2011-18: Comparative fund flows for Malaysian Islamic and conventional domestic managed equity funds (Working paper)

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Published

2011

ISSN 1836-8123

Griffith Business School

Discussion Papers | Finance

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No. 2011-18

Series Editor: Dr. Alexandr Akimov

Comparative fund flows for Malaysian Islamic and conventional domestic managed equity funds

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Abstract

Existing studies find that investors in socially responsible investments (SRI) (also known as sustainable, socially conscious, or ethical investment) exhibit different investment behaviour in comparison to conventional investors. This potentially also holds with Islamic investment, a unique form of SRI based on Shariah (Islamic law). This paper presents empirical evidence on the fund flow–performance relationship of Islamic equity fund (IEF) investors in comparison with conventional equity fund (CEF) investors. Using panel data on a large sample of Malaysian domestic equity funds from 2001 to 2009, the results provide evidence that IEF investors care about fund performance in much the same way as CEF investors. There is also weak evidence that IEF investors are more responsive towards poor performing funds by withdrawing money from these funds. When choosing funds based on other fund attributes, IEF investors again exhibit similar behaviour to CEF investors, investing more money into younger, larger, riskier funds as well as funds with higher expense ratios and turnover. We find that the market index has a negative influence in money flows such that investors consider market volatility as an opportunity and increase investment when market has not been doing well. The implications for Malaysian fund management are as follows. First, IEF investors appear to undertake rational investment decision making and thus fund managers managing IEF funds cannot expect a free ride because of the presence of Islamic principles in their construction. Second, bearish markets may be an opportunity for fund managers to increase funds under management as investors actively choose to invest funds in well-diversified portfolios.

JEL codes: C23, G11, G20, M14.

Keywords: Islamic finance, mutual funds, fund flows, fund performance.

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Introduction

Previous studies find that investors undertaking both conventional and socially responsible investment (SRI) select funds based on past return performance. However, there are differences in the degree of sensitivity toward past performance. For instance, conventional equity fund (CEF) investors react to past top-performing funds by directing more flows into the funds but do not react to the same extent to poorer performing funds (Sirri and Tufano, 1998; Chevalier and Ellison, 1997; Ippolito, 1992; Gruber, 1996). At the same time, SRI investors react relatively stronger to past positive performance compared to CEF investors, but are less sensitive to past negative performance (Bollen, 2007; Renneboog, et al., 2006). However, in a study of religious funds flow in the US, Peifer (2009) finds that religious funds (religious SRI and non-religious SRI) are the least responsive to lagged positive returns compared to secular SRI and CEF. The question is whether this also applies to investors in Islamic equity funds (IEF), given these are likewise a type of mutual 3ncompassing both secular and sectarian concerns. For example, do IEF behave similarly to SRI funds as predicted by Bollen (2007) or differently as evidenced by Peifer (2009). There is also the question of whether Islamic investors respond to fund characteristics other than past performance. Further, are there again any disparities in behaviour between CEF and IEF investors in this regard?

Thus, the problem addressed in this paper is how IEF investors, whom we assume choose these funds in part because of the religious nature of the fund, behave toward past return performance. Even though both SRI and Islamic investments employ screening strategies in their investment process, there are distinct differences between both of them (Forte and Miglietta, 2007). Islamic investment draws on Shariah principles governing several different aspects of Islamic investment. Islamic investment not only avoids investing in 'unethical' companies but also those with activities related to pork, prostitution, gambling and other prohibited activities outlined in Shariah. Besides fund selection and screening activities, the operation of the business must also adhere to Shariah requirements, such as avoiding speculative activities, short selling and derivatives, and also the need of the business to perform purification activities (Elfakhani and Hassan, 2005). Thus, these differences may result in different investing behaviour.

This study is important in at least three respects. First, even though the managed funds literature is already quite extensive and well developed, it is concentrated in the area of performance and performance persistence. Other aspects of managed funds, such as their governance and flow performance, are relatively unexplored. Moreover, the existing research mainly focuses on developed markets in the US, the UK, Europe, and Australia, with fund flows in emerging markets little considered.

Second, despite the growth of Islamic finance, research in this area remains relatively limited. This is important because Islamic finance and Islamic equity funds are the fastest growing segments and sub segments of the global financial industry and the Islamic financial system, respectively. In fact, the number of Islamic funds has risen more than threefold, from 200 funds in 2003 to 680 funds in 2008, representing various types of Islamic mutual funds (Eurekahedge, 2008). Similarly, the value of assets managed within Islamic mutual funds has grown from US$20 billion in 2003 to US$44 billion in 2008 (Ernst & Young, 2009). Of these, equity funds represent the largest share (about 40 percent) of Islamic mutual funds followed by fixed income (16 percent), real estate and private equity (13 percent) with the reminder in cash, commodities and other funds. These funds are concentrated in several regions, including the Middle East/Africa, Asia Pacific, North America and Europe.

More than half of all Islamic funds are invested in the Middle East and Asia-Pacific region (International Financial Services London, 2010, p. 5). However, despite the astounding growth of Islamic finance there are few empirical studies in the area of Islamic investment, and specifically the behaviour of Islamic investors [for exceptions, see Abdullah, et al. (2007), Ismail and Shakrani (2003) and Nathie (2009)]. Moreover, most of this limited literature focuses on Islamic banking and the behaviour of Islamic banking customers (for example, Dusuki and Abdullah (2008). Current research has now started to address the deficiencies in our knowledge of Islamic investment, but the issue of how Islamic investors react to past performance remains neglected.

Finally, Malaysia is an interesting context for further investigating the behaviour of Islamic fund investors. This is because of several reasons. First, the development of Islamic finance in Malaysia is one of the earliest and fastest in the Southeast Asian region. For example, in Malaysia, Islamic banking assets are currently about 18 percent of those of conventional banking while takaful (Islamic insurance products and services) assets account for about seven percent of the insurance industry. Likewise, Islamic mutual funds form one of the more important components of the Malaysian Islamic financial system in general and Islamic capital markets in particular. Nevertheless, even though the market remains relatively small (in terms of net asset value it is about 13 percent of the total industry), Malaysia is one of the key players in the world of Islamic fund management. Its unique capital market structure, where an Islamic financial system works in parallel with a conventional financial system, provides a unique setting to study the behaviour of various investors. Second, Malaysia has the world's largest number of Islamic mutual funds (more than 60 percent of the global Islamic fund market) and is second in size in Islamic mutual fund assets (Abderrezak, 2008; Eurekahedge, 2008). Importantly, being the one of the largest Islamic mutual fund markets largest market in the world, there has been little academic investigation of investor behaviour towards performance and no comparative study of attitudes toward conventional and Islamic fund in particular. The purpose of his study is to fill this gap.

In the paper, we analyse money flows into and out if Islamic and conventional equity funds to address the following three questions. First, do 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 other fund characteristics when undertaking investment decisions? Finally, do IEF investors tend to invest in the same funds as CEF investors? We use data on Malaysian equity funds, both IEF and CEF, to explore the above research questions over the period from 2001 to 2009.

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

Literature review

One of the more dominant strands of research in the mutual fund literature is the study of fund flow. The bulk 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 very limited (Nathie, 2009; Peifer, 2009).

Fund flows and past performance

Past return performance has been found to be 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 implies that investors chase recent past performance by rewarding fund with additional money and punishing recent poor performance by removing or not directing money to poor performing funds.

