Fund Family Performance: Evidence from Emerging Countries

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Abstract: - This study examines fund family performance, in terms of selectivity and market timing skills of fund family managers, in Saudi Arabia, Malaysia, Indonesia, and Pakistan from 2007–2021. Selectivity skills are measured using excess returns, Sharpe ratio, Treynor ratio, Jensen's alpha, and Carhart's four-factor model, whereas market timing ability is measured using the Treynor-Mazuy and Henriksson-Merton models. The analysis is carried out on three levels of sample: by entire sample, by country, and by Islamic vs conventional families. The findings evince the good selectivity but poor timing skills of family managers. A novel contribution of this study is that family managers of Islamic and conventional families have different selectivity and timing skills, which can be attributed to the different goals of each type of family.

Keywords: Islamic Finance**,** Family Performance, Jensen's Alpha, Four-Factor Model, Selectivity Skills, Market Timing Ability.

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1 Introduction

A collection of mutual funds offered by the same issuer, typically an asset management company (AMC), [1], sold under a common brand name, and promoted via a common promotion and distribution channel is known as a family of funds, [2]. Three rationales underlie family-level analysis, [3]. First, a fund family enables economies of scale in servicing, promoting, and distributing funds. Second, a fund family has the flexibility to reallocate its resources to capitalize on market opportunities. Third, the selectivity skills of family managers are peroxide by the family's reputation. Therefore, more reputable families would assure investors that their managers possess proficient selection and monitoring skills.

The increasing importance of fund family analysis can be seen from reports classifying and presenting fund family data and research (e.g.,

Morningstar and Barron's). These reports dedicate at least one page to each fund family, pairing qualitative and quantitative research with standard managerial criteria. These reports aim to make family data more accessible, verify the data provided by the families, eliminate information asymmetry, provide confidence to investors that the families are acting in their best interests, and improve the financial experience of investors. A Morningstar study shows that positive-rated families have positive historical returns for investors, as measured by the Morningstar Risk-Adjusted Success Ratio (MRAR). MRAR measures the percentage of funds in a fund family that survives within a certain period and has an MRAR superior to the MRAR of a median fund in the same category. The study maintains that fund families with a positive MRAR can build and maintain long-term trust and investor experience.

The global mutual fund industry had a total asset under management (AUM) of $79.2 trillion in 2017, a 12% growth from $71 million in 2016. Continuous growth is expected, eventually tripling by 2025, [4].

Mutual funds are available in most markets globally. They pool investor funds and allocate them into a basket of securities, typically capital market and money market instruments. This allows investors to diversify without additional administration, information collection, and monitoring costs, among others, [5]. More than half of current mutual funds are equity funds, followed by fixed-income and real estate, and private equity funds.

This study is motivated by the prevalence of fund families. Examining the performance of member funds allows the identification of high-performing funds and among them star fund(s). The overall performance of a fund family is altogether different from the performance of individual funds, considering that families offer diverse funds with different objectives and strategies, [6], 7]. The decision to invest in a fund depends on the attribute of its family and the skill of family managers. Member funds that perform well create a good reputation for the family and signal the superior skills of their managers, [8]. This paper thus examines whether fund families can outperform market benchmarks and whether their managers demonstrate good market timing and selectivity skills.

This study contributes evidence on fund family performance to the literature, which has mostly focused on individual fund performance. The distinct characteristics of fund families as mentioned above mean that member funds cannot be treated like individual funds. Additionally, most investors use a top-down approach when making investment decisions: They will first select a family before determining which member funds to invest in.

2 Literature Review

Fund families are investment firms that manage and operate a variety of mutual funds. Virtually all mutual funds are related to a family. Because of this nature, issues related to mutual funds should be studied at the family level.

Fund families offer a diverse set of funds with diverse objectives and strategies to meet the dissimilar objectives of investors and enable them to diversify with funds that belong to the same family. There is growing research on the influence of fund families on member funds' attributes. A fund family has its own objective, such as maximizing profits from member funds. To achieve this objective, it devises different strategies to attract the maximum amount of investment. Larger families enjoy the benefits of economies of scale (higher returns at lower costs), which are realized by learning from experience and continuous improvement of operating efficiency, [9], 10].

Fund family behavior and strategies have gathered the interest of scholars, (e.g., [11]–[14]), while others have examined how families influence their member funds, [15]. When there is an opportunity to generate substantial returns, for instance capturing an emergent investor or market segment, fund families will issue new funds, even if they are already managing high-performing funds, [11]. Despite this strategy, investors may still prefer to diversify their investments across different families to reduce portfolio risk, [15] examine the risk impact of restricting investments in a single fund family. They find that funds with similar objectives are more closely correlated with those of the same family compared to those of other families. Most likely, this is caused by the tendency of sibling funds to hold similar stocks and be exposed to similar risk factors. Therefore, they suggest diversifying mutual fund investment across multiple families.

[13], [14], and, [16], examine how performance is transferred between member funds. To do so, a fund family reallocates resources to member funds that are more likely to increase their overall value, [13], revealing that in the US, fund heterogeneity is correlated with between-fund competition between and within families. Fund families employ the category proliferation strategy to meet investors'

diverse needs. The strategy correlates positively with fund differentiation but not fund performance. This suggests the independence of a fund from sibling funds.

