

Comparative performance-related fund flows for Malaysian Islamic and conventional equity funds

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Abstract

Purpose – Compare the fund flow–performance relationship for Islamic and conventional equity funds in Malaysia.

Design/methodology/approach – We employ panel regression models to estimate the relationship between fund flows and performance for Islamic and conventional equity funds in Malaysia from 2001 to 2009. The data for each fund include fund flows, assets under management, management expenses, fund age, portfolio turnover, fund risk, fund return, and the number of funds in the fund’s family. We also include market returns and fixed-year effects. Our sample consists of 127 Malaysian equity funds with at least 65 per cent domestic equity holdings comprising 35 Islamic and 92 conventional equity funds.

Findings – Islamic fund investors respond to performance in much the same way as conventional fund investors, increasing fund flows to better performing funds, and decreasing fund flows to poorer performing funds. However, there is evidence that Islamic fund investors are relatively less responsive toward poorly performing Islamic funds, suggesting an asymmetry in the fund flow–performance relationship. When choosing funds based on other fund attributes, Islamic fund investors again exhibit similar behaviour, and like conventional fund investors direct larger percentage fund flows into smaller funds as well as funds with larger past fund flows and those with higher management expenses, possibly signifying marketing expenditure.

Research limitations/implications – We were only able to access data on annual net fund flows not quarterly or monthly fund inflows and outflows as usual in developed markets and this may obscure some important aspects of investor decision-making. There is also insufficient data for matched-sample techniques, which may better control for fund-specific characteristics than our regression-based approach.

Practical implications – Islamic funds like conventional funds will experience increased fund flows with better performance and vice versa. However, Islamic fund investors appear somewhat less likely to remove monies from poorly performing funds. We believe this is because investors either place a premium on the non-performance-related attributes of *Shariah*-compliant funds and/or because they wish to avoid search costs in finding another suitable Islamic fund. Apart from this, Islamic and conventional fund investors behave in a similar manner, and we believe this is possible in Malaysia given the size and diversity of its Islamic fund sector.

Originality/value – One of very few empirical studies concerning the behaviour of Islamic investors, particularly in Malaysia, primarily because of limitations in data availability.

Keywords: Islamic finance, mutual funds, fund flow–performance relationship

Article Classification: Research paper

1. Introduction

Studies typically find that investors undertaking both conventional and socially responsible investments (SRI) select funds at least partly based on performance. However, differences often exist in the sensitivity of investors to past performance. For instance, many studies suggest that conventional investors react to better-performing funds by directing flows into these funds, but do not react to the same extent to poorer-performing funds (Chevalier and Ellison, 1997; Gruber, 1996; Ippolito, 1992; Sirri and Tufano, 1998). Yet other studies conclude that SRI investors often react more strongly to past positive performance compared with other investors, but are commonly less sensitive to past negative performance (Bollen, 2007; Renneboog *et al.*, 2006). The question is which of these generalities applies to Islamic funds—collective faith-based investment funds established and managed according to the principles of *Shariah* (Islamic law), and typically regarded as a subset of SRI funds (Adams and Ahmed, 2013).

There are several reasons to believe that there are differences in investor decision-making between conventional and Islamic funds. The main reason is that we expect investors choosing to place their money in Islamic funds to have religious or ethical objectives in addition to any conventional financial objectives. In particular, we believe that because of their concerns with some religious obligation or ethical value, these investors may be willing to some extent to sacrifice the returns they could earn from conventional funds by alternatively investing in Islamic funds. In turn, these funds by their nature select only from a constrained universe of screened investments, and thereby have access to fewer (and possibly inferior) risk–return combinations.

Thus, the problem addressed in this paper is how Islamic fund investors, whom we assume choose these particular funds at least partly because of their religious or ethical nature (Ghoul and Karam, 2007; Hayt and Kraeusl, 2011), behave in relation to past fund performance. To start, even though Islamic funds are comparable to SRI funds in that they rely on certain guiding principles that dictate their investment structure and inform their investment objectives and strategies (Forte and Miglietta, 2007), there are some key differences. To start with, in Islamic funds these guiding principles are the tenets of *Shariah*. Thus, Islamic funds do not permit investment in entities or products that involve activities relating to pork, prostitution, gambling, and other prohibited activities. They also avoid investing in ‘unethical’ companies and the operation of the fund must adhere to *Shariah*

requirements, including the avoidance of speculation, short selling, and derivatives. There is also the need for the fund management company to perform purification activities (Elfakhani and Hassan, 2005). This is arguably a more restrictive form of investment behaviour than that found in most SRI funds.