However, recent studies have found evidence of a convex or asymmetric flow–performance relationship (Gruber, 1996; Ippolito, 1992; Sirri and Tufano, 1998). This suggests that top 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). Using a sample of 143 open-ended mutual funds from 1965 to 1984, Ippolito (1992) found that there was indeed an asymmetric relationship between fund flows and lagged performance. Further, investors reacted

positively to recent past good performing funds resulting in higher inflows but the magnitude of outflows to poor performance was not strong. Ippolito (1992) argued that this was likely because of higher transaction costs where the exit fees charged by managed funds were more costly that the fees incurred when the fund was purchased.

In other work, Sirri and Tufano (1998) employed a piecewise linear model and a sample of US growth funds from 1971 to 1990. After dividing lagged fund performance into quintiles, they found strong evidence of an asymmetric relation between fund flows and past performance such that money inflows to the best performance quintile were stronger than the money outflows to poorest performance quintile. Gruber (1996) likewise examined money flows in and out of US stock funds and found that investors put more money in past good performance funds but the outflows for past poor performance is not as pronounced. Goetzmann and Peles (1997) used mutual funds data from 1976 to 1988 and divided the performance into quartiles. They again found that there is a significantly different pattern in terms of money inflow–performance in the top performing quartile compared to the bottom quartiles. More particularly, the top quartiles received high fund inflows while there was no significant outflow for these same funds. This suggested that the reward for good performers was high cash inflows; however, the market did correspondingly little in disciplining poor performers.

Similarly, Chevalier and Ellison (1997) estimated a semi parametric model to investigate the curve demonstrated by the relationship between fund flows and past market-adjusted returns in 1982 to 1992. Concentrating on growth and growth-and-income funds, they found that fund flows are more sensitive to past good performance in younger funds than older funds. While the shape of the flow–performance relationship was quite steep and almost linear (even stronger money flows in response to past performance), older funds demonstrate convex shape (less sensitive to past poor performance). Most recently, Del Guercio and Tkac (2008) employed an event study method to investigate how money flows respond to past performance as measured by Morningstar star ratings. Five-star rating performers and those funds newly upgraded to five stars attracted significant money inflows. However, the response to lower star rating performers was not as pronounced as other ratings for both inflows and outflows.

Standard finance theory argues that investors are rational, risk averse, and favour higher returns for a given level of risk and lower risk for a given level of return. Nevertheless, the above studies indicate that retail investors are not rational and this contradicts the efficient market hypothesis and asset pricing theories. If retail investors are rational, theoretically they are more likely to invest more money in top performing funds while withdrawing their money from poor performing funds. Several studies provide theoretical explanation why investors do not strongly react to funds with past poor performance as strong as they react to fund with past good performance. Put differently, why do investors remain with losing funds? Goetzmann & Peles (1997) proposed a theory to explain this

irrational behaviour of retail investors. According to this analysis, one possible explanation is cognitive dissonance where retail investors are reluctant to accept that they bought poor performing funds and thus continue to remain in the fund even if performance is poor.

From a psychological perspective, Kahneman and Tversky (1979) and Shefrin and Statman (1985) and Barber, et al. (2000) proposed a disposition effect theory to explain the irrational investor behaviour who sell winners too soon to realise cash gains and hold losers too long as they are unwilling to realise losses. This behaviour leads to the asymmetric relationship between funds flows and fund performance. However, whether this is true in emerging markets and for Islamic investors remains an empirical question. Another theoretical explanation is investors are not homogeneous. Heterogeneity across investors make their response to the poor performing funds different (Berk and Tonks, 2007; Harless and Peterson, 1998). Investors do not process information at the same phase. Some investors respond to the poor performing funds by immediately taking out the money while others are very slow to respond.

Another possible justification is because of the presence of costly information, high redemption or switching fees, tax considerations and search cost associated with market imperfections (Sirri and Tufano, 1998) and (Huang, et al., 2007). For example, retail investors have to pay large search costs to find the best and most suitable fund. Thus, once engaged, it is quite difficult for investors to exit as additional search costs will be incurred and they are more likely to incur a redemption or switching fee. Sirri and Tufano (1998) also suggest that as customers incur search costs, unsophisticated investors rely on fund visibility to make their fund selection. As fund managers are aware of this, they make good use of marketing strategies that highlight performing funds to attract investor money into the fund. This explains why investors flock to top performing funds.

Lynch and Musto (2003) and Berk and Green (2004) provide some analytical studies to explain why investors chase past performance. Berk and Green (2004) used a Bayesian model to explain why investors chase past performance. According to this model, rational investors use past performance to signal fund managers skill to produce superior performance. This explains why investors still hold certain funds, even though these funds perform poorly. Investors expect that fund managers will revise their strategy and anticipate future better performance. In a theoretical paper, Lynch and Musto (2003) also suggested that unlike the performance persistence evidenced in superior funds, poor performance does not predict future performance, thus investors do not respond as strongly or as pronounced as past good performance. This leads to the convexity in the fund flow–performance relationship. However this contradicts Carhart (1997) who found that performance persistence only exists in poor performing funds but not superior funds. If this holds true, funds with poor performance will experience significant outflows. Lynch and Musto (2003), Berk and Green (2004) exerted that the

fund flow–performance asymmetrical relationship exists even though the performance persistence is not present.

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 [see, for instance, Peifer (2009) and Nathie (2009)].

This is perplexing because the behaviour of ethical or religious investors is interesting, if only because they deviate from the standard finance theory assumption of rational utility-maximising investors wishing only to maximise return or utility for a given level of risk and minimising risk for a given level of return. As evidenced in the literature, screened funds investors such as socially responsible, ethical, or faith-based investors care more about social or ethical issues compared to their risk–return characteristics (i.e. financial performance).

In terms of screened mutual funds, Bollen (2007) is the first known 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. In addition, the volatility of money flows in the SRI fund should be less than in conventional funds. Consequently, SRI investors are more ‘loyal’ than are conventional mutual fund investors.

In a more comprehensive study, Renneboog, Ter Horts and Zhang (2006) investigated money flows in 410 SRI mutual funds from throughout the world. Their findings supported the findings of Bollen (2007) in that SRI investors chased past good performance more than conventional investors but that this tendency was less pronounced for past poor performance. Their study does not only investigated the impact of past performance to net inflows but also simultaneously included other fund characteristics such as fund size, age, risk, fund family reputation and fund fees. In addition, SRI investors are less sensitive to fund expenses and load fees. In other findings, Renneboog, Ter Horts and Zhang (2006) found that smaller, younger and riskier SRI funds have higher money flow volatility, partly because of the greater high marketing efforts of these funds. Volatility is even higher

in funds that experienced good recent performance and belong to a larger fund family because switching between funds within the same family involves less cost. As suggested by Bollen (2007), it is interesting to investigate whether other types of investors that are concerned more about nonperformance attributes exhibit the same behaviour.

Other determinants of fund flows

While evidenced that fund performance is 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 factors include fund visibility (Sirri and Tufano, 1998), fund expenses (Barber, et al., 2005; Chevalier and Ellison, 1997; Sirri and Tufano, 1998), fund advertising (Jain and Wu, 2000; Sirri and Tufano, 1998), investment styles (Cooper, et al., 2005; Karceski, 2002), fund size (Chevalier and Ellison, 1997; Del Guercio and Tkac, 2008; Fant and O'Neal, 2000; Sirri and Tufano, 1998), fund age (Chevalier and Ellison, 1997; Nanda, et al., 2004; Ruenzi, 2005; Sirri and Tufano, 1998) and fund family characteristics (Huang, et al., 2007; Nanda, et al., 2004; Sirri and Tufano, 1998).

