Spillover Effect in Islamic and Conventional Fund Family: Evidence from Emerging Countries

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Abstract: - This study examines star and poor funds belonging to fund families in Saudi Arabia, Pakistan, Indonesia, and Malaysia from 2007–2020. The analysis is divided into two parts. The first part examines how Islamic and conventional star and poor funds contribute to the overall flow of their respective fund families. Second, it examines and compares the spillover effect of Islamic and conventional star (poor) funds to peer funds. These effects are estimated using pooled fixed- and random-effects regression analysis. Overall, we find that having at least one-star fund leads to new money growth for families, whereas there is no effect from having at least one poor fund. The presence of star (poor) funds has mixed effects on new money flow to peer funds. To be precise, the spillover effect is found only in the presence of Islamic star funds. These findings have important implications for investors because they mainly choose funds based on the reputation of the fund family to which they belong, not on their fundamentals. This is especially pronounced in emerging markets, where funds are young and have short track records, and so they provide little information to investors to make sound investment decisions.

Key-Words: - Islamic finance, fund family, star fund, fund family flows, Islamic-focused family, emerging countries

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1 Introduction

Over the past decade, Islamic finance has grown steadily at a pace of 10–12 percent per year and is expected to grow to $3.8 trillion by 2024, [1]. This growth is driven partly by the growing Muslim population globally, which is forecasted to constitute 29.7 percent of the global population in 2050. This projection places Islam as the second largest religion after Christianity, [2].

Islamic assets under management (AUM) in 2008 was $802 million, increasing to $70.8 billion in Q1/2020. A similar positive trend was shown by Islamic funds, which increased from 802 to 1,535 during the same period, [1]. Equity funds constitute the largest share of AUM, followed by money market funds and commodity funds. By country, Saudi Arabia and Malaysia have the two largest shares of global AUM as of Q1/2017. Countries with the most Islamic funds are Malaysia (371), Saudi Arabia (350), Indonesia (155), and Pakistan (83).

Despite this development, the Islamic fund management industry is still a small niche within the context of the global fund management industry. In 2019, the Islamic industry was valued at $56.1 billion, which was around 6.6 percent of the global industry ($84.9 trillion), [3]. Nonetheless, PricewaterhouseCoopers forecast that the Islamic fund management industry will experience accelerated growth due to higher participation of pension funds, insurance firms, and high-net-worth individuals, [3]. Other drivers include the increased participation of institutional investors and non-Muslim sustainable investors. Investment and asset management firms should therefore exploit this

opportunity and capture new demands for Islamic funds.

As of 2020, Saudi Arabia and Malaysia house the five largest Islamic asset management firms, [4]. These are NCB Capital (Saudi Arabia, AUM = $7.4 billion), Public Mutual (Malaysia, $7.2 billion), Jadwa Asset Management (Saudi Arabia, $6.6 billion), CIMB Islamic (Malaysia, $4.9 billion), and Samba Capital (Saudi Arabia, $3.1 billion). The three largest firms in Pakistan rank below 20: Al Meezan Investment (3.1 billion, 21st), NBP Fullerton Asset Management ($3.3 billion, 31st), and Alfalah GHP Investment ($1.8 billion, 35th). Meanwhile, Mandiri Investasi ($1.2 billion) and Trimegah Asset Management ($6.4 billion), the two largest asset management firms in Indonesia, ranked 39th and 46th.

Some fund families are more capable of raising capital from investors because of their reputation, [5]. This reputation is earned from the historical performance of their funds or fund families. Investors expect reputable funds or fund families to provide better returns. To attract investors, fund families advertise their star funds to signal their superior performance. They also tend to take advantage of the spillover effect of their star funds to improve the overall inflow of the family, [6]. But it remains unclear whether star funds do improve overall family flows and flows to peer funds (spillover effect). In this paper, we examine whether Islamic and conventional star funds improve overall family flows. Most fund families have both Islamic and conventional funds, but their characteristics and underlying assumptions differ. Therefore, it is likely that the size and significance of their contribution to overall family flows differ, [7].

Previous studies have shown that fund performance positively affects fund cash flow, but little is known about whether the positive performance of a fund can entice investors to purchase its peers (i.e., other funds that belong to the same family). It is also uncertain whether fund families with a star fund perform better than those without one. This study thus contributes novel empirical evidence by analyzing the effects of star funds at the fund family level. The findings have important implications for investors because they mainly choose funds based on the reputation of the fund family to which they belong, not their fundamentals. This is especially pronounced in emerging markets, where funds are young and have short track records, and so they provide little information to investors to make sound investment decisions. There is evidence that having at least one superior-performing fund can produce a spillover effect within a family [6], [8]. Superior past performance, therefore, increases cash inflow into both the fund and its family. Similar results are found in SRI families, [5], [9], [10].

This paper examines the effect of star funds on overall family flow and flows to their peer funds in four emerging markets: Malaysia, Saudi Arabia, Indonesia, and Pakistan. We further compare the spillover effect of Islamic and conventional star (poor) funds. These four markets are selected because they have the largest Islamic AUM and most Islamic funds as of Q1/2017, [11].

In the next section, we briefly present the Islamic fund management industry in the four sample countries. We then review related literature, explain our methodology, and discuss the findings in the following sections. The final section concludes.

2 Islamic Fund Management Industries in Saudi Arabia, Malaysia, Indonesia, and Pakistan

Saudi Arabia and Malaysia are at the forefront of the emerging Islamic fund management industry. They have made great efforts to increase awareness of Islamic finance and Islamic asset management, [12]. Both pioneers are trailed by Muslim and non-Muslim majority countries. Ireland, the United States, Luxembourg, Pakistan, Kuwait, and South Africa are among the countries that have witnessed the immense growth of the Islamic asset management industry. Excluding Malaysia and Saudi Arabia, Luxembourg, Mauritius, Ireland, Kuwait, Pakistan, and the Cayman Islands are the leading countries in terms of the number of Islamic funds, [3].

2.1 Saudi Arabia

Saudi Arabia is the largest economy in the Middle East, enabling the development of a large mutual fund industry, [13]. It is currently the largest Islamic financial market, housing diverse types of institutions offering a broad range of financial products. Its financial system is bank-centric, as 11 banks account for more than half of its financial system's assets. Most investment funds of the Gulf Cooperation Council (GCC) are domiciled in the country. The Capital Market Authority (CMA) of Saudi Arabia reports that Saudi Arabia has 607 funds in 2020, compared to 270 in 2015. The asset management industry was valued at $124.28 billion in 2020 and $98 billion in 2015. The funds offer the opportunity to invest in various asset classes from local to international levels. As of 2020, Saudi

Arabia has 41 fund management companies (FMC), compared to 33 in 2015.

Saudi Arabia established its Islamic mutual fund industry in 1992. Its Islamic financial institutions have begun offering various financial instruments to better respond to the demands of citizens. Savings and current accounts and financial deposits are supplemented with investment programs and other Islamic financial services that comply with Islamic law.

2.2 Malaysia

The Malaysian Unit Trust Limited was established in 1959, [14]. It only issued its first mutual fund in 1966 after being renamed Asia Unit Trust Berhad. The mutual fund industry further grew with the establishment of Permodalan Nasional Berhad (PNB) in 1979 and the introduction of the Skim Amanah Saham Nasional (ASN) fund in 1981. The issuance of Amanah Saham Bumiputera (ASB) in 1991 further propelled the industry's growth. In 1991, Tabung Ittikal, the first Islamic mutual fund, was introduced by the Arab Malaysian Unit Trust Berhad. The Development of the conventional and Islamic mutual fund industries has been driven by favorable legal and tax policies. The Securities Commission (SC) reported that the mutual fund industry in 2020 was valued at $188.91 billion in 2020 and $160.81 billion in 2015. During the same period, the number of funds increased from 611 to 654. In 2019, 80 FMCs were operating in Malaysia, compared to 51 in 2015. Malaysia currently ranks second by contributing 31.7 percent, or $36.5 billion, to the global Islamic AUM with $36.5 billion.