This study is important in at least three respects. First, even though the managed funds literature is already quite extensive, it is concentrated in the area of performance and performance persistence, especially in developed markets. Second, despite the rapid growth of Islamic finance in recent years, research in this area remains relatively limited, with few empirical studies of Islamic investment and specifically the behaviour of Islamic investors [for exceptions, see Abdullah *et al.* (2007), Ismail and Shakrani (2003) and Nathie (2009)]. Finally, we select Malaysia to investigate the behaviour of Islamic fund investors because it has the world's largest number of Islamic mutual funds and is second in size in Islamic mutual fund assets (Abderrezak, 2008; Eurekahedge, 2008).

In the paper, we address the following two questions. First, do Islamic equity fund (IEF) investors consider past performance in their fund selection process and does this differ from investors in conventional equity funds (CEF)? Second, do IEF investors consider fund characteristics other than performance differently to CEF investors when undertaking investment decisions? We use data on Malaysian equity funds, both IEFs and CEFs, to explore the above questions over the period from 2001 to 2009.

The remainder of the paper is organised as follows. Section 2 briefly reviews the literature on the fund flow–performance relationship. Section 3 describes the data and the research methodology employed while Section 4 discusses the results. Section 5 concludes.

2. Literature review

One of the more dominant strands of research in the mutual fund literature is the study of fund flows. Most of this investigates the relationship between cash flows into mutual funds and past performance and other fund characteristics. Similar to the more general mutual fund performance literature, these studies mainly concentrate on the US (Chevalier and Ellison, 1997; Ippolito, 1992; Sirri and Tufano, 1998), the UK (Keswani and Stolin, 2008), Australia (Sawicki, 2001; Sawicki and Finn, 2002) and other developed capital markets. While there is some evidence relating to the behaviour of SRI or ethical funds (Benson and Humphrey, 2008; Bollen, 2007; Renneboog, *et al.*, 2008), studies dedicated to Islamic mutual fund flows

are regrettably very limited (Nathie, 2009; Peifer, 2009), largely through pervasive data limitations.

For the most part, the evidence is that past performance (both raw and risk-adjusted returns) is a significant determinant of money flows into and out of mutual funds. Early studies have generally found a positive relationship between recent past performance and money flow to mutual funds and a positive relation between recent good (worse) performing funds and net money inflows (outflows) (Chevalier and Ellison, 1997; Del Guercio and Tkac, 2008; Goetzmann and Peles, 1997; Patel *et al.*, 1994). This indicates that investors use past performance information to adjust their beliefs on managers' ability to generate superior returns. This also implies that investors consider recent past performance by rewarding better-performing funds with additional money and removing or not directing money to poorer-performing performing funds.

However, some recent studies have also found evidence of a convex or asymmetric flow–performance relationship (Gruber, 1996; Ippolito, 1992; Sirri and Tufano, 1998). This suggests that better performing funds enjoy huge money inflows (a stronger effect with fund inflows) while funds with poor performance do not suffer large money outflows (a weaker effect for fund outflows). Certainly, while there is probably now sufficient evidence in relation to conventional managed funds and the fund flow–performance relationship, few studies have investigated the behaviour of socially responsible or ethical investors toward past performance [see, for example, Bollen (2007), Renneboog *et al.* (2008) and Benson and Humphrey (2008)]. Even fewer consider Islamic mutual fund investors [for exceptions, see Nathie (2009) and Peifer (2010)].

In terms of screened mutual funds, the closest analogue to Islamic funds in the mainstream literature, Bollen (2007) was the first study to consider the behaviour of ethical investors in the US. The main issue is how the behaviour of ethical mutual fund investors differs from conventional mutual fund investors. Given the ethical mutual fund investor buys ethical mutual funds for both financial and social objectives, the question is whether the ethical mutual funds investors will also seek better performance when deciding to purchase an ethical investment. Bollen (2007) found that while SRI investors are more sensitive to past good performance, they are less sensitive to past poor performance compared to unscreened investors. He suggested several possible explanations. First, conventional investors may have more options to switch to other funds compared to SRI investors. Second, SRI investors consume non-financial attributes that mitigate the withdrawal of funds associated with

negative performance. Consequently, SRI investors are more 'loyal', at least in their reactions to poor fund performance.