Financial theory assumes that rational investors do not incur search costs. However, in reality, investors, especially individual investors, have a limited ability to collect and process information. Thus, many investors make decisions based on the theoretically incomplete information available to them. Correspondingly, investors generally make asset allocation decisions based on funds that are more visible. These funds are often those that are large with a long market tenure and an established reputation. Moreover, large funds are able to spend more on advertising and are therefore more likely to receive media attention. In evidence, Gruber (1996) argues that there is linear relationship between money flows to mutual funds and fund size, where the larger the fund size, the larger the money flow. However Sirri and Tufano (1998) contend that fund flow declines with fund size where large funds tend to attract significantly smaller flows in relative terms than small funds (Sirri and Tufano, 1998). Other studies that have investigated the relationship between fund size and fund flows are Fant and O'Neil (2000) and Del Guercio and Tkac (2008).

Fund age may act as a proxy for investor awareness about the fund. Some studies have found that older funds have an established reputation, which may be good or bad depending on past performance realised. For instance, Sirri and Tufano (1998) and Barber, Odean and Zhang (2005) conclude that smaller and younger funds attract more fund flows. Higher marketing expenses incurred to market smaller and younger funds may explain why it attracts more fund flows. This is because recent fund performance should be more informative for young funds that do not have such reputation. Chevallier and Ellison (1997), Nanda, Wang and Zheng (2004) and Ruenzi (2005) reported that money flows of young funds are more sensitive to past performance than those of older funds.

The extant literature has also suggested that expense ratios affect fund performance where they tend to provide poorer net performance compared to funds that have lower loads and expense ratios (Carhart, 1997). As a rule, choosing funds with low fees is advisable rather than aiming for performance, thus, this may signals to investors to put money in low fund fees. This translates in that funds with lower fees may attract higher money flows and funds with higher fees attract lesser flows. In terms of empirical work, Sirri and Tufano (1998) and Barber, Odean and Zhang (2005) found that increased fund fees would most likely affect the reduction in the money flows.

On the other hand, higher expense ratios may also attract more money flows into a fund. Higher expense ratios may indicate higher marketing expenses spent to market the funds thus increasing fund visibility and consequently flows. Barber, Odean and Zheng (2005) found that there is a negative relationship between fund flows and front-end loads but there is no relationship between fund flows and operating expenses. This may indicate that investors are sensitive to information that is visible to them such as front-end load expenses, commissions and performance compared to expense ratio. However, this does hold true in the case of screened funds. As an example, investors of SRI funds generally care less about fund fees compared to conventional investors (Renneboog, et al., 2006). One potential implication of this behaviour is that fund managers may take this opportunity to invest large amounts of money in marketing to attract flows to increase assets under management and revenue to the fund managers.

Fund risk may also influence fund flows (Barber, et al., 2005; Benson and Humphrey, 2008; Ippolito, 1992; Sirri and Tufano, 1998). Funds with higher risk will result in lower fund flows. Nanda, Wang and Zheng (2004) provided further insight into yet other determinants of fund flows into mutual funds in that they found fund family or fund sponsor characteristics also influence money flows to a fund. For example, the performance of other funds also influences investors' decision to invest in a fund within the same family: referred to by Nanda, Wang and Zheng (2004) as the fund family spillover effect. In addition, Ivkovic (2002) reported that performance of other funds in the family also influence money flows into the fund beside the performance of that particular fund itself. Cash flows are then not only sensitive to the past superior performance of the individual funds but also there is spill over effect from the past performance of other funds in the family to that particular fund.

Massa (2003) found that management companies with a higher degree of product differentiation is more likely to generate low performance. However, fund management companies have incentives to introduce many new products to investors. The reason is to attract higher fund flows that bring more fees to the management companies. In addition, with an assortment of products, asset management companies are able to compete with the competitors based on non-performance attributes rather than financial performance attributes. This is supported by Khorana (2004) and Khorana and Servaes (1999) as product innovations are able to attract more fund flows to companies and generate a

continued growth to the fund families especially if the new products have other special features (more differentiated) compared to the existing products.

This research contributes to this line of literature. Renneboog, ter Horst and Zhang (2006) studied the SRI funds globally where they grouped Islamic funds as SRI funds in the sample. However, since according to Forte and Miglietta (2007) Islamic mutual funds exhibit different characteristics, the behaviour of Islamic mutual funds investors remain an empirical issue that needs to be investigated. Research that is dedicated to religious funds can be referred to Peifer (2009) and Nathie (2009). Peifer (2009) uses US funds to investigate the difference among four types of equity funds behaviour. These are religious SRI, religious non SRI, conventional SRI and conventional funds. He finds that religious SRI funds are the least responsive towards past performance. Nathie (2009) investigate Malaysian Islamic equity funds with limited sample and short period. He finds that Malaysian investors are rational in making investment decision. However his study lacks statistical analysis.

Data and methodology

Data and sample selection

To investigate the above, 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 (2010) 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 percent, 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, $t + 1$, and $t + 2$. The reason is that the flows of fund 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, Ordean and Zheng (2005) and Renneborg, et al. (2006), we remove outlier funds, defined as funds fund flows above the 99.5 percentile or below the 0.5 percentile. Of course, one comment 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.

Similar to the literature, 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:

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

where $TNA_{i,t}$ is total net assets under management for fund *i* at the end of year *t*, AUM_{t-1} is total net 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. The monthly raw returns data obtained from the Morningstar are annualised using the following formula:

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

In order to avoid other factors that may cloud the sensitivity of flows to past performance, we include 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*).

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 the primary motivation of Islamic investors in Islamic mutual funds is their compliance with *Shariah*. Thus, we hypothesise IEF investors are less responsive to past performance.

Hypothesis 1a: IEF flows are less sensitive to past performance than CEF flows

Hypothesis 1b: IEF flows are less sensitive to past negative returns than CEF flows

However, if IEF investors choose a fund in a basket of Islamic funds with higher performance, IEF investors may react positively to past performance. The sensitivity of IEF investors to past performance, will thgen depend on the access to other funds with similar characteristics.

Hypothesis 1c: IEF flows are more sensitive to past performance than CEF flows

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 willing 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.

Hypothesis 2: IEF investors are less sensitive to the lagged values of the explanatory variables, namely, MER, PTR, fund size, fund family size, flow, and total risk than are CEF investors.

Models and estimation techniques

We conduct most of the analyses using unbalanced panels of fund-year observations from 2001 to 2009. We employ pooled regression technique to estimate the relationship between flow and performance, with the basic model as follows:

$$FLOW_{i,t} = \alpha + D_{IEF,i} + \alpha RET_{i,t-1} + \alpha RET_{i,t-1} \times D_{IEFi} + \alpha D_{NEG\ i,t-1} + \alpha D_{NEG\ i,t-1} \times D_{IEFi} + \alpha AGE_{i,t-1} + \alpha AGE_{i,t-1} \times D_{IEFi} + \alpha SZE_{i,t-1} + \alpha SZE_{i,t-1} \times D_{IEFi} + \alpha RSK_{i,t-1} + \alpha RSK_{i,t-1} \times D_{IEF,i} + \alpha MER_{i,t-1} + \alpha MER_{i,t-1} \times D_{IEFi} + \alpha PTR_{i,t-1} + \alpha PTR_{i,t-1} \times D_{IEFi} + \alpha FSZE_{i,t-1} + \alpha FSZE_{i,t-1} \times D_{IEFi} + \alpha RET_{KLCI,t-1} + \varepsilon_{i,t} \quad (3)$$

where $FLOW_{i,t}$ is the money flow of fund *i* in year t, $D_{IEF,i}$ is a dummy variable taking a value one for an IEF and zero otherwise, $RET_{i,t-1}$ is the return of fund *i* over the period of t-1, $D_{NEG,i}$ 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 number of years since the fund's inception (in natural logarithms), $SZE_{i,t-1}$ is the size of the fund (in natural logarithms) of AUM at year *t*–1, $RSK_{i,t-1}$ is the total risk of the fund measured as the annualised standard deviation of the monthly returns, $MER_{i,t-1}$ is the management expense ratio measured by the total annual expenses incurred by the fund divided by the average net asset value of

the fund in the year, $PTR_{i,t-1}$ is the portfolio turnover ratio of the fund measured by the frequency of assets bought and sold over the average net asset values for the year, $FSZE_{i,t-1}$ is the number of IEFs (or CEFs) managed by the fund's family at year *t*–1 (in natural logarithms), and $RET_{KLCI,t-1}$ is the return of the market at year *t*–1 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) and the FTSE Bursa Malaysia EMAS (EMAS) (comprising the constituents of the FTSE Bursa Malaysia Top 100 and Small Cap Indexes) main market indices to proxy market returns.