Fund family performance also affects their members, [14], revealing that some member funds demonstrate persistent performance within their families, and it is linked to family size. This implies some autonomy exercised by the family to unevenly allocate resources among its members. It also supports the hypothesis that resource allocation in fund families is performance-based, not needs-based. This conclusion is supported by, [16]. Analyzing US funds in 1991–2001, [16], find that families increase their overall return through strategic allocation (and reallocation) of resources to member funds. The superior performance of funds with good historical performance or high fees comes at the expense of low-value funds. These results, in sum, demonstrate how families create distortions in delegated asset management.

The competitive and strategic behaviors of fund families influence the risk-taking behavior and performance persistence of member funds. Analyzing US and European funds in 1999–2009, [17], find that fund families are not necessarily superior in performance compared to individual funds. However, the future portfolio performance of family funds and non-family funds, estimated based on past performance, is significantly different. The risk-taking behavior of a fund until the end of the year is also influenced by its mid-year ranking in its own family and sector.

Another form of resource allocation of fund families is the assignment and coordination of fund managers, [18], hypothesize that manager placement strategies are related to market efficiency. Their analysis of US funds in 1991–2010 reveals that to turn around the performance of less efficient funds, fund families are likely to assign skilled managers to them. The apparent objective of this intervention is the maximization of the families' overall value, not the investment value of investors.

Portfolio performance and investment behavior of member funds are also influenced by the trading desk efficiency of fund families. Trading costs and portfolio liquidity can be reduced with more efficient trading desks while increasing fund performance and trading rate, [3].

The number of funds managed by a fund family affects its AUM. In Pakistan, [19], examined whether the issuance of new funds and growing family size affect the AUM of the fund family. The evidence suggests that the effect is positive and significant. Moreover, as funds grow in number and size, so does the fund family.

Some studies explore the behavior of member fund managers and within-firm competition, [20], 21]. They find evidence that fund managers compete with their peers to rank higher in the family. Such competition is more prevalent in larger firms, but teams in those firms compete less.

Synthesizing the studies above, there appears to be a tendency for investors to react asymmetrically to fund performance. Fund inflow to funds with superior performance is much higher than fund outflow from funds with poor performance. This convex relationship suggests that a fund family will have a larger AUM with a single-star fund and some low-performing funds rather than with several funds of average performance. An important corollary of this conclusion is that fund families focus on producing star funds rather than maintaining several average-performing funds.

The studies reviewed above are mostly from developed markets. However, similar research in developing and emerging markets is still nascent. There is evidence in the Malaysian market that diversifying funds across fund families will reduce portfolio risk rather than investing in several funds of a single family. The returns of funds from a single family are correlated higher than those from multiple families. This is likely because sibling funds share similar information and investing strategies, [22]. Fund families in Malaysia also demonstrate good selectivity skills but poor timing ability. Additionally, these skills vary among the managers of member funds, [23].

Our review reveals clear gaps in the literature related to the fund family performance. Past studies have primarily concentrated on fund performance and fund family characteristics and their effect on fund performance. This study bridges the identified gap by contributing novel evidence on fund family performance, in terms of security selection and market timing skills of family managers, in emerging markets.

3 Methodology

3.1 Data

A sample of 70 families, for a total of 503 funds, is collected from Bloomberg. These families operate in Saudi Arabia (25), Malaysia (20), Indonesia (14), and Pakistan (11). Islamic families are distinguished from conventional funds using the 33% rule, i.e., one-third of the family must be made up of Islamic

funds. Otherwise, the family is classified as a conventional family.
The sample period is January 2007–December 2018. To benchmark fund family performance, we use two global indices. Islamic families are benchmarked against the FTSE Global Islamic Index. Both Islamic and conventional families are measured against the FTSE All-World Index since it is the largest market capitalization index of developed and emerging markets, [24]. The risk-free rate, following past mutual fund studies, is the 3-month T-bill rate. Performance is peroxide by monthly returns:

$$Return_{i,t} = \frac{price_{i,t} - price_{i,t-1}}{pricei,t-1} \quad (1)$$

where *i* is the index and *t* is the period.

3.2 Selectivity Skills Models

A common measure of fund performance is selectivity models. We use four selectivity models: Sharpe ratio, Treynor ratio, Jensen's measure, and Carhart's four-factor model. These models measure performance as either raw returns, excess returns, or risk-adjusted measures. Family performance is measured as the weighted average performance of its member funds, [8], [25].

3.2.1 Raw Returns and Excess Returns

The raw returns of a fund family are the weighted average raw returns of its member firms. It is measured as:

$$Raw\ returns_{fam,t} = \sum_{i=1}^{n} \quad W_i * Raw\ returns_i \quad (2)$$

where the weight of fund *i* is calculated by the TNA of fund *i* divided by the TNA of the family and *n* is the number of funds in the family.
Excess returns are measured as:

$$Excess\ returns_{fam,t} = R_{fam,t} - R_{f,t} \quad (3)$$

where $R_{fam,t}$ is the raw family return of the family over the period *t* and $R_{f,t}$ is the risk-free return over period *t*.