While fund performance is clearly important in attracting money flows into funds, other factors may also influence fund flows. For instance, mutual fund investors may consider nonfinancial attributes in making fund allocation decisions that are contradictory to standard portfolio theory. These include fund visibility (Sirri and Tufano, 1998), expenses (Barber *et al.*, 2005; Chevalier and Ellison, 1997; Sirri and Tufano, 1998), advertising (Jain and Wu, 2000; Sirri and Tufano, 1998), style (Cooper, et al., 2005; Karceski, 2002), size (Chevalier and Ellison, 1997; Del Guercio and Tkac, 2008; Fant and O'Neal, 2000; Sirri and Tufano, 1998), age (Chevalier and Ellison, 1997; Nanda *et al.*, 2004; Ruenzi, 2005; Sirri and Tufano, 1998) and family characteristics (Huang et al., 2007; Nanda, et al., 2004; Sirri and Tufano, 1998).

In terms of the extant analysis most related to this study, Renneboog *et al.* (2006) studied SRI funds globally by including Islamic funds in a SRI fund sample. However, because Islamic mutual funds exhibit different characteristics (Forte and Miglietta, 2007), the behaviour of Islamic mutual funds investors remains an outstanding empirical issue. In terms of existing work, Peifer (2009) uses US funds to investigate the difference among religious SRI, religious non-SRI, conventional SRI, and conventional funds. He finds that religious SRI funds are the least responsive towards past performance. More specifically, Nathie (2009) investigates finds that Malaysian investors are rational in their investment decisions regarding managed funds. However, this particular study lacks detailed statistical analysis.

3. Data and methodology

3.1. Data and sample selection

We use the flows of Islamic and conventional equity funds in Malaysia from 2001 to 2009. The data comprise monthly returns for each fund, the date of fund inception, fund classification, and asset allocation from the Morningstar (<http://www.morningstar.com.au>) database and information disclosed in the annual reports and prospectuses of the individual funds. The latter serve as both primary sources of data and as a robustness check for the Morningstar data. As a primary data source, we collate for each fund a set of individual fund characteristics, including assets under management, the management expense ratio, portfolio turnover, equity holdings, and the number of funds in a fund's family of funds.

Our basic sample comprises 127 Malaysian equity funds with domestic equity holdings of at least 65 per cent of asset value, consisting of 35 Islamic and 92 conventional equity

funds. The construction of the sample proceeded as follows. First, for any year t , we excluded any funds involved in a merger during t and $t + 1$. The reason is that the flow of funds involved in mergers will distort the fund flow analysis as the acquiring fund receives assets from the acquired fund and these assets will bias analysis of the sensitivity of investors of Malaysian investors to past performance. Second, following Barber *et al.* (2005) and Renneborg *et al.* (2006), we remove outlier funds, defined as fund flows above the 99.5 percentile or below the 0.5 percentile. Of course, it may be that the sample may suffer from survivorship bias. However, Chevalier and Ellison (1997), Goetzman and Peles (1997) and Sirri and Tufano (1998), among others, all prove that there is no significant difference in results when undertaking analysis of either survivorship bias-free or survivorship-bias samples.

We use a standard procedure for constructing the flow of funds. We use the percentage money flow ($FLOW$), defined as money flow scaled by the asset size of the fund as follows:

$$FLOW_{i,t} = \frac{AUM_{i,t} - AUM_{i,t-1} (1 + RET_{i,t})}{AUM_{i,t-1}} \quad (1)$$

where $AUM_{i,t}$ is total assets under management for fund i at the end of year t , $AUM_{i,t-1}$ is total assets under management in fund i at the end of year $t-1$ and $RET_{i,t}$ is the raw (or total) return for fund i during year t [using the monthly return from the Morningstar database to calculate the yearly holding return]. Our underlying assumptions include reinvestment of all distributions and that reinvestment takes place at the end of each period, and net inflows into and out of the fund do not affect fund return during the period in which the money flow is measured.

