INVESTORS' REACTION TO FUND'S PERFORMANCE: A STUDY ON FUND FLOW-PERFORMANCE RELATIONSHIP IN ISLAMIC EQUITY FUNDS - AN INTERNATIONAL EVIDENCE

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THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

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INVESTORS' REACTION TO FUND'S PERFORMANCE: A STUDY ON FUND FLOW-PERFORMANCE RELATIONSHIP IN ISLAMIC EQUITY FUNDS - AN INTERNATIONAL EVIDENCE

ABSTRACT

For many Islamic fund investors, in particular, the Muslims, the aim of their investment is not solely for financial rewards. Spiritual merits accrued through the observance of the Islamic principles brought forth another form of satisfaction. The compulsion to any investment, which involves any prohibited elements and businesses as prescribed by Shari'ah law, becomes an unidentified persuasion. These were despite theories, which expound that Islamic investment is a unique category of ethical investment invites a myriad of issues of investment inefficiencies. Investors who choose to invest with Islamic funds are considered irrational as they are ignoring the profitability and performance aspects of the investment. Attempting to investigate this puzzle, this thesis presents the empirical studies on Islamic fund investors' reaction towards a fund's performance through the measurement of fund flow-performance relationship of Islamic equity funds (IEFs). Three countries with different levels of Islamic financial development, namely Malaysia, Saudi Arabia and, Indonesia, were chosen. Data on the relationship between the fund flow and fund's performance over the study period of 2007-2019 allowed the study to capture how investors react to top-performing and poor-performing funds through directing money into or out of the funds. The differences in Shari'ah screening criteria and the level of Islamic financial development across these countries provided ample ground to examine the reactions of investors under different jurisdictions and markets. Specifically, by using panel data analysis of static panel on monthly unbalanced panel data, this thesis strives to achieve four objectives. The first and second objectives aim to investigate the existent of asymmetric relation in IEFs across-countries and individual country. The third objective aims to make a comparison with the conventional equity funds (CEFs). The fourth objective aims to determine the influence of Islamic

financial development on the sensitivity of the fund flow-performance relationship. The current study contributes to the literature by presenting several new findings. It reveals that the fund flow-performance relationship of IEFs across-countries as well as in the individual country is inconsistent with the asymmetric relationship. Instead, the results suggest that both the bottom and top performances attracted more outflows (inflows) when performances are down (up). Furthermore, when the sensitivities of fund flow to funds' performance of IEFs were compared to the conventional counterpart, the findings found that investors of IEFs across-countries reacted to the poor-performing funds and best-performing funds in the same way as CEFs investors do. Meanwhile, in the individual country, investors of IEFs in Malaysia are more sensitive to poor-performing funds in current performance, while having either no reaction or less sensitive to poor-performing funds of past performance as compared to their CEFs investors. Besides, IEFs investors in Malaysia are perceived to be more sensitive to the best-performing funds' performances. For Saudi Arabia, IEFs investors are more responsive to the poor-performing funds and best-performing funds in past performances as compared to their CEFs investors. Whereas, IEFs investors in Indonesia are either less responsive or did not react to fund's performances. Moreover, the current study could also conclude that both IEFs and CEFs investors respond equally to the fund's performance. Finally, the current study further ascertains that Islamic financial system development across countries influence the IEFs investors' decision making. Although the development of Islamic banking and Islamic funds industries across-countries does not influence investors' sophistication, however, IEFs investors in Malaysia are found to be more sophisticated where the investors are not chasing for best-performing funds while flocking out of poor-performing funds.

Keywords: Islamic investment, Islamic funds, fund flow, fund performance

REAKSI PARA PELABUR TERHADAP PRESTASI DANA: KAJIAN KEATAS HUBUNGAN ALIRAN DANA-PRESTASI DANA DALAM DANA EKUITI ISLAM – BUKTI ANTARABANGSA

ABSTRAK

Bagi kebanyakan para pelabur dana Islam terutama yang beragama Islam, pulangan kewangan tidak menjadi satu-satunya matlamat bagi mereka. Nilai spiritual yang diperoleh dari prinsip-prinsip Islam memberi satu lagi bentuk kepuasan. Menghindari pelaburan yang melibatkan sebarang unsur-unsur dan perniagaan yang ditegah menurut syariat Islam adalah menjadi kewajiban terhadap mereka. Di suatu sudut yang lain, teori telah menunjukkan bahawa pelaburan Islam sebagai salah satu bentuk pelaburan beretika yang unik menghadapi permasalahan yang berpunca daripada pengecualian sesetengah produk pelaburan. Para pelabur yang memilih dana Islam sebagai pelaburan adalah dianggap tidak rasional kerana mengenepikan aspek prestasi dan keuntungan. Untuk menyiasat kekeliruan ini, tesis ini menjalankan kajian empirikal ke atas reaksi para pelabur dana Islam terhadap prestasi dana tersebut melalui pengukuran hubungan di antara aliran dana-prestasi dana ke atas dana-dana ekuiti Islam (DEI) dari tiga negara iaitu Malaysia, Arab Saudi, dan Indonesia diantara tahun 2007-2019. Perhubungan antara aliran dana-prestasi dana ini membolehkan penyelidik mengkaji reaksi para pelabur DEI terhadap dana yang berprestasi tinggi dan dana yang berprestasi rendah dengan melihat kepada aliran keluar masuk wang. Tambahan lagi, memandangankan tahap kemajuan kewangan Islam di antara negara-negara adalah berbeza, adalah dijangkakan bahawa para pelabur dari berlainan negara akan menunjukkan reaksi yang berbeza. Dengan menggunakan kaedah analisa data panel statik ke atas data bulanan yang tidak seimbang, tesis ini ingin mencapai empat objektif. Objektif yang pertama dan kedua ingin menyiasat kewujudan hubungan asimetrik dalam DEI merentasi negara dan di negara individu. Objektik ketiga ingin membuat perbandingan dengan dana ekuiti konvensional dari sudut volatiliti aliran dana dan yang empat ingin menyiasat pengaruh kemajuan sektor

kewangan Islam terhadap hubungan aliran dana-prestasi dana. Dapatan dari kajian semasa ini menyumbang kepada penemuan baru dimana ia menunjukkan bahawa hubungan aliran dana dan pretasi dana DEI di merentasi negara dan juga di setiap negara tidak menunjukkan hubungan asimetri. Sebaliknya, dapatan menunjukkan bahawa prestasi rendah dan prestasi tinggi menarik lebih banyak aliran keluar (aliran masuk) ketika prestasi turun (naik). Selanjutnya, apabila kepekaan aliran dana terhadap prestasi dana DEI dibandingkan dengan dana yang konvensional, penemuan mendapati bahawa reaksi pelabur DEI merentasi negara terhadap dana berprestasi rendah dan prestasi terbaik adalah sama seperti yang dilakukan oleh para pelabur dana konvesnional. Sementara itu, di setiap negara, pelabur DEI di Malaysia lebih peka terhadap dana berprestasi semasa yang rendah, sementara tidak mempunyai reaksi atau kurang sensitif terhadap dana yang lemah dari prestasi bukan semasa berbanding pelabur dana konvensional. Selain itu, pelabur DEI di Malaysia juga lebih peka terhadap dana berprestasi baik. Bagi negara Arab Saudi, pelabur DEI negara itu lebih responsif terhadap dana berprestasi lemah dan baik pada prestasi bukan semasa berbanding dengan pelabur dana konvensional. Manakala, pelabur DEI di Indonesia kurang responsif atau tidak mempunyai reaksi terhadap prestasi dana. Selain itu, kajian semasa juga dapat menyimpulkan bahawa para pelabur DEI dan pelabur dana kovensional memberi reaksi yang sama terhadap prestasi dana. Akhir sekali, kajian terkini juga telah membuktikan bahawa pembangunan sistem kewangan Islam di sesebuah negara mampu mempengaruhi keputusan pelaburan para pelabur DEI. Walaupun, perkembangan industri perbankan Islam dan dana Islam merentasi negara tidak menjadikan para pelabur lebih berpengetahuan, namun para pelabur DEI di Malaysia didapati lebih berpengetahuan di mana para pelabur tidak mengejar dana berprestasi tinggi sementara menjual dana yang berprestasi rendah.

Kata kunci: Pelaburan Islam, dana Islam, aliran dana, prestasi dana.

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LIST OF ABBREVIATIONS

AAOIFI	Accounting and Auditing Organization for Islamic Financial Institutions
AUM	Asset under management
BNM	Bank Negara Malaysia
CAPM	Capital Asset Pricing Model
CD	Credit Default
CDO	Collateralized Debt Obligation
CMP	Capital Market Plan
DES	Islamic Security List
DJIMI	Dow Jones Islamic Market Index
DSN-MUI	Dewan Syariah Nasional-Majelis Ulama Indonesia
EMH	Efficient Market Hypothesis
FSTE	Financial Times-Stock Exchange
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
ICI	Investment company institute
ICM	Islamic capital market
IDX	Indonesia Stock Exchange
IEF	Islamic Equity funds
IF	Islamic finance
IFS	Islamic Financial System
IFDI	Islamic financial development Indicator
IFI	Islamic financial institution
IFSB	Islamic Financial Services Board
IMF	International Monetary Fund
IRTI	Islamic Research and Training Institute

ISSI	Indonesia Sharia Stock Index
JII	Jakarta Stock Exchange
KMI	KSE Meezan Index
KSE	Karachi Stock Exchange
MIFC	Malaysia International Islamic Finance Centre
MSCI	Morgan Stanley Capital International
NAV	Net Asset Value
OJK	Otoritas Jasa Keuangan
SAMA	Saudi Arabia Monetary Authority
SC	Securities Commission of Malaysia
SRI	Social Responsible Investment
S&P	Standard and Poor

CHAPTER 1: INTRODUCTION

1.1 Background

Islamic finance (IF) which was initially introduced to support the financial need of about 2 billion Muslim population has been growing tremendously over the past 40 years. Since it first emerged in the 1970s, the industry total worth across its three primary sectors, namely Islamic banking, Islamic capital market and Takaful is at USD 2.19 trillion in 2018 (IFSB, 2019). The growth of IF was propelled mainly by its success story during the financial crisis of the year 2007-2009. Reports and researchers in this field had indicated that IF has stronger resilient in facing unexpected economic circumstances; thus was less impacted by the crisis (IMF News, 2010; Chapra, 2011; Hassan, 2018). The small investment portfolio, lower debt, and adherence to screening criteria, which in turn had restrained IF from getting involved with risky financial instruments such as collateralised debt obligation (CDO) and credit default swap (CDs) which had adversely affect conventional finance sector.

The leading critical players of IF are Malaysia and Saudi Arabia, two countries with a predominantly Muslim population. Malaysia is recognized as the hub of global Islamic finance with the most comprehensive framework as well as the most sophisticated players. While Saudi Arabia is the world second largest IF player; however, the country is lacking in terms of governance in which the country has yet to introduce dedicated regulation for Islamic financial institutions as well as lagging in term of financial disclosure.

Islamic finance can be easily understood in the light of conventional finance given that the products offered by IF serve the same financial purposes as conventional finance,

but they are tailored to accommodate the precepts of Shari'ah. Similar to its counterparts, IF industry covers banking, insurance, and capital markets. Islamic banking is currently the dominant component of Islamic finance, which accounts for more than three-quarters of the industry's assets. To date, Islamic banking has made its ways into Europe, North America, Asia, the Middle-Eastern and Sub-Saharan Africa, as well as China in the Far East.

The fast-growing sector of Islamic finance is the Islamic Capital Market (ICM). Similar to Islamic banking, ICM offers Shari'ah-compliant as alternatives to conventional capital market products. A unique feature of ICM is that almost all of its products are derived from Shari'ah-compliant companies that have been selected through Shari'ah screening procedures to ensure that they are fully compliant with Islamic law. The need for screening is necessary to select the company to conform to the principles of Shari'ah, albeit the prevalent interest-based debt financing and the modern form of corporations. For companies of today, even if their businesses are *halal,* it would not be easy to escape non-permissible earnings/payments of interest from debt. The following section shall present the introduction of Islamic investment.

1.2 Islamic Investment

Today, various Shari'ah investment products are available for investors who seek to invest in a Shari'ah-compliant manner. Besides trading or investing in the stock market, investors may invest in various categories of investment funds, which provide a low risk-moderate return, balanced risk-return, and high risk-high return Shari'ah-compliant investment. The aim of Islamic investment has always been to provide Muslim investors with alternative financial products that accommodate their religious preferences.

Islamic investment represents a unique category of ethical investment, given that the sources of its determination are religious-based values. The investments are categorised as Shari'ah-compliant investments if they were free from prohibited elements such as *riba* (interest), *gharar* (uncertainty), and *maisir* (gambling/speculative).

Riba or usury means additional, increase, expansion, and growth in which the basis of the prohibition is related to the manner through which the additional is gained. The primary sources of Islamic law (Quran and hadiths) strongly condemn any transaction involving *riba,* where it has been clearly stated that Allah has permitted trade and forbade interest (Surah al Baqarah: 275). The prohibition of *riba* was intended to prevent the accumulation and circulation of wealth among the rich only (Ayub, 2007).

Gharar is present in a transaction in which the subject matter or its price is not known to result into inadequate value- relevant information which invites exploitation and fraud by any of the contracting parties (Ayub, 2007). The prohibition of *gharar* may be found in many hadiths. The most prominent authentic Hadith was the saying of the Prophet that stated that the sale of *gharar* is prohibited. Thus, to reduce the possibilities of a future dispute, Islamic jurists concluded that a contract must not be doubtful and uncertain in assuring that the right and obligations of the parties concerned are clear.

Whereas, *maisir*/*qimar* refers to the acquisition of wealth by chance, whether or not it deprives the right of any of the contracting parties. It is viewed as the 'game of chance' in which a person put his money at stake with unknown risk wherein that amount of money in return might bring back vast sums of money or might render to lose. The prohibition has clearly been explained in the Quran through Surah al-Maidah verse 90 and Surah An-Nisa' verse 219.

Riba is commonly present in investment products where the underlying stocks are owned by companies that trade and financing involve interest-based transactions such as conventional banks and insurance. Meanwhile, the issues of *gharar* and *maisir* in investment may take many forms. Concerning the element of *gharar*, Abdullah & Chee (2010) opined that the act of short selling is a tantamount to *gharar* as it involves buying a stock that has not been owned in the hope that the price will fall so that it can be bought at that low price. Moreover, day trading is also considered prohibited where buying and selling transaction is made of often with the same securities throughout the day. The uncertainties regarding the ability to deliver these stocks would render the contract void.

Furthermore, some may argue that investment is a form of *maisir* in a way that it is the act of speculating. It is because trading in stocks can be on a short-term basis. For instance, stocks can be traded in the form of intraday trading, contra trading, and daily swing trading, which involve the act of speculating prices.