2.3 Pakistan

ABAMCO Ltd. (now JS Investment Ltd.) launched the first IMF in Pakistan in 2002. The net assets of Pakistan's IMF increased fifteen-fold between 2003 and 2008. However, the 2008 financial crisis and less than complementary tax policies have severely curbed subsequent growth. The mutual fund industry was valued at $4 billion in 2020 and doubled by over $2 billion in 2015. During the same period, the number of funds increased from 221 to 255. Pakistan had 30 FMCs in 2019, increasing from 22 in 2015. In 1995, Al Meezan Investment Management Limited launched its first closed-end fund. It became the first full-fledged Islamic-compliant asset management firm in 2003, subsequently launching its first Islamic fund. Gross Islamic equity assets grew to $3.6 billion in 2008 from $800 million in 1996, [15]. Islamic equity funds grew from 29 in 1996 to 232 in 2009. Pakistan contributes 2.3 percent ($2.4 billion) to the global Islamic AUM.

2.4 Indonesia

The Indonesian mutual fund industry was only established in 1996 with 25 funds and an AUM of $297.3 million, [16]. While there is now a range of Shariah-compliant mutual funds based in Indonesia, these are generally much younger and smaller than the funds in Malaysia or Saudi Arabia, partly because of an almost exclusive focus on local investors. Currently, about 12 FMCs in Indonesia offer Islamic mutual funds. Most of these are financial institutions that are already active in other types of Islamic products, [17]. According to the Financial Services Authority of Indonesia, the asset management industry stood at $38.98 billion in 2020, up 11.01 percent from $30.34 trillion at the end of 2017. Indonesia had 86 FMCs at the end of 2019, compared to 77 FMCs as at the end of 2017. At the end of August 2020, IMFs comprised 10.51 percent of the mutual fund industry, up from 10.24 percent in December 2017. The 210 Islamic mutual funds, 28 of which were launched in 2020, have a total net asset value of $2.05 billion or 6.31 percent of the overall market.

3 Literature Review

Since the 1990s, there has been a growing body of research on mutual fund performance, fund inflows, and the behavior of mutual fund investors. Past fund performance is an important determinant of investor behavior; investors typically favor superior-performing funds. There have also been studies on how investors respond to expenses when investing in mutual funds. Studies on fund performance and flows in developed markets show that fund performance and fund money inflow are positive and asymmetric, [18], [19], [20], [21], [22]. Recent research on fund performance and flow of corporate bond funds in the US suggests that their flows respond to their performance. However, sensitive convexity is not found in the relationship between both variables, [23]. Compared to conventional funds, the flow-performance relationship in socially responsible investment (SRI) funds is much weaker. The loyalty of ethical and traditional investors is also comparatively similar, [24].

Studies in emerging markets reveal a convex relationship between fund flow and performance for funds that invest in emerging market economies. In other words, fund inflow increases when past performance is positive, and vice versa, [25]. Islamic fund investors in Malaysia are more

sensitive to poorly performing funds, suggesting that they rationally select funds. The investors demonstrate that they chase the best-performing funds. Flow and performance relationship in Islamic and conventional funds is also asymmetric and convex, [26]. Flow-performance relationship in SRI funds is asymmetric, as investors react less aggressively to negative returns than positive returns. There is also evidence for an asymmetric flow-performance relationship in Sharia-compliant funds, [27].

Scholars find empirical evidence for the positive spillover effect within a family, [8], [28], [29]. Superior-performing (star) funds within a family can help to increase the flows to peer funds. Conversely, poorly performing funds do not attract funds into the family. [16], show that the market share of families can be increased with the possession of at least one-a star fund.

Past studies have examined the spillover effect of a fund using different methods and determinants, [5], [6], [19], [28], [30], [31]. Some investigate whether advertising produces a spillover effect on the cash inflows of new funds, [32], [33], [34], [35]. There is evidence that star funds produce a spillover effect by increasing cash inflows to non-star peer funds, [8]. The authors define star funds as those funds in the top 5 percent of family-adjusted return. Flows to families with at least a single-star fund are significantly higher than to families without such a fund. Star funds contribute positively to their flows and flow to peer funds. But similar evidence is not found for low-ranking funds. Proportional treatment of individual funds in a family is possible by understanding the spillover effect in fund families. [36], find that a superior-performing fund improves the reputation of a fund family among investors. This brings new cash inflows to the star fund and its peers. Additionally, star funds increase the fund family's market share.

Other studies examine how star funds benefit fund families. The majority of these studies report that star funds attract more inflows to their families by increasing flows to themselves and their peers. [5], examine how star funds benefit Korean fund families in 2001–2009. They find that families with star funds are able to attract new flows better than those without any. Star funds also increase new flows to non-star peers and new funds in the family.

[37], estimate the effect of star and poor funds on the flows of Islamic and conventional fund families in Saudi Arabia, Malaysia, Indonesia, and Pakistan. The results indicate that star funds are positively related to family flows, and so fund families can advertise their superior-performing funds to attract more investments. Poor funds, on the other hand, are not significantly related to the flows of the overall sample and Islamic families. However, they are negatively related to conventional families. These findings suggest that investors of Islamic families are more loyal because of the additional moral and religious goals of their investments compared to conventional family investors.

The flow-performance relationship for SRI families with star funds is likewise similar. [6] find that star funds in SRI families increase monthly cash inflows to their peers. There is no evidence for the negative spillover effect of poor funds.

This study is the first to compare the effect of star funds on the flows of Islamic and conventional families in emerging markets, with a high focus on Islamic funds. It bridges the knowledge gap relating to the spillover effect of star (poor) funds to their peers, [6]. The findings have important implications for fund family managers on how to increase new inflows and for investors on how to select the best funds.

4 Methodology

4.1 Data

We examine a sample of 70 fund families (503 funds) in Saudi Arabia (25), Malaysia (20), Indonesia (14), and Pakistan (11). Data are collected from Bloomberg. Following, [38], [39], the sample is fund families whose assets are mostly in equities. We include only equity funds, i.e., funds with at least 60 percent of their portfolio in equity. Fund families are divided into Islamic and conventional using the 33 percent benchmark, a screening methodology commonly applied by index providers. A fund family whose conventional equity funds make up more than 33 percent of its funds is classified as a highly conventional mutual fund family. We label such a fund as conventional-fund-focused families (CFF). If they are less than 33 percent, the fund families are considered high Islamic mutual fund families. We label such a fund as Islamic-fund-focused families (IFF).

Following [34], [40], [41], family performance is measured as its overall return. To be precise, it is measured as the weighted average net asset value of all equity funds in a given family. The sample period is January 2007 to December 2020. Performance is benchmarked against the FTSE All-World Index, which provides the largest coverage of global equity markets, [42]. The US 3-month T-bill rate is the risk-free rate.