We use raw returns as the performance measure. According to Sirri and Tufano (1998), individual investors generally make fund selection decisions based on relatively basic measures, such as the historical raw return. Del Guercio and Tkac (2008) also argue that the most appropriate measure of return is raw return as the average investor finds it easiest to calculate and understand. Thus, the first performance metric is to evaluate the sensitivity of fund flow to past raw return. We annualise the monthly raw returns data from Morningstar using the following formula:

$$RET_{i,a} = \left[\prod_{m=1}^{12} (RET_{i,m} + 1) \right] - 1 \quad (2)$$

In order to avoid other factors that may cloud the sensitivity of flows to past performance, we include several other fund characteristics as control variables. These include fund age (AGE), as calculated from the date of inception in log form, fund size (SZE), as

calculated by the log of assets under management (*AUM*), portfolio turnover (*PTR*), management expense ratios (*MER*) and fund family size (*FSZ*).

3.2. Hypotheses

According to standard finance theory, investors are risk–reward optimisers. However, for IEF investors the choice of an IEF is not exclusively because of the investor’s financial goals but also for other nonfinancial goals. This is because a primary motivation of Islamic and ethical investors in Islamic mutual funds is compliance with *Shariah* and the ethical or social values entailed. However, non-religious investors concerned with social and ethical values may also invest in IEF. Regardless, because of their concern with religious obligation or with ethical or social values, they may be willing to sacrifice performance in favour of these other attributes. Thus, we hypothesise IEF investors are less responsive to past performance. Of course, IEF investors may incur higher search costs when seeking to invest in IEF funds in order to identify funds that not only meet their financial but nonfinancial goals (moral and religious requirements). They may then be unwilling to pay a higher search cost by ignoring the poor performance and other fund attributes that CEF investors may consider. This may result in different fund selection behaviour for IEF and CEF investors.

3.3. Models and estimation techniques

We conduct the analysis using unbalanced panels of fund-year observations from 2001 to 2009. We first employ a pooled (common effects) regression technique to estimate the relationship between fund flow and performance as follows:

$$\begin{aligned}
 FLOW_{i,t} = & \alpha_0 + \alpha_1 IEF_i + \alpha_2 RET_{i,t-1} + \alpha_3 RET_{i,t-1} \times IEF_i + \alpha_4 NEG_{i,t-1} + \alpha_5 NEG_{i,t-1} \times \\
 & IEF_i + \alpha_6 AGE_{i,t-1} + \alpha_7 AGE_{i,t-1} \times IEF_i + \alpha_8 SZE_{i,t-1} + \alpha_9 SZE_{i,t-1} \times IEF_i + \\
 & \alpha_{10} RSK_{i,t-1} + \alpha_{11} RSK_{i,t-1} \times IEF_i + \alpha_{12} MER_{i,t-1} + \alpha_{13} MER_{i,t-1} \times IEF_i + \alpha_{14} PTR_{i,t-1} + \\
 & \alpha_{15} PTR_{i,t-1} \times IEF_i + \alpha_{16} FSZ_{i,t-1} + \alpha_{17} FSZ_{i,t-1} \times IEF_i + \alpha_{18} MKT_{t-1} + \varepsilon_{i,t} \quad (3)
 \end{aligned}$$

where $FLOW_{i,t}$ is the money flow of the fund, IEF_i is a dummy variable taking a value one for an IEF and zero otherwise, $RET_{i,t-1}$ is the return of the fund, and NEG_i is a dummy variable taking a value of one if $RET_{i,t-1}$ is negative and zero otherwise. $AGE_{i,t-1}$ is the log of years since the fund’s inception, $SZE_{i,t-1}$ is the log size of the fund in *AUM*, $RSK_{i,t-1}$ is the risk of the fund (annualised standard deviation of monthly returns), $MER_{i,t-1}$ is the management expense ratio (total annual expenses divided by average net asset value), $PTR_{i,t-1}$ is portfolio turnover ratio (assets bought and sold over average net asset values),

$FSZ_{i,t-1}$ is the log number of IEFs (or CEFs) managed by the fund's family, MKT_{t-1} is the market return and $\varepsilon_{i,t}$ is the error term. We use the FTSE Bursa Malaysia Kuala Lumpur Composite Index (KLCI) (comprising the 30-largest companies in the FTSE Bursa Malaysia EMAS Index by market capitalisation) to proxy market returns.