Besides the three prohibited elements, a Shari'ah investment activity must also avoid any businesses, which are identified as *haram* by the teaching of Islam. Such *haram* products include liquor, pornographic, casino, and pork-related products. However, given the complexity of modern business organisations with different subsidiaries that produce multiple products, the Shari'ah scholars unanimously agreed that the prohibition of these elements in business activities is not in its totality. Instead, investment in companies with *haram* products business activity is tolerated at a certain level of the benchmark (Ayub, 2007). The benchmark has been adopted by many stock exchanges that provide the list of *Shari'ah*-compliant stocks at their exchanges. These prohibitions underlie many of the procedures adopted by the screening providers in order to identify Shari'ah-compliant investment. The following section shall present the overview of the Islamic funds. The following section shall introduce to Islamic funds industry and the development across three countries, namely Malaysia, Saudi Arabia, and Indonesia.

1.3 Overview of Islamic fund

Islamic fund is one of the products in Islamic investment. It also represents the largest segment of ICM. Like other unit trust or mutual fund[1], this product refers to investors pooling their capital together to be invested collectively in varieties of financial assets in order to meet the fund objective, which is managed by a professional fund manager. The return will be in the form of capital gains and dividends, which are distributed among the investors. The objective of the product includes seeking aggressive growth, long-term growth, pension plan, dividend income and growth and income fund.

Investors of the unit trust funds are typically those with a small amount of capital to invest and have neither the time nor the inclination to hold portfolios of direct investment in stocks or other assets. Furthermore, portfolio management deals with both asset allocation and stock selection decision. By investing in the unit trust, investors delegate the stock selection decision to professional fund managers who have access to information and statistics from leading economists and analysts. Consequently, they are in a better position as compared to the individual investor to identify the opportunities for the best investment. Thus, unit trust investment allows investors to have easy access to a wide range of investments at an affordable price through a professional fund manager rather than picking individual stocks themselves.

The structure of a unit trust involved a three-way relationship between the unitholder, the trustee, and the manager. The unitholders invest in the fund where each of them will receive a certificate of entitlement, but they are not directly acquiring the securities in the portfolio. Instead, the ownership of the fund is divided into a separate unit of entitlement or rights. The price changes in the portfolio will reflect the value of each unit. The unitholders can buy units of the fund at a selling price before the fund

[1] The term unit trust is use in Malaysia, United Kingdom and number of other countries.

reaches its maximum approved size and may sell the units at a buying price. Whereas, a fund management company is a professional entity, which is responsible for implementing the objective of a fund and managing the portfolio trading activities. They also safeguard the interest of the unitholders and distribute the returns. As a return from services rendered by the fund managers, some service fees are charged based on the agreement.

The most important reason for owning a unit trust fund is the benefit of portfolio diversifications. It is the inclusion of the number of different investment vehicles in a portfolio in order to earn higher returns with a tolerable level of risk than limiting investment in a single-vehicle. It is also the financial concept of "not putting all eggs in one basket." Generally, the greater the number of investment, the less volatile the investment returns will be. It means that diversification shall benefit investors by spreading the holdings over a wide variety of industries and companies; thus, it will reduce the risk.

In unit trust investment, the concept diversification applies in many ways. Investors have the opportunity to invest in various asset classes such as equity, bond, money market, and fixed income investment. Besides, investors have the opportunity to invest in the foreign market when they invest in funds that have the exposure to foreign countries and other geographical focus other than the local market such as the Asia Pacific, European, and global markets. Thus, with unit trust investment, investors can invest in one or a combination of all asset classes and exposures.

However, any investment carries with it an element of risks. Therefore, before making any investment, investors should consider some risk factors. First, the market risk, which associated with market uncertainties that affect the net asset value (NAV) of unit trusts that may fall or rise, thus, causing the income generated by the fund to fluctuate.

Second, the liquidity risk that is related to the fund's ability to quickly and easily trade at a reasonable price. Besides, the unit trust may also expose to management risk as the performance of the fund depends on the experience, expertise, knowledge, and investment techniques of the fund manager. Poor management of a fund can cause considerable losses to the fund.

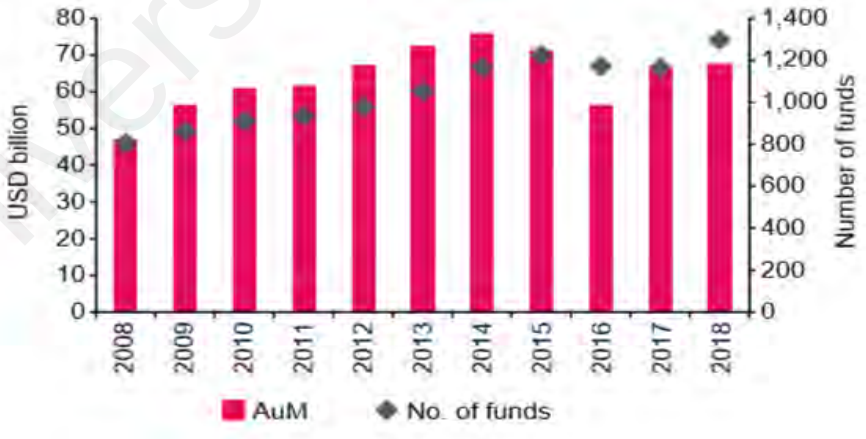
Fundamentally, Islamic fund is a replication of the conventional fund, which has been tailored in a Shari'ah-compliant manner to serve investors the alternative investment for conventional funds as well as meeting the religious obligation. The Islamic *Fiqh* Council of the OIC had observed and suggested that:

> *"Although the original concept of the financial market is sound and its application is much needed in the present-day context, yet their existing structure does not present an example to carry out the objectives of investment and growth of capital within the Islamic framework. This situation requires serious academic efforts to be undertaken in collaboration between the jurist and the economists, so that it may be possible to review the existing system with its procedures and instruments and to amend what needs amendment in the light of the recognised principles of Shari'ah."* (Ayub, 2007: p.200)

Investing in Islamic fund is increasingly popular in the current market due to the developments of the Islamic financial system, which has become an essential part of the international financial system. Islamic funds experience substantial expansion in the late 1990s resulted from the technology advancement in which, most of the funds experienced higher returns relative to the benchmarks. The financial crisis in the year 2007-2009 has shown the resilience and potential of Islamic investment. For example, studies by Abdullah et al. (2007); Alam & Rajjaque (2010); Elfakhani et al. (2007); and Rubio et al. (2012) found that Islamic funds outperformed the market during the time of financial

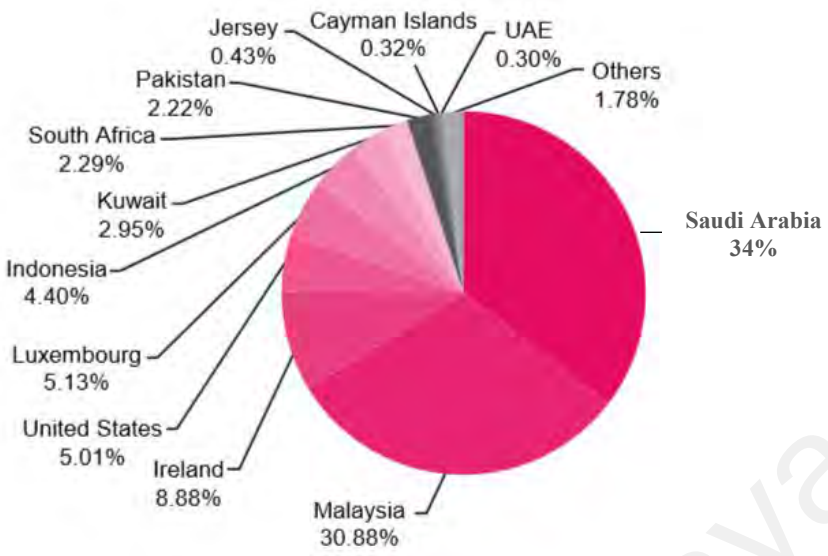
crisis. The nature of Islamic funds that avoid highly leveraged stocks has shifted them away from the leading cause of the financial crisis that is a high level of debt. Thus, Islamic funds are found to be fitting a hedging instrument during a financial meltdown or economic slowdown. Therefore, many financial institutions in the participating countries in the Islamic financial system are working towards enhancing the ability of Islamic funds as a viable means of investment opportunity and expanding their financial services

Many funds have been launched since 2002 on the back of the rise in market expectation. Today, the Islamic fund universe continues to expand throughout the years and covers across various asset classes and geographical mandates. Based on figure 1.1, as of 2018, the Asset under Management (AuM) of Islamic funds has reached USD67.4 billion with 1292 funds offered worldwide as compared to USD66.7 billion with 1161 funds which signalled an increase in investors' confidence in Shari'ah-compliant investment (IFSB, 2019).



Source: (IFSB, 2019)

Figure 1.1: Asset under Management and Number of Islamic funds



Source: (IFSB, 2019)

Figure 1.2: Number of Islamic funds based on the country of domicile

IFSB 2019 reported that the two leading domiciles of Islamic funds are Malaysia and Saudi Arabia, which collectively account for about 66% of total AuM. Based on figure 1.2, Saudi Arabia is the largest domicile holding 34% of the total Islamic fund AuM. In comparison, Malaysia is the second-largest domicile holding 30.88% of the total Islamic fund AuM and Indonesia holds just 4.40% of the total Islamic fund AuM.

Investors' preferences towards Islamic funds differ substantially between investors' segment and geographies. It is reported that in countries like Malaysia, Qatar, Kuwait, and Bahrain, Shari'ah-compliant offering was accepted by investors in which depth of products offering across asset classes allow for competitive Islamic investment that also had attracted non-Muslim investors. Shari'ah-compliant offering also would be chosen over conventional offering if they were comparable in term of price, returns, and service offered. In contrast, investors of Indonesia and United Arab Emirates (UAE) perceive Shari'ah-compliant offering as neutral in which Islamic funds would instead be given no preference over conventional funds due to less developed Islamic financial

system and lack of investors' awareness towards Islamic finance products. However, Shari'ah-compliant offering is preferable in Saudi Arabia in which it is chosen over conventional products (Ernst & Young Report, 2008).

Globally, Malaysia has the most established framework for the ICM, which offers the broadest range of ICM products. Malaysia, the pioneer of ICM, has far surpassed other participating countries in term of the regulatory framework, product mechanism, and market infrastructure. Moreover, ICM in Malaysia can be considered as unique since it is operated parallel to the conventional capital market. Based on Zawya Islamic financial development indicator, as for 2019, there are 425 launched Islamic funds with NAV of USD 27, 229.77 billion.

Meanwhile, Islamic investment in Saudi Arabia is dominant as compared to conventional investment. The country was also identified as one of the developed countries in providing Islamic finance in term of asset and education. The development of its Shari'ah-compliant capital market, particularly in mutual funds and Sukuk market is becoming a strategic option for the Saudi Arabia government. The development of the fund industry in Saudi Arabia can be traced back to 1992 with AuM of USD 3.3 million. In a recent report, Zawya Islamic financial development indicator 2019 reported that Saudi Arabia has 202 Islamic funds with NAV of USD 21,444.60 million.

Whereas, in Indonesia, the early development of ICM could be traced back to 1997 when P.T Danareksa Investment Management launched the Islamic fund. Later in the year 2000, Jakarta Islamic Index (JII) was launched resulted from a collaboration between the Indonesia Stock Exchange and P.T Danareksa Investment Management. Indonesia has strategized several measures to aid the development of its Islamic fund market through enhancement of regulatory framework, product development, equality between Shari'ah and conventional financial products, and development of human

resources. Zawya Islamic financial development indicator 2019 reported that Indonesia has 222 Islamic funds with NAV of USD 2, 791. 73 million.

The following section shall discuss on the procedures involved in the screening of such companies and highlights the differences in the Shari'ah screening criteria adopted by reputable screening providers across the globe especially those that have been adopted in Malaysia, Saudi Arabia, and Indonesia followed by a discussion on related issues of the adoption of different screening methodology.

1.4 Shari'ah Screening Procedures

One unique feature of Islamic funds, which differentiates them from their conventional counterparts, is that they must observe the principles as outlined by the Islamic law. In tandem with the changing and complex world, the task to ensure this compliance is accorded to the scholars of Shari'ah who are appointed formally by the screening providers to evaluate the Shari'ah compliancy of all the firm's economic transaction and operations. Given the diverse educational background and influences of different school of Islamic law of these scholars, these specific conditions required to determine which companies might be included in the fund and which companies should be excluded from Shari'ah list would also vary to a certain degree across different screening providers (Elfakhani et al., 2005).

Specifically, there are two categories of Shari'ah screening procedures, which are qualitative and quantitative. First, the quantitative screening process begins with removing firms with primary business activities involving conventional banking, conventional insurance, gambling, liquor and liquor-related activities, pork and pork-related activities, non-halal food and beverages, entertainment, interest income from conventional accounts and instruments, tobacco and tobacco-related activities, hotel and resort operations, share trading, stock-broking business, or other activities deemed non-

compliant according to Shari'ah. Second, the quantitative screening process involves financial ratio screening in which company is screened for cash or debt it is holding or transacted as measured against the company's market capitalization or total asset. No resultant percentage after the screening process must exceed the specified ratios as endorsed by the appointed Shari'ah scholars.

The Shari'ah-compliant standard of one index provider to another is not precisely similar mainly due to the differences of the Islamic school of law that the appointed scholar is skewed as well as the cultures in which they resided and the government regulations and supervision behind the providers' establishment. Hence, the procedures applied in Malaysia are expected to be different from Europe or the Gulf Cooperation Council (GCC) countries. The screening standards may be issued by a global standards setter such as the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), by government regulator like Security Commission of Malaysia, and by stock exchanges such as Dow Jones Islamic Market Index (DJIMI), FTSE Global Islamic Index, S&P 500, MSCI, and KSE- Meezan Index (KMI-30). Table 1.1 summarizes the screening criteria for different Shari'ah screening providers.

Table 1.1: Screening criteria of different Shari'ah screening providers

Screening provider	Business activities	Financial ratio		
	Prohibited activities	Level of debt	Non-compliance income	Liquidity
AAOIFI	<5%	Interest based debt/market cap <30%	Interest bearing deposit/market cap <30%	Tangible assets and benefits/total asset >30%
SC Malaysia (Based on revised methodology)	Clearly prohibited <5% Mixed-non Shari'ah compliant <20%	Debt/Total Assets <33%	Cash and Cash Equivalent/Total Assets <33%	-
DJIMI	<5 of total revenue	Total Debt/ Market Cap (Average 24month) <33%	Cash and interest-bearing securities/ Market Cap (Average 24month) <33%	Cash and interest-bearing securities/ Market Cap (Average 24month) > 33%
FTSE	Total interest and non-compliant activities income <5% of total revenue	Total Debt/ Total Assets <33%	Cash and interest-bearing securities/total assets <33%	Account Receivable and cash/ total debt >50%

Table 1.1 (continued)

Screening provider	Business activities	Financial ratio		
	Prohibited activities	Level of debt	Non-compliance income	Liquidity
S&P	Total interest and non-compliant activities income <5% of total revenue	Total Debt/ Market Cap(Average 36 month) <33%	Cash and interest bearing securities/ Market Cap (Average 36 month) < 33%	Account Receivable/ Market Cap (Average 36 month) >49%
MSCI	<5% of total revenue	Total Debt/ Total Assets <33.33%	Cash and interest bearing securities/ total asset <33.33%	Account Receivables and cash/ total asset >33.33%
KMI-30	Non-complaint Income to Total revenue <5%	Interest Bearing Debt to Total Assets <37%	Non-Compliant Investments to Total Assets, <33%	Liquid Assets to Total Assets, 75% Market price per share ≥ net liquid asset per share

Sources: (1) Securities Commission of Malaysia
(2) AAOIFI
(3) Dow Jones Islamic Market Index
(4) FSTE Shari'ah Indexes
(5) S&P BSE 500 Shari'ah Index
(6) MSCI Shari'ah Index
(7) KMI-30 Islamic Market Index

Based on Table 1.1, even though the prohibitive elements agreed are almost similar across the index providers, there are seem to be no real consensus among them regarding the financial ratio criteria benchmarking the screening. For example, both SC and DJIMI screening procedures incorporate a benchmark of less than 33% for financial ratios while KMI-30 screening methodology incorporates a higher benchmark of less than 37% for interest-bearing debt over total assets ratio. In terms of liquidity, the S&P Shari'ah Indices methodology applies financial ratios on trailing 36-month average market value of equity while the benchmark for account receivables is set at less than

49%, while FSTE and MSCI tighten the ratio at 50% and 33.33% respectively. However, all the screening providers did not fully comply with the standard set by AAOIFI, which specified the financial ratios at 30%.