In addition to the above pooled regression model, we estimate a panel regression model controlling with fixed-year effects to account for cross-sectional dependence. The fixed year effect is chosen over the random effect because we assume there is some unobserved heterogeneity which correlated with time. The fixed-year effect model is estimated as follows:

$$FLOW_{i,t} = \beta + D_{IEF,i} + \beta RET_{i,t-1} + \beta RET_{i,t-1} \times D_{IEF,i} + \beta D_{NEG\ i,t-1} + \beta D_{NEG\ i,t-1} \times D_{IEFi} + \beta AGE_{i,t-1} + \beta AGE_{i,t-1} \times D_{IEF,i} + \beta SZE_{i,t-1} + \beta SZE_{i,t-1} \times D_{IEF,i} + \beta RSK_{i,t-1} + \beta RSK_{i,t-1} \times D_{IEF,i} + \beta MER_{i,t-1} + \beta MER_{i,t-1} \times D_{IEF,i} + \beta PTR_{i,t-1} + \beta PTR_{i,t-1} \times D_{IEF,i} + \beta FSZE_{i,t-1} + \beta FSZE_{i,t-1} \times D_{IEF,i} + \sum_{i=1}^{9} \beta YER_{i,t} + \varepsilon_{i,t} \quad (4)$$

We correct the standard errors for heteroskedasticity and within cross-section serial correlation using White (1980).

Results

Descriptive statistics

Table 1 provides summary statistics of the variables employed in the study separated into the IEF and CEF subsamples. As shown, the mean annual return (*RET*) for CEF is slightly higher than IEF at 0.102 and 0.095, respectively. Consistent with theory, the risk (*RSK*) of CEF is also correspondingly higher than that for CEF, with a risk measure of 0.046 for CEF and 0.040 for IEF. The range between the highest and lowest returns in the sample is also slightly larger for IEF (-0.480 to 0.835) than CEF (-0.449 to 1.120). However, both return series also have some similarities, with both exhibiting positive skewness (a long tail extending to higher returns) and kurtosis (relatively many extreme observations of returns at either end of the distribution). The departures from normality in terms of both skewness and kurtosis are most noticeable for both series in fund risk than fund return.

In terms of other fund characteristics, IEF are on average younger by some three and a half years (*AGE*) to the average CEF, while the average sizes of IEF and CEF (*SZE*) are almost equal at RM150.19 and RM141.82 million, respectively. However, the range of fund sizes is much greater with IEF, with fund sizes for IEF ranging from RM1.12 to RM1,569 million compared with RM0.16 to RM 1,244 million for CEF. As also shown, management expense ratios (*MER*) in IEF and CEF are almost the same (0.018); this is not the case with SRI funds and IEF funds elsewhere where ethical investors typically pay more to invest in ethical funds. The portfolio turnover ratio (*PTR*) for IEF is slightly higher than CEF by 0.05 per annum, while the typical IEF fund family (*FSZ*) (21.9) is also somewhat larger than that for a comparable CEF fund family (18.3). Lastly, the average percentage net fund flows for IEF and CEF are 0.106 and -0.082 percent per year, respectively. The most obvious difference is that during the sample period, IEF received a positive net flow of funds (net inflow) whereas CEF experienced a negative net flow of funds (net outflow). 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 is generally more volatile.

Table 1: Descriptive statistics

	RET		RSK		AGE		SZE		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	1,568.65	1,244.22	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	3062.2	751.80	287.57	2,075.47	1,966.35	19307.	1145289.0	133687.60	6267.3	61.759	484.11	112.05	5175.4
JB *p*-	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, SZE 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: Comparison of means and variances throughout sample period

	IEF			CEF			Equality of Variances		Equality of Means	
	Obs.	Mean	Std. dev.	Obs.	Mean	Std. dev.	*F*-stat.	*p*-value	*t*-stat.	*p*-value
RET	241	0.095	0.234	730	0.102	0.249	0.519	0.471	–0.425	0.671
SZE	241	150.197	265.417	730	141.818	200.637	2.085	0.149	0.516	0.606
AGE	241	6.965	7.810	730	10.452	9.564	26.388	<0.001	–5.670	<0.001
RSK	241	0.040	0.017	730	0.046	0.020	1.510	0.220	–3.843	<0.001
MER	240	0.018	0.007	730	0.018	0.011	0.883	0.348	–0.126	0.899
PTR	241	0.919	1.557	730	0.872	0.725	0.168	0.682	0.633	0.527
FSZ	241	21.876	18.286	730	18.281	15.893	12.499	<0.001	2.730	0.007
FLOW	203	0.106	0.603	631	–0.082	0.466	21.366	<0.001	4.064	<0.001

Notes: All variables as previously defined. Null hypothesis of test of equality of variances is equal variances. Null hypothesis of test of equality of means is equal means. Test of equality of variances informs test of equality of means.

Table 2 provides the results of statistical tests of the means and variances of the two groups of funds. The most important point to note is that despite apparent differences between IERF and CEF, only four of the eight variables included in the analysis are statistically different at the means throughout the sample period. These are age (*AGE*), risk (*RSK*), fund family size (*FSZ*) and fund flow (*FLOW*). To investigate further, we compare the means and variances of four key variables (*RET*, *FLOW*, *AGE* and *AUM*) for each fund type by year. As shown, the upper panel in Table 3 shows that throughout the sample period the average size of IEF as measured by AUM is increasing steadily while the average CEF is decreasing in size. In 2000, the typical IEF fund was only RM114 million but by 2009 had grown to RM177 million. In comparison, the average CEF had decreased in size from RM175 million to RM98. However, the difference in mean size is not statistically significant for any year except 2008.

The second panel in Table 3 presents the average age of IEF and CEF from 2000 to 2009. Clearly, IEF are younger than CEF at least by three years throughout the sample period, with the difference in average age between IEF and CEF statistically significant from 2003 to 2008. The reason is clear, as we can see 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). The third panel in Table 3 shows that the difference in percentage flows of IEF and CEF are statistically significant in 2001, 2004 to 2006 and 2008. The net percentage flows into IEF funds are positive in most of the sample period except in 2006 and 2007, while CEF funds experience negative net flows from 2004 to 2008 before receiving a modest positive flow in 2009. Lastly, fund returns also vary by year throughout the sample period. However, in no year except 2006 is the difference in mean return in IEF and CEF statistically significant.