In addition to the above model, we estimate a panel regression model with fixed-year effects to account for cross-sectional dependence. This is because we assume there is some unobserved heterogeneity in performance correlated with time, especially given that the last few years of the sample period correspond to the GFC. We correct the standard errors in both models for heteroskedasticity and within cross-section serial correlation following White (1980). In essence, these models allow us to identify the impact of a fund being an IEF on the fund flow–performance relationship generally, holding all other factors constant (the dummy variable *IEF*), and on the individual control factors also determining the fund flow–performance relationship (the interaction terms with *IEF*).

4. Results

4.1. Descriptive analysis

Table 1 provides summary statistics of the variables employed in the study separated into the IEF and CEF subsamples. At first impression, it would appear that there are many differences between the two groups of funds. However, only three of the eight variables have statistically different standard variances and just four of the eight variables are statistically different at the means throughout the sample period (results not shown). These are age (*AGE*), fund family size (*FSZ*) and fund flow (*FLOW*) for the variances and age (*AGE*), risk (*RSK*), fund family size (*FSZ*) and fund flow (*FLOW*) for the means. Overall, the average risk (*RSK*) of a CEF (0.046) exceeds that for the average IEF (0.040) but there is no significant difference in the dispersion of risk across funds, or by implication in returns, as basic finance theory would suggest. While not directly comparable, Adams and Ahmed (2013) compare Christian and Islamic faith-based mutual funds and find that while Islamic funds sometimes have superior risk-adjusted performance and sometimes no difference at all, Christian funds generally have lower expense ratios and management fees.

The average IEF is also younger by some three and a half years (*AGE*) than the average CEF, with the latter having a significantly greater dispersion of ages, while the typical IEF fund family (*FSZ*) (21.9) is also somewhat larger than that for a comparable CEF fund family (18.3), along with the dispersion of fund family size. Lastly, the average percentage net fund

flows (*FLOW*) for IEF and CEF are 0.106 and -0.082 per cent per year, respectively. The most obvious implication is that the IEF received an overall positive net inflow of funds during the sample period whereas the CEF experienced an overall negative net outflow of funds. However, the standard deviations of flows into and out of IEF and CEF during the period are 0.60 and 0.47, respectively. This suggests that fund flows into and out of IEF are generally more volatile.

We also compare the means and variances of four key variables (*RET*, *FLOW*, *AGE* and *AUM*) for each fund type by year (results not shown). In no year except 2006 is the difference in mean return (*RET*) for IEF and CEF statistically significant and in that case the return of CEF exceeds that of IEF. For *FLOW*, the differences in the percentage flows of IEF and CEF are statistically significant in 2001, 2004 to 2006 and 2008. Unsurprisingly, the difference in average age between IEF and CEF remains statistically significant over time. The reason is clear in that the number of (new) IEF is consistently increasing throughout this period, with the number of CEF increasing only slightly, remaining stable, and even contracting (after 2008). Lastly, the assets under management (*AUM*) for IEF are only significantly larger in 2008 in the immediate aftermath of the GFC.

Before proceeding to the regression-based analysis of the fund flow–performance relationship, we estimate variance inflation factors (VIF) for each regressor to establish the likelihood of harmful multicollinearity (results not shown). As none of the predictors have a VIF greater than the conventional critical value of ten, and only two between this and the most restrictive critical value of five (Haan 2002), we assume there should be no problem with harmful multicollinearity in any of our regression equations.

4.2. Flow–performance relation

Table 2 presents the results for the two models using the pooled common-effects and panel fixed-effects regressions. In this subsection, we focus on the results concerning the impact of past performance on fund flows as represented by *RET*, *RET*×*IEF*, *NEG* and *NEG*×*IEF*.