1.4.1 Shari'ah Screening Criteria in Malaysia

The Malaysian Securities Commission (SC) established their own Shari'ah Advisory Council (SAC) in 1996 under the regulation of Section 18 of the Securities Commission Act 1993. The primary function of the SAC is to advise the Securities Commission on Shari'ah-related matters as well as to provide Shari'ah guidance on ICM transaction and activities, aimed at standardising and harmonising ICM products and operations. The SAC is also responsible for the screening and reviewing companies listed on the Bursa Malaysia in order to be recognised as Shari'ah-compliant counters.

In the mid-1990s, a quantitative assessment that comprises activity-based screening benchmarks and a qualitative assessment (public image) were introduced. Based on the methodology, the SAC classified securities issued by companies as either Shari'ah-compliant securities or Shari'ah non-compliant securities. However, effective from November 2013, the SAC revised the Shari'ah screening methodology in which a two-tier quantitative approach is adopted. The first tier reviews the company's business activities, while the second tier reviews the newly introduced financial ratios. As the new methodology is concerned as well with the company's debt level, it has become more stringent in its screening procedures. The effort is mainly to harmonize the standard Shari'ah screening procedures to the global standards to put Malaysia at par with the screening procedures adopted across the world. Adopting internationally recognized standard is hope to help spur external capital inflow, especially from investors from the Middle Eastern investors.

If the comparison is made between the screening procedures of the Malaysia SC with other screening providers like AAOIFI, DJIM, FSTE, MSCI, and KMI-30, the benchmark set for business activities screening for clearly prohibited elements is standardized across the providers in which it must be less than 5% of total revenue. However, only the Malaysian SC specifies an additional 20% for the contribution, which is mixed with non-compliant activities. Before the revision, the benchmark for contribution from non-compliant activities was set at 5%, 10%, 20%, and 25% (SC Malaysia, 2011).

1.4.2 Shari'ah Screening Criteria in Saudi Arabia

Unlike Malaysia and Indonesia, Saudi Arabia ICM authority did not form their Shari'ah screening criteria but adopted the Shari'ah screening method specified by the AAOIFI to screen Shari'ah-compliant stocks of their ICM. However, Jadwa Investment, a Saudi Closed Joint-stock company, applies a different screening method which is similar to the one employed by S&P index screening procedure.

The AAOIFI and S&P index adopt somehow similar screening procedures. The tolerated ratio for prohibited business activity is 5% according to both the AAOIFI and S&P index. For the AAOIFI standard, the debt ratio and interest in the income are specified to be less than 30%. In comparison, the S&P standard the debt ratio and the interest in income were specified to be at 33%. Furthermore, in term of liquidity ratio, AAOIFI specified that the tangible assets and benefits must be less than 30%, whereas, the S&P tends to be more lenient in which the account receivable per market capital was specified by less than 49%.

1.4.3 Shari'ah Screening Criteria in Indonesia

ICM in Indonesia follows the fatwas issued by the National Sharia Board of Indonesia Council of Ulama (DSN-MUI, 2011). The fatwas served as the legal basis of Shari'ah principles to be implemented in the capital market. The fatwas include guidelines for the implementation of Shari'ah-compliant mutual funds, Sukuk, securities, and other capital market products. Besides the fatwas issued by DSU-MUI, other authorities such as the Capital Market and Financial Institution Supervisory Agency (BAPEPAM-LK) which is the capital markets agency of the Ministry of Finance of Indonesia also issued the regulation concerning the issuance of Shari'ah securities and Shari'ah Government securities.

The criteria used to determine the financial ratio of public company shares in order to be considered as Shari'ah-compliant stocks are as follow:

1) Total interest-based debt in comparison with total assets must below 45%, which is higher among other screening criteria.

2) Non- permissible contribution income to revenue must be less than 10%.

3) The core business and image must comply with the Shari'ah rules prescribed by National Shari'ah board-MUI, as well as required to be of moral and beneficial products and services.

1.4.4 Issues in Shari'ah Screening Procedures

There are numerous critiques towards the execution of the Shari'ah screening procedures. The main concern has always been the lack of standardization in the screening criteria across Shari'ah index and countries. For instance, the Shari'ah screening criteria provided by Malaysia SC differ from other screening criteria of global

Islamic indices provider such as Dow Jones Islamic Market Index (DJIMI), FTSE Global Islamic Index, S&P 500, MSCI, and KSE- Meezan Index (KMI-30). The reason was attributed to ununiformed jurisdiction and different school of thought adopted by each of these index providers.

The unstandardized screening criteria among the screening providers may obstruct the growth of Islamic equity market as well as create a lack of confidence among investors. Furthermore, for international investors and fund managers, the limited number of available Islamic funds is further complicated by the non-standardization of the Shari'ah screening criteria. The issue, according to Ghoul & Karam (2007) was due to no perfect agreement on the interpretation of Shari'ah law among Muslim scholars. Hence, Bose & McGee (2008) opined that a lot of funds structures that are considered acceptable by one country might become unacceptable by another country with different Shari'ah jurisdiction. Derigs & Marzban (2008) argued that the issue of inconsistent interpretations among Muslim scholars is caused by no universal understanding and agreement on how to transform the descriptive Shari'ah law into a checkable investment guideline system. Besides, the formulation of financial ratio calculations may not explicitly interpret the Shari'ah sources and the specifications to be met are difficult to be applied across every asset universe. Since the calculations of financial ratio were not done by the Shari'ah scholars themselves, thus, they are describing a company as *Halal* by the formulation of one screening provider but at the same time as haram by another provider. As a result, the study revealed that the same Shari'ah scholar endorses different classifications occurred across funds and indices.

Other reasons include the usage of divisor or denominator in the financial ratio screening, which can be either market capitalization or total asset. The advantages of using market capitalization as the denominator of an index such as Dow Jones, Standard and Poor (S&P) and Meezan according to Derigs & Marzban (2008) is that it will reflect

the real worth of the company as valued by the market. The reason why total asset tends to be more appropriate denominator is that companies are valued from a trusted accounting perspective and are free from market influences.

Wee (2012) suggested that the use of market capitalization as the denominator in the financial screening process is one of the reasons why the selected Shari'ah stocks tend to be different from one fund to another. Assessing the differences across Shari'ah screening norms, Khatkatay & Nisar (2007) suggested that the use of market capitalization instead of the total asset in the financial ratio screening was inappropriate. Sudden price change in the market will expose the fund to Shari'ah risk in which the company that was considered a Shari'ah-compliant before can be declared non-Shari'ah compliant.

Studies also found that market capitalization index limits the number of Shari'ah-compliant stocks. Rahman et al. (2010) examine the financial ratio or the quantitative aspect of SC Malaysia Shari'ah screening criteria using total assets as denominator found that only 35% of Shari'ah-compliant companies in Malaysia are compatible under DJIM screening criteria. While Wee (2012) when comparing the quantitative aspect of SC Malaysian screening criteria on 477 Shari'ah-compliant companies in Malaysia revealed that only 12.16% of the samples are compatible with DJIM and 16.77% are compatible with S&P. While with another total asset-based index provider, the Financial Times Stock Exchange (FTSE), the compatible rate was higher at 63.10%.

The finding above indicates that index providers utilizing market capitalization tend to be more stringent as compared to Shari'ah screening criteria of providers that based their indices on the total asset. The result has led to many perceptions among industry players claiming that Malaysia tends to be more liberal and lenient in the interpretation of Shari'ah law compared to other screening providers.

Given all the issues on Shari'ah screening criteria, previous studies urged for more standardized screening criteria among all the screening providers. Soke et al. (2012) compared the qualitative and quantitative aspects of Shari'ah screening procedures across 15 providers. The finding suggested that there is a need to have a universal standard in order to avoid disputes between investors and the Shari'ah boards. While, Htay et al. (2013) opined that different Shari'ah parameters and diversified method of calculation for the screening criteria have led to such inconsistency and disparity. Their study believed that inconsistency issues might expose the ICM industry to Shari'ah risk. Managers may take inappropriate action to manipulate their company's debt to influence the Shari'ah board.

In an attempt to create a standardized screening that could be applied by index providers, the Accounting and Auditing Standards for Islamic Financial Institutions (AAOIFI), which is the non-profit Islamic international autonomous, has established a Shari'ah standard for screening criteria. However, none of the screening providers fully follows the given standard.

Given the above issue on non-standardization of the screening criteria, there is a possibility that potential Islamic investors shall be reluctant to expand their Islamic investing to other countries and regions due to the lack of trust. They tend to adhere to investments, which are accepted under the screening methodology consistent with the approved Shari'ah opinion of their country or their belief. Knowing the fact that some countries employ different screening criteria, the study seeks to examine Islamic fund investors' reactions to performance in a different market with different Shari'ah screening environment.

1.5 Problem Statement

Theoretically, a rational investor would aim to maximize financial returns from money invested into any investment portfolio. Islamic investment, however, has been shown to deliver a lower rate of return as compared to the conventional investment. For example, the Islamic financial services industry stability report 2016 reported that the return of Islamic funds across all asset classes were negative. The fund's performance across most markets was subdued, particularly in the emerging markets, the GCC, and the Middle East and North Africa. Islamic funds, which geographically focus on the GCC, have an average return of –6.63% –2.08% on BRIC[2] countries and –0.65% for Global focus. The European geographical focus, in contrast, performed comparatively better with an average return of 5.32%, as well as the United States with 1.86% (IFSB, 2016). Furthermore, Zawya, Bloomberg, and IFSB reports revealed that the returns of Islamic funds were -7.80% for Alternative funds, -0.54% for Real estate funds, -8.50% for commodity funds, 0.32% for mixed allocation funds and -3.20 for equity funds.

Researchers have been in doubt about the ability of Islamic funds in providing promising financial returns, since the establishment of Islamic investment in the early 1990s. Numbers of research concluded that, except for the period of financial downturns, Islamic funds were unable to beat the performance of conventional funds in non-crisis time. Studies such as Muhammad, & Mokhtar (2008), Alam & Rajjaque (2010), Hopner et al. (2011) and Hayat & Kraeussl (2011) had indicated that performance of Islamic funds was inferior and underperformed their conventional counterpart.

The screening requirement is one of the reasons why Islamic investment delivers a lower rate of returns. In order to be acknowledged as 'Islamic', funds need to undergo Shari'ah screening procedure, which may be incoherent for businesses that aimed for

[2] Brazil, Russia, India and China

profit maximization. The first critic directed towards screened investment portfolio was made by Friedman (1970) in his study of the socially responsible investment portfolio. The study argued that an ethical-oriented business always aims to provide social ends or social conscience, which may differ from the maximization of the profit goal of an efficient investment.

An optimal portfolio offers the highest expected return for a lower level of risk is achieved at best via diversification, however screening procedure would inhibit (Johnson & Neave, 1996; Kurtz, 2005; Langbein & Posner 1980; and Rudd, 1981). Screened investment portfolio creates biases for the portfolio due to the acceptance of some asset and the exclusion of others. Studies have raised concerns about the lack of diversification in Islamic fund assets resulted from the exclusion of certain assets, which ultimately shrinks the asset's universe. Theoretically, Rudd (1981) argued that constrained portfolio might affect fund performance. This notion was further supported by Grossman & Sharpe (1986), which empirically found that having limited choices of potential stocks affect the risk-adjusted returns. Diversification is a technique that reduces risk by allocating investments among various financial instruments, industries, and other categories. It aims to maximize returns by investing in different areas that would each react differently to the same event. Thus, the exclusion of some assets would leads to less diversified portfolio issues as well as incurring the extra cost of management exposing the funds to higher risk, lower return and lower level of utility maximization for what Johnson & Neave (1996) termed as allocative inefficiency. Ali & Gold (2002) raised the issue of the relative performance of socially responsible funds by assessing the impact of excluding 'sinful' stocks on portfolio returns. They found portfolio returns on Australian stocks during the period from 1995 to 2001 would have increased with the inclusion of alcohol and gambling stocks.

Besides the issue of less diversification, Johnson and Neave (1996) also pointed out that Islamic investment might be exposed to operational inefficiency and ineffective governance. Operational inefficiency is inflated by the extra cost of managing the portfolio, such as the monitoring and transaction cost. The 'double-layered governance' imposed on Islamic funds requires experts in specific skills and knowledge regarding the operational and mechanism of Islamic investment which is not required by conventional investment. A survey by Sori & Mohamad (2016) raised the issue about the unwillingness of Islamic financial institutions to set up such a mechanism due to costly budget and lack of human resources. Meanwhile, ineffective governance is attributed to the challenge of conducting Shari'ah-compliant businesses in a conventional environment.

However, despite the low returns, investors still choose to invest in Islamic funds, which can be the act of an irrational investor. The interest towards Islamic funds could be observed through the growing numbers as reported by Zawya Thomson Reuters Islamic Financial Development Indicator (IFDI) and Islamic Financial Services Board (IFSB) reports. In order to observe investors' reaction to the fund's performance, some studies have analysed the fund flow-performance relationship. In literature, it was suggested that the fund flow-performance relationship of the unit trust fund is asymmetric, which explains that funds that have performed well experienced higher money inflow. In contrast, poor-performing funds experienced proportionately less money outflow, which was caused by the reluctant of investors to punish poor-performing funds as much as best-performing funds are rewarded. Investors placed money disproportionately between high and low funds' performance. On the other hand, the symmetric relationship explained that either the fund flow-performance relationship would be stronger or weaker in socially responsible funds than the conventional funds for both poor-performing funds and best-performing funds (Bollen, 2007).

A significant number of researches have been conducted on the performance of Islamic funds relative to conventional funds, whether based on country domiciled or regional and global markets. Of particular interest among the studies of funds' performance is to understand the investors' reaction towards their performance. For the Islamic fund, the reaction of the investors was assumed different from their conventional counterparts since they not only seek to fulfil the financial rewards but also to satisfy spiritual obligations. For which, they must avoid any investment which is involved in any prohibited or 'sinful' elements and businesses as prescribed by the Shari'ah law. Such researches involving the Islamic funds were, however, found to be limited and suffered from data limitation.