3.2.2 Sharpe Ratio (1966)

Sharpe ratio ranks mutual fund performance. It is formulated as:

$$Sharpe_{fam,t} = \frac{R_{fam,t} - R_{f,t}}{\sigma_{fam,t}} \quad (4)$$

Where $R_{fam,t}$ is a fund family returns in period *t*, $R_{f,t}$ is the risk-free return, and $\sigma_{fam,t}$ is the standard deviation of mean excess family returns.

3.2.3 Treynor Ratio (1965)

Treynor ratio simply replaces the standard deviation in the Sharpe ratio with a beta to measure systematic risk. It is computed as:

$$Treynor_{fam,t} = \frac{R_{fam,t} - R_{f,t}}{\beta_{fam,t}} \quad (5)$$

Where $\beta_{fam,t}$ is the beta coefficient in period *t*. It measures the sensitivity between excess returns and a market benchmark.

3.2.4 Single-factor CAPM model (Jensen, 1968)

Jensen's alpha is a measure of risk-adjusted abnormal performance in the market by capturing the abnormal excess returns of a fund family, [26]. Jensen's alpha determines whether a fund family is over performing or otherwise. A positive and significant alpha indicates the over performance of a family fund, which is attributed to the manager's stock selection ability. It is computed as:

$$Jensen = Return_{fam,t} - Return_{f,t} = \alpha_i + \beta\left(Return_{m,t} - Return_{f,t}\right) + \varepsilon_{fam,t} \quad (6)$$

where α_i captures any excess returns above a market benchmark and $\varepsilon_{i,t}$ is the term error.

3.2.5 Carhart's four-factor Model (1997)

Extending Fama and French's three-factor model, it is formulated as:

$$T.M = R_{fam,t} - R_{f,t} = \alpha_i + \beta_1 R_{m,t} - R_{f,t} + \beta_2 SMB_t + \beta_3\, HML_t + \beta_4\, MOM_t + \varepsilon_{fam,t} \quad (7)$$

where SMB_t is the difference in return between a small-cap portfolio and a large-cap portfolio at period *t*; HML_t is the difference in return between a portfolio of high-book-to-market stock and a low-book-to-market stock at period *t*; and MOM_t is the difference in return between high and low momentum (lagged one year return) at time *t*.

3.3 Market Timing Ability Models

Treynor–Mazuy (TM) (1966) and Henriksson–Merton (HM) (1981) models are used to measure the market timing skills of fund family managers. The models measure the skill of family managers in timing capital shifts between risky and less risky securities in anticipation of future market trajectories. While fund family performance is

partially determined by market conditions, skilled managers are able to time entry or exit the market, thereby maximizing returns and minimizing losses.

3.3.1 TM Model (1966)

Market timing skills in the TM model are estimated by the square of market returns:

$$T.M = R_{fam} - R_f = \alpha_i + \beta_i R_m - R_f\ \gamma_i (R_m - R_f\ )^2 + \varepsilon_{fam} \quad (8)$$

Where $\gamma_{i,t}$ indicates market timing. A positive and significant coefficient indicates the ability of the fund family to forecast market trajectories and respond to them in a timely manner.

3.3.2 HM Model (1981)

$$HM = R_{fam,t} - R_{f,t} = \alpha_i + \beta_i R_{m,t} - R_f + \delta_i (R_m - R_f) D_t + \varepsilon_{fam} \quad (9)$$

Where δ_i is the market timing coefficient, D_t is a dummy variable that takes a value of one if market returns are positive.

4 Results and Discussions

4.1 Descriptive Statistics

Table 1 presents the descriptive statistics for monthly family returns, market benchmarks, and other risk factors. The data have negative skewness, positive kurtosis, and non-normal distribution. Overall family returns are positive (M = 0.0920), while Islamic and conventional funds have similar negative returns.

Table 2 shows Pearson's correlation coefficients between the variables. This examination is carried out to detect multicollinearity. Fund family returns are weakly correlated with the market benchmarks. The benchmarks themselves are weakly correlated to each other. The highest correlation is between T-bill and FTSE Islamic returns (r = 0.305). Thus, multicollinearity is not an issue.

4.2 Selectivity Skills

4.2.1 Entire Sample

Raw return, excess return, Sharpe ratio, and Treynor ratio

Table 3 presents the results. Fund family performance is compared to the FTSE All-World Index and FTSE Global Islamic Index. The mean monthly raw returns of the fund families are 0.07%. Islamic (0.03%) and conventional (0.04%) funds have almost similar raw returns. The excess returns of the families (i.e., subtracting the risk-free rate from raw returns) remain positive (0.009%), but the excess returns of Islamic and conventional funds are negative. Family raw and excess returns are above both market benchmarks. They are also less volatile, with a beta below the market (< 1). Taken together, these results suggest that fund families provide higher returns at lower total risk, perhaps because of their diversification strategy.

The Sharpe ratio compares mean excess returns to total risk (standard deviation). In other words, it measures the amount of reward received when taking an additional risk. Fund families have a positive Sharpe ratio, while both market benchmarks have negative ratios. This means that investing in fund families provides better returns, relative to the risks undertaken, than Islamic and conventional equity investments. The Treynor ratio is positive for both market benchmarks, indicating the overperformance and effective diversification strategies of fund families.