<TABLE 2 HERE>

The results for the common effects model show that of the four performance variables, the coefficient on *RET* is significantly positive (0.5115) at the 1 per cent level while that on *NEG*×*IEF* is significantly negative (-0.2276) at the 5 per cent level. The former indicates that for every 1 per cent increase (decrease) in return, fund flows will increase (decrease) by 0.51 per cent. This suggests that IEF and CEF investors both reward (punish) better (worse)

performing funds by moving monies into (out of) these funds in much the same fashion. However, the latter result for the estimated coefficient of the interaction variable between past negative performance and IEF indicates that there is an asymmetric response of IEF investors to poor performance. That is, while IEF and CEF investors will similarly move monies into funds with positive returns, when there are negative returns, which in the absence of asymmetry would suggest a fund outflow of 0.51 per cent for every 1 per cent fall in return as discussed, the fund outflow for IEF will only fall by 0.28 per cent ($= 0.5115 - 0.2276$). The suggestion is that IEF investors are more accommodating of poor fund performance than are CEF investors and will delay or avoid altogether moving their monies out of these funds.

The results of the panel fixed-year effects regression for *RET*, *RET*×*IEF*, *NEG* and *NEG*×*IEF* are consistent with these findings. The only difference between the two models is that fixed-year effects model considers unspecified changes in the fund environment over time. The remarkable consistency in the magnitudes and significance of the estimated coefficients well supports the stability of these relations. The only key difference is that the fixed-year effects models explain about 50 per cent more of the variation in fund flows over our sample period. Overall, we conclude that both IEF and CEF fund flows are positively related to lagged returns but that IEF flows are less sensitive to lagged negative returns, thereby indicating an asymmetric response in fund flows to fund performance.

4.3. Relation between fund flows and other fund attributes

This subsection explores whether IEF investors display different investment selection behaviour when compared to CEF investors with respect to variables other than return. First, fund size (*SZE*) is significantly negative at the 10 per cent level in both the common and fixed-year effects models in explaining fund flows, signifying that smaller funds generally attract larger percentage fund flows. For example, with the common effects model, for every 1 per cent increase in fund size, a fund manages to attract a 3 per cent lower fund flow. We suggest this is because it is very difficult for funds to maintain a sufficiently high growth rate in fund flows in percentage terms as they become larger.

Second, there is a significant positive relationship between fund risk (*RSK*) and fund flows (4.7130) but only in the common effects model. Interestingly, that this estimated relationship is positive (fund flows increase with risk) lies in stark contrast to earlier findings [see, for instance, Sirri and Tufano (1998) and Barber et al. (2005)]. For example, for every 1 per cent increase in risk, fund flows increase by 4.73 per cent and this is significant at the 1 per cent level. This result is consistent with Oh (2005) who studied Korean mutual funds and

found that mutual fund investors see return volatility (or total risk) as an opportunity and accordingly invest more money into funds exhibiting these characteristics. However, this effect disappears with the fixed-year effects model suggesting that it is the result of a mistiming by investors in directing their monies to funds, not from any desire to chase possible higher returns solely based on the risk of the fund. Nevertheless, the interaction of risk with IEF ($RSK \times IEF$) is positive and significant in the fixed-year effects regression, suggesting that even with changing conditions over time IEF investors persistently direct monies into riskier funds.

Third, while some of the literature largely concludes that investors purchase funds with lower expense ratios, our results indicate that a higher expense ratio (MER) attracts higher money flows. Both models exhibit a significantly positive relationship between fund expenses and fund flows. For example, in the common effects model, every 1 per cent increase in the management expense ratio (MER) increases fund flows by 3.4 per cent. This is consistent with Huang et al. (2007), Ivkovic (2002) and Barber et al. (2005) who also found that funds with higher expense ratios (particularly marketing expenses) have stronger fund flow–performance sensitivity. One of the possible reasons is a costly marketing expense indicates that funds spend more in advertising to attract new investors. In addition, Ivkovic and Weisbenner (2009) argue that investors may believe that higher expense ratios reflect better managerial talent or fund family service. Higher management expense ratios (because of higher marketing and selling expenses) may also signal a lower search cost to investors (Sirri and Tufano, 1998) and thus also have a positive relationship with fund flows.

Fourth, there is also strong evidence that past fund flows ($t-1$) influence future fund flows (t). For example, in the common and fixed-year effects models, increases of 1 per cent in lagged fund flows increase future flows by 24.1 per cent and 18.5 per cent, respectively. This finding is consistent with Cashman et al. (2006b) and Benson and Humphrey (2008) who also conclude a positive relationship between current and past fund flows. One argument presented for this is that the persistence in flows signals investors to reinvest automatically in the funds already owned.