Table 3: Comparison of means and variances by year

		IEF			CEF			Equality of variances		Equality of means	
	Year	No. of funds	Mean	Std. dev.	No. of funds	Mean	Std. dev.	*F*-stat.	*p*-value	*t*-stat.	*p*-value
Assets under management (AUM)	2000	8	114.287	107.083	49	175.893	225.140	2.485	0.121	–0.756	0.453
	2001	9	136.816	170.487	57	145.257	206.151	0.065	0.799	–0.117	0.908
	2002	15	127.538	207.030	62	175.171	231.171	0.295	0.588	–0.730	0.468
	2003	18	136.134	211.062	65	185.654	239.426	0.503	0.480	–0.795	0.429
	2004	23	150.689	181.961	72	184.728	236.402	1.405	0.239	–0.632	0.529
	2005	31	146.916	214.090	86	153.236	197.229	0.024	0.878	–0.150	0.881
	2006	34	138.706	238.120	89	127.910	181.764	0.073	0.788	0.270	0.788
	2007	35	144.695	273.296	90	119.547	178.862	1.201	0.275	0.603	0.548
	2008	35	172.608	347.391	83	90.185	149.150	10.329	0.002	1.809	0.073
	2009	33	177.161	377.036	77	98.614	159.325	8.097	0.005	1.541	0.126
Age (AGE)	2000	8	7.28	9.04	49	9.88	9.84	1.655	0.231	–0.701	0.486
	2001	9	7.39	8.86	57	9.48	9.75	1.302	0.258	–0.606	0.547

	2002	15	5.37	7.72	62	9.71	9.71	2.900	0.093	–1.611	0.111
	2003	18	5.48	7.33	65	10.25	9.71	3.563	0.063	–1.931	0.057
	2004	23	5.27	6.85	72	10.22	9.74	4.331	0.040	–2.262	0.026
	2005	31	5.96	8.06	86	9.57	9.68	2.252	0.136	–1.849	0.067
	2006	34	6.44	7.87	87	10.24	9.67	2.856	0.094	–2.047	0.043
	2007	35	7.26	7.82	90	10.77	9.55	2.642	0.107	–1.933	0.056
	2008	35	8.25	7.83	83	11.70	9.56	2.220	0.139	–1.884	0.062
	2009	33	9.30	8.04	77	12.05	8.78	0.665	0.417	–1.544	0.126
Fund flows (FLOW)	2001	9	0.373	0.318	49	0.058	0.175	7.218	0.010	4.154	<0.001
	2002	9	0.554	0.616	57	0.366	1.355	0.269	0.606	0.409	0.684
	2003	15	0.535	0.925	62	0.183	0.696	2.466	0.121	1.648	0.104
	2004	18	0.425	0.771	65	–0.061	0.496	9.064	0.004	3.224	0.002
	2005	23	0.611	1.322	72	–0.032	0.390	21.971	<0.001	3.688	<0.001
	2006	31	–0.056	0.518	86	–0.270	0.302	1.832	0.179	2.755	0.007
	2007	34	–0.504	0.457	89	–0.372	0.851	1.050	0.308	–0.860	0.391
	2008	35	0.183	0.559	83	–0.163	0.177	34.756	<0.001	5.093	<0.001
	2009	33	0.123	0.254	77	0.020	0.318	0.266	0.607	1.542	0.104
Returns (RET)	2000	8	0.296	0.139	49	0.261	0.369	7.367	0.009	0.496	0.624
	2001	9	–0.221	0.091	57	–0.167	0.183	5.238	0.025	–1.370	0.186
	2002	15	0.144	0.137	62	0.184	0.164	0.296	0.588	–0.867	0.389
	2003	18	0.100	0.186	65	0.106	0.197	0.605	0.439	–0.101	0.920
	2004	23	0.185	0.182	72	0.197	0.174	0.013	0.910	–0.292	0.771
	2005	31	–0.021	0.079	86	–0.007	0.081	0.001	0.969	–0.824	0.412
	2006	34	0.054	0.118	89	0.096	0.119	0.828	0.365	–1.769	0.079
	2007	35	0.444	0.144	90	0.396	0.150	0.460	0.499	1.639	0.104
	2008	35	–0.070	0.174	83	–0.125	0.172	0.420	0.518	1.563	0.121
	2009	33	–0.002	0.219	77	0.075	0.245	1.049	0.308	–1.572	0.119

Notes: All variables as previously defined. Null hypothesis of test of equality of variances is equal variances. Null hypothesis of test of equality of means is equal means. Test of equality of variances informs test of equality of means.

Table 4 presents the correlation coefficients for the continuous variables used in the study. As shown, the rank correlations between the individual explanatory variables included in the analysis are never higher than 0.5. Potentially, this could indicate that multicollinearity will not confound our multivariate estimates. However, because most of the coefficients of the bivariate relationships between the independent variables are statistically significant, we estimate an alternative measure in the form of the variance inflation factor (VIF) for each potential regressor to confirm the likelihood of harmful multicollinearity. As none of the predictors have a VIF greater than the least restrictive 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.

Table 4: Correlation analysis

	FLOW	SZE_{t-1}	FSZ_{t-1}	AGE_{t-1}	MER_{t-1}	PTR_{t-1}	RET_{t-1}	RSK_{t-1}	$FLOW_{t-1}$	$KLCI_{t-1}$	$EMAS_{t-1}$
FLOW	1.000	–	–	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	–	–
SZE_{t-1}	–0.059	1.000	–	–	–	–	–	–	–	–	–
	0.117	–	–	–	–	–	–	–	–	–	–
FSZ_{t-1}	–0.055	0.256	1.000	–	–	–	–	–	–	–	–
	0.148	<0.001	–	–	–	–	–	–	–	–	–
AGE_{t-1}	–0.051	–0.018	–0.130	1.000	–	–	–	–	–	–	–
	0.180	0.626	0.001	–	–	–	–	–	–	–	–
MER_{t-1}	0.169	–0.101	–0.114	–0.019	1.000	–	–	–	–	–	–
	<0.001	0.008	0.003	0.623	–	–	–	–	–	–	–
PTR_{t-1}	0.153	–0.143	0.013	–0.119	0.109	1.000	–	–	–	–	–
	<0.001	<0.001	0.739	0.002	0.004	–	–	–	–	–	–
RET_{t-1}	0.027	0.068	0.051	–0.065	–0.087	0.130	1.000	–	–	–	–
	0.471	0.074	0.179	0.084	0.022	0.001	–	–	–	–	–
RSK_{t-1}	0.216	–0.081	–0.029	–0.009	0.025	0.033	0.010	1.000	–	–	–
	<0.001	0.032	0.438	0.805	0.509	0.377	0.798	–	–	–	–
$FLOW_{t-1}$	0.263	0.028	–0.183	–0.121	0.006	0.086	–0.166	0.015	1.000	–	–
	<0.001	0.465	<0.001	0.001	0.876	0.022	<0.001	0.699	–	–	–
$KLCI_{t-1}$	–0.046	0.038	0.026	–0.003	–0.043	0.145	0.887	–0.133	–0.199	1.000	–
	0.223	0.309	0.490	0.932	0.257	<0.001	<0.001	<0.001	<0.001	–	–
$EMAS_{t-1}$	–0.036	0.034	0.035	–0.002	–0.038	0.152	0.903	–0.096	–0.205	0.993	1.000
	0.342	0.374	0.351	0.953	0.316	<0.001	<0.001	0.011	<0.001	<0.001	–

Notes: Spearman rank correlation coefficients. Figures in italics are *p*–values for tests of significance of coefficients. All variables as previously defined.

Performance-flow relation

Table 5 presents the results of the analyses for twenty different models using pooled regression and panel fixed-effects regression. We use different combinations of regressors in simpler and more complex models to appreciate best the relationship between fund flow and performance along with the other fund characteristics.