Fund family performance is calculated using Carhart's four-factor model. Fund performance is then ranked to identify star (top 5%) and poor funds (bottom 5%), [5], [6]. The model is expressed as:

$$FR_{i,t} - R_{f,t} = \alpha_i + \beta_i(R_{m,t} - R_{f,t}) + \beta_s SMB_t + \beta_v HML_t + \beta_M MOM_t + \varepsilon_{i,t} \quad (1)$$

where $FR_{i,t}$is the monthly returns of a mutual fund family (weighted net asset value of equity funds in a fund family), $R_{f,t}$ is the risk-free rate, $R_{m,t}$is the return of the market benchmark, SMB_t is the return on the portfolio of small minus big stocks listed in the respective benchmark in time *t*, HML_t is the return on the portfolio of a high minus low book-to-market stocks listed in the respective benchmark in time *t*, and MOM_t is the rate of return on the portfolio of a high minus low momentum (prior 1-year return) stocks in the respective benchmark in time *t*. Table 1 shows the number of star and poor funds in IFF and CFF across the sample period. Values in parentheses are the total number of funds.

Table 1. Summary of star and poor funds in IFF and CFF

Year	Star Family (Fund)	Poor Family (Fund)	Star IFF (Fund)	Star CFF (Fund)	Poor IFF (Fund)	Poor CFF (Fund)
2007	19 (28)	16 (25)	14 (19)	5 (9)	10 (15)	6 (10)
2008	20 (27)	16 (25)	14 (21)	6 (11)	10 (16)	6 (9)
2009	19 (27)	17 (25)	11 (17)	8 (10)	14 (19)	3 (6)
2010	19 (26)	17 (25)	11 (16)	8 (10)	15 (21)	2 (4)
2011	16 (27)	19 (26)	10 (16)	6 (11)	16 (21)	3 (5)
2012	19 (29)	18 (26)	12 (19)	7 (10)	13 (17)	5 (9)
2013	18 (25)	20 (28)	10 (15)	8 (10)	15 (20)	5 (8)
2014	20 (29)	19 (28)	14 (19)	6 (10)	14 (19)	5 (9)
2015	15 (25)	20 (29)	8 (15)	7 (10)	16 (22)	4 (7)
2016	17 (25)	16 (25)	9 (14)	8 (11)	13 (18)	3 (7)
2017	15 (25)	17 (25)	10 (17)	5 (8)	12 (16)	5 (9)
2018	18 (26)	18 (27)	11 (16)	7 (10)	14 (18)	4 (9)
2019	16 (24)	17 (26)	10 (16)	5 (9)	13 (16)	5 (8)
2020	17 (24)	17 (26)	11 (18)	6 (10)	14 (17)	6 (8)

New money growth is the dependent variable. It is defined as the net growth of net total assets from new external money. Three steps are followed to obtain this rate, [5], [6]. First, fund inflow to each fund is computed using Eq. (2). Total cash inflow into the family is then calculated using Eq. (3). New money growth rate for a fund family in month *t* can then be calculated using Eq. (4):

$$Newmoney_{i,t} = TNA_{i,t} - TNA_{i,t-1} * (1 + R_{i,t}) \quad (2)$$

$$Newmoney_{f,t} = \sum_{i=1}^{n} . Newmoney_{i,t} \quad (3)$$

$$NewmoneyGrowth_{f,t} = \frac{Newmoney_{f,t}}{\sum_{i=1}^{n} TNA_{i,t-1}} \quad (4)$$

where $TNA_{i,t}$ is the total net asset value of fund *i* at period *t*; $TNA_{i,t-1}$ is the total net asset value of fund *i* at period $t-1$; and $R_{i,t}$ is the raw return of fund *i* at period *t*.

Four dummy variables are used to estimate the spillover effect of Islamic and conventional star (poor) funds:

1. ISF equals one if an IFF has at least one-star fund;
2. IPF equals one if an IFF has at least one poor fund;
3. CSF equals one if a CFF has at least one-star fund; and
4. CPF equals one if a CFF has at least one poor fund.

We also use five control variables: family age, family size, number of funds, historical family returns, and total family risk. Because the sample covers four markets, we also use economic variables as control variables. These are industry age, GDP per capita, turnover ratio, and common law.

4.2 Model

The analysis comprises two parts. First, we estimate the effect of star and poor funds on overall family flow. Second, we compare the effect of Islamic and conventional star (poor) funds on overall family flow and flow to peer funds. The panel regression model for the first analysis is expressed as:

$$Newmoney_{f,t} = \alpha_f + \beta_1 perf_{f,t-1} + \beta_2 NF_{f,t-1} + \beta_3 FFA_{f,t-1} + \beta_4 FFS_{f,t-1} + \beta_5 TR_{f,t-1} + \beta_6 GDP_{i.t} + \beta_7 TOR_{i,t} + \beta_8 Dlaw_{i,t} + \beta_9 IAge_{i,t} + \beta_9 SFdummy_{f,t-1} + \beta_{10} PFdummy_{f,t-1} + \varepsilon_{f,t} \quad (5)$$

where $Newmoney_{f,t}$ is new cash inflow into a fund family at a time *t*; $perf_{f,t-1}$ is the returns of a family at time *t*-1; $NoFunds_{f,t-1}$ is the number of funds managed by the fund family; $FFA_{f,t-1}$ is family age measured in log years; $FFS_{f,t-1}$ is fund family size; $TR_{f,t-1}$ is total family risk; $GDP_{i.t}$ is the GDP per capita at time *t*; $TOR_{i,t}$ is the share turnover ratio; $Dlaw_{i,t}$ is a dummy variable that equals one for a common-law country; $IAge_{i,t}$ is industry age at time *t*; $SFdummy_{f,t-1}$ is a dummy variable whose value is one if fund family *f* has at least one-star fund; $PFdummy_{f,t-1}$ is a dummy variable whose value is one if fund family *f* has at least one poor fund; and $\varepsilon_{i,t}$ is the error term.

A positive $SFdummy_{f,t-1}$ coefficient means that fund family *f* earns more cash inflow because it has at least a one-star fund. In contrast, if $PFdummy_{f,t-1}$is negative, there is less cash inflow (or even cash outflow) because fund family *f* has at least one poor fund.

The second part of the analysis is estimated using the following panel regression model:

$$Newmoney_{f(non),t} = \alpha_{f(non)} + \beta_1 perf_{f(non),t-1} + \beta_2 NF_{f(non),t-1} + \beta_3 FFA_{f(non),t-1} + \beta_4 FFS_{f(non),t-1} + \beta_5 TR_{f(non),t-1} + \beta_6 ISF\ dummy_{f,t-1} + \beta_7 IPF\ dummy_{f,t-1} + \varepsilon_{f(non),t} \quad (6)$$

$$Newmoney_{f(non),t} = \alpha_{f(non)} + \beta_1 perf_{f(non),t-1} + \beta_2 NF_{f(non),t-1} + \beta_3 FFA_{f(non),t-1} + \beta_4 FFS_{f(non),t-1} + \beta_5 TR_{f(non),t-1} + \beta_6 CSF\ dummy_{f,t-1} + \beta_7 CPF\ dummy_{f,t-1} + \varepsilon_{f(non),t} \quad (7)$$

where $Newmoney_{f(non),t}$ is the cash flow growth rate for fund family *f* in period *t*. This is the sum of cash flows to all equity funds, except for Islamic (conventional) star (poor) funds, in the fund family in period *t*, divided by the sum of net asset values of all funds in the family except for Islamic (conventional) star (poor) funds in period *t*. $perf_{f(non),t-1}$ is the risk-adjusted return of family *f*, excluding Islamic (conventional) star (poor) funds, estimated using Carhart's four-factor model. $SIFdummy_{f,t-1}$ is a dummy variable that equals one if fund family *f* has at least one Islamic or conventional star fund. $PIFdummy_{f,t-1}$ is a dummy variable that equals one if fund family *f* has at least one Islamic or conventional poor fund. $\alpha_{f(non)}$ is a constant term whose value is fixed for fund family *f* and $\varepsilon_{f(non),t}$ is an error term with average and variance.