1.6 Research Objectives

The sample of Islamic funds employed in the current study is restricted to the Islamic equity funds (IEFs). Based on the issues concerned, this study seeks to ascertain how IEFs investors react to funds' inferior and superior performance in making investment decisions by determining the fund flow-performance relationship. Hence, the main objective of the current study is to determine the fund flow-performance relationship of IEFs; specifically, the first objective aims:

(RO1): **To determine the fund flow-performance relationship in IEFs across countries.**

Also, besides pooling the sample together where the data are not differentiated by country domiciled and jurisdictions, the current study wishes further to determine the fund flow-performance relationship in the individual country. Thus, the second objective aims:

(RO2): To determine the fund flow-performance relationship of IEFs in the individual country, namely Malaysia, Saudi Arabia, and Indonesia.

Next, the current study expecting that the investors of Islamic funds possess different reaction to funds' performance and investment decision as compared to the conventional funds' investors, specifically the conventional equity funds (CEFs). Hence, the third objective of this study seeks:

(RO3): To make a comparison between the funds' flow-performance relationship of IEFs with the CEFs.

Finally, this study wishes to explain the differences in the fund flow-performance sensitivity of IEFs by countries. It is expected that the differences in the Islamic financial system development across countries would play a vital role in the differences in the fund flow-performance sensitivity of IEFs. Hence, the fourth objective aims:

(RO4): To examine the influence of a country's Islamic financial development on fund flow-performance relationship of IEFs.

1.7 Research Questions

Concomitant to the above objectives, this study attempts to answer the following two main questions:

(RQ1): Is there any asymmetric relationship in the fund flow-performance relationship of IEFs, and how does the relationship differ from those of the CEFs?

(RQ2): Does a country's Islamic financial system development influence the sensitivity of the fund flow-performance relationship of IEFs?

1.8 Significance of Study

For Islamic investment, investors are assumed to be influenced by religious obligation and spiritual value in the investment choices that would consequently force them to make an irrational decision since it deviates from the goal to optimize risk-return. Very few studies investigate Islamic investment could be found, and only a couple of works has been done on the fund flow-performance relationship of Islamic funds (for example Marzuki & Worthington, 2015 and Rao et al., 2015). Therefore, this study is important to be worthy of attention in several aspects of Islamic investment generally and Islamic fund sector, particularly. The significances can be characterised into several aspects.

From the theoretical aspect, the current study contributes in two ways. Firstly, this study contributes to the theory of fund flow-performance relationship by further expanding the assumption of the multi-attribute utility function, which underlies an ethical investment decision making into the context of Islamic fund investors. It is assumed that Islamic funds investors choose to invest with Islamic funds in order to fulfil their religious obligation besides earning financial rewards.

Secondly, the current study adds value to the extant studies in the way that it introduces the link between the Islamic financial system developments with the fund flow-performance relationship. Ferreira et al. (2012) documented that country development in terms of economic, financial, and mutual fund industry developments influence the fund flow-performance relationship. The study suggested that more developed countries will have a less convex or asymmetric relationship due to higher investors' sophistication. The current study translates this idea from the country-level to a specific industry-level, where it is suggested that the development of the Islamic financial system might explain the differences in the fund flow-performance relationship

across countries. The current study expects that investors' sophistication to increase along with the development of the Islamic financial system of a country. Hence, investors shall respond more to low performing funds while shall respond less to high performing funds. Although Ferreira et al. (2012) has documented the country-level development, the current study is taking the first attempt to study it in the context of Islamic finance environment.

From the empirical aspect, the present study provides new insights by testing out new data from three different Muslim-dominated countries namely, Malaysia, Saudi Arabia, and Indonesia that also represent a different level of Islamic financial development that may enhance generalisation of findings. Furthermore, despite having numerous literature that examines the sensitivity of fund flow to fund performance, the study of Islamic funds is relatively limited. Thus, the importance of the present study is to provide empirical evidence to discuss this topic.

Whereas, from the practical aspect, a study on the relationship of fund flow with the fund performance may benefit fund managers in several ways. First, it may serve as an incentive contract for the fund manager to alter the riskiness of funds' portfolio so that the funds can experience high performance (Chevalier & Ellison, 1997). It is because funds' returns are expected to vary due to its different risk classes. Second, the variability in the cash flows is a severe concern for fund managers. It can depress the funds' performance due to the costs of trading the shares in the fund portfolios, which are triggered by the net purchases or net sales of funds. Thus, having the idea of how investors react to funds' performance may reduce the burden of the subscription and redemption impact to fund managers.

Finally, the study of fund flow-performance relationship provides knowledge of human natural behaviour experiment. Given, Islamic fund investors seek to maximize financial goal at the same time adhering to their religious obligation; therefore, this study shall capture the natural behaviour among investors of Islamic funds in their investment decision.

1.9 Scope of Study

The current study purposely restricts the data only to actively manged open-end equity funds. These funds invest primarily in stocks, allowing investors to buy a basket of stocks more conveniently than purchasing from the individual stock. In addition, an equity fund is a type of high risk- high return fund; thus, it suits investors with mildly aggressive to aggressive risk-tolerant. Besides, equity funds may include several categories such as aggressive growth fund, which seeks to maximize capital appreciation, a small-cap fund, which invests in companies with small market capitalizations, a growth fund, which invest in larger, established, yet growing companies that offer the potential for capital appreciation and pay regular dividends, and equity-income funds, which primarily invest in dividend-paying stocks. Other types of investment funds are excluded since they possess different investment objectives and risk-tolerant. For example, money market funds and Sukuk funds are suitable for conservative to mildly conservative investors, an exchange-traded fund is a security, which tracks an index and trades in the stock exchange, and a pension fund is a collective investment that manages employee savings for retirement such as the Private retirement scheme (PRS).

Furthermore, the counties involved in the current study are Malaysia, Saudi Arabia, and Indonesia. Since the current study has started in the year 2011, other countries need to be excluded from the sample due to the small number of Islamic funds available

in the countries during the data collection process. Besides, taking into account the availability of data, the reason for selecting the three countries is that they possessed different levels of Islamic financial development. Being the leading key player of Islamic finance in the world, Malaysia is well known with the most developed and comprehensive framework of Islamic finance which has become the prototype for other participating countries. Meanwhile, Saudi Arabia is the world second largest Islamic finance player behind Malaysia. The country was also identified as one of the developed countries in providing Islamic finance in term of asset and education. However, Saudi Arabia is still lagging in term of Islamic finance governance in which the country has yet to introduce dedicated regulation for Islamic financial institutions as well as lacking in term of financial disclosure. Whereas, the Islamic finance industry in Indonesia is still in the infancy stage with a small number of products offered. However, as compared to Saudi Arabia, Indonesia has its Islamic financial framework to govern the creation of Shari'ah-compliance products.

Differences in jurisdictions are also an essential consideration due to no perfect agreement on the interpretation of Shari'ah law among Muslim scholars. Bose & McGee (2008) opined that many funds structures that are considered acceptable by one country might become unacceptable by another country with different Shari'ah jurisdiction. For this reason, there might be differences in the reaction acceptance towards Islamic finance products across these countries.

1.10 Organisation of Thesis

This thesis is organised into six chapters, which will proceed as follows:

Chapter 1 throws the whole idea of the thesis. It begins with a preliminary background of Islamic investment in general, followed by the development of the Islamic fund industry. The chapter also presents the overview of Shari'ah screening procedures across Malaysia, Saudi Arabia, and Indonesia. Next, the chapter highlights the problem, which renders to the formation of the research questions and objectives. The chapter also explains the significance of this study in several aspects. Finally, the scope in which this study will be focusing on is described.

Chapter 2 presents the review of the relevant theories, studies, and assumption that are related to the present study. The chapter is followed by the discussion on fund performance, studies on the fund flow-performance relationship, and researches on the performance of Islamic funds. Finally, the chapter discusses the literature gaps that the current study wishes to fill in.

Chapter 3 describes the research design of the present study. A set of hypotheses is formed based on the discussion from the literature followed by the sources of data, related variables involved, and the research methods employed.

Chapter 4 presents the results obtained from the regression analysis. It started with the results of the preliminary analysis followed by the results of the fund flow-performance relationship in IEFs across countries and in the individual countries. Further, the chapter presents the results for the comparison between the fund flow-performance relationship in IEFs and CEFs. Finally, the chapter revealed the results for the determinants of the fund flow-performance relationship in IEFs.

Chapter 5 presents an in-depth discussion of the results obtained and presented in chapter four.

Finally, **chapter 6** summarises the overall findings and suggests possible justifications. The implication of this study is further discussed, as well as several limitations throughout the research process that will lead to several recommendations for future research.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The main question of concern governing this study is how investors of Islamic funds reacted to fund performance when making their investment decision. The way investors responded to any changes in funds' performance could be explained by the fund flow as it shows capital movements in and out of the funds. Positive fund flow indicates an upsurge in cash inflow when there are new sales. On the other hands, negative fund flow indicates cash outflow, which occurs when the amount of shares redeemed exceeds the number of new sales and net exchanges of funds.

A study of the fund flow-performance relationship in Islamic equity funds is grounded on several theories and studies. The underpinning theory behind investors' decision making is the Modern Portfolio Theory introduced by Markowitz (1959) which explains the concept of a utility function that measures investor's preferences. While Beal et al. (2005) explain why investors invest ethically. More specifically, Bollen (2007) came out with the assumption of the multi-attribute utility function, which explains investors' reaction to fund performance of socially responsible funds (SRI).

This chapter reviews the literature that underlies the theoretical development of this study. Although there is no specific theory, which discusses the study of the fund flow-performance relationship in Islamic funds, the basis of ethical investment studies is adopted since both are categorised as screened investments. The remaining of this chapter presents the extant literature on fund performance in terms of measurement methods and the factors, which influence the performance. Next, previous studies on Islamic funds' performance are presented to give a general view about investing in Islamic fund and the

performance evaluation. Finally, the chapter ends with the literature gaps section, which shows that the study on the fund flow-performance relationship, specifically in Islamic fund is worthwhile.

2.2 Investment Decision

In unit trust investment, the act of fund selection involves putting into action everything about a portfolio, in order to gain as many returns as possible from an acceptable level of risk. Although an attractive rate of return would be desirable, investors of Islamic funds, however, seek to satisfy both financial and non-financial needs. Investment decision has so much related to portfolio selection, in which the underpinning theory is rooted in the Modern portfolio theory. Further, the utility of ethical investment serves as the extension to the portfolio theory in order to explain why investors invest ethically. This section provides the in-depth discussion on the Modern Portfolio theory, the utility of ethical investment, as well as the multi-attribute utility function, which serve as the assumption to explain the screened investors' reaction to the fund's performance,

2.2.1 The Modern Portfolio Theory (MPT)

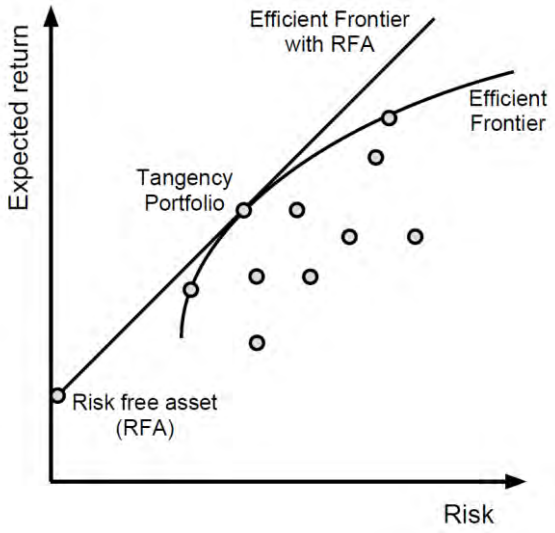
One of the theories that govern the evaluation of funds' return and risk analysis is the portfolio selection theory known as the Modern Portfolio Theory developed by Markowitz (1952). The theory provides the basis of the portfolio decision-making process of individual investors, including in mutual funds research. The theory explains that investors should select their portfolio based on the combined risk and reward characteristic of the portfolio, rather than selecting securities based on the individual character of the assets. In making choices of funds to invest in, Markowitz (1952) assumes that investment decision is only based on two variables, which are the level of expected

return and the expected risk. Therefore, the portfolio with the highest expected return or the lowest expected risk level will be preferred. The main concern in portfolio management is the portfolio performance evaluation, which is divided into two different features. The first feature is the fund manager's ability to improve the performance of the portfolio by predicting the future prices of the fund. The second feature is the ability of the fund managers to lower the portfolio risk through diversification. Therefore, the relevant risk must be taken into account when evaluating the return of the portfolio.

The balanced combination of returns and the number of risk investors are willing to undertake known as the utility function. Mathematically, the utility function is written as follows:

$$U = \mu - \theta\sigma^2 \qquad \textbf{2.1}$$

Where μ and σ^2 are the expected return and variance of an investor's portfolio of mutual funds. Based on the MPT, optimal portfolios offer the highest expected return for the lowest level of risk. The optimal portfolio aims to balance securities with the highest expected returns with an acceptable level of risk. The point on the plot between the optimal level of return and risk is known as the efficient frontier. Figure 2.1 explains the efficient frontier. The dots represent the portfolios. Portfolios, which lie on the efficient frontier curve, are the optimal portfolios. Meanwhile, portfolios that lie below the curve are inefficient, whereas portfolios lie above the curve are impossible.



Source: Markowitz, (1952)

Figure 2.1: Efficient frontier

Markowitz (1952) opined that investors should select a portfolio based on the combined risk and reward characteristics of the portfolio rather than on individual characteristics of the securities. The portfolio with the highest expected return with the reasonable level of risk will be preferred. On the side of portfolio management, Sharpe (1966); and Treynor (1965) suggest that the primary concern of portfolio managers must lie on the performance evaluation. Therefore, a fund manager is must be able to predict future prices of the fund in order to improve portfolio performance.

As previously mentioned in section 1.3, one of the advantages of investing in a unit trust is the diversification benefit. Based on MPT, diversification is the inclusion of the number of different investment vehicles in a portfolio to increase returns or reduce risk. This practice is designed to help reduce the volatility of the portfolio over time. Sharpe (1966); and Treynor (1965) suggest that a fund manager must have the ability to reduce the portfolio risk through diversification in which portfolio risk could be lowered

by holding more assets that are not positively correlated. The positive returns of other securities can compensate for the negative returns of some securities in a portfolio.

Furthermore, the risk of a fund is less significant than the effect it has on the whole portfolio. If the fund's return has low correlations with other fund's returns within the portfolio, the risk of the portfolio can be reduced. If funds in a portfolio are positively correlated, the standard deviations of the portfolio will be equal to the weighted sum of the standard deviations of the individual fund. For example, the correlation between fund *i* and fund *j* is measured as the covariance of the two funds divided by the standard deviation of fund *i* multiplied by the standard deviation of fund *j* as shown in this equation:

$$COR_{ij} = \frac{COV_{ij}}{\sigma i \,.\sigma j} \qquad \textbf{2.2}$$

Where,

COR_{ij} = The covariance between the rates of return for fund *i* and *j*,

σi = The standard deviation of the rate of return for fund *i*,

σj = The standard deviation of the rate of return for fund *j*.

