errors of all ETFs are different from zero, suggesting that the ETFs are not closely mimicking the performance of their benchmark indexes. As reported in Table 4, the tracking error varies from 0.35 to 1.23 for Islamic ETFs, while the tracking error varies from 0.01 to 0.98 for conventional ETFs. On average, the tracking error of conventional ETFs is relatively lower than Islamic ETFs by 0.087 signifying the fund managers of conventional ETFs are more closely tracking the benchmark indexes as compared to Islamic ETFs.

Looking separately at the six pairs of ETFs, the tracking error of URTH is relatively higher than ISWD by 0.1515, the tracking error of EEM is relatively higher than ISDE by 0.1831 while the tracking error of FLAM is relatively higher than HLAL by 0.2846. The relatively higher tracking errors in those ETFs are well supported by the excess return as indicated by the higher positive alpha in the results of Treynor-Mazuy model. These results suggest that the active trading strategy adopted by the fund managers in the respective conventional ETFs outperform their benchmark indexes.

Table 7: Results of Treynor-Mazuy Model

Islamic				Conventional			
Symbol	**Alpha**	**Beta**	**Gamma**	**Symbol**	**Alpha**	**Beta**	**Gamma**
ISWD	0.0004	0.9393*	–0.0009	URTH	0.0362*	0.9460*	–0.0429*
ISUS	0.0306*	0.5998*	–0.0225*	CSUS	0.0510*	0.3583*	–0.0255*
ISDE	–0.0098	1.2675*	–0.0036	EEM	0.0004	0.9351*	0.0061
MYETFDJ	0.0200	0.2329*	–0.0136	FBM30	0.0168	0.2841*	–0.0311
METFSID	–0.0118	0.3224*	0.0193	ASEA	0.0126	0.6762*	–0.0050
HLAL	0.0046	0.9133*	0.0121	FLAM	0.0059	0.5801*	0.0421
Average	0.0057	0.7125	–0.0015	Average	0.0205	0.6300	–0.0094

* denotes rejection at 5% significance level

Table 8: Results of tracking error

Islamic		Conventional	
Symbol	**Tracking Error**	**Symbol**	**Tracking Error**
ISWD	0.4688	URTH	0.6203
ISUS	0.7590	CSUS	0.0104
ISDE	0.7901	EEM	0.9732
MYETFDJ	0.9577	FBM30	0.8384
METFSID	1.2252	ASEA	0.9519
HLAL	0.3554	FLAM	0.6400
Average	0.7594	Average	0.6724

Table 9: Results of Deviation Between ETF Prices and NAV

Islamic		Conventional	
Symbol	**(%)**	**Symbol**	**(%)**
ISWD	0.0584	URTH	0.3522
ISUS	0.0049	CSUS	–0.0306
ISDE	0.0876	EEM	–0.5719
MYETFDJ	–0.5653	FBM30	–0.5789
METFSID	0.1409	ASEA	0.0190
HLAL	0.0519	FLAM	0.0017

It is important to note that the tracking error of ETFs MYETFDJ and METFSID are relatively higher as compared to other Islamic ETFs. Moreover, the tracking errors of MYETFDJ and METFSID are higher as compared to the conventional ETFs in their respective category. These results imply that the fund managers of MYETFDJ and METFSID are actively managing the portfolio. It is essential to investigate whether the active management decisions made by the portfolio manager can provide investors with a relatively higher return than the benchmark index return. If the ETF has a more significant tracking error but lower average returns, the investors should be aware and considered to replace the investment.

As reported in Table 8, the abnormal return, as measured by alpha indicates that MYETFDJ has a positive alpha of 0.0200 while the conventional counterpart, i.e. METFSID, has a negative alpha of 0.0118. These results imply that the active management decisions made by the fund manager of MYETFDJ can deliver a higher return than the benchmark index return while the active positioning in the portfolio of METFSID does not outperform the benchmark index return. These results further suggest that the ETF investors should consider conventional ETF, ASEA as an alternative to get exposure in Southeast Asia since the ASEA tracks in the similar region as METFSID and can deliver a relatively higher excess return (alpha) though with a more significant tracking error.

3.8. Premium/Discount

The ETFs' premium or discount is the deviations of ETF prices from their underlying net asset values (NAV). Theoretically, the price of an ETF should be traded close to net asset value that represents the total value of all the securities held by the ETF after deducting its liabilities. Any deviations should be relatively minor due to the ETF share creation and redemption process used by the arbitrageurs to trade against the mispricing between ETF and NAV (Charteris et al., 2014; Hilliard, 2014; Petajisto, 2017).

If the ETF price is higher than its NAV, the arbitrageur can lock in the profit from this mispricing by simultaneously taking a long position in the basket of underlying securities and a short position in the ETF. On the contrary, if the ETF price is lower than its NAV, the arbitrageur can lock in the profit from this mispricing by simultaneously taking a long position in the ETF and a short position in the basket of underlying securities.