The findings of these relative performance measures indicate the superior performance of fund families over market benchmarks, attributed to the diversification strategies of the families. Consistent with the modern portfolio theory (MPT), given a market risk level, investors can diversify their portfolio to generate maximum returns at the lowest possible risk. These relative measures, however, are limited in that they only rank a fund relative to their peers; they do not provide any significant statistical or economic meaning. The next section, therefore, analyzes fund family performance relative to market benchmark returns using several performance models.

Single-factor model (Jensen, 1958)

Table 4 presents the results of the single-factor model against Islamic and conventional benchmarks. Jensen's alpha indicates the monthly abnormal returns of fund families. Jensen's alpha of the families against FTSE Global Islamic is 0.19% and against FTSE All-World is 0.20%. These indicate the superior performance of the families over both benchmarks, consistent with results in the previous section.

The adjusted R^2 of the fund families for FTSE Global Islamic is 0.81 and FTSE All-World 0.85. The high R^2 values suggest that family managers passively follow the market, but they are unable to perform well. Perhaps due to stricter rules in Islamic investments, which may inhibit performance, the alpha of the Islamic benchmark is lower than its conventional counterpart.

Four-Factor Model (Carhart, 1997)

Data for the four-factor model are not readily available, so we collect them from Fama and French's website. Monthly returns are computed based on the FTSE All-World Index.

Table 5 presents the results using the FTSE All-World as the market benchmark. The fund families outperform the market benchmark (α = 0.20, p < 0.05) and have lower risks (β = -0.14, p < 0.1). This result supports the single-factor model. Fund families prefer smaller (*SMB* = -0.034, p < 0.05) and growth-oriented stocks (*HML* = -0.05, p < 0.05). This preference allows them to outperform the four-factor benchmarks. Moreover, fund families diversify to remove unsystematic risk, leaving only market risk.

Table 1. Descriptive statistics

	Fund Family	FTSE Islamic	FTSE All World	SMB	HML	MOM	TB
Mean	0.0920	-0.0615	-0.0061	-0.0803	0.0461	-0.0185	0.0647
Median	0.1319	-0.0630	-0.0029	0.1323	-0.1564	0.2093	0.0630
Maximum	0.6932	0.4582	0.1172	0.1835	0.4296	0.2093	0.1385
Minimum	-0.5834	-0.4537	-0.2351	-0.4057	-0.1564	-0.9254	0.0183
Std. Dev.	0.0371	0.0569	0.0465	0.2810	0.2674	0.5194	0.0303
Skewness	-1.1581	-1.9824	-0.6569	-0.2192	0.6690	-0.6446	0.5210
Kurtosis	25.763	24.796	1.8631	-1.8810	-1.4830	-1.5201	1.4891

Table 2. Correlation matrix

	Fund Family	FTSE Islamic	FTSE All World	SMB	HML	MOM	TB
Fund Family	1.0000						
FTSE Islamic	-0.0301	1.0000					
FTSE All World	-0.0832	0.0854	1.0000				
SMB	0.0020	0.0006	0.1491	1.0000			
HML	0.0076	0.0508	0.1277	0.0637	1.0000		
MOM	-0.0103	-0.0675	-0.1613	-0.0551	-0.418	1.0000	
TB	0.0449	-0.3046	-0.1087	-0.0071	-0.025	0.0148	1.000

Table 3. Mean raw returns and excess returns

	Fund Family	FTSE Islamic	FTSE All World
Mean raw returns	0.0740	0.0032	0.0023
Mean excess returns	0.0093	-0.0615	-0.0824
Std. Dev	0.0317	0.0569	0.0465
Sharpe ratio	0.3936	-1.0812	-1.3424
FTSE Global Islamic Index			
Beta	0.1307	1.0000	-
Treynor	0.0711	-	-
FTSE All World Index			
Beta	0.1166	-	1.0000
Treynor	0.0797	-	-

Table 4. Single-factor model

	FTSE Global Islamic			**FTSE All World**		
	α	β	Adj. R^2	α	β	Adj. R^2
Coeff	0.1942	-0.2435	0.81	0.2025	-0.1067	0.85
SE	0.0072	0.0801	-	0.0077	0.0916	-
p	0.0002	0.0023	-	0.0001	0.2441	-

Table 5. Carhart's four-factor model

	Coef	**SE**	***p***
Alpha	0.2011	-0.0079	0.0001
Market	-0.1400	0.0974	0.0505
SMB	-0.0336	0.0023	0.0488
HML	-0.0538	0.0022	0.0015
MOM	-0.0022	0.0017	0.2042
Adj. R^2	-	0.88	-