The variance of a portfolio is the expected value of the squared deviation of the portfolio return from the mean portfolio return, which is the risk. The variance of a portfolio is calculated as:

$$\sigma^2{}_p = X^2{}_i\sigma^2{}_i + X^2{}_j\sigma^2{}_j + 2\, X_i X_j\, \rho_{ij}\, \sigma_i\, \sigma_j \qquad \textbf{2.3}$$

Where,

X^2 = the squared of the weight of individual fund in the portfolio,

σ^2 = the variance of the rate of return for the fund,

σ_{ij} = the covariance between the rate of return for funds *i* and *j*,

$\rho_{ij}\ \sigma_i\ \sigma_j$ = the correlation between the rate of return for fund *i* and *j* multiplied by the standard deviation of the rate of return of fund *i* and *j*.

Thus, the portfolio variance is the total individual fund variances multiplied by the squared of the weight plus with the covariance between the rates of return for funds *i* and *j*.

There has been an argument for how many stocks are needed for a diversified portfolio. For example, Evans & Archer (1968) suggested approximately ten selected stocks. Further, Statman (1987) documented that a randomly chosen stocks must include at least 30 to 40 stocks in order to form a diversified portfolio. Besides, Elton et al. (1996) proved that the portfolio standard deviation is eliminated by half when the number of securities in a portfolio increase from one to ten as compared to a reduction of the standard deviation of an additional 2 % if the number of securities increases from 10 to 20.

In short, investors' preferences and fund selection can be represented by a utility function, which is the basis of the conventional finance paradigm. The underlying notion is that utility is the function solely of expected return and risk. In order to determine the composition and location of an efficient frontier from which an optimal portfolio will be selected, the investor must employ estimates of expected returns, variances, and covariance for the set of securities under consideration.

2.2.2 The Utility of Ethical Investment

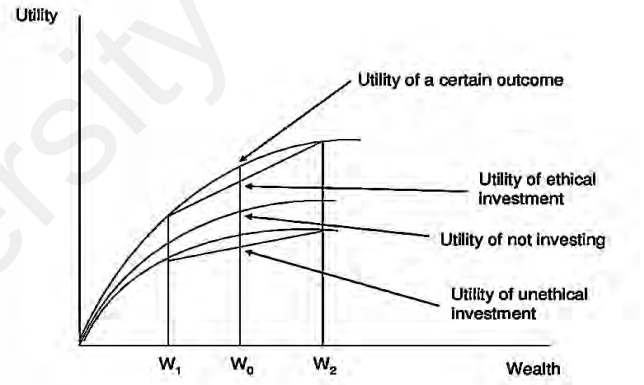
'Screened' investment portfolio refers to a type of investment which undergone strict filtering procedures to eliminate any elements that contravene the objective of the investment. Commonly there are two types of screened investment, namely a Social Responsible Investment (SRI) and an Islamic investment.

Cowton (1994) defined SRI funds as the act of practising ethical and social criteria in the selection and management of investment portfolios, which contrast the conventional investment decision-making which focuses solely on financial return in the form of dividends or capital gains and risk. An Islamic investment is a unique form of SRI whereby the selection of management portfolio must be following the principles of Shari'ah which is the Islamic law governing all aspects of a Muslim's life (Walkshäusl & Lobe, 2012).

Beal et al. (2005) provides the foundation to explain why investors invest ethically. They underlined three reasons behind the demand for a screened investment portfolio, particularly in ethical investment, which could be directed to financial returns, non-wealth returns, and social change. For conventional investors, their investment selection is represented by a utility function in which investors would select a portfolio based on the combined risk and reward characteristics rather than on individual characteristics of the securities. Rational investors will prefer the portfolio with the highest expected return with a reasonable level of risk. On the other hands, there must be a balance between financial and non-financial returns known as the for screened investment investors. The 'psychic returns' will derived from investing in screened investment, which was viewed as an increase in happiness.

The psychic returns need to be inserted into the utility functions besides the combination of return and risk. In doing so, Beal et al. (2005) had proposed three approaches. The first approach is to treat the psychic returns equal to the gambler's 'fun of participation'. It is like a situation where a gambler felt satisfied with the experience from a gambling game regardless he won or lost. In the context of an investment, the utility derived from an ethical investment is the expected financial returns as well as the additional utility for investing ethically. Besides, the additional utility is independent of the financial returns. Thus, the utility gained from the ethical investment is a combination of financial returns and utility of investing ethically.

Figure 2.2 depicts the relationship between the utility of investing in ethical, unethical, and not investing, with an initial wealth (W_0). It shows that the utility will be higher if an investor perceives the investment portfolio to be ethical.



Source: Beal et al. (2005)

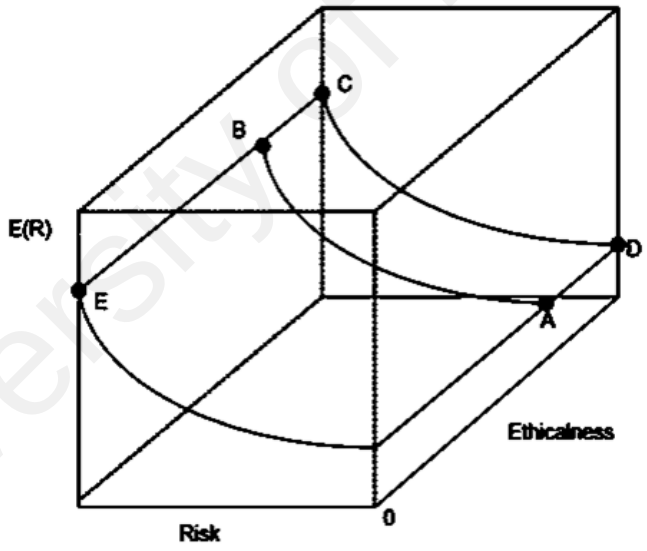
Figure 2.2: Screened investor's utility function

Further, the second approach is to add the level of ethical intensity into the ordinary utility function, in which the returns would positively influence the utility, while the risk negatively affects the utility. Conventionally, investors are compensated for

expected return and for bearing additional risk. However, for ethical investment, Beal et al. (2005) suggested that the investor will also consider the 'degree of ethicalness' of an investment. Thus, the investors are willing to accept reduced expected returns for more ethical funds even though the return and risk trade-off is equal to the conventional investment. Consider the equation below:

$$\cup = f(E_R, \sigma_R, e) \qquad \textbf{2.4}$$

Where, E_R denotes an expected return, σ_R, is the standard deviation and e is the level of ethicalness of an investment. The expected returns positively influence utility, while the standard deviation negatively influences utility.



Source: Beal et al. (2005)

Figure 2.3: Indifference Plane of an Ethical Investor

Figure 2.3 depicts the indifference plane of an ethical investor. E and 0 is the edge where the conventional investment investor is located. An ethical investor can choose any point that maximises his utility in the area of A, B, C, and D, which indicate an ethicalness. This diagram is also flexible to account various behaviour of ethical investors, such as first, investors who are willing to make the trade-off of the ethicalness, return, and risk, second, investors who are willing to compromise their ethicalness for the sake of returns, and third, investors who focus primarily on ethicalness.

Finally, the third approach is to treat the psychic returns from the ethical investment as 'happiness' which is incorporated into the utility function. It refers to the flow of pleasure or displeasure when engaging in the investment, which is known as the 'experienced utility'. The utility of the pleasure is the sum of the product of the investment portfolio period and the net-affective experience. Consider the equation below:

$$U_i = \sum h_{i,j}\mu_{i,j} = [(1+b)E_R + bE^2{}_R - c\,\sigma^2{}_R \qquad \textbf{2.5}$$

Where, $U_i = \sum h_{i,j}\mu_{i,j}$ denotes the utility of pleasure, E_R is the expected return, $c\sigma^2{}_R$ is the risk, b is a parameter that adheres to restrictions, and it is between -1 and 0 and c is a parameter that adheres to restrictions, and it is between 0 and 1. Hence, total utility is a function of the net-affective experience, which represents the pleasure of investing ethically, plus a quadratic function of the rate of return.

2.2.3 Multi-attribute utility function

The idea of Beal et al. (2005) had become the basis for the assumption of multi-attribute utility function. The assumption was used to explain the relationship of fund flow to fund performance of screened funds Accordingly, screened investment investors have mainly two concerns to focus when investing, namely maximizing profit as well to fulfil social benefits which yield the flow of pleasure.

The multi-attribute utility function explains that investors' preferences are governed by the non-financial utility in addition to the combination of return and risk, which is known as the 'additive utility. In the study of socially responsible investment, Bollen (2007) explained the multi-attribute utility function as the utility which derived from the socially responsible attributes and is separable from the utility which derived from the investment return and risk. Hence, investing in social responsibility is like consuming social- responsible attributes.

What is essential is that the fund flow volatility can show the differences in the preferences between the screened investment and conventional investment. It refers to how rapidly the fund flow change in response to the fund's performance, especially towards the poor-performing funds. According to Bollen (2007), investors make subscription and redemption of mutual funds as to respond to the fund's performance in order to meet their liquidity needs and to change their consumption to meet their investment objectives.

Bollen (2007) argued that the fund flow volatility of the socially responsible funds (SRI funds) should be lower than of conventional funds as influenced by the additive utility that underlies screened funds. He showed that the cash inflow to SRI funds is more sensitive to lagged positive return than the cash inflow to conventional funds. On the other hand, cash outflow of SRI funds is lower than the cash outflow of conventional funds in

responding to lagged negative returns. His finding was further supported by Benson & Humphrey (2008) and Marzuki & Worthington (2015). Therefore, the preferences of the screened investment fund investors can be motivated by the multi-attribute utility function.

In a nutshell, screened fund investors would benefit from the additional attributes besides those financial returns prescribed by the conventional finance. The inclusion of the 'psychic returns' into the conventional finance has led to a new perspective in looking at screened investment portfolios. The screened investment is beneficial in the way that it yields some utility to its investors, which is not just focusing on financial benefits alone. However, the behaviour of ethical or religious investors deviates from the classical finance that assumes that rational investors would only wish to maximize return or utility for a given level of risk while minimizing risk for a given level of return.

2.3 Fund Flow-performance Relationship

There has been several literature on the fund flow-performance relationship. Berk & Green (2004) explained that the slope of the relationship between past performance and the fund flows is an increasing function of the quality of the signal given by returns. The purpose of studying funds' flow-performance relationship is to capture investors' reaction towards fund performance that may give a better understanding of investors' behaviour in making an investment decision.

Fund flow is the net cash flow of the fund purchases (inflow) and redemption (outflow). The relationship between the fund flow and the fund's past performance capture investors' reactions to past top-performing funds or poor-performing funds by directing more monies inflow or outflow from the funds. It is because investors make an investment

decision based on past performance and are concerned about the future cash flow of their investment.

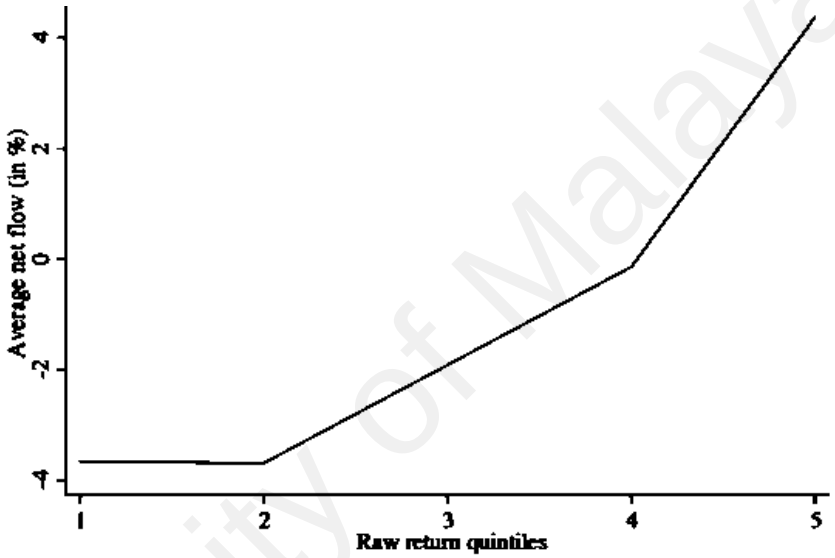
As highlighted by the conventional theory of finance, investors' subscription to mutual funds was driven mainly by the fund performance. However, in the market, it was observed that some investors behaved oppositely. Gruber (1996) suggested that the investors buy actively managed mutual funds despite being underperformed since they are purchased and redeemed at net asset value; thus, management ability might not be priced. He found a statistically significant and positive relationship between flow and fund performance.

Furthermore, according to Berk & Green (2003), the interest in the research on the relationship between fund flow and performance is derived from three main sources. First, the fund flows to determine the asset under management of fund management companies. Second, the fund flows-performance relationship creates incentives for fund managers to alter the riskiness of the funds as studied by Chevalier & Ellison (1997). Moreover, fund flow and past performance relationship may also indicate performance persistence.

In general, the relationship between fund flow and performance is asymmetric, which refers to poor-performing funds are not punished as much as best-performing funds are rewarded. The asymmetric relation captures the reluctance of investors to punish poor-performing funds as much as chasing the best-performing funds. In this case, investors are allocating money disproportionately between best-performing funds and poor-performing funds. In regression analysis, the asymmetric relationship was explained in several different ways. For example, Bollen (2007) explained that positive coefficients on positive or high performance correspond to a cash inflow, whereas a positive coefficient on negative or low performance corresponds to a cash outflow. Further,

Benson & Humphrey (2008) interpret that fund flow is less (more) sensitive to fund performance if the relationship is negative (positive). Meanwhile, the insignificant relation between fund flow and fund performance indicates that investors have no additional reaction to the worst and best-fund performance.

The graph in figure 2.4 illustrates the plot of an asymmetric fund flow-performance relationship, which is shown by the convex shape.



Source: Ferreira et al. (2012)

Figure 2.4: Convexity of fund flow by returns

A study on fund flow-performance relationship was initiated by Ippolito (1992) who concluded that as long as low-quality funds exist, investment performance residuals convey quality information. Thus, rational investors exploit this information by allocating investable monies to reward recent best-performing funds. The study showed that the sensitivity of flow is stronger in the fund with positive market-adjusted returns than the funds with negative adjusted returns. Chevalier & Ellison (1997) study the type of

incentive provided by the flow-performance relationship to fund managers in order to manipulate the riskiness of their portfolios. By employing a semiparametric model of estimation, the study proved an asymmetric flow-performance relationship, which suggests that the relationship can generate the incentives for mutual funds companies to increase or decrease the riskiness of their portfolio.

Several studies found that top-performing funds received more flows than low performing funds. Goetzmann & Peles (1997) and Sirri & Tufano (1998) dividing performance data into the bottom and top performance quartile. These studies found that only top performance was significantly related to flow. Zheng (1999) found that funds that received new money performed significantly better than poor-performing funds. Lynch & Musto (2003) opined that the best-performing funds are more informative than poor-performing funds. Their study suggests that the expectation of better performance is related to the change in strategy by a fund manager; thus, investors will hold their fund in hoping for better returns.