Lastly, both models indicate that market returns have a negative effect on fund flows. For instance, in the common effects model, every one per cent increase in market returns decrease flows by 0.49 per cent. When we re-estimate using the fixed-effects regression, the coefficient falls such that a one per cent increase in market returns decreases fund flows by just 0.18 per cent. Our findings then partly support the work of Warther (1995) and Luo

(2003) such that mutual fund investors employ contrarian strategies when investing their money in equity funds. This may indicate that investors move away from managed funds during strong market conditions, preferring instead a less-diversified portfolio of individual securities. Alternatively, the volatility implied by these markets may cause these same investors to remove funds to invest in less-risky securities.

In responding to the question of whether IEF investors exhibit different purchasing behaviour to CEF investors, the above results allow us to conclude that IEF investors possess very similar purchasing behaviours as CEF investors, except for somewhat weak evidence that IEF investors respond to risk ($RSK \times IEF$) somewhat differently than other investors do. Other than this, none of the interaction variables with IEFs are significant, indicating that there is no significant difference between Islamic and conventional investors in their basic fund selection decisions apart from the fund flow–performance relationship discussed in the previous subsection.

5. Conclusion

In this paper, we investigated the response of IEF investors to past fund performance, as reflected in fund flows, and ascertained any difference with that of CEF investors. We expect differences in behaviour between these two investor groups because investors choosing to invest in Islamic funds show by their actions that they may be willing to sacrifice at least some return performance for religious motives, or at the least, social or ethical matters more generally. In addition, we examined the relationship between fund flows and other fund characteristics. In general, we find there is a positive relationship between fund flows and past performance in Malaysian equity funds, but there is no significant difference between IEF and CEF in this regard. However, we found solid evidence of an asymmetric relationship between fund flows and fund performance indicating IEF investors react proportionately less in absolute terms to poor performance. This suggests that IEF investors are reluctant to move monies out of poorly performing funds, and we believe this is because of both the desirable non-performance-related attributes of these funds (i.e. *Shariah* compliance) and possibly because of the high search costs involved in finding an alternative IEF in which to invest.

We contribute to the literature by presenting several new findings. First, in finding that IEF investors react in much the same as CEF investors when considering fund performance and its impact on fund flows, our main finding contradicts previous work on SRI funds by

Bollen (2007) and Renneboog *et al.* (2006) and religious funds by Peifer (2009). Similarly, we provide additional supportive evidence that IEF and their like are less responsive to past poor performance [see Bollen (2007) and Renneboog *et al.* (2006)]. In doing so, we support the small-sample findings of Nathie (2009) that IEF investors make rational financial decisions by directing fund flows to better performing funds but are rather more reluctant to punish poorer performing funds by withdrawing funds.

Second, our findings significantly improve our understanding of the behaviour of investors in the mutual fund industry in Malaysia where Islamic finance, including Islamic funds, is a major part of the joint financial market. A possible reason why our results contradict the established literature could then be the fact that investors in Islamic funds in the Malaysian capital market are relatively heterogeneous as Malaysia is a multi-racial multi-religious country. While there are investors who choose Islamic funds because of some religious or ethical motivation, other investors may choose Islamic funds because of the diversification benefit they obtain from investment in these funds. We also found that apart from the basic fund flow–performance relationship, IEF and CEF investors behave in a remarkably similar manner and that other factors determining fund flows are fund size, management expenses, past fund flows, and market conditions. We believe this equivalence is possible because of the sheer size and diversity of the Islamic mutual fund sector in Malaysia.

Nonetheless, this study has two limitations that we should bear in mind when interpreting these novel findings. The first concerns the dataset in that while the data represents a large sample of Malaysian Islamic and conventional domestic equity funds, it is not fully representative of Islamic equity funds globally. Therefore, we should exercise caution when extracting inferences to the broader market for Islamic managed funds. Second, in relation to fund flow measures, we were only able to obtain net fund flows whereas some other recent studies undertaken in other national contexts have had access to separate information on fund inflows and outflows. Moreover, we only had access to data on annual fund flows. This is important because it is likely that investors make fund decisions more frequently. Regrettably, as a developing market, detailed and frequent information on Malaysian managed funds is simply unavailable.

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Table 1.