If $ISF\ dummy_{f,t-1}$ ($IPF\ dummy_{yf,t-1}$) in Eq. (6) is positive (negative) and statistically significant, then Islamic star (poor) fund(s) produce a spillover (reverse spillover) to peer funds. A similar interpretation for conventional funds is given for a positive (negative) and significant value of $ISF\ dummy_{f,t-1}$ ($IPF\ dummy_{f,t-1}$) in Eq. (7).

5 Results and Discussion

5.1 Descriptive Statistics

Table 2 shows the results of the Breusch-Pagan/Cook-Weisberg and variance inflation factor (VIF) tests. The Breusch-Pagan/Cook-Weisberg test identifies heteroscedasticity in the dataset. Because prob > chi2 is > 0.05, there is constant variance in the data and the absence of heteroscedasticity. The computed VIFs are far below the threshold of 10, indicating the absence of multicollinearity in the data.

Table 3 shows the descriptive statistics for all variables. There is positive new money growth for the entire sample (*M* = 0.319). On average, the sample families have been operating for 18 years. A fund family has seven funds on average with a net asset value of $1,850.6 million. The average total risk is 0.330. All countries have negative returns for the current month (*M* = -0.073) and the previous month (*M* = -0.032). New money growth is positive for Saudi Arabia (*M* = 0.236) and Malaysia (*M* = 0.763) but negative for Indonesia (*M* = -0.165) and Pakistan (*M* = -0.315).

Table 2. Breusch-Pagan/ Cook-Weisberg and VIF Test

Variables	VIF	1/ VIF	Heteroscedasticity test
Family Age	1.40	0.7134	
Number of Funds	1.30	0.7717	H0: Constant variance
Family Size	1.14	0.8770	
Past Flows	1.13	0.8866	Prob > Chi2 = 0.092
Dummy Star	-----	-----	
Dummy Poor	-----	-----	
Past Performance	1.04	0.9593	
Total Risk	1.07	0.8954	
Mean VIF	**1.18**	-----	

Only Saudi Arabia has positive current (*M* = 0.157%) and previous month (*M* = 0.157%) returns. Other countries experience negative returns for both current and previous months. Malaysia has the least negative current (*M* = -0.125) and lagged one-month (*M* = -0.098) returns, while Pakistan has the highest negative returns for both. Saudi Arabia at the same time has the highest return volatility (*M* = 0.158). The second-most volatile market is Indonesia (*M* = 0.07), followed by Pakistan (*M* = 0.06) and Malaysia (*M* = 0.05). In other words,

Saudi Arabia has the highest risk among the sample countries, while Malaysia has the lowest. Malaysia has the oldest families (26 years), followed by Indonesia (18 years), Saudi Arabia (14 years), and Pakistan (11 years).

Malaysia and Pakistan have the highest average number of funds (8), while Indonesia and Saudi Arabia have six funds on average. While the industry is the youngest in Pakistan, it follows an aggressive strategy to introduce new funds to the market, hence its high average. Consistent with its age and number of funds, Malaysia's fund family size is the largest, with a total net asset value of $2,267.2 million. Placing second is Saudi Arabia ($2,214.1 million), followed by Pakistan ($1,781 million), and Indonesia ($1,530 million). Saudi Arabia has the lowest total risk (M = 0.259) while Pakistan has the highest risk (M = 0.419), reflecting recent regulations and policies concerning the mutual fund industry.

Table 3 also reports new money growth for the overall IFF and CFF sample and by country. Overall, both IFF (M = 0.216) and CFF (M = 0.07) have positive money growth, which means that they receive positive net inflow during the sample period. New money growth is larger for IFF, perhaps because the market leaders, Malaysia and Saudi Arabia, have a large number of IFFs and Islamic funds. New money growth is positive for both IFF (M = 0.762) and CFF (M = 0.321) in Malaysia. Pakistan, however, reports negative new money growth for both IFF (M = -0.240) and CFF (M = -0.381). In other words, both receive negative net inflow during the sample period. In Indonesia, new money growth is positive for IFF (M = 0.107) and negative for CFF (M = -0.14).

IFF has the highest returns in Saudi Arabia (M = 0.157). Malaysian IFF ranks second (M = -0.016), followed by Indonesia (M = -0.106) and Pakistan (M = -0.155). IFF is most mature in Malaysia (27 years), followed by Indonesia (19 years), Saudi Arabia (14 years), and Pakistan (9 years). Malaysia also has the most funds in IFF (9 funds), followed by Pakistan (8), Saudi Arabia (6), and Indonesia (6). Saudi Arabia leads in IFF asset value with $2,214 million, followed by Malaysia ($1,807 million), Indonesia ($1,129 million), and Pakistan ($1,120 million). On average, lagged one-month flows are highest in Pakistan (M = -0.02), then Malaysia (M = -0.07), Indonesia (M = -0.36), and Saudi Arabia (M = -0.58).

IFF has higher current month (M = -0.003) and lagged one-month (M = 0.005) returns compared to CFF (M = 0.147 and M = -0.147). While returns are negative for the overall sample, IFF still performs better than CFF. IFF (M = 17.73 years) is similar in age to CFF (M = 17.76 years). The average number of funds is relatively similar (IFF = 7.1, CFF = 7.2). IFF has a larger net asset value (M = $1,522.5 million) than CFF (M = $1,270 million). On average, IFF experiences lower money outflow (M = -0.344) than CFF (M = -0.51).

IFFs report better monthly and lagged one-month returns than CFFs in all four countries. IFFs are also older than CFFs in Malaysia and Indonesia. CFFs are four years older than IFFs in Pakistan. This suggests the advantage of IFFs over CFFs in Malaysia and Indonesia. IFFs are larger than CFFs in Malaysia and Indonesia, while the opposite is true in Pakistan. IFFs in Malaysia have an average of nine funds, while CFFs are seven funds. The net asset value of IFFs is $1,806 million while CFFs are $971 million. In Indonesia, IFFs have more funds (6) than CFFs (6). The net asset value of the former is $1,129 million while the latter is $932 million. Pakistani IFFs, on the other hand, have fewer funds (8) than CFFs (8). IFFs also have a lower net asset value ($1,120 million) than CFFs ($1,514 million). Money outflow from IFFs is lower than CFFs for all countries. Pakistani IFFs have the least outflow (M = -0.019), followed by Malaysia (M = -0.069) and Indonesia (M = -0.359). Overall, IFFs in Malaysia and Saudi Arabia are superior to CFFs in most variables, including performance.

5.2 Correlation

Table 4 shows the pairwise correlations between the research variables and new money growth. Family age, the number of funds, star dummy, and historical returns correlate positively with new money growth. This means that older families, larger families, families with at least one-star fund, and families with positive historical performance are more likely to attract new inflows. Family size, total risk, and poor dummy correlate negatively with new money growth. This means that smaller families (in terms of net asset value), riskier families, and families with at least one poor fund are less likely to attract new inflows. Family performance and past family performance are also strongly and positively correlated.