Table 5: Estimated coefficients

Model	Coef,	Std. err. (1)	*p*-value	Coef,	Std. err. (2)	*p*-value	Coef,	Std. err. (3)	*p*-value	Coef,	Std. err. (4)	*p*-value	Coef,	Std. err. (5)	*p*-value
Constant	0.084	0.309	0.786	0.301	0.385	0.436	–0.0498	0.0212	0.0191	–0.086	0.023	<0.001	–0.117	0.036	0.001
D_{IEF}	–	–	–	–	–	–	–	–	–	0.145	0.047	0.002	0.232	0.100	0.020
$RET_{(t-1)}$	0.154	0.076	0.044	0.095	0.062	0.123	0.1258	0.0690	0.0685	0.037	0.075	0.625	0.125	0.105	0.232
$RET_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	0.380	0.186	0.042	0.135	0.298	0.650
$DUM_{NEG(t-1)}$	–	–	–	–	–	–	–	–	–	–	–	–	0.065	0.051	0.209
$DUM_{NEG(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	–	–	–	–0.175	0.146	0.231
$SZE_{(t-1)}$	–0.033	0.015	0.026	–0.034	0.018	0.064	–	–	–	–	–	–	–	–	–
$SZE_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$AGE_{(t-1)}$	–0.06	0.019	0.776	–0.082	0.024	0.001	–	–	–	–	–	–	–	–	–
$AGE_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$RSK_{(t-1)}$	5.977	1.161	<0.001	5.605	1.071	<0.001	–	–	–	–	–	–	–	–	–
$RSK_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$MER_{(t-1)}$	0.066	0.009	<0.001	0.084	0.030	0.004	–	–	–	–	–	–	–	–	–
$MER_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$PTR_{(t-1)}$	0.040	0.019	0.033	0.055	0.033	0.095	–	–	–	–	–	–	–	–	–
$PTR_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$FSZ_{(t-1)}$	0.019	0.021	0.365	–0.011	0.021	0.598	–	–	–	–	–	–	–	–	–
$FSZ_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$FLOW_{(t-1)}$	0.239	0.050	<0.001	–	–	–	–	–	–	–	–	–	–	–	–
$FLOW_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Adj. R^2/F-stat/*p*-value	0.158	17.368	<0.001	0.156	22.927	<0.001	0.003	3.081	0.080	0.031	9.971	<0.001	0.031	6.378	<0.001
Obs.	700	–	–	834	–	–	834	–	–	834	–	–	834	–	–
Model		(6)			(7)			(8)			(9)			(10)	
Constant	1.100	0.318	0.001	0.135	0.061	0.029	–0.337	0.057	<0.001	–0.246	0.047	<0.001	–0.085	0.024	<0.001
D_{IEF}	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$RET_{(t-1)}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$RET_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$DUM_{NEG(t-1)}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$DUM_{NEG(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$SZE_{(t-1)}$	–0.066	0.017	<0.001	–	–	–	–	–	–	–	–	–	–	–	–

	Coef,	Std. err.	*p*-value	Coef,	Std. err.	*p*-value	Coef,	Std. err.	*p*-value	Coef,	Std. err.	*p*-value	Coef,	Std. err.	*p*-value
$SZE_{(t-1)} \times D_{IEF}$	0.010	0.002	<0.001	–	–	–	–	–	–	–	–	–	–	–	–
$AGE_{(t-1)}$	–	–	–	–0.105	0.026	<0.001	–	–	–	–	–	–	–	–	–
$AGE_{(t-1)} \times D_{IEF}$	–	–	–	0.044	0.019	0.020	–	–	–	–	–	–	–	–	–
$RSK_{(t-1)}$	–	–	–	–	–	–	5.822	1.191	<0.001	–	–	–	–	–	–
$RSK_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	5.231	1.223	<0.001	–	–	–	–	–	–
$MER_{(t-1)}$	–	–	–	–	–	–	–	–	–	0.098	0.028	0.001	–	–	–
$MER_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	0.083	0.026	0.001	–	–	–
$PTR_{(t-1)}$	–	–	–	–	–	–	–	–	–	–	–	–	0.030	0.025	0.231
$PTR_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	–	–	–	0.097	0.031	0.002
$FSZ_{(t-1)}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$FSZ_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$FLOW_{(t-1)}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$FLOW_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Adj. R^2/F-stat/*p*-value	0.062	28.308	<0.001	0.041	18.915	<0.001	0.089	41.531	<0.001	0.060	27.458	<0.001	0.048	22.083	<0.001
Obs.	834	–	–	834	–	–	834	–	–	834	–	–	834	–	–
Model		(11)			(12)			(13)			(14)			(15)	
Constant	0.193	0.062	0.002	–0.072	0.015	<0.001	–0.003	0.328	0.992	0.257	0.488	0.599	0.361	0.346	0.297
D_{IEF}	–	–	–	–	–	–	0.320	0.841	0.703	0.653	0.840	0.437	0.916	0.841	0.276
$RET_{(t-1)}$	–	–	–	–	–	–	0.109	0.115	0.347	0.052	0.099	0.596	0.331	0.166	0.046
$RET_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–0.077	0.258	0.765	0.019	0.271	0.944	–0.165	0.219	0.452
$DUM_{NEG(t-1)}$	–	–	–	–	–	–	0.015	0.046	0.745	–0.004	0.052	0.934	–0.014	0.049	0.781
$DUM_{NEG(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–0.220	0.111	0.048	–0.158	0.133	0.236	–0.234	0.106	0.028
$SZE_{(t-1)}$	–	–	–	–	–	–	–0.029	0.015	0.049	–0.036	0.022	0.106	–0.040	0.016	0.014
$SZE_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–0.018	0.043	0.682	–0.017	0.043	0.702	–0.042	0.043	0.326
$AGE_{(t-1)}$	–	–	–	–	–	–	0.006	0.020	0.762	–0.055	0.029	0.054	0.005	0.020	0.789
$AGE_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	–0.012	0.050	0.816	–0.067	0.051	0.187	–0.027	0.045	0.547
$RSK_{(t-1)}$	–	–	–	–	–	–	5.841	1.402	<0.001	6.237	1.357	<0.001	–1.726	1.339	0.198
$RSK_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	3.047	2.833	0.283	1.330	2.423	0.583	3.871	2.234	0.084
$MER_{(t-1)}$	–	–	–	–	–	–	0.061	0.010	<0.001	0.097	0.036	0.007	0.063	0.011	<0.001
$MER_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	0.071	0.049	0.148	–0.058	0.046	0.213	0.008	0.043	0.848
$PTR_{(t-1)}$	–	–	–	–	–	–	0.007	0.034	0.826	–0.020	0.037	0.583	0.033	0.038	0.385
$PTR_{(t-1)} \times D_{IEF}$	–	–	–	–	–	–	0.049	0.036	0.176	0.100	0.038	0.010	0.013	0.041	0.747
$FSZ_{(t-1)}$	–0.109	0.021	<0.001	–	–	–	0.018	0.023	0.438	–0.014	0.021	0.499	0.056	0.028	0.042