Table 6. Sharpe ratio by country

Country	**Measurement**	**Fund Family**	**FTSE Islamic**	**FTSE All World**
Saudi Arabia	*Panel A: Mean raw, mean excess return, and Sharpe ratio*			
	Mean raw returns	0.5372	0.0032	0.0023
	Mean excess returns	0.4675	-0.0664	-0.0673
	SD	0.0419	0.0569	0.0465
	Sharpe ratio	0.7554	-1.1673	-1.4479
	Panel B: Beta and Treynor ratio using FTSE Islamic as benchmark			
	Beta	-0.1592	1.0000	--
	Treynor	0.9360	--	--
	Panel C: Beta and Treynor ratio using FTSE All world as benchmark			
	Beta	0.0748	--	1.0000
	Treynor	0.0247	--	--
Malaysia	*Panel A: Mean raw, mean excess return, and Sharpe ratio*			
	Mean raw returns	0.2445	0.0032	0.0023
	Mean excess returns	0.1749	-0.0264	-0.0273
	SD	0.0367	0.0569	0.0465
	Sharpe ratio	0.0466	-0.4636	-0.5868
	Panel B: Beta and Treynor ratio using FTSE Islamic as benchmark			
	Beta	0.0264	1.0000	--
	Treynor	0.5646	--	--
	Panel C: Beta and Treynor ratio using FTSE All world as benchmark			
	Beta	0.2632	--	1.0000
	Treynor	0.0567	--	--
Indonesia	*Panel A: Mean raw, mean excess return, and Sharpe ratio*			
	Mean raw returns	0.2395	0.0032	0.0023
	Mean excess returns	0.1680	-0.0682	-0.0691
	SD	0.0424	0.0569	0.0465
	Sharpe ratio	0.3467	-1.1992	-1.4869
	Panel B: Beta and Treynor ratio using FTSE Islamic as benchmark			
	Beta	-0.2390	1.0000	--
	Treynor	-0.7030	--	--
	Panel C: Beta and Treynor ratio using FTSE All world as benchmark			
	Beta	0.3782	--	1.0000
	Treynor	0.0443	--	--
Pakistan	*Panel A: Mean raw, mean excess return, and Sharpe ratio*			
	Mean raw returns	0.1370	0.0032	0.0023
	Mean excess returns	0.0281	-0.1056	-0.1066
	SD	0.0215	0.0569	0.0465
	Sharpe ratio	0.0425	-1.8569	-2.2915
	Panel B: Beta and Treynor ratio using FTSE Islamic as benchmark			
	Beta	-0.2134	1.0000	--
	Treynor	-0.1316	--	--
	Panel C: Beta and Treynor ratio using FTSE All world as benchmark			
	Beta	-0.3881	--	1.0000
	Treynor	-0.0724	--	--

Table 7. Single-factor model by country

Country		FTSE Global Islamic			FTSE All World		
		α	β	Adj. R2R^2R^2	α	β	Adj. R2
Saudi Arabia	**Coeff**	0.4714	0.0594	0.55	0.4904	0.3397	0.61
	SE	0.0120	0.1327	-	0.0131	0.1530	--
	p	0.0018	0.6540	-	0.0028	0.0264	--
Malaysia	**Coeff**	0.0177	0.0319	0.53	0.0271	0.2666	0.57
	SE	0.0075	0.1188	--	0.0078	0.1433	--
	p	0.0362	0.7878	--	0.0048	0.0630	--
Indonesia	**Coeff**	0.0163	-0.0750	0.66	0.0232	0.2030	0.67
	SE	0.0162	0.1785	--	0.0092	0.1675	--
	p	0.0005	0.6740	--	0.0115	0.2255	--
Pakistan	**Coeff**	0.0147	-0.0313	0.60	0.0157	-0.1062	0.63
	SE	0.0325	0.2650	--	0.0373	0.3137	--
	p	0.4470	0.9057	--	0.6536	0.7348	--

Table 8. Carhart's four-factor model by country

Country		α	Market	SMB	HML	MOM	Adj.
Saudi Arabia	**Coeff**	0.4912	0.0227	0.0271	0.0426	0.0070	0.81
	SE	0.0137	0.1535	0.0294	0.0345	0.0176	-
	p	0.0000	0.0356	0.0357	0.2160	0.6909	-
Malaysia	**Coeff**	0.2890	0.2580	0.0125	0.0342	0.0420	0.74
	SE	0.0084	0.1435	0.0246	0.0288	0.0147	-
	p	0.0006	0.0240	0.0115	0.2351	0.4400	-
Indonesia	**Coeff**	0.2008	0.0313	0.0254	-0.0044	-0.0245	0.70
	SE	0.0188	0.2114	0.0389	0.0456	0.0233	-
	p	0.0000	0.0174	0.0132	0.9238	0.2943	-
Pakistan	**Coeff**	0.0125	-0.1311	0.0224	0.0923	-0.0037	0.71
	SE	0.0382	0.3144	0.0598	0.0705	0.0360	-
	p	0.7442	0.6768	0.7078	0.1905	0.9175	-

4.2.2 By Country

Table 6 presents the results by country. Their performance is compared to two market benchmarks. The findings indicate that the families outperform and have lower risks than the benchmarks. These results suggest that fund families provide higher returns at lower total risk, perhaps because of their diversification strategy.

Saudi Arabia performs better than other countries as it has the highest raw returns (M = 0.538) and excess returns (M = 0.47). Ranking second is Malaysia, followed by Indonesia and Pakistan. The families have positive Sharpe ratios, but the benchmarks have negative ratios for all countries. This suggests that fund families provide better investment returns than both benchmarks. Saudi Arabia has the highest Sharpe ratio (0.76), followed by Indonesia (0.35), Malaysia (0.05), and Pakistan (0.04). Saudi Arabia likewise has the highest positive Treynor ratio (0.94) when performance is compared against the Islamic benchmark. It is followed by Malaysia (0.56). Both Indonesia (-0.70) and Pakistan (-0.13) have a negative Treynor ratio.