Table 3. Descriptive statistics

	All			High IMF family			High CMF family			Equality of variance		Equality of means	
	N	**Mean**	**SD**	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	***t*-stat**	***p***	***t*-stat**	***p***
Saudi Arabia													
N. Fund	162	--	--	162	--	--	--	--	--	--	--	--	--
N. fam	25	--	--	25	--	--	--	--	--	--	--	--	--
Fam Ret	25	0.157	0.158	25	0.157	0.158	--	--	--	--	--	--	--
N.M.G	25	0.236	1.753	25	0.236	1.753	--	--	--	--	--	--	--
Fam age	25	13.86	2.267	25	13.86	2.267	--	--	--	--	--	--	--
Fund/fam	25	6.48	2.777	25	6.48	2.777	--	--	--	--	--	--	--
Fam size	25	2214.1	410.4	25	2214.1	410.4	--	--	--	--	--	--	--
P. return	25	0.156	0.158	25	0.156	0.158	--	--	--	--	--	--	--
Total risk	25	0.259	0.221	25	0.259	0.221	--	--	--	--	--	--	--
Malaysia													
N. Fund	170	--	--	88	--	--	82	--	--	--	--	--	--
N. fam	20	--	--	11	--	--	9	--	--	--	--	--	--
Fam Ret	20	-0.125	0.045	11	-0.016	0.044	9	-0.044	0.048	0.112	0.456	1.893	0.031
N.M.G	20	0.563	1.613	11	0.762	1.487	9	0.321	1.161	3.623	0.001	4.793	0.000
Fam age	20	26.4	1.408	11	26.83	1.792	9	25.1	1.153	2.215	0.014	1.508	0.067
Fund/fam	20	8.5	2.682	11	8.866	2.372	9	7.4	2.437	-1.24	0.134	-2.93	0.002
Fam size	18	2267.2	582.7	10	1806.9	548.5	9	971.1	151.1	11.27	0.000	11.38	0.000
P. return	20	-0.125	0.045	10	-0.125	0.044	9	-0.124	0.048	0.360	0.359	2.029	0.022
Total risk	20	0.335	0.147	11	0.327	0.157	9	0.344	0.134	-0.88	0.189	-0.63	0.026
Indonesia													
N. Fund	83	--	--	50	--	--	33	--	--	--	--	--	--
N. fam	14	--	--	8	--	--	6	--	--	--	--	--	--
Fam Ret	14	-0.133	0.067	8	-0.106	0.072	6	-0.147	0.054	3.854	0.000	3.777	0.000
N.M.G	13	-0.037	1.438	8	0.107	1.402	6	-0.140	1.383	2.280	0.012	3.434	0.000
Fam age	14	17.78	2.120	8	18.94	2.995	6	15.7	2.746	2.026	0.022	3.780	0.000
Fund/fam	14	5.929	1.036	8	6	1.253	6	5.80	0.403	1.032	0.152	1.884	0.032
Fam size	12	1530.3	218.4	7	1129.1	144.7	6	931.9	143.1	9.314	0.000	7.19	0.000
P. return	14	-0.132	0.066	8	-0.125	0.071	6	-0.145	0.055	3.863	0.000	3.742	0.000
Total risk	14	0.378	0.177	8	0.396	0.182	6	0.355	0.169	0.497	0.068	0.048	0.015
Pakistan													
N. Fund	87	--	--	44	--	--	43	--	--	--	--	--	--
N. fam	11	--	--	6	--	--	5	--	--	--	--	--	--
Fam Ret	11	-0.193	0.055	6	-0.155	0.047	5	-0.163	0.061	1.899	0.030	1.917	0.030
N.M.G	10	-0.315	0.755	6	-0.240	0.720	5	-0.381	0.833	1.661	0.049	2.886	0.002
Fam age	11	10.77	3.328	6	9.33	2.428	5	12.50	3.922	-2.95	0.002	-4.65	0.000
Fund/fam	10	7.909	3.269	6	7.50	4.750	5	8.40	3.585	-1.21	0.115	-0.59	0.278
Fam size	10	1780.8	554.2	6	1119.6	536.7	5	1514	555	7.621	0.000	8.429	0.000
P. return	11	-0.164	0.055	6	-0.157	0.047	5	-0.176	0.062	1.497	0.068	1.449	0.076
Total risk	11	0.419	0.269	6	0.429	0.280	5	0.406	0.257	0.498	0.310	-0.49	0.311
All countries													
N. Fund	502	--	--	344	--	--	158	--	--	--	--	--	--
N. fam	70	--	--	50	--	--	20	--	--	--	--	--	--
Fam Ret	70	-0.073	1.235	50	-0.003	0.184	20	-0.147	0.057	1.096	0.000	2.340	0.000
N.M.G	70	0.319	0.083	50	0.216	1.472	20	0.066	1.417	5.028	0.000	5.597	0.000
Fam age	70	17.74	1.421	50	17.73	1.421	20	17.76	2.455	-2.26	0.012	-1.97	0.000
Fund/fam	68	7.183	2.453	49	7.164	2.296	20	7.200	2.721	-3.58	0.000	-3.12	0.000
Fam size	68	1850.6	430.5	50	1522.5	446.2	19	1270	419.5	32.42	0.000	43.83	0.000
P. return	70	-0.032	0.051	49	-0.005	0.184	20	-0.147	0.058	3.051	0.000	2.697	0.000
Total risk	70	0.330	0.211	50	0.317	0.221	20	0.363	0.183	-2.19	0.014	-4.97	0.000

Table 4. Correlation matrix

	New money growth	Family returns	Family age	Number of funds	Family size	D star	D poor	Past returns	Total risk
New money growth	1.000								
Family returns	0.210	1.000							
Family age	0.199	0.1177	1.000						
Number of funds	0.217	-0.135	0.187	1.000					
Family size	-0.080	0.0858	-0.203	0.345	1.000				
D star	0.714	0.1866	0.060	0.190	-0.056	1.000			
D poor	-0.043	-0.1842	0.075	0.192	-0.038	-0.010	1.000		
Past returns	0.152	0.9266	-0.124	-0.141	0.073	0.029	-0.150	1.000	
Total risk	-0.032	-0.021	-0.117	-0.150	-0.019	-0.003	0.011	-0.227	1.000

6 Empirical Results

6.1 Part One: Effect of Star (Poor) Funds on Overall Fund Family Flows

6.1.1 Overall Family

In this section, we examine the effect of having at least one star (poor) fund on overall family flow. We estimate this effect by regressing new money growth on the dummy variables of the star fund and poor fund. Table 5 shows the regression results for all countries and by country.

Past family returns and lagged family returns are positively and significantly related to new money growth. These support evidence in the literature on the positive performance-flow relationship at the fund and family levels, [8], [31], [43], [44], [45], [46], [47], [48], [49], [50], [51], [52], [53]. Because new money growth is positively linked to the strategy of generating a star fund, we conclude that investing in a fund family implies that high-risk investment yields high returns. The dummy star variable positively and significantly affects new money growth. In other words, star fund(s) can increase the new inflow of funds to the family. However, the dummy poor variable is not significant, suggesting that poor fund(s) does not lead to family outflows. According to, [31], [44], fund performance does not lead to money outflows from the funds, likely due to the cognitive dissonance of investors. Our results also support, [5], [8] at the family level.

Country-level analysis shows that past family returns are positive and significant predictors of new money growth for all countries. The dummy star variable is likewise positive and significant, indicating that star funds increase the overall inflows of fund families in all four markets. Saudi Arabia has the largest coefficient (B = 0.972, p < 0.05), while Pakistan has the smallest (B = 0.644, p < 0.05). Indonesia (B = 0.912, p < 0.05) and Malaysia (B = 0.922, p < 0.05) have comparable coefficients. This means that having at least one-star fund increases fund family inflows by 0.644–0.972 units in those respective countries.