	Coef,	Std. err.	*p*-value	Coef,	Std. err.	*p*-value	Coef,	Std. err.	*p*-value	Coef,	Std. err.	*p*-value	Coef,	Std. err.	*p*-value
$FSZ_{(t-1)} \times D_{IEF}$	0.070	0.016	<0.001	–	–	–	–0.016	0.059	0.790	–0.016	0.059	0.784	–0.016	0.058	0.785
$FLOW_{(t-1)}$	–	–	–	0.252	0.063	<0.001	0.249	0.065	<0.001	–	–	–	0.186	0.068	0.006
$FLOW_{(t-1)} \times D_{IEF}$	–	–	–	–0.056	0.099	0.572	–0.086	0.109	0.428	–	–	–	–0.071	0.113	0.528
Adj. R^2/F-stat/*p*-value	0.043	19.780	<0.001	0.068	26.365	<0.001	0.177	8.933	<0.001	0.193	12.732	<0.001	0.294	12.216	<0.001
Obs.	834	–	–	700	–	–	700	–	–	834	–	–	700	–	–
Model		(16)			(17)			(18)			(19)			(20)	
Constant	0.507	0.465	0.276	0.331	0.486	0.496	0.283	0.484	0.559	0.539	0.467	0.249	0.522	0.466	0.263
D_{IEF}	0.989	0.767	0.197	0.839	0.838	0.317	0.839	0.836	0.316	1.062	0.772	0.169	1.062	0.767	0.167
$RET_{(t-1)}$	0.256	0.120	0.033	0.694	0.194	<0.001	0.751	0.215	0.001	0.574	0.197	0.004	0.613	0.204	0.003
$RET_{(t-1)} \times D_{IEF}$	0.036	0.238	0.881	–0.039	0.284	0.891	–0.067	0.285	0.816	–0.034	0.246	0.889	–0.052	0.246	0.833
$DUM_{NEG(t-1)}$	–0.036	0.051	0.477	–0.005	0.052	0.922	0.003	0.052	0.958	–0.032	0.051	0.531	–0.028	0.051	0.590
$DUM_{NEG(t-1)} \times D_{IEF}$	–0.151	0.127	0.235	–0.180	0.135	0.182	–0.194	0.134	0.148	–0.171	0.128	0.182	–0.178	0.128	0.165
$SZE_{(t-1)}$	–0.047	0.021	0.028	–0.039	0.022	0.081	–0.039	0.022	0.076	–0.049	0.022	0.024	–0.049	0.022	0.023
$SZE_{(t-1)} \times D_{IEF}$	–0.031	0.039	0.429	–0.024	0.043	0.569	–0.024	0.043	0.576	–0.034	0.039	0.387	–0.033	0.039	0.391
$AGE_{(t-1)}$	–0.055	0.026	0.036	–0.051	0.027	0.060	–0.048	0.027	0.074	–0.051	0.025	0.045	–0.050	0.025	0.048
$AGE_{(t-1)} \times D_{IEF}$	–0.058	0.047	0.219	–0.058	0.048	0.226	–0.058	0.048	0.232	–0.054	0.047	0.245	–0.055	0.047	0.242
$RSK_{(t-1)}$	1.207	2.074	0.561	5.508	1.448	<0.001	5.857	1.420	<0.001	1.271	2.160	0.556	1.263	2.168	0.560
$RSK_{(t-1)} \times D_{IEF}$	0.825	2.209	0.709	0.653	2.373	0.783	0.719	2.363	0.761	0.549	2.222	0.805	0.594	2.223	0.789
$MER_{(t-1)}$	0.088	0.028	0.001	0.099	0.031	0.002	0.101	0.032	0.002	0.091	0.026	<0.001	0.092	0.026	<0.001
$MER_{(t-1)} \times D_{IEF}$	–0.068	0.041	0.095	–0.071	0.040	0.079	–0.073	0.040	0.070	–0.075	0.038	0.047	–0.077	0.037	0.039
$PTR_{(t-1)}$	0.019	0.035	0.591	–0.012	0.035	0.726	–0.014	0.035	0.697	0.018	0.034	0.596	0.017	0.034	0.610
$PTR_{(t-1)} \times D_{IEF}$	0.042	0.037	0.250	0.090	0.037	0.015	0.092	0.037	0.013	0.045	0.036	0.215	0.045	0.036	0.208
$FSZ_{(t-1)}$	0.044	0.026	0.093	–0.009	0.021	0.660	–0.008	0.022	0.706	0.044	0.027	0.103	0.045	0.027	0.100
$FSZ_{(t-1)} \times D_{IEF}$	–0.021	0.053	0.694	–0.009	0.058	0.881	–0.009	0.058	0.877	–0.015	0.053	0.782	–0.016	0.053	0.771
KLCI	–	–	–	–0.759	0.169	<0.001	–	–	–	–0.468	0.159	0.003	–	–	–
EMAS	–	–	–	–	–	–	–0.728	0.168	<0.001	–	–	–	–0.458	0.147	0.002
Adj. R^2/F-stat/*p*-value	0.294	14.881	<0.001	0.218	13.903	<0.001	0.217	13.851	<0.001	0.300	14.721	<0.001	0.301	14.778	<0.001
Obs.	834	–	–	834	–	–	834	–	–	834	–	–	834	–	–

Note: The table includes the estimated coefficients, standard errors and p-values for the regression of fund flows on fund and market attributes. Models 1–15, 17 and 18 employ pooled regression techniques while Models 15, 16, 19 and 20 employ panel regression techniques allowing for fixed-year effects. Coefficients and standard errors adjusted for heteroskedasticity using White (1980). All variables as previously defined.

Of these, Models (1) and (2) are the most basic as they estimate the relationship between fund flow and past performance for all funds without identifying whether the funds are IEF or CEF. In addition, the regressors in Model (1) include the one-period lagged fund flow while Model (2) is the contemporaneous fund flow. Of the eight estimated coefficients, six are statistically significant at the 10% level or lower. These variables are lagged returns (*RET*), size (*SZE*), risk (*RSK*), management expense ratio (*MER*), and portfolio turnover (*PTR*) and flow (*FLOW*). However, in Model (2), the dropping of lagged flow makes the significance of the lagged return disappear while lagged age emerges as a significant explanatory variable. The lags of fund size, risk, and the management expense ratio and portfolio turnover remain significant in both models.

Models (3) to (12) sequentially test the relationship of each of the explanatory variables to fund flows. In Model (3), lagged return (*RET*) positively relates to net percentage flow (*FLOW*) for all Malaysian domestic equity funds, with every 1% increase in return attracting a 12.6% net inflow. To examine if there is a difference in the reaction of fund flows in IEF, we include the interaction terms between the IEF dummy and its lagged return in Model (4). We find that the coefficient of the lagged one-period return is not significant indicating that there is no significant relationship between fund flows and past performance. However, the coefficient of the interaction variable between lagged return and IEF is statistically significant at the 5% level. This indicates that for IEF investors, every 1% increase in return will attract an approximate flow of 38% into IEF.

To test the potential for an asymmetric relationship between lagged return and funds flows, in Model (5) we include a dummy variable indicating lagged negative returns and an interaction variable between this and the dummy for IEF. None of the explanatory variables is significant with the exception of IEF. This suggests that other explanatory variables need to be included in the model to explain fund flows. Models (13) to (20) examine the relationship between flows and past performance with control variables included in the models. Model (13), (14), (17) and (18) employ pooled regression estimation technique while Model (15), (16), (19) and (20) employ panel period fixed effect estimation technique.

Overall, the results indicate that fund flows are positively related to lagged returns. Further, only two models, Models (13) and (15), show that IEF flows are sensitive to lagged negative returns, thereby indicating an asymmetric response in fund flows to fund performance. In Model (13), for every 1% decrease in return when lagged return is negative, flows will decrease by 22% relative to a positive lagged return. Overall, Model (20) explains about 30.1% of the variation in fund flows.