Patro (2006) compared funds invested in non-U.S equity securities with U.S domestic funds over 41 years. He found a strong relationship between U.S based international funds inflow and the correlation between the fund asset and the U.S market as investors seek international diversification. Moreover, it was also evidenced that early fund outflows following the currency crisis hitting the emerging market.

By using the event study method, Guercio & Tkac (2008) examine the star effect on fund flow. They explained that the change of the star rating that determines the new money flows rather than the performance measure. Positive fund flow was associated with the rating upgrade while the negative fund flow was associated with the downgrading of rating, as investors tend to punish fund performance that turned negative. Meanwhile, Kempf & Ruenzi (2008) employed nine years U.S equity data from 1993-2001 to examine

the impact of fund position in a fund family to investors' decision. The study used the piecewise linear regression model and found evidence of an asymmetric flow-performance relationship

Going beyond U.S mutual funds data, Ferreira et al. (2012) employed a worldwide sample of mutual funds from 28 countries to investigate why investors buy past winners and sell past losers are different across countries. The study found that mutual fund investors sell losers more and buy winners less in more developed countries. It is because investors in more developed countries are more sophisticated and face lower costs of participating in the mutual fund transaction process. Besides, the study also found that the higher country-level convexity is positively associated with higher levels of risk-taking ability by fund managers.

Furthermore, using ten years of Canadian annual funds data, Deaves (2004) found a significant response to the current risk-adjusted performance of fund flows. By categorising the funds into poor-performing funds and best-performing funds, the study found a convexity flow-performance relationship. However, the relationship is positively significant at the best-performing funds while no significant relationship shown for the poor-performing funds. Sinha & Jog (2005) further study monthly Canadian data found insignificant star dummy and strongly significant and negative loser dummy which implies that Canadian investors heavily penalised poor-performing funds which are inconsistent with Deaves (2004) finding of the U.S fund data.

Finally, Benson et al. (2008) employed Australian equity funds data of 1995-2006, including wholesale and retail funds to examine the determinant of the family fund characteristic to the fund flow. The study found that fund family performance is insignificantly related to individual fund flow. Alves & Mendes (2011) investigated the ssmall domestic equity mutual funds market in Portugal. The study found that investors

in Portugal did not respond to fund performance. These results were attributed to either the low level of investors' sophistication, conflict of interest in the Portuguese universal banking industry or the existence of relevant back-end- load charge, which put off investors from withdrawing the capital.

In the Asia region, Ungphakorn (2014) who studied flow-performance relationship in Thailand opined that investors do rely on fund past performance in making an investment decision, though they respond more to the positive return than the negative return. The study also suggested that investors consider both financial and non-financial aspect in making an investment decision. Meanwhile, in China, Hu (2008) found that Chinese fund investors make an investment decision based on past performance in which funds that outperformed in the past may attract more inflows. However, investors did not react to underperformed funds in the past. In a recent study, Rao et al. (2016) study Chinese equity funds over 11 years period. Like most of the previous studies, their study agrees that the relationship of fund flow to fund performance is positive and asymmetric.

Some studies have attempted to carry out this study on screened funds sas they assumed that screened fund investors consider both financial and non-financial return in order to fulfil their spiritual needs. Bolen (2007) show that cash flow into SRI funds are more sensitive to lagged positive returns while less sensitive to lagged negative returns, which indicate that SRI fund investors derive utility from the socially responsible attribute. Similarly, Benson & Humphrey (2008) suggest that SRI fund flow are less sensitive to fund performance as compared to conventional funds. The authors also suggested that SRI investors are more likely to reinvest in funds they already owned. It is because it is difficult for SRI investors to find alternative funds that will meet their non-financial aims.

Meanwhile, by employing Islamic funds, Marzuki & Worthington (2015) studied Malaysian equity funds data. This study compares Islamic and conventional funds data. The findings revealed a positive relationship between fund flow and past performance. However, the relationship is indifferent with the sensitivity of fund flow to the performance of conventional funds. The study concluded a weak asymmetric fund flow-performance relation which is consistent with Nathie (2009) in his thesis which documented that the Islamic fund investors are making rational investment decisions by punishing poor-performing funds while directing more money into best-performing funds. Meanwhile, Rao et al. (2015) compares Pakistan conventional and Islamic funds and found that Islamic funds are more sensitive to lagged positive returns but less sensitive to lagged negative returns as compared to conventional funds. However, the literature on the reaction of Islamic funds' investors to the funds' performance was found underdeveloped.

2.3.1 Asymmetric Flow-performance Relationship

Bellando & Dieu (2011) suggested several justifications for the asymmetric relationship. It is suggested that past funds' performance served as the indicator of managerial skills. According to Cremers & Petajisto (2009) and Willis (2001), an efficient and active fund manager must be able to forecast the annual fund earnings, pick the best stocks that they believe can outperform the benchmark and time the market well. Since fund past performance may signal managerial skills; thus, investors would rely on fund past performance in order to find the best fund manager. Consequently, investors may only concentrate on funds with a superior performance, which contributes to a massive cash inflow into best-performing funds. It can be supported by Ippolito (1992), who suggested that best-performing fund past performances increase the probabilities to

recognise a reputable fund manager. He also opined that it was difficult for investors to identify poor-performing funds; thus making the investors stay longer with the funds.

In contrast, Berk & Green (2004) argued that fund past performance is unable to predict future fund return as well as the skills of fund managers. It is because the rising slope of the relationship between fund flow and fund past performance implies a massive cash inflow, which indicates that fund performance gives an imperfect prediction of managerial ability. If the signal were perfect, investors would have chosen funds with superior performance while flocking away from the fund with inferior performance. The study added that the rising slope indicates the increasing quality of fund returns. However, if the signal were imperfect, investors would depend on market precision. Thus, the more precise the market signal is, the less dependent investors are on fund performance.

Besides, Lynch & Musto (2003) suggested that investors were reluctant to withdraw from poor-performing funds as they believe that the fund manager and investment strategy is more likely to be changed. Thus, investors are more likely to remain with the poor-performing funds believing that the changes in investment strategy and fund manager would turn around the performance of the poor-performing funds in the future.

The asymmetric relationship was also likely to happen when investors were constrained to withdraw from poor-performing funds to avoid charges due to several costs such as transaction cost and participation cost. Trading with mutual funds requires investors to bear with several costs for subscription and redemption of funds as well as to maintain the account. As a result, when funds did not perform well, the investors would instead remain with the poor-performing funds to avoid such costs.

Ippolito (1992) agreed that transaction costs would influence investors' reaction to the fund's performance. He opined that the costs of trading in mutual funds explain why large fluctuation in mutual fund shares is not observed. Similarly, Gruber (1996) opined that having extra cost had crushed the response of investors on poor-performing funds, which lead to a slower rate of cash outflow out of losing funds. Again, it shows that investors are reluctant to flock away from poor-performing funds, as doing so will require them to bear the redemption cost.

Besides the transaction cost, Huang et al. (2007) suggested that a participant cost that investors need to bear would also affect the fund flows. The cost includes the information cost of collecting and analysing information about the fund before investing in it. This cost limits the number of funds that investors would want to investigate and only focus on funds with superior past performance. They also suggested that the participation cost causes different flows at a different performance level. As such, at medium levels of performance, a fund with low participation costs may attract more investors. While, in the high-performance range, the sensitivity of the fund flow to the high participation cost is more sensitive to fund performance.

Meanwhile, Ferreire et al. (2012) showed that investors in more developed countries face a lower participation cost. The cost also captures different elements of fund trading decisions; thus, different implication on the sensitivity of fund flow to fund performance. They showed that lower participation cost would lessen the convexity of fund flow-performance relationship.

Finally, several studies had looked into a psychological aspect where investors are assumed as irrational decision-maker in order to explain the asymmetric relationship. The behavioural finance theory derives from the combination of psychology and finance to

explain how people invest. It also explains that most decisions made by investors are irrational due to the fear of losing or as the result of market anomalies.

Shefrin & Statman (1985) and Odean (1998) termed investors' irrationality as the disposition effect. A disposition effect is an anomaly in the financial market since it shows the tendency of investors to hold losers too long and sell winners too soon. In this sense, investors are willing to realise gains but are reluctant to realise losses in which, investors demonstrate a strong preference for realising best-performing funds rather than losing funds.

Furthermore, Goetzmann & Peles (1997) and Sawicki (2001) explained an asymmetric relationship as cognitive dissonance, which is a psychological bias of individuals who distort reality in order to defend their past choices. The theory originated in the work of Festinger (1957), which was known as Festinger's Theory. This theory explained that the state of cognitive dissonance allows investors to reduce the psychological cost of potential loss by being overly optimistic about the effectiveness of their past investment choices. Thus, they opt to hold on to their losing funds for too long. Therefore, investors may not punish losing funds because they adjusted their central belief in order to support the regretful choices that they had made earlier. Thus, cognitive dissonance is a mental conflict that leads to an uncomfortable feeling when the belief is wrong. It is also the regret over mistake belief in which people change their attitudes, beliefs, and actions and behaves irrationally. The main characteristic of the dissonance of Festinger's theory is that investors tend to change their belief in order to match with their past actions.

In the questionnaires-based study, Goetzmann and Pele (1997) found that investors tend to reduce their discomfort feeling over their past investment choice and are reluctant to switch funds from poor-performing funds; thus overly optimistic perception

was formed on these past poor-performing funds. Moreover, investors believe that the poor-performing funds would perform better than they did. In this case, investors' belief changed to meet their past actions. Based on the cognitive dissonance, Goetzmann and Pele (1997) conclude that investors did not sell the poor-performing funds because they adjusted their central belief to support the regretful choice they had made earlier in which they were optimistic over the past returns.

Kahneman & Tversky (1979) and Tversky & Kahneman (1991) explained investors' irrationality through Prospect Theory. This theory concludes that investors are irrational and focus more on risk and losses rather than gains. The theory explains that investors are more emotionally frustrated when they make losses than feel delighted when getting gains from the investment. Besides, the theory contends that investors make decisions based on the potential value of losses and gains rather than the outcome. It also suggested that investors perceived gains and losses differently where gains are being more valued than losses, which indicate that investors are risk-averse. In this sense, investors are willing to settle for a reasonable level of gains but are unwilling to engage in risk since losses have a more emotional impact than an equivalent amount of gain.

Meanwhile, a loss aversion is an investor's tendency to avoid losses rather than to acquire gain. It is because losses were much as twice as psychologically consequential as gains. It happens when investors are more sensitive to the decrease in their wealth than the increase, which was described as the disposition effect. It helps to explain the tendency of investors to sell winning stocks quickly while keeping the loss-making stocks. Investors have an aversion to incurring losses much more than the gain that they enjoy.

A regret theory can be related to the tendency of people to feel the pain of regret for errors that they have made. Because of the fear of regret, people switch their behaviour and become irrational in making investment decision in which, it makes them either risk-averse or risk-seeker. This theory also has led to the evidence found in the mutual funds' flow and performance studies in which, money inflow into funds that perform well is much more than the money outflow of the poor-performing funds. Based on the study by Goetzmann and Pele (1997), investors that have made wrong decisions and have invested in losing stocks are unwilling to admit their error. Thus, they decided to hold the losing stock. This situation has led to a positive convex relationship between mutual fund flow and past performance.

In the next subsection, the discussion on the theory of fund flow-performance relationship is further extended to explain the underlying theory of the relationship in the context of the screened investment environment.

2.3.2 Determinants of Fund Flow

Unit trust investors may consider factors, which are derived from the non-financial attributes. As previously discussed in the literature, among the factors are fund size, fund age, fund risk and expense ratios which include transaction cost and loads.

When assessing the logarithm of fund size as the control variable in explaining fund flows, it is expected that large funds would not be growing at the same rate as small funds. Studies found the consistent result of a negative and highly significant relationship between fund flow and fund size (Sirri & Tufano, 1998). This finding implies that small funds grow more quickly than large funds. The fund flow declines with fund size where large funds tend to attract significantly smaller flows than small funds. Among other

studies supporting this are Barber et al. (2005); Benson & Humphrey (2008); Chevalier & Ellison (1997); Ferreire et al. (2012); and Marzuki & Worthington (2015).

Turning to the relationship of fund age to fund flow where the logarithm of fund age was included as the control variable, Chevalier & Ellison (1997) found a negative relationship between fund flow and fund age. They claimed that the fund flow from the older funds would not be responsive as the younger funds do. Findings of Barber et al. (2005); Del et al. (2002); and Sirri & Tufano (1998) are consistent. These studies concluded that younger funds attract more cash inflows due to higher marketing expenses incurred to market the smaller and younger funds may explain why they attracted more fund flows. Nevertheless, Korkeamaki et al. (2007) suggest that spending more on advertising may lead to more inflows, especially by using printed material such as newspapers and periodicals.

Besides, for screened funds, money flows of young funds are more sensitive to past performance than older funds. Bollen (2007) explained this notion as diffused prior belief in which, the beliefs about funds with limited track records are more diffused. He argued that the socially responsible investment (SRI) strategy which is relatively new and limited in the U.S market causing investors to be more uncertain about the fund performance; thus it increases the volatility of fund flow. Further, Huang, Wei, & Yan (2012) supported this view by providing evidence that funds with longer track record drive a weaker flow-performance sensitivity due to reduction in investors' uncertainty.

Furthermore, when assessing the influence of fund risk to fund flows, Barber et al. (2005), Sirri & Tufano (1998), and Ippolito (1992) suggested that investors avoid risky funds that they believe funds with higher risk will affect the performance negatively. However, Ippolito (1992) recorded a weak relationship between risk and fund flow. It is supported by Marzuki & Worthington (2015) which found a positive relationship between

risk and flow suggesting that any increase in fund risk will increase the flow of monies into funds as investors believed that risky funds would render higher returns.

Besides the variables discussed above, other variables that determine fund flows are fund expense ratios, which include fund loads and transaction costs, are also the determinants of fund flows. Fund expense ratio can include various operational costs such as administrative cost, compliance fee, distribution fee, management fee, marketing expenses, shareholder services, and record-keeping fees. Meanwhile, a front-end load is a commission or sales charge applied at the time of the initial purchase for an investment. It is deducted from the investment amount; thus, lowering the size of the investment. A back-end load, on the other hand, is a fee that investors need to pay when selling shares in which the fee amounts to a percentage of the value of the share being sold. Whereas, transaction costs are expenses incurred when buying or selling funds. The example of transaction costs is the entry and exit charges. These types of charges may cause investors to hold on to funds to avoid redemption costs. However, the present study excludes these variables in the manner of Rao et al. (2016) as some data are not sufficient for analysis.

Studies by Gruber (1996) suggested that fund expenses are lower for outperformed funds and the costs increase at a slower pace over time. In contradiction to that, other studies suggested that choosing funds with low fees is advisable rather than aiming for superior performance as lower fees may attract more cash inflows. Barber et al. (2005) argued that there is a negative relationship between fund flows and front-end loads. Investors are more sensitive to information that is visible to them such as front-end load expenses, commissions and performance compared to the expense ratios or the transaction cost.

Internationally, a study by Zhao (2008) claimed that international equity fund investors are not sensitive to expenses and exchange rates. One potential implication of this behaviour is that fund managers may take this opportunity by investing large amounts of money in marketing to attract more flows; thus increasing assets under management and revenue for them. Moreover, expense ratios which derived from marketing purposes may attract more money inflows into funds for it increases fund visibility as Huij & Verbeek (2007) showed that fund with larger marketing expenses attracted larger cash inflows which is consistent with Barber et al. (2005).