Except for Indonesia, the dummy star coefficient is not significant for all countries. The variable is negative and significant for Indonesia, B = - 0.264, p < 0.05. This means that having at least one poor fund can lead to money outflows from the fund family. A likely reason for this is because Indonesian investors are still unsophisticated, and so they quickly withdraw their investments in losing funds. In contrast, poor funds in the three other sample countries do not lead to family outflows. This means that investors in those markets do not withdraw their investments from poor families.

6.1.2 IFF vs. CFF

This section compares the effect of star (poor) funds on the overall outflows of IFF and CFF. Table 5 presents the results. The results for Saudi Arabia are similar to the results in the previous section, seeing that Islamic funds comprise more than two-thirds of their fund family portfolios. Therefore, the focus will be given only to the three other sample countries.

Star funds have a positive and significant effect on new money growth for both IFF (B = 0.981, p < 0.05) and CFF (B = 0.324, p < 0.05), which means that their presence increases inflows to both types of families. Both IFF and CFF can advertise their star funds to attract more inflows. While poor funds negatively affect new money growth, this relationship is not significant. These results are consistent with the previous section. Investors of both IFF and CFF, in general, do not withdraw their investments from families with poor funds.

Country analysis shows that IFF and CFF results in Malaysia and Pakistan are consistent with the overall sample analysis. Star fund positively influences new money growth in Malaysian IFF (B = 0.812, p < 0.05) and CFF (B = 0.67, p < 0.05) and

Pakistani IFF (B = 0.458, p < 0.05) and CFF (B = 0.725, p < 0.05). In Indonesia, a star fund in a CFF is positively related to its new money growth (B = 0.721, p < 0.05), while a poor fund is negatively related to its new money growth (B = -0.005, p < 0.05).

Table 5. Regression Estimates

Variables	All MF family	IMF family	CMF family	Difference
Saudi Arabia				
Constant	-0.383 (0.129)	-0.383 (0.129)	---	---
Family Age	0.034 (0.049)*	0.034 (0.049)*	---	---
Number fund	0.077 (0.022)*	0.077 (0.022)*	---	---
Family Size	0.234 (0.186)	0.234 (0.186)	---	---
Dummy Star	0.972 (0.000)**	0.972 (0.000)**	---	---
Dummy Poor	-0.535 (0.620)	-0.535 (0.620)	---	---
Past Family Returns	0.163 (0.018)**	0.163 (0.018)**	---	---
Total Risk	-0.502 (0.003)**	-0.502 (0.003)**	---	---
GDP per Capita	0.3061 (0.829)	0.3061 (0.829)	---	---
Turnover Ratio	0.2477 (0.315)	0.2477 (0.315)	---	---
Common Law	0.1547 (0.321)	0.1547 (0.321)	---	---
Industry Age	0.5558 (0.237)	0.5558 (0.237)	---	---
Prob > F	0.0000	0.0000	---	---
Adjusted. R^2	0.62	0.62	---	---
Malaysia				
Constant	-0.592 (0.010)	-0.556 (0.014)	0. 687 (0.442)	-0.830 (0.000)
Family Age	0.019 (0.000)**	0.058 (0.001)**	-0.007 (0.587)	0.012 (0.002)**
Number fund	0.045 (0.794)	-0.028 (0.546)	0.053 (0.024)**	-0.004 (0.874)
Family Size	0.253 (0.365)	0.622 (0.009)**	0.077 (0.319)	0.841 (0.001)**
Dummy Star	0.922 (0.000)**	0.812 (0.005)**	0.670 (0.037)**	0.0696 (0.000)**
Dummy Poor	-0.017 (0.153)	-0.016 (0.580)	-0.015 (0.375)	-0.041 (0.730)
Past Family Returns	0.564 (0.0501)*	0.244 (0.045)*	0.443 (0.031)*	0.612 (0.412)*
Total Risk	-0.323 (0.410)	-0.016 (0.981)	-0.043 (0.016)**	-0.015 (0.031)*
GDP per Capita	0.7503 (0.563)	0.5213 (0.403)	0.3201 (0.096)	----
Turnover Ratio	0.3604 (0.729)	0.2019 (0.522)	0.6702 (0.626)	----
Common Law	0.0325 (0.020)*	0.3505 (0.408)	0.1932 (0.020)*	----
Industry Age	0.6330 (0.794)	-0.3311 (0.574)	0.3290 (0.653)	----
Prob > F	0.0011	0.0000	0.0001	0.0000
Adjusted. R^2	0.74	0.67	0.66	0.59
Indonesia				

Variables	All MF family	IMF family	CMF family	Difference
Constant	-0.943	-0.796	-0.078	-0.224
	(0.017)	(0.044)	(0.000)	(0.004)
Family Age	0.024	0.048	0.023	0.011
	(0.000)**	(0.000)**	(0.218)	(0.002)*
Number fund	0.074	0.150	0.056	0.038
	(0.170)	(0.013)*	(0.461)	(0.400)
Family Size	0.896	0.727	0.664	0.079
	(0.424)	(0.732)	(0.000)*	(0.009)*
Dummy Star	0.912	0.710	0.721	0.729
	(0.000)**	(0.000)**	(0.000)**	(0.000)**
Dummy Poor	-0.264	-0.495	-0.005	-0.069
	(0.018)*	(0.527)	(0.033)*	(0.688)
Past Family Returns	0.319	0.850	0.636	0.644
	(0.002)**	(0.022)**	(0.006)**	(0.038)**
Total Risk	-0.091	-0.436	-0.808	-0.243
	(0.002)*	(0.445)	(0.000)*	(0.001)*
GDP per Capita	0.9152	0.8451	0.4584	
	(0.562)	(0.296)	(0.256)	----
Turnover Ratio	0.5770	0.5732	0.6810	
	(0.030)*	(0.019)*	(0.047)*	----
Common Law	-0.0216	-0.2243	-0.1922	
	(0.914)	(0.732)	(0.617)	----
Industry Age	-0.7288	-0.8058	-0.8010	
	(0.356)	(0.431)	(0.531)	----
Prob > F	0.0001	0.0005	0.0000	0.0000
Adjusted. R^2	0.63	0.55	0.57	0.52
Pakistan				
Constant	-0.750	-0.407	-0.444	-0.079
	(0.248)	(0.169)	(0.618)	(0.889)
Family Age	-0.005	0.043	-0.027	0.083
	(0.601)	(0.081)	(0.007)*	(0.002)*
Number fund	0.012	-0.036	0.002	0.003
	(0.412)	(0.116)	(0.956)	(0.934)
Family Size	0.908	0.471	0.629	0.074
	(0.362)	(0.405)	(0.172)	(0.307)
Dummy Star	0.644	0.458	0.725	0.571
	(0.000)**	(0.010)**	(0.000)**	(0.000)**
Dummy Poor	-0.074	-0.204	-0.152	-0.197
	(0.587)	(0.439)	(0.326)	(0.343)
Past Family Returns	0.454	0.316	0.591	0.551
	(0.023)*	(0.010)*	(0.048)*	(0.005)*
Total Risk	-0.248	-0.484	-0.086	-0.337
	(0.277)	(0.152)	(0.765)	(0.023)*
GDP per Capita	-0.4694	-0.4434	-0.4694	
	(0.734)	(0.734)	(0.734)	----
Turnover Ratio	-0.2089	-0.5219	-0.2839	
	(0.241)	(0.287)	(0.4221)	----
Common Law	-0.0177	-0.1701	-0.2307	
	(0.510)	(0.351)	(0.470)	----
Industry Age	0.5946	0.1856	0.6546	
	(0.489)	(0.549)	(0.631)	----
Prob > F	0.0000	0.0000	0.0001	0.0012
Adjusted. R^2	0.62	0.59	0.69	0.56
All countries				
Constant	-0.466	-0.684	-0.525	-0.061
	(0.068)	(0.360)	(0.206)	(0.633)
Family Age	0.014	0.027	-0. 021	0.020
	(0.000)*	(0.002)**	(0.532)	(0.000)*
Number fund	0.012	0.003	-0.014	0.028
	(0.027)*	(0.046)*	(0.620)	(0.079)
Family Size	0.386	0.034	0.433	0.387
	(0.422)	(0.979)	(0.028)*	(0.001)**
Dummy Star	0. 940	0.981	0.324	0.763
	(0.000)**	(0.000)**	(0.000)**	(0.000)**
Dummy Poor	-0.172	-0.280	-0.078	-0.307
	(0.521)	(0.209)	(0.584)	(0.056)