When measured against the conventional benchmark, the ratios of all countries, except Pakistan, are positive. In this case, Malaysia, not Saudi Arabia, ranks first in terms of performance. Indonesia also performs better than Saudi Arabia.

Single-factor Model (Jensen, 1968)

Table 7 the results of the single-factor model against Islamic and conventional benchmarks. Jensen's alphas of all the fund families are positive regardless of benchmark, suggesting their superior performance over the benchmarks. Similar to the previous results, Saudi Arabia performs best, irrespective of benchmarks. Malaysia ranks second, followed by Indonesia and Pakistan. Fund family performance is better when measured against the conventional benchmark as opposed to the Islamic benchmark. This is perhaps due to stricter rules in Islamic investments, which may inhibit performance.

Four-factor model (Carhart, 1997)

Table 8 presents the results of the four-factor model using FSTE All-World as the market benchmark. On average, Saudi Arabian fund families

outperform the market benchmark (α = 0.49, p < 0.05) and have lower risks (β = 0.02, p < 0.05). Malaysia and Indonesia show similar results. However, the alpha is not significant in Pakistan, which means that the fund families are unable to outperform the four-factor benchmarks. Excepting Pakistan, the fund families in all countries prefer smaller stocks. The HML and MOM are not significant for any country.

4.2.3 Islamic vs Conventional Families

Raw return, excess return, the Sharpe ratio, and the Treynor ratio

Table 9 presents the results of Islamic VS Conventional Families. Islamic families have a mean raw return of 0.30%, while conventional families have 0.17%. The mean excess returns (i.e., raw returns *less* the risk-free rate) of both families remain positive (Islamic: 0.24%, conventional: 0.10%). These results suggest that both types of families outperform the market benchmarks. Islamic families also have higher mean raw and excess returns and a lower beta than conventional families. Islamic families are therefore a more attractive investment since it provides more returns at lower risks.

The Sharpe ratio of Islamic families (0.45) is higher than conventional families (0.22) and the market benchmarks. Likewise, Islamic families have a higher Treynor ratio than conventional families, regardless of the benchmarks used.

We conclude that measures of relative performance show the superior performance of Islamic families over conventional families and market benchmarks. One reason for these results is that the sample period is during a bearish market, which favors Islamic funds due to their lower risks. In a bearish market, Islamic funds outperform their conventional counterparts, [27], 28].

Single-factor model (Jensen, 1968)

Table 10 results of the single-factor model against Islamic and conventional benchmarks. Islamic families have a Jensen's alpha of 0.22% against the Islamic benchmark and 0.23% against the conventional benchmark. Both alphas of Islamic families are greater than those of conventional families. All alphas are also significantly different from zero. Briefly, Islamic families significantly outperform conventional families.

The adjusted R^2 of Islamic (conventional) families is 0.67 (0.71) against the Islamic benchmark and 0.65 (0.77) against the conventional benchmark. The conventional benchmark appears to be biased toward conventional families. The high R^2 values suggest that family managers passively follow the market, but they are unable to perform well. Expenses and fees may contribute to underperformance, [29].

Four-factor model (Carhart, 1997)

Table 11 results of the four-factor model using the FTSE All-World Index as the market benchmark. Islamic families have a positive and significant alpha (α = 0.23, p < 0.05), which means that, on average, they outperform the four-factor benchmarks. Additionally, Islamic families (β = -0.2, p > 0.05) have lower risk than conventional families (β = -0.04, p > 0.05). These results are consistent with the single-factor model. Conventional families also outperform the market benchmark (α = 0.14, p < 0.05). Nonetheless, their performance still trails Islamic families.

Both Islamic (*SMB* = 0.02, p > 0.05) and conventional families (*SMB* = 0.03, p > 0.05) prefer smaller stocks, perhaps because they are easier to manage. Preference for growth-to-value stocks is also demonstrated by Islamic (*HML* = -0.05, p < 0.05) and conventional families (*HML* = -0.04, p < 0.05) to attract investors who prefer long-term and growth investments. These results support, [30], 31]. MOM is not significant for both. These preferences allow Islamic families to outperform conventional families and four-factor benchmarks.

Table 9. Mean Raw Returns, Mean Excess Returns, Sharpe Ratio, and Treynor Ratios (Islamic VS Conventional Families)

Country	Measure	Fund Family	FTSE Islamic	FTSE All World
Islamic Family	***Panel A: Mean raw, mean excess return, and Sharpe ratio***			
	Mean raw returns	0.3082	0.0032	0.0023
	Mean excess returns	0.2446	-0.0603	-0.0612
	Std. Dev	0.4424	0.0568	0.0464
	Sharpe ratio	0.4510	-1.0610	-1.3177
	Panel B: Beta and Treynor ratio using FTSE Islamic as benchmark			
	Beta	-0.1975	1.0000	--
	Treynor	-0.2748	--	--
	Panel C: Beta and Treynor ratio using FTSE All world as benchmark			
	Beta	0.1517	--	1.0000
	Treynor	1.6122	--	--
Conventional Family	***Panel A: Mean raw, mean excess return, and Sharpe ratio***			
	Mean raw returns	0.1764	0.0032	0.0023
	Mean excess returns	0.1065	-0.0668	-0.0676
	Std. Dev	0.4646	0.0569	0.0465
	Sharpe ratio	0.2291	-1.1731	-1.4550
	Panel B: Beta and Treynor ratio using FTSE Islamic as benchmark			
	Beta	-0.1606	1.0000	--
	Treynor	-0.4086	--	--
	Panel C: Beta and Treynor ratio using FTSE All world as benchmark			
	Beta	-0.1100	--	1.0000
	Treynor	-0.9677	--	--