Furthermore, Huang et al. (2007) suggested that marketing expenses will attract more flows into mutual funds. Mutual funds companies use advertising to communicate with potential investors. Korkeamaki et al. (2007) found that advertising only leads to marginal increase inflows, given that the fund family has high performing funds. Moreover, Jain & Wu, (2000) found a strong cause-and-effect relationship between advertising of mutual funds with investors' decision. However, Huhmann & Nalinaksha (2005) provides contradictory results in which 88% of mutual funds advertisement did not contain all the requisite information on the risk and return trade-off, principal-agent conflict, and transaction cost that consumers need in order to make an investment decision.

In addition, different level of participation costs across funds affecting the fund flows in various level of performance. As such, should the participation cost is low-fund performance will have higher flow sensitivity. In contrarily, with higher participation cost, the flow sensitivity is higher to a high level of performance. Besides, Ferreire et al. (2012) pointed out that as a country becomes developed, the participation cost of mutual funds will be lowered, resulting in a less asymmetric flow-performance relationship.

In the case of screened funds, studies expected that investors in these funds would have to bear the higher cost as derived from the double-layered management of the funds. However, investors of SRI funds generally care less about fund fees compared to conventional investors (Renneboog et al., 2008). In contrast, Marzuki & Worthington (2015) concludes that the expense ratio in the form of marketing and advertising expenses attracted more money flows into Islamic funds.

Besides all the non-performance attributes discussed above, a flow-performance relationship could also be explained by the smart money effect. Smart money effect is the ability of unit trust investors to predict short-term fund performance and invest accordingly by moving money from poor-performing funds to high performing funds. According to Gruber (1996), there are two types of clientele, namely sophisticated investors and disadvantaged clientele. The latter are further divided into three groups, in which the first group is known as the unsophisticated investors who make an investment decision based on the advertisement and marketing. The second group is known as the institutionally disadvantaged investors, which is represented by a pension scheme. These investors are restricted by the plan that they are part of to a set of funds that underperforms the best active funds. Finally, the third group is the tax disadvantaged investors who held funds for enough time so that the capital gain taxes make it inefficient to remove money from the funds.

Gruber (1996) also suggests that the sophisticated investors recognise the fact that the flow of new investment into and out of a unit trust follows the prediction of future performance. His study found that the sophisticated investors are likely to place a larger percentage of new cash flows into and out of funds where the new money inflows into best-performing funds are larger than money outflow from poor-performing funds. In addition, the group of institutionally disadvantaged investors and the tax-disadvantaged

investors are unable to move their investment out of the poor-performing funds, but they may subscribe into funds, which performed better.

Other studies which investigate the smart investors in investment selection are such as a study by Keswani & Stolin (2008), which investigates the flow-performance relationship in the United Kingdom market. The study found the existent of the smart money effect. It was driven by the purchase of funds instead of the sales of funds by either the individual or the institutional investors. The study documented that investors chase the best-performing funds where the fund inflows increase as increased in fund past return; while the cash outflow decreased following the decrease in the fund past return., Also, Zheng (1999) found that investors are able to make an investment decision based on their good assessment on the short-term future performance. The smart money effect is evidenced where funds that received new inflows were able to perform better than the funds, which experienced outflows of money.

2.4 Fund Performance

In any investment decision, price and performance are the essential aspects to be considered. There are various methods to measure investment performance, as discussed in the literature. The average total return is the most basic and straightforward measure of fund performance. However, the use of total return as a performance measure has been criticised as it ignores the element of risk.

Other prominent measures of fund performance in the literature are the Capital Asset Pricing Model (CAPM). This model was formulated based on an earlier concept of Markowitz (1952) in his mean-variance approach. CAPM provides a framework for fund performance evaluation. It is a tool to adjust returns for risk and to make a prediction of

fund future performance by describing the relationship between risk and expected return. It uses beta to link the notion of risks and returns, and it is calculated as the risk-free rate of the fund plus by a risk premium of the country.

$$R_{j=}R_{f+}\,\beta_j(R_{m-}R_f) \qquad \textbf{2.6}$$

Where,

R_j = The measure of the rate of return of the asset

R_f= Risk- free rate

β_j= Beta of a security

R_m= Expected market return

The idea of CAPM is that investors must be compensated for placing money in investment over some time and for taking additional risk. Thus, the investor must be compensated for the time value of money that is represented by the risk-free rate (R_f) and risk, which is represented by beta (β). It is calculated by taking the β that compares the returns of the asset to the market over some time and to the market premium($R_{m-}R_f$). The extended work on CAPM by Sharpe (1964), Linter (1965), and Mossin (1996) has arrived at the same pricing conclusions.

CAPM was further reviewed by Jensen (1968) by assuming that CAPM gives an accurate description of capital asset pricing in equilibrium, which exhibits the linear relationship between the returns and beta of the portfolio. If residual positive returns are obtained, the portfolio is said to earn more than equilibrium returns on portfolios of similar risk. Thus, alpha is known as abnormal returns. Jensen's model assumes that a

randomly constructed portfolio has an alpha value of zero. The model is formulated by the portfolio's return minus benchmark's return.

The difference between Jensen's approaches with CAPM is that the actual returns are used rather than the expected return, which is not easily predicted accurately. Jensen criticised that the value alpha of zero, which was constrained by CAPM. Jensen's model is formulated as follows:

$$Rjt - Rft = \alpha j + \beta j(Rmt - Rft) + Ujt \qquad \textbf{2.7}$$

Where,

Rjt =the portfolio return at time t

Rft = the risk-free asset return as time t

βj = the systematic risk of a portfolio

Rmt = the return of market at time t

α = Jensen's alpha

Ujt = error term at time t

A positive (α) value indicates that the portfolio is performing well, and the portfolio manager can predict a fund price. While a negative alpha represents poor-performing funds, in which the portfolio performs below the benchmark

2.4.1 Factors Influencing Fund Performance

Numerous studies have examined the factors that explained fund performance. With regards to expenses and investment fees, according to the Efficient Market Hypothesis (EMH), if the market is efficient and all the investment information are widely available to investors, thus, charging fees will reduce the fund's return. Various costs, as discussed in the literature, are expense ratios, management fees, and load fees. Grossman & Stiglitz (1980) hypothesized that funds charging larger fees would also earn higher return since both effects tended to offset each other. Further, Ippolito (1989) and Droms & Walker (1996) found no significant relationship between performance after expenses and investment fees.

However, other studies conclude a contradictory view, in which funds with lower expenses lead to better performance, while funds with low management fee achieved high return (Sharpe, 1966; Chen, 1992; Elton, 1993; Malkiel, 1995; Golec, 1996; Gruber, 1996; Payne, 1999; and Prather et al., 2004).

Furthermore, concerning load fee charges, it is expected that low expense load funds sufficiently outperform average expense no-load funds. Thus, funds with front-load and end-load charges will earn a lower risk-adjusted return (Ippolito,1989 and Payne et al.,1999). However, Chen et al. (1992) found no difference between load and no-load funds when selectivity is considered in which funds with load charges performed equally with no load charges. Besides, Khorana et al. (2008) studied the differences in fee charges, including management fees, total expense ratios and total shareholder cost together with load charges across 18 countries. They argued that fee charges were different across funds, objectives, and countries and fund family characteristic. They suggested that fees were lower for larger funds and fund families. Several types of funds such as index funds, funds of funds, guaranteed funds, funds that require a higher minimum investment and

onshore funds that are traded outside boarders also possess lower fees charged. Cambon Murcia (2011), however, suggested that the performance of Spanish funds is not systematically related to past performance. Funds with higher management and custody fees did not tend to compensate the participants with higher yields, while, in contrast, higher subscription and redemption fees did not link to better performing funds.

For portfolio turnover, Ippolito (1989) found no significant relation between fund return with this factor while Carhart (1997); Malkiel (1995) and Payne et al. (1999) concluded that portfolio turnover negatively impacted fund returns in which higher portfolio turnover will decrease fund returns. However, it is contradicting to Grinblatt & Titman (1994) and Wermers (2000), which found a positive relationship between performance and portfolio turnover.

Other factors influencing fund performance, as discussed in the literature, are fund size and fund age. In general, fund size and fund age were positively related to the fund's performance which indicates that larger and older funds performed better than smaller and younger funds (Chen et al. 1992). However, this finding contradicts Grinblatt & Titman (1989) who found that performance is inversely related to size, while by Droms & Walker (1996) who found no conclusive relationship between size and fun performance. In additional, Elton et al. (1996) found that funds size-performance relationship may be affected by survivorship bias in which when the bias is considered, smaller funds were found to outperform larger funds. Whereas, when the survivorship bias is ignored, the study found no differences between the performances of either fund size. Furthermore, Annaert (2003) found that there is a positive relationship between fund efficiency and fund size which may indicate the existence of economies of scale in the sample mutual fund industry. While Ferreira et al. (2012) used data from 27 countries, found that small funds perform better than large funds only in the case of U.S funds as

large non-U.S funds perform better than smaller funds. However, fund size does not affect the performance of funds that were invested outside of the country. Moreover, fund age is found to be negatively related to fund performance in the sample of non-U.S funds, but this relation is statistically insignificant in the sample of U.S funds. It indicates that younger funds are better able to detect best-investment opportunities outside the U.S.

Furthermore, concerning the country characteristic, Ferreira et al. (2012) found that there is a strong positive relationship between the performance of mutual funds and a country's level of financial development. Funds performed better in countries with high trading activity and low trading costs. Also, the study found that funds domiciled in countries with common law tradition showed better performance than otherwise. It was shown by investor protection and law enforcement, which have a statistically significant and positive effect on fund performance. Furthermore, country-level investor protection is found to be the most important determinant of the performance of the mutual fund industry across countries.

2.4.2 Research on Performance of Islamic Funds

In general, studies on the performance of Islamic funds concluded a mixture of findings. Some studies suggested that Islamic funds performed worse than the conventional funds while some studies also hold that Islamic funds performed better during the economic downturns. Nevertheless, some studies argued that the performance of Islamic funds is no different from conventional funds. Extant literature on Islamic fund performance mostly focuses on the risk and return characteristics and the comparison between Islamic and conventional funds.

In the studies of the Malaysian funds, using cross-sectional regression analysis, Ismail & Shakrani (2003) posits that there is a significant positive relationship of risk in an up-market while significantly negative in the down-market of Malaysian Islamic funds. Abdullah et al. (2007) compared the performance of Malaysian Islamic and conventional funds using the adjusted Sharpe index, Jensen Alpha, and also the timing and selectivity ability. The study concluded that both version of funds slightly underperformed KLCI. Moreover, when risk is considered, they found that the Islamic funds performed better than the conventional funds during bear markets. However, it goes the other way round during the bull markets. Likewise, Muhammad & Mokhtar (2008) investigated the performance of Islamic funds from 2002 to 2006 using weekly data. The study revealed that there is a significant positive relationship between Islamic funds and the Shari'ah index benchmark. However, the study also found that Islamic funds underperformed the market as well as having low sensitivity to the market with a beta less than one. Similarly, the study by Mansor & Bhatti (2011) provides consistent evidence. Also, the study suggested that Islamic fund managers possess better stock selection ability than conventional funds' managers. However, the conventional fund managers are better at timing the market. Meanwhile, Yuzi et al. (2012) evaluate the performance of Malaysian Islamic funds based on an asset portfolio. The study found that all types of funds outperformed throughout 2001-2010. However, during the financial crisis, money market Islamic funds show better performance as compared to the other types of asset portfolio.

Meanwhile, in the studies of the Saudi Arabian funds, Ashraf (2013) studied the performance of Islamic funds in comparison to conventional funds during the global economic crisis on 159 funds for 2007 to 2011. His findings show that Islamic funds performed better than conventional funds by 1.27% annually, even though Islamic fund

managers are bad in the timing market as compared to the conventional fund managers. Meanwhile, Rubio et al. (2012) and Binmahfouz & Hassan (2012) suggested that despite being limited to a smaller asset universe, Islamic funds can outperform the conventional counterparts.

Furthermore, Merdad (2010) employed 28 mutual funds in Saudi Arabia, which are managed by HSBC Saudi Arabia Limited for 2003 to 2010. Their results indicate no differences between the Islamic funds with the conventional funds in which both funds underperformed the GCC Islamic index and Tadawul All-Share Index (TASI) by 4%. They found that Islamic funds underperformed the conventional funds in the normal and bullish periods but tended to outperform during the bearish and economic downturns periods. Meanwhile, Rao (2006) claimed that Islamic funds in Saudi Arabia are relatively less risky. Similarly, the study suggested that the performance of Islamic funds is no different from conventional funds.

Whereas, in the studies of Indonesian funds, Dahlifah & Supriyanto (2015) employed three years of data and claimed that Islamic funds are the better performer than the conventional funds. Hence, Islamic funds can provide alternative investment for investors in Indonesia. Moreover, in comparison to the Malaysian Islamic funds, Ferdian & Dewi (2007) claimed that on average, the Malaysian Islamic funds performed better than the Indonesian Islamic funds. It can be attributed to the fact that Indonesia Islamic funds are still in the infancy stage, while Malaysian Islamic funds are the most developed among all funds.

In the other countries, Collina & Gatti (2009) studied Islamic funds in Italy and subsequently claimed that the Islamic funds are riskier than the conventional funds. Meanwhile, Wilson (1997) found no significant differences between the performance of the Islamic and ethical fund with conventional funds in the United Kingdom. Whereas,

Mueller (1994) found that the performance of the United States-based Amana Income Fund, which is an Islamic fund, generates a lower return as compared to the conventional funds.

Besides focusing on individual country funds, a wider sample of Islamic funds will contribute to the generalisation of the findings. The performance of Islamic funds may defer across countries in which, it may depend on the level of Islamic financial development as well as the country's national characteristic such as the dominant religion of the country. As such, Khamlichi et al. (2014) revealed that the performance of Islamic funds is non-persistence during and after the financial crisis. They also argued that the Islamic funds constitute heterogeneous groups, which depend on the fund geographic focus, while the performance is influenced by the choice of measures for how investors perceive return and risk. Ashraf & Mohammad (2013) found that the global Islamic funds did not show any abnormal returns by using a method known as the Logistic smooth transition autoregressive (LSTAR) model. However, there is evidence of positive abnormal returns in the case of regional indices from the European and Asian funds. Moreover, they argued that excess returns were stems from the systematic risk during the downward trend in the economy.

Furthermore, Hoepner et al. (2011) employed the three-level Carhart model adopted from the Carhart (1997) to analysed and compared the sample IEFs from 20 countries from two aspects which are financial performance and investment style. The country's national characteristics explained the heterogeneity in financial performance. The study concluded that the Islamic fund performance from the countries with developed Islamic financial system which are mainly from the dominant Muslim countries, outperformed the international benchmark while from the less developed underperformed the benchmark. Meanwhile, Hayat and Kraeussl (2011) employed a sample of 145 IEFs

for 2000 to 2009. The study evaluates the risk and returns characteristics of IEFs from five regions including the funds from the global market, Malaysian market, Asia Pacific market, European market, Middle East market, and North American market by using the CAPM. The study found that IEFs underperformed the Islamic and conventional benchmark. Moreover, the performance became worse during the time of financial crisis. This finding is contradicted by the findings of most of Islamic fund performance studies.