Table 9 presents the results of deviation between ETF prices and NAV. It can be observed that all the Islamic ETFs under study, exhibit a positive premium except MYETFDJ. Meanwhile, half of the conventional ETFs exhibit positive premium while half of the conventional ETFs exhibit a negative premium. These results indicate that Islamic ETFs tend to be traded at a premium and suggest that investors willing to pay a premium for a Shariah-compliant ETF.

Table 10: Results of persistence in premiums and discounts

Estimates	α	βPD_{t-1}	βPD_{t-2}	R^2
Islamic				
ISWD	0.0525*	0.0695*	0.0306	0.0061
ISUS	0.0048	0.0253	–	0.0006
ISDE	0.0404*	0.3330*	0.1995*	0.2063
MYETFDJ	–0.0568*	0.7380*	0.1597*	0.7761
METFSID	0.0270	0.8413*	–0.0065	0.6998
HLAL	0.0342	0.3194*	–0.0036	0.1013
Conventional				
URTH	0.1055*	0.4862*	0.2138*	0.4106
CSUS	–0.0226	0.1883*	0.1087*	0.0562
EEM	–0.3839*	0.2158*	0.1132*	0.0712
FBM30	–0.0593*	0.8125*	0.0829*	0.7852
ASEA	0.0079	0.3552*	0.2160*	0.2424
FLAM	0.0014	0.0918	–	0.0084

* denotes rejection at 5% significance level

It is interesting to note that MYETFDJ and FBM30, which track the Malaysian stock market have the largest negative premium as compared to other ETFs. This may signal an arbitrage opportunity in this market, and the arbitrageurs may react to those signals by buying the ETF shares and selling the underlying securities to profit from the mispricing.

3.9. Persistence of the Premiums and Discounts

Hillard (2014) asserts that ETF can be traded at a premium or discount to its NAV. However, this deviation is small and short-lived due to the creation/redemption process that keeps the market price of the ETF close to its NAV. In order to investigate whether the price deviation persists over time or short-lived, we follow Kayali (2007) regression model to define the ETF's premium/discount on day *t* as the dependent variable and its lagged value as the independent variable. In general, the existing studies (Delcoure & Zhong (2007) and Kayali (2007) show that the price deviations are temporary phenomena and tend to disappear within two days.

Table 10 summarizes the results of regression analysis on the persistence in premiums and discounts for Islamic and conventional ETFs. It can be observed that the coefficient of one-day lagged premium/discount is significant at the 5 % level for all the ETFs except ISUS and FLAM. These results suggest that the premiums and discounts are persistent and do not disappear within one day for most of the ETFs under study. Since the one-day lagged premium/discount is statistically significant for most of the ETFs, we further investigate the issue of persistence up to two days by adding the two-day lagged premium/discount as the second independent variable.

As highlighted in Table 10, the coefficients of one-day and two-day lagged premium/discount are statistically significant for the ISDE, MYETFDJ, URTH, CSUS, EEM, FBM30 and ASEA. These results suggest that the price deviations in ISDE, MYETFDJ, URTH, CSUS, EEM, FBM30 and ASEA do not vanish within two days. It is noticed that the price deviations in Islamic ETFs are relatively short-lived as compared to conventional ETFs.

4. Conclusion

Although Islamic ETFs have experienced rapid growth, there are still a limited number of studies investigating them. This study attempts to add value by using a different set of data to investigate whether the Islamic ETFs that exclude usury, gambling and uncertainty elements provide significant benefit as compared to conventional ETFs.

Our results indicate that the returns of conventional ETFs are relatively higher as compared to Islamic ETFs. An intuitive explanation for this is that the flexibility of conventional ETFs to invest in any stocks, including those with higher risk exposure as compared to limited investment choices in Islamic ETFs.

Contrary to the findings of Albaity and Ahmad (2008), who argue that there is no difference in returns between Islamic and conventional stock market indices, our findings reveal that the conventional benchmark index has a higher daily return as compared to the Islamic benchmark index.

The tracking error of conventional ETFs is relatively lower than Islamic ETFs. This finding implies that the conventional fund managers track the benchmark indexes more closely as compared to Islamic fund managers. Likewise, the security selection and market timing ability of conventional fund managers are better than Islamic fund managers.

Our findings indicate that the Islamic ETFs are more likely to trade at a premium rather than at a discount, implying the investors are willing to pay premiums for an Islamic ETF to comply with their religious obligations.

Since the conventional ETFs perform better than Islamic ETFs, Islamic fund managers should continuously review their trading strategy such as stock selection and market timing ability in order to compete with the performance of conventional ETFs.

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