Table 10. Single-factor model (Islamic vs conventional)

Country		FTSE Global Islamic			FTSE All World		
		α	***β***	**Adj. R^2**	***α***	***β***	**Adj. R^2**
Islamic Family	**Coeff**	0.2257	-0.3128	0.67	0.2330	-0.1899	0.65
	SE	0.0081	0.0918	-	0.0088	0.1054	--
	p	0.0000	0.0007	-	0.0000	0.0716	--
Conventional family	**Coeff**	0.0928	-0.2052	0.71	0.1042	-0.0334	0.75
	SE	0.0139	0.1454	--	0.0150	0.1657	--
	p	0.0000	0.1583	--	0.0000	0.8401	--

Table 11. Four-factor model (Islamic vs conventional)

Country		***α***	Market	SMB	HML	MOM	Adj.
Islamic Family	**Coeff**	0.2354	-0.2029	0.0257	-0.0474	0.0158	0.77
	SE	0.0092	0.1055	0.0214	0.0251	0.0129	-
	p	0.0000	0.0546	0.2310	0.0492	0.2189	-
Conventional Family	**Coeff**	0.1398	-0.0442	0.0310	-0.0440	-0.0119	0.73
	SE	0.0157	0.1660	0.0359	0.0420	0.0215	-
	p	0.0000	0.7902	0.9769	0.0257	0.5797	-

Table 12. TM and HM, sample

	FTSE Global Islamic			FTSE All-World		
	α	Gamma\Delta	Adj. R2	***α***	Gamma\Delta	Adj. R2
Panel A: Market timing measure; Treynor-Mazuy model						
Coeff	0.1953	-0.1292	0.74	0.1933	-0.3466	0.92
SE	0.0075	0.2547	-	0.0082	0.0870	-
p	0.1914	0.6118	-	0.5611	0.0006	-
Panel B: Market timing measure; Hendrickson-Merton model						
Coeff	0.1935	-0.0807	0.76	0.1986	-0.3068	0.79
SE	0.0072	0.1190	-	0.0079	0.1609	-
p	0.0002	0.4980	-	0.0001	0.0311	-

4.3 Market Timing Ability

4.3.1 Entire Sample

Treynor-Mazuy and Hendrickson-Merton

Table 12 presents the TM and HM results for the entire sample, estimated using ordinary least squares (OLS). Panel A shows that according to the TM model, fund families have poor timing ability and good selectivity skills irrespective of the benchmarks used. The alphas are positive while gammas are negative. Panel B shows the results of the HM model. Similarly, they indicate that family managers have poor timing skills but good selectivity skills, regardless of the benchmarks used. The alphas are positive while gammas are negative.

Because both models produce similar results, and because these results are also supported by the single- and four-factor models, it is strongly suggested that family managers are skilled in selecting securities. These selectivity skills are perhaps enabled by the diversification and investment opportunities of fund families. But the managers do not possess adequate timing skills. Their ability is perhaps hampered by the quantity and diversity of member funds in a family, which causes management and monitoring of funds to be more difficult.

4.3.2 By Country

Treynor-Mazuy model (TM)

Table 13 presents the by-country TM results estimated using OLS. Similar to the previous section, the fund families of all countries demonstrate good selectivity skills against both Islamic and conventional benchmarks, as all alphas are positive. Excepting Indonesia, all countries have poor timing skills when measured against both benchmarks.

Hendrickson-Merton model (HM)

Table 14 presents the by-country HM results estimated using OLS. The results generally support the TM model. All countries have positive alphas against both benchmarks, indicating their good security selection skills. Saudi Arabia and Malaysia have negative deltas, suggesting their poor market timing skills. Indonesia and Pakistan have good market timing skills as indicated by their positive deltas.

Table 13. TM by country

Country		FTSE Global Islamic			FTSE All World		
		Alpha	Gamma	Adj.	Alpha	Gamma	Adj.
Saudi Arabia	**Coeff**	0.4728	-0.1807	0.66	0.4991	-1.5384	0.68
	SE	0.0123	0.3960	-	0.0156	1.4976	--
	p	0.0005	0.6480	-	0.0001	0.3043	--
Malaysia	**Coeff**	0.0204	-0.6200	0.71	0.0237	-2.3097	0.72
	SE	0.0080	0.3625	--	0.0079	1.5346	--
	p	0.0106	0.0873	--	0.0027	0.1324	--
Indonesia	**Coeff**	0.1623	0.0395	0.59	0.2120	0.4160	0.61
	SE	0.0178	0.5419	--	0.0196	2.0396	--
	p	0.0002	0.9417	--	0.0003	0.2363	--
Pakistan	**Coeff**	0.0262	-0.2062	0.68	0.0061	-0.7841	0.71
	SE	0.0331	0.8704	--	0.0609	3.5697	--
	p	0.4290	0.8127	--	0.9190	0.8261	--