Variables	All MF family	IMF family	CMF family	Difference
Past Family Returns	0.149 (0.042)**	0.242 (0.025)**	0. 107 (0.046)**	0.040 (0.004)**
Total Risk	-0.018 (0.010)*	-0.189 (0.049)*	-0.469 (0.241)	-0.085 (0.044)*
GDP per Capita	0.3811 (0.068)	-0.2850 (0.518)	0.4054 (0.301)	----
Turnover Ratio	-0.0072 (0.050)*	-0.0152 (0.033)*	-0.2336 (0.321)	----
Common Law	0.0228 (0.794)	0.0893 (0.044)*	0.0149 (0.921)	----
Industry Age	0.9616 (0.148)	-0.5878 (0.234)	-0.4001 (0.893)	----
Prob > F	0.0000	0.0000	0.0000	0.0000
Adjusted. R^2	0.72	0.69	0.68	0.63

This suggests that poor funds lead to money outflows from CFF. These results are similar to those of the overall Indonesian sample. Indonesian investors are perhaps still unsophisticated and seek to dispose of poor funds. In the case of Indonesian IFF, the results are similar to Malaysia and Pakistan: the star fund positively affects new money growth (B = 0.71, p < 0.05) but the poor fund has no significant relationship with it.

6.1.3 Economic Variables

Four economic variables are used as control variables: GDP per capita (economic development), share turnover ratio (financial development), common law (investor protection), and industry age (mutual fund industry development). Fund families are more likely to invest in equity markets of countries with higher economic development, familiarity, and investor protection due to their lower fixed costs. Funds that are more mature and have more experience investing in a given market also enjoy lower fixed costs, [16].

Economic development is correlated to income per capita, education, and skills. More developed economies also have more advanced sectors and innovation and investment opportunities. Investors in such economies are also more sophisticated, which means that they closely monitor fund and family performance, even exerting pressure on performance management. Our results indicate that GDP per capita is not significantly related to the new money growth of IFF, CFF, and the overall sample. This suggests that a more developed economy is not necessarily associated with additional family inflows or outflows.

More developed financial markets have performance advantages because they are more liquid and have lower transaction costs. However, financial development is not related to new money growth in Saudi Arabia, Malaysia, and Pakistan. This suggests that more liquid markets do not necessarily attract additional inflows into fund families. In contrast, financial development has a positive influence on new money growth of overall fund families, IFF, and CFF in Indonesia. A 1 percent increase in share turnover ratio leads to an increase in overall family flows by 0.03 percent, in IFF flows by 0.01 percent, and in CFF flows by 0.04 percent.

Regulations and policies influence investor behavior. Poor protection in a given market will make them reluctant to invest in it. Markets with weaker security for investors have fewer debts and less developed stock markets. Legal system quality is critical for contract enforcement, and it signals the attitude of the attitude towards business. In Malaysia, the common law dummy variable has a positive influence on new money growth (B = 0.03, p < 0.05), suggesting that legal origin leads to more family inflows. However, this relationship is not significant in the remaining sample countries. This means that legal origin has no impact on the family flow in these countries.

The mutual fund industry is a rapidly developing financial intermediary. As an industry becomes older, investors will be more experienced. The greater the investment in mutual funds, the more experienced managers will be, [16]. The mutual fund industry becomes more efficient as it increases in age, which may attract more investors. Our results, however, show that industry age is not a significant predictor of new money growth. In other words, it does not affect fund family flows.

6.2 Part Two: Spillover Effect of Islamic and Conventional Star (Poor) Funds

In this section, we examine whether having at least one star (poor) fund can attract new inflows into peer funds. The main explanatory variables are the Islamic star fund (ISF) and poor fund (IPF) conventional star fund (CSF) and poor fund (CPF). The dependent variable is new money growth.

6.2.1 Spillover Effect of Islamic Star (Poor) Funds

Most fund families have a combined portfolio of Islamic and conventional funds. Examining Islamic mutual funds is of great importance to Muslim investors. Islamic star funds are important to attract Muslim investors, as they are averse to funds that contravene Islamic laws. Socially conscious non-Muslim investors are also interested in Islamic funds as their goals generally overlap with those of socially responsible funds. Islamic funds are therefore expected to have a positive spillover effect on their peer funds.

Table 6 reports the regression results. The ISF dummy variable is positive and significant, which means that the Islamic star fund produces a spillover effect to other funds within the same family. The star funds attract additional flows to non-star peers. On average, this spillover effect is 0.78 percent higher than IFF without a star fund. This result is consistent with, [8] (conventional funds) and, [6] (SRI funds). By having a superior-performing fund, IFFs signal their ability to generate profits for Islamic investors. These investors place their investments in non-star funds because they expect the families to produce similar positive returns as the star funds.

We then estimate whether Islamic poor funds would lead to outflows from peer funds. We find that the IPF dummy variable is negative but not significant. This means that the negative spillover effect of IPF is not meaningful. Islamic poor funds do not affect the flow of peer funds. Similar results are shown in the country analysis. ISF has a significant positive effect on new money growth of peer funds, while IPF has a non-significant effect. In other words, ISF attracts new inflows to peer funds in all four countries, whereas IPF does not drive investors to dispose of their holdings in other funds.

6.2.2 Spillover Effect of Conventional Star (Poor) Funds

Table 6 presents the regression results for CFFs. The CSF (CPF) dummy variable equals one if there is at least one star (poor) conventional fund in the family. Similar to ISF, CSF has a significant positive effect on the new money growth of peer funds. This supports [8], [47]. The results are also similar for the country analysis.

In contrast to IPF, CPF is a negative predictor of new money growth of peer funds. This means that investors generally withdraw their holdings in poor funds to minimize losses. It follows that, on average, poor performance leads to family outflows. A possible explanation of this behavior is that conventional fund investors can move their capital to other conventional and Islamic funds, and so they seek to maximize their returns. Muslim investors, however, are restricted to only Islamic funds. This finding contradicts, [5], who find that the poor performance of conventional funds does not lead to fundamental outflows.

7 Conclusion

This study contributes empirical evidence on the effect of Islamic star (poor) funds on overall flows to the fund family and peer funds (spillover effect) in four Muslim-majority countries. These countries are selected because they have the most Islamic mutual funds in terms of quantity and asset size globally. We present two novel contributions. First, we find that families operating mostly Islamic funds (IFF) outperform those operating mostly conventional funds (CFF). Second, we compare the spillover effects of Islamic and conventional star (poor) funds to peer funds. The findings are important because investors typically base their decisions on the reputation of fund families, not fund fundamentals. This is especially true in emerging markets, where funds are young and have short track records, providing little information to investors to make sound investment decisions, [5], [6].