Relation between fund flow and other fund attributes

This section explores if IEF investors exhibit different investment selection behaviour in aggregate when compared to CEF investors. Model (1) clearly shows that other than past past return performance (*RET*), assets under management (*SZE*), fund risk (*RSK*), fund management expenses (*MER*), fund portfolio

turnover (*PTR*) and past fund flows (*FLOW*) also statistically significantly explain current fund flow (*FLOW*). Fund age (*AGE*) is sometimes statistically significant, but only when we remove lagged fund flow (*FLOW*), as in Model (2). This process also reduces the statistical significance of lagged returns (*RET*). The coefficient for fund family size (*FSZ*) is not significant in either model. The coefficients for these variables (statistically significant at least at the 10% level or lower) in both models do not vary much but the significance level for the other variables, *SZE* and *PTR*, reduce in significance from the 5% level to the 10% level. Based on the estimates, it would also appear that Malaysian investors care about other fund attributes when making fund purchasing decisions. As shown by the estimates in Model 2, investors clearly put more money in funds that are smaller and younger, with higher risk, management expenses, and turnover, and larger past flows.

Model (6) to (12) investigate the relationship between fund flows and each of the explanatory variables separately. Models (6), (7), (8), and (9) respectively indicate that fund size, age, risk, management expenses and family size are individually statistically significant in explaining fund flows. These models also indicate that IEF investors behave differently from other investors, as all the IEF interaction coefficients are statistically significant at the 1% level. For example, while smaller and younger CEF on average receive larger fund flows, only larger and more mature IEF receive larger fund flows. In addition, in Models (10) and (12) we can see that CEF investors care little about portfolio turnover but care much about past fund flows, whereas IEF investors care more about portfolio turnover and less about past fund flows.

Models (13) to (20) estimate the full regression models including all of the potential regressors using two different estimation techniques. These are the pooled regression technique used elsewhere and the panel fixed-effects technique. All of the full regression models, except for Model (14), suggest that fund size (*SZE*) is significant at the 10% level or lower in explaining fund flows, with smaller funds generally attracting larger percentage fund flows. For example, as shown in Model (15), for every 1% decrease in fund size, a fund manages to attract 4% fund flow. The only other variable exhibiting a negative relationship with fund flows is fund age (*AGE*), with younger funds attracting proportionally larger fund flows. In fact, only in Models (13) and (15) is the relation between fund flow and fund age insignificant. For instance, Model (17) shows that every 1% increase in age decreases fund flows by 5%. Clearly, all other things being equal, Malaysian investors favour younger funds. Together, these findings are consistent with Chevalier and Ellison (1996) who found that fund flows in percentage terms are lower for older funds and higher for younger funds. Of most relevance to our study, however, is that in none of the full regression models is there any difference in behaviour between IEF and CEF investors in this regard.

Of the eight full regression models in Table 5, only in four models, Models (13), (14), (17) and (18), is there any significant relationship between fund risk (*RSK*) and fund flows. Interestingly, this estimated relationship is positive (fund flows increase with risk) in stark contrast to other findings in the literature: see, for instance, Sirri and Tufano (1998) and Barber, Odean and Zheng (2005). For example, in Model (13), for every 1%

increase in risk, fund flows increase by 584% and this is significant at the 1% level. This result is consistent with Oh (2005) and Renneboog et al (2006). For example, Oh (2005) in a study of Korean mutual fund suggests that mutual fund investors sees return volatility or total risk as an opportunity and accordingly invest more money into these mutual funds exhibiting these characteristics.

While some of the literature largely concludes that investors purchase funds with lower expense ratios, this study indicates that higher expense ratios attract higher money flows. For the most part, all of the full models exhibit a significantly positive relationship between fund expenses and fund flows. For example, in Model (15), every 1% increase in the management expense ratio (*MER*) increases fund flow by 6.3%. This is consistent with Huang, Wei and Yan (2007), Ivkovic and Weisbener (2009) and Barber, Ordean and Zhang (2000) in finding that funds with higher expense ratios (particularly marketing expenses) have stronger flow–performance sensitivity. One reason may be a larger marketing expenses component indicating increases in advertising to attract new investors. In addition, Ivkovic and Weisbener (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.

There is no significant general relationship between fund flow and portfolio turnover (*PTR*) in all of the full regression models. However, three of the eight full models suggest that IEF investors consider turnover when purchasing funds. For example, in Model (14), every 1% increase in portfolio turnover (*PTR*) attracts a 10% fund flow into IEF funds and this relationship is significant at the 1% level. Previous studies (Grinblatt and Titman, 1994; Wermers, 2000) also find that there is sometimes a positive relationship between performance and portfolio turnover indicating that actively traded funds provide higher returns because of their ability to identify mispriced securities. Investors are aware of this relationship, thus rewarding funds with a history of higher turnover.

Consistent with the literature, e.g. Chen, Hong, Huang and Kubik, (2004), there is a positive relationship between fund flow and fund family size (*FSZ*). This indicates that investors take into account fund family size in their fund selection decisions. For example in Model (15), every 1% increase in fund family size increases the flow of funds by 5.6%. However, only Models (15) and (16) indicate that this relation is statistically significant. There is also evidence that past fund flows (t–1) influence future fund flows (t). For example in Models (13) and (15), increases of 1% in lagged fund flows increase future flows by 24% and 17%, respectively. This finding is consistent with Cashman et al. (2006) and Benson et al. (2008) who also conclude a positive relationship between current and past fund flows. One argument presented for this in the former is that the persistence in flows signals investors to reinvest automatically in the funds already owned. In responding to the question of whether IEF investors exhibit different purchasing behaviour to CEF investors, the above results allow us to mostly conclude that IEF investors possess similar purchasing behaviour as CEF investors, except for somewhat weak evidence that IEF investors consider portfolio

turnover more than other investors. Other than this, none of the interaction variables with IEF is significant indicating that there is no significant difference between Islamic and conventional investors in their fund selection decisions.

Lastly, all models indicate that market returns (both *KLCI* and *EMAS*) have a negative effect on fund flows. For instance, Model (17) as estimated using pooled regression technique, shows that every 1% decrease in market returns increase flows by 76 percent, regardless of the market index used. When we reestimate using panel fixed-effects regression, see Model (19), the coefficient reduces such that every 1% decrease in market returns increases fund flows by 47%. This may indicate that investors move away from managed fund during strong market conditions, preferring instead of 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.

Conclusion

In this paper, we investigate the determinants of fund flows in IEF and CEF to discern if there is any difference between these funds. In addition, we examine 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 the Malaysian managed funds, but there is no significant difference between IEF and CEF in this regard. As reported in the extant literature, we also find some evidence of an asymmetric relationship between fund flows and fund performance. However, there is only weak evidence that IEF investors react proportionately more in absolute terms to poor performance.

We contribute to the literature by presenting several new findings. First, in finding that IEF investors react in much the same was A 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, while the literature provides evidence that IEF funds are less responsive to past poor performance (see Bollen (2007) and Renneboog et al. (2006), we provide weak evidence that IEF investors are in fact more responsive to past negative returns. In doing so, we support the small-sample findings of Nathie (2009) that IEF investors make rational financial decision making by directing fund flows to better performing funds and punishing poor 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 joint Islamic-conventional financial market. Lastly, our results also support work in Warther (1995) and Potter (2000) indicating a negative relationship between fund flows and market returns. Overall, this suggests that investors will put more money into domestic equity funds when market has not been doing well, known as “negative feedback trading”. Alternatively, we suggest that when the market is bearish, local investors may

invest more money into equity funds instead of direct equity investment as they seek diversification to reduce risk.

This study contributes to literature in the Islamic finance, specifically Islamic investment, by providing rigorous empirical evidence on the sensitivity of investors toward fund performance and other fund characteristics using a large and recent data set. This indicates that performance alone is not sufficient in attracting fund flows for both conventional and Islamic funds. More problematic for Islamic funds, compliance with Islamic principles also does not guarantee a free ride with investors punishing poorly performing IEF funds particularly harshly.

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 the 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 context 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, higher frequency information on Malaysian managed funds is simply unavailable.

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