Table 14. HM by country

Country		FTSE Global Islamic			FTSE All World		
		Alpha	Delta	Adj.	Alpha	Delta	Adj.
Saudi Arabia	**Coeff**	0.4715	-0.0073	0.62	0.5075	-0.0385	0.61
	SE	0.0120	0.1846	-	0.0147	0.2912	--
	p	0.0001	0.9682	-	0.0009	0.0112	--
Malaysia	**Coeff**	0.0184	-0.2281	0.57	0.0237	-0.1927	0.60
	SE	0.0080	0.2309	--	0.0084	0.3688	--
	p	0.0211	0.3233	--	0.0047	0.6012	--
Indonesia	**Coeff**	0.1609	0.1893	0.68	0.2054	0.1126	0.71
	SE	0.0164	0.2404	--	0.0194	0.3345	--
	p	0.0004	0.4311	--	0.0002	0.7363	--
Pakistan	**Coeff**	0.0251	0.0959	0.49	0.0085	0.3381	051
	SE	0.0325	0.2746	--	0.0491	0.4269	--
	p	0.4409	0.7268	--	0.8614	0.4284	--

Table 15. TM (Islamic vs conventional)

Country		FTSE Global Islamic			FTSE All World		
		α	Gamma	Adj. R^2	α	Gamma	Adj. R^2
Islamic Family	**Coeff**	0.2249	0.0131	0.62	0.2217	1.6670	0.63
	SE	0.0085	0.2881	-	0.0093	1.0136	--
	p	0.0000	0.7203	-	0.0000	0.3210	--
Conventional Family	**Coeff**	0.0978	-0.5500	0.77	0.1030	-0.4206	0.75
	SE	0.0146	0.4809	--	0.0157	1.6263	--
	p	0.0000	0.2528	--	0.0000	0.7959	--

Table 16. HM (Islamic vs conventional)

Country		FTSE Global Islamic			FTSE All World		
		α	Delta	Adj. R2	α	Delta	Adj. R2
Islamic Family	**Coeff**	0.2254	0.0432	0.62	0.2266	-0.5583	0.61
	SE	0.0082	0.1369	-	0.0090	0.1886	--
	p	0.0000	0.7521	-	0.0000	0.3121	--
Conventional Family	**Coeff**	0.0914	0.1536	0.57	0.1036	-0.0512	0.60
	SE	0.0140	0.2112	--	0.0153	0.2708	--
	p	0.0000	0.4669	--	0.0000	0.8501	--

4.3.3 Islamic Vs Conventional

Treynor-Mazuy model (TM)

Table 15 presents the results for the analysis of security selection and market timing ability for the Treynor-Mazuy model (TM) using ordinary least square (OLS), for Islamic and conventional families. The results show that both Islamic and conventional families exhibit security selection coefficients significantly different from zero irrespective of the benchmarks used. While both Islamic and conventional families exhibit coefficients insignificantly different from zero irrespective of the benchmarks used. Nevertheless, there is evidence that Islamic families have better security selection and poor market timing ability than conventional families. In conclusion, both Islamic and conventional families have good selectivity skills, while both have poor market timing ability, with a relative advantage for Islamic families over conventional families.

Hendrickson-Merton model (HM)

Table 16 presents the results for the analysis of security selection and market timing ability for fund families using the Hendrickson-Merton model (HM) and ordinary least square (OLS), for Islamic and conventional families. The results are similar to the results of the Treynor-Mazuy model (TM) analysis. Islamic and conventional families exhibit security selection coefficients significantly different from zero irrespective of the benchmarks used. While both Islamic and conventional families exhibit coefficients insignificantly different from zero irrespective of the benchmarks used. Alpha is positive for both Islamic and conventional families whether used Islamic or conventional market benchmarks. Similar to the results of the TM model, Islamic families have better security selection and poor market timing ability than conventional families.

5 Conclusion

This study contributes novel evidence on fund family performance to the literature. We conclude with two important findings. First, fund family managers possess good security selection skills, benefitting from data and research available in fund families, in addition to diversification and investment opportunities. However, their market timing skills are poor, likely because fund families have diverse and numerous member funds, which restrict the managers from effectively projecting market trajectories and timing their entry or exit. Second, fund families work towards creating a star fund and then issue new funds to improve their overall performance.

These findings have important implications for fund managers and investors. Managers can gain an advantage over their peers by improving their market timing skills. Investors should allocate their capital to well-managed funds, i.e., those whose managers select securities and time markets well. Identifying such funds will enable investors to gain higher returns at lower total risk. The findings may also aid investors in making correct investment decisions, considering that they mostly employ the

top-down approach when making investment choices.

The findings are likewise useful for academicians and regulators. They provide important empirical evidence on fund family performance and fund manager skills in emerging markets.

We propose two recommendations based on the findings. First, empirical evidence on fund family performance is still lacking. The advantages of fund families—research and data support, more extensive networks, and diversification opportunities, among others—may enable them to perform better than standalone funds. We, therefore, recommend focusing on fund family performance and how to fund family characteristics influence the performance of member funds and itself. Second, we encourage scholars to focus their research on emerging and developing markets, such as the Middle East, South Asian, and Southeast Asian countries. Past studies are primarily concentrated in developed markets, and so their conclusions may not be readily generalizable to developing and emerging markets due to differences in market characteristics and culture, among others.

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