Overall, we find that having at least-one star fund leads to new money growth for fund families, whereas no effect is found for having at least one poor fund. In other words, star funds increase new inflows to fund families, but poor funds do not lead to funding family outflows. Country analysis reveals a similar effect in all countries except Indonesia, where poor funds lead to family outflows. Taken together, these results indicate that fund family investors are generally sophisticated and perseverant in realizing their gains.

The spillover effect from Islamic star (poor) funds to peer funds is asymmetric. Specifically, the spillover effect is only found in the presence of an Islamic star fund. Islamic star funds thus contribute positively to peer inflows. This result is consistent with [8], [9]. More importantly, Islamic poor funds do not lead to outflows from peer funds, suggesting that Islamic investors are less sensitive to poor performance and more loyal to Islamic funds.

In contrast, the spillover effect from the conventional star (poor) funds to peer funds is symmetric. In other words, the spillover effect is found in the presence of stars and poor funds. Star funds produce a positive spillover effect, attracting more inflows to peer funds. Conversely, poor funds

lead to outflows from peer funds. Conventional investors are more sensitive to poor performance, likely because they can quickly shift their capital to other investments. On the other hand, Islamic investors are limited in their choice of investment, as it must be compliant with the rules of Shariah, and so their capital movement is more restricted.

Two general recommendations are proposed. First, because of the importance and advantages of funding families, future works may extend this research to other countries, especially emerging countries. They may also consider investigating Islamic funds in non-Muslim-majority countries.

Table 6. Spillover effect

Variables	All MF family	IMF family	CMF family	Difference
Saudi Arabia				
Constant	-0.383 (0.129)	-0.383 (0.129)	---	---
Family Age	0.034 (0.049)*	0.034 (0.049)*	---	---
Number fund	0.077 (0.022)*	0.077 (0.022)*	---	---
Family Size	0.234 (0.186)	0.234 (0.186)	---	---
Dummy Star	0.972 (0.000)**	0.972 (0.000)**	---	---
Dummy Poor	-0.535 (0.620)	-0.535 (0.620)	---	---
Past Family Returns	0.163 (0.018)**	0.163 (0.018)**	---	---
Total Risk	-0.502 (0.003)**	-0.502 (0.003)**	---	---
Prob > F	0.0000	0.0000	---	---
Adjusted. R^2	0.62	0.62	---	---
Malaysia				
Constant	-0.592 (0.010)	-0.556 (0.014)	0. 687 (0.442)	-0.830 (0.000)
Family Age	0.019 (0.000)**	0.058 (0.001)**	-0.007 (0.587)	0.012 (0.002)**
Number fund	0.045 (0.794)	-0.028 (0.546)	0.053 (0.024)**	-0.004 (0.874)
Family Size	0.253 (0.365)	0.622 (0.009)**	0.077 (0.319)	0.841 (0.001)**
Dummy Star	0.922 (0.000)**	0.812 (0.005)**	0.670 (0.037)**	0.0696 (0.000)**
Dummy Poor	-0.017 (0.153)	-0.016 (0.580)	-0.015 (0.375)	-0.041 (0.730)
Past Family Returns	0.564 (0.0501)*	0.244 (0.045)*	0.443 (0.031)*	0.612 (0.412)*
Total Risk	-0.323 (0.410)	-0.016 (0.981)	-0.043 (0.016)**	-0.015 (0.031)*
Prob > F	0.0011	0.0000	0.0001	0.0000
Adjusted. R^2	0.74	0.67	0.66	0.59
Indonesia				
Constant	-0.943 (0.017)	-0.796 (0.044)	-0.078 (0.000)	-0.224 (0.004)
Family Age	0.024 (0.000)**	0.048 (0.000)**	0.023 (0.218)	0.011 (0.002)*
Number fund	0.074 (0.170)	0.150 (0.013)*	0.056 (0.461)	0.038 (0.400)
Family Size	0.896 (0.424)	0.727 (0.732)	0.664 (0.000)*	0.079 (0.009)*
Dummy Star	0.912 (0.000)**	0.710 (0.000)**	0.721 (0.000)**	0.729 (0.000)**
Dummy Poor	-0.264 (0.018)*	-0.495 (0.527)	-0.005 (0.033)*	-0.069 (0.688)
Past Family Returns	0.319 (0.002)**	0.850 (0.022)**	0.636 (0.006)**	0.644 (0.038)**
Total Risk	-0.091 (0.002)*	-0.436 (0.445)	-0.808 (0.000)*	-0.243 (0.001)*

Variables	All MF family	IMF family	CMF family	Difference
Prob > F	0.0001	0.0005	0.0000	0.0000
Adjusted. R^2	0.63	0.55	0.57	0.52
Pakistan				
Constant	-0.750 (0.248)	-0.407 (0.169)	-0.444 (0.618)	-0.079 (0.889)
Family Age	-0.005 (0.601)	0.043 (0.081)	-0.027 (0.007)*	0.083 (0.002)*
Number fund	0.012 (0.412)	-0.036 (0.116)	0.002 (0.956)	0.003 (0.934)
Family Size	0.908 (0.362)	0.471 (0.405)	0.629 (0.172)	0.074 (0.307)
Dummy Star	0.644 (0.000)**	0.458 (0.010)**	0.725 (0.000)**	0.571 (0.000)**
Dummy Poor	-0.074 (0.587)	-0.204 (0.439)	-0.152 (0.326)	-0.197 (0.343)
Past Family Returns	0.454 (0.023)*	0.316 (0.010)*	0.591 (0.048)*	0.551 (0.005)*
Total Risk	-0.248 (0.277)	-0.484 (0.152)	-0.086 (0.765)	-0.337 (0.023)*
Prob > F	0.0000	0.0000	0.0001	0.0012
Adjusted. R^2	0.62	0.59	0.69	0.56
All countries				
Constant	-0.466 (0.068)	-0.684 (0.360)	-0.525 (0.206)	-0.061 (0.633)
Family Age	0.014 (0.000)*	0.027 (0.002)**	-0. 021 (0.532)	0.020 (0.000)*
Number fund	0.012 (0.027)*	0.003 (0.046)*	-0.014 (0.620)	0.028 (0.079)
Family Size	0.386 (0.422)	0.034 (0.979)	0.433 (0.028)*	0.387 (0.001)**
Dummy Star	0. 940 (0.000)**	0.981 (0.000)**	0.324 (0.000)**	0.763 (0.000)**
Dummy Poor	-0.172 (0.521)	-0.280 (0.209)	-0.078 (0.584)	-0.307 (0.056)
Past Family Returns	0.149 (0.042)**	0.242 (0.025)**	0. 107 (0.046)**	0.040 (0.004)**
Total Risk	-0.018 (0.010)*	-0.189 (0.049)*	-0.469 (0.241)	-0.085 (0.044)*
Prob > F	0.0000	0.0000	0.0000	0.0000
Adjusted. R^2	0.72	0.69	0.68	0.63

When comparing markets, it is important to account for regulatory differences between mutual fund industries of developed and emerging countries and Muslim-majority and non-Muslim-majority countries. Second, future works may consider investigating other types of mutual funds, for instance, balanced funds and fixed-income funds. Other fund family attributes can also be included, subject to data availability.

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