Descriptive statistics

	RET		RSK		AGE		SIZE		MER		PTR		FSZ		FLOW	
	IEF	CEF	IEF	CEF	IEF	CEF	IEF	CEF	IEF	CEF	IEF	CEF	IEF	CEF	IEF	CEF
Obs.	241	730	241	730	241	730	241	730	240	730	241	730	241	730	203	631
Mean	0.095	0.102	0.040	0.046	6.965	10.452	150.197	141.818	0.018	0.018	0.919	0.872	21.876	18.281	0.106	-0.082
Median	0.049	0.075	0.037	0.042	4.899	7.218	58.149	61.363	0.017	0.016	0.700	0.675	16.000	14.000	0.018	-0.104
Max.	0.835	1.120	0.139	0.221	38.115	42.397	1,568.650	1,244.227	0.082	0.225	20.210	6.660	71.000	71.000	2.399	2.793
Min.	-0.480	-0.449	0.013	0.010	0.378	0.263	1.121	0.161	0.001	<0.001	0.120	0.040	1.000	1.000	-1.081	-1.141
Std. dev.	0.234	0.249	0.017	0.020	7.810	9.564	265.417	200.637	0.007	0.011	1.557	0.725	18.286	15.893	0.603	0.466
Skewness	0.576	0.479	1.436	1.823	2.657	1.428	3.415	2.404	5.324	11.966	10.160	2.860	1.217	1.652	1.316	2.750
Kurtosis	3.139	3.648	7.391	12.348	9.828	4.141	15.650	9.444	45.631	195.563	116.580	16.165	3.476	5.237	5.514	15.907
JB	13.53	40.72	276.50	3062.22	751.806	287.574	2,075.475	1,966.357	19307.53	1145289.00	133687.60	6267.32	61.759	484.116	112.05	5175.45
JB <i>p</i> -value	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Notes: IEF is Islamic equity fund, CEF is conventional equity fund, SIZE is fund size in RM millions, AGE is years since inception, RSK is standard deviation of annual fund returns, MER is management expense ratio calculated as the proportion of total fees including manager, trustee, audit, tax agent fees and administrative expenses to the average net asset value, PTR is portfolio turnover calculated as the average of total acquisitions and total disposals of investments for the year to the average net asset value, FSZ is family size measured as number of funds in a fund family or complex or management company, FLOW is net money flow calculated as the change in assets under management of a fund over the year divided by assets under management at the beginning of the year inclusive of any distribution.

Table 2.

Regression estimates

Variable	Common effects		Fixed-year effects	
	Coef.	Std. err.	Coef.	Std. err.
Constant	0.0492	0.3320	0.3846	0.3470
IEF	0.4467	0.8454	0.9404	0.8446
RET	0.5115 ***	0.1917	0.5015 ***	0.1933
RET×IEF	-0.0986	0.2684	-0.1868	0.2248
NEG	0.0054	0.0460	-0.0203	0.0495
NEG×IEF	-0.2276 **	0.1135	-0.2391 **	0.1067
SZE	-0.0301 **	0.0148	-0.0402 **	0.0163
SZE×IEF	-0.0234	0.0434	-0.0440	0.0433
AGE	0.0134	0.0203	0.0080	0.0196
AGE×IEF	-0.0122	0.0485	-0.0255	0.0448
RSK	4.7130 ***	1.4131	-1.9201	1.3448
RSK×IEF	3.3692	2.7847	4.0128 *	2.2579
MER	0.0647 ***	0.0108	0.0654 ***	0.0116
MER×IEF	0.0565	0.0465	0.0056	0.0427
PTR	0.0156	0.0339	0.0343	0.0382
PTR×IEF	0.0445	0.0363	0.0153	0.0413
FSZ	0.0169	0.0232	0.0538 *	0.0281
FSZ×IEF	-0.0123	0.0593	-0.0120	0.0583
FLOW	0.2414 ***	0.0621	0.1856 ***	0.0666
FLOW×IEF	-0.0938	0.1078	-0.0760	0.1127
MKT	-0.4950 ***	0.1694	-0.2968 *	0.1650

Notes: This table reports the estimated coefficients (coef.) and standard errors (std. err.) for common and fixed effects regressions of fund flows on fund and market attributes. Coefficients and standard errors adjusted for heteroscedasticity following White (1980). IEF is a dummy variable denoting Islamic equity funds. All other variables as previously defined. R^2 is 19% for common effects model and 30% and for fixed-year effects model.