Elfakhani et al. (2005) studied 46 Islamic funds, which are classified into eight sector-based categories. The performance of each fund and fund category is measured and compared relative to the performance of Islamic and conventional indices over the study period of 1997-2000. Overall, the results are consistent with the notion that Islamic funds performed better during the market turmoil. However, they found that Asian funds are the worst performer among the other emerging market funds. Whereas American and South African funds outperformed the benchmarks. Similarly, Alam & Rajjaque (2010) study Islamic equity funds (IEFs) and seek to see whether the funds can outperform the European conventional equity funds using Jensen's alpha and Sharpe ratio measures. The study found that IEFs outperformed the market during the financial crisis, but it turns out to be underperformed after the financial crisis in which when there was an upward trend in the economy.

2.5 Literature Gaps

Unit trust or mutual fund investment has gained awareness among those who wish to accumulate wealth through affordable initial capital. However, this method of investment is subject to market volatility. Hence, investors' decision-making is crucial, especially when it comes to their reaction to the fund's performance. There is an extensive literature on the relationship between fund flows and fund performance for mutual funds in general. However, the relationship has not been extensively explored in the Islamic funds market. As far as the present study is concerned, studies on the Islamic fund's flows-performance relationship are relatively limited. A study by Marzuki & Worthington (2015) compared the fund's flow-performance relationship between Islamic and conventional funds but is limited to Malaysian funds; while a study by Rao et al. (2015) only focused on Pakistani funds. Studies on investors' reaction to the performance of Islamic funds is worthwhile since religious obligation may influence Muslim's investors' decision besides seeking to gain profit through investment returns. As indicated by Hoepner et al. (2011), Shari'ah law plays a vital role in influencing Muslim investors' preferences. Meanwhile, Islamic funds also attract the interest of non-Muslim investors for its advantageous hedging attributes against economic uncertainties as proven by a number of researches (Abdullah et al., 2007; Alam & Rajjaque, 2010; Elfakhani et al., 2007; and Rubio et al., 2012).

Besides, Hopner et al. (2011) suggested that the performance of Islamic funds might be different based on country domiciled, where the country's national characteristics explained the heterogeneity in financial performance. Hence, the current study sees the need to incorporate Islamic funds from various countries to enable the current study to observe differences in investors' reaction to Islamic fund performance across countries. Moreover, Ferreira et al. (2012) suggested that a country's development

influence differences in fund flow-performance relationship. The development in any sector or industry in a country would become the determinant in order to explain the differences in the sensitivity of fund flow to the fund performance across countries. It is suggested that more developed countries will have a less convex flow-performance relationship. However, changing the perspective from the development of a country to industry-specific level, no specific study has been taken to ascertain the influence of the level of Islamic financial system development on the sensitivity of the fund flow to fund performance. Given there are significant differences in the level of Islamic financial system development across countries, the current study wishes to fill in this gap.

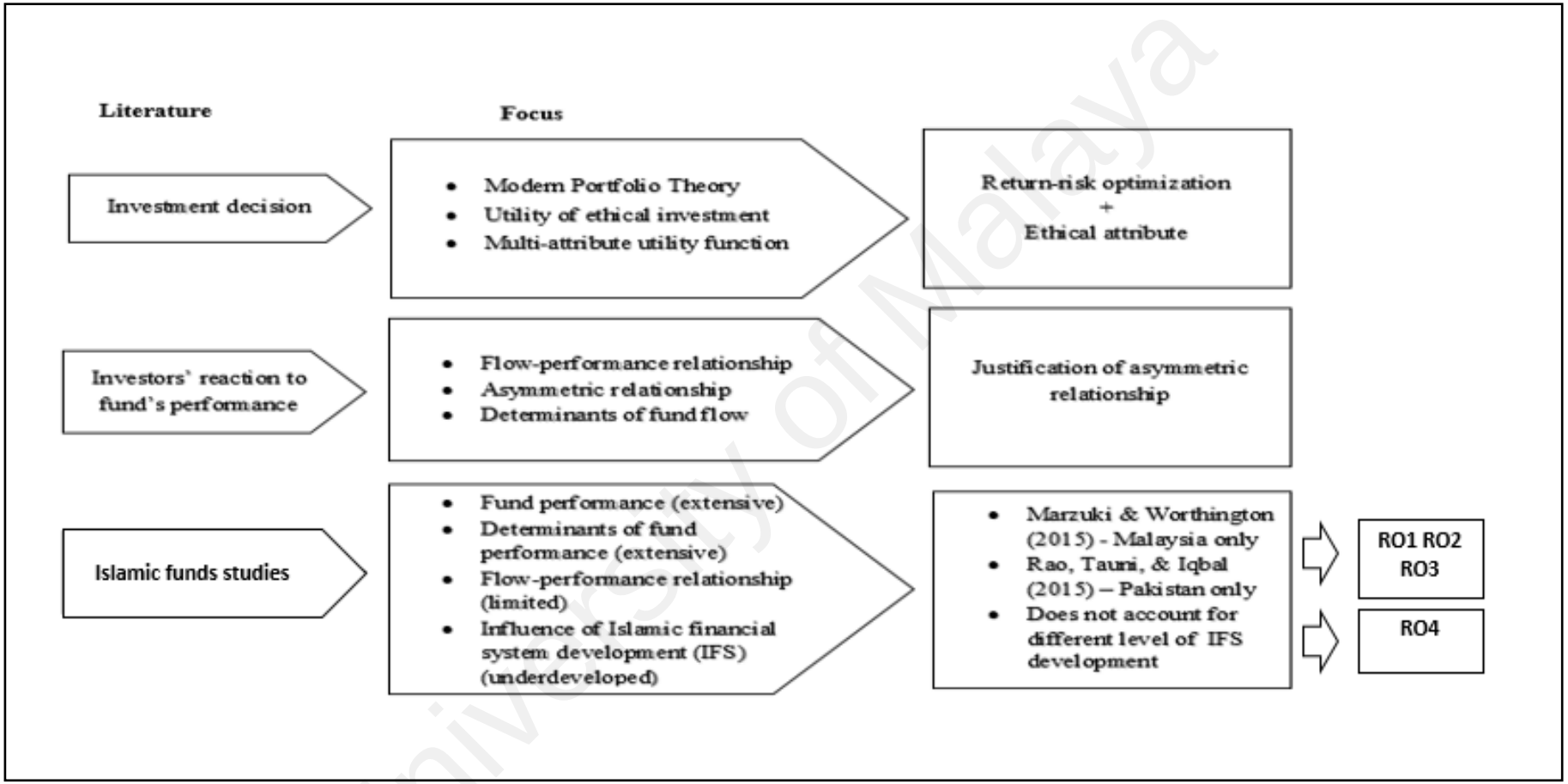


Figure 2.5: Conceptual Framework

Figure 2.5 above presents the conceptual framework. The framework explains how does the study on the fund flow-performance relationship was grounded in the MPT, which provides the basis for investment selection. The utility of ethical investment and the multi-attribute utility function further explain investment selection of ethical investment. There has been several literature on the fund flow-performance relationship; however, studies that look into Islamic funds were limited. Further, the studies by Marzuki & Worthington (2015)[3] and Rao et al. (2015) generally localise in a single country and does not account for the differences in the Islamic financial development across countries. Besides, the influence of Islamic financial system development on investors' reaction has yet to be explored previously.

2.6 Chapter Summary

The objective of this chapter has been to appreciate the set of academic literature related to the study on fund flow-performance relationship. The literature on the ethical investment served the basis to explain the differences between the screened investments with conventional investment. It introduces to the assumption of the multi-attribute utility function, which explains screened investment investors' respond to the fund's performance. Also, this chapter provides in-depth reviews on fund performance studies, including performance measurements and the factors influencing performance. Finally, the current study identifies the potential area that has yet to receive attention from researchers. Thus, this study is expected to fill in these gaps.

[3] The earlier version of this study is Marzuki & Worthington (2011).

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter presents the research framework and methodologies of this thesis. This chapter begins with section 3.2, which presents the development of the hypothesis as motivated by the underlying assumptions. Section 3.3 presents the description of data and samples employed throughout this study, followed by the description of related variables in section 3.4. Section 3.5 describes the research methods and, finally, section 3.6 concludes with a chapter summary.

3.2. Hypothesis Development

This section suggests the set of hypotheses to be tested based on the related and relevant theories, as discussed in Chapter 2. The underlying assumption underlies the fund flow-performance relationship of IEFs is based on the notion that IEFs investors' decision is assumed to be influenced by the non-financial aspects or personal values. It refers to the multi-attribute utility function or the additional utility to the traditional returns and risk optimization of the Portfolio theory.

In response to the first research question of is there any asymmetric relationship in the fund flow-performance relationship of IEFs and how does the relationship differ from those of the CEFs? Beal et al. (2005) outlined three reasons why investors choose to invest in the screened investment portfolio. The reasons could be directed to financial returns, non-wealth returns, and social change. They described that if the return-risk outcome of the screened fund is similar to the conventional funds; thus, it can be viewed as a fair game. Furthermore, the returns derived from investing in screened investment were characterized as the psychic returns, which were also viewed as the increase in

happiness. For screened investment investors, they might be a balance between financial and psychic return; thus, the 'psychic returns' need to be inserted into the utility function of return and risk which drive a multi-attribute utility function.

In previous Islamic mutual fund studies, Marzuki & Worthington, (2015) highlighted that Islamic fund investors aim to fulfil both financial and non-financial goals in return for the money invested. Consistent with the motivating assumption of the multi-attribute utility function, it can be concluded that if IEFs investors' decisions were derived from the additive utility function. Hence, the fund flow is expected to be negatively related to poor-performing funds, where investors did not move out their investment from the losing funds, while positively related to the best-performing funds by chasing the funds for better returns. Thus, it is expected that the fund flow-performance relationship would be asymmetric, where losing funds are not punished with outflow as much as best-performing funds are rewarded with inflows. Therefore, hypothesis 1 is addressed as:

H1: The fund flow-performance relationship of Islamic equity funds (IEFs) is asymmetric.

In order to investigate the differences in the fund flow-performance relationship of IEFs and CEFs, Bollen (2007) suggested three assumptions. The first assumption suggests that investor preferences are governed by a utility function defined over the moments of a portfolio's return distribution. The assumption has become the basis of the conventional finance paradigm, which holds that the utility is a function solely of expected return and variance. Should investors of Islamic funds view IEFs just as another type of investment products; thus, after controlling for other factors such as fund size and fund age, the fund flow-performance relationship of IEFs will be equal to the conventional counterpart.

Meanwhile, the second assumption suggests that prior beliefs regarding the expected return of the IEFs are more diffused than a prior belief about the CEFs is added to the existing utility function. In a study that compares younger funds with older funds, Chevalier & Ellison (1997), for example, found that the fund flow-performance sensitivity of younger funds is more durable than of older funds. It suggests that the belief about the funds with limited track records are more diffused as compared to the older funds. Since IEFs are relatively new in some countries as compared to numbers of the conventional counterparts, it is reasonable to assume that investors are uncertain about the performance of the IEFs; thus, investors will tend to assess the information on IEFs more than assessing the information on CEFs. As a result, those investors may have more diffused prior belief about IEFs than a prior belief about the CEFs. Therefore, the second assumption suggests that investors of IEFs view Islamic funds as similar to any other type of investment funds with an additional assumption of a prior belief. Hence, the fund flow-performance relationship of IEFs will be more sensitive and stronger than of CEFs.

Finally, the third assumption suggests that investors did not regard Islamic funds in the same way as conventional funds are. For Islamic fund investors, the additive utility is less affected by the change in fund return; hence, the investors will have less intention to switch or redeem funds for any changes in the funds' performance as compared to the conventional fund investors. In this sense, the sensitivity of fund flows to fund performance will be weaker for IEFs.

As described by Bollen (2007), the empirical prediction of the fund flow-performance relationship can be explained as:

$$U = \mu - \theta\sigma^2 \quad \textbf{3.1}$$

Where U is the utility function, μ and σ^2 are the expected return and risk of a portfolio of funds. When the additive utility function is considered, the equation above will become as:

$$\boldsymbol{U = w(\mu - \theta\sigma^2) + (1 - w)S} \quad \textbf{3.2}$$

Where, $0 \leq w \leq 1$ and S is an indicator function which equals to 1 if the portfolio satisfies an investor's demand for the additive attribute and 0 otherwise.

Besides, for an investor of a screened funds, $w < 1$, and the utility is less affected by a change in return (μ) as compared to the investor of conventional funds in which $w = 1$. Hence, the screened fund investor will have less incentive to switch or redeem funds for any changes in fund performance as compared to a conventional fund investor. In this case, the fund flow-performance relation will be weaker in screened funds than in conventional funds.

From all the three assumptions discussed above, it can be summarized that should investors of Islamic funds view IEFs just as another type of investment products; thus, the fund flow-performance relationship of IEFs will be equal to the conventional counterpart. However, with additional assumption of a prior belief, the fund flow-performance relationship of IEFs will be more sensitive and stronger than of CEFs. Whereas, should the Islamic fund investors perceive that the additive utility is less affected by the change in fund return, the investors will have less intention to switch or redeem funds for any changes in the fund performance as compared to the conventional

fund investors. Thus, the sensitivity of fund flows to fund performance will be weaker for IEFs. Therefore, hypothesis 2 is addressed as:

H2: The fund flow-performance relationship of Islamic equity funds (IEFs) is mot equal to the fund flow-performance relationship of conventional equity funds (CEFs)

Moving on to the second research question of does a country's Islamic financial system development influence the sensitivity of the fund flow-performance relationship of IEFs? A study by Ferreira et al. (2012) postulated that the fund flow-performance relationship differs across countries due to different level of development. They expected that investors of mutual funds in more developed countries to be more familiar with financial products owing to the development of their financial markets.

In the context of the Islamic funds, this study expects that the differences in the level of Islamic financial development would lead to different fund flow-performance sensitivity across the countries. This study suggests that investors of IEFs be more aware and familiar with Islamic financial products and services due to the development of the industry in general besides having a better understanding of unit trust/ mutual funds products in particular. Moreover, Ahmad & Bashir (2014) and Obeid & Kaabachi (2016) suggest that the amount of information that customers have about Islamic banking products would influence their intention to use it.

For example, in the studies on customers' awareness of Islamic banking products, countries with less developed Islamic financial systems are followed by customers who are less or unaware of the attributes of Islamic banking products. As such, Cheteni (2014) found that Islamic banking customers in countries with less developed Islamic financial system like South Africa are having a lack of understanding of the principles of Islamic banking. Further, studies by Bougatef et al. (2012); Obeid & Kaabachi (2016); & Taktak

& Zouari (2014) found that customers in Tunisia have lack of awareness and understanding on Islamic financial concept.

On the contrarily, customers in the countries with more developed Islamic financial development tend to have more understanding and awareness towards Islamic financial products. As such, Saiti (2015) suggested that customers of Islamic banks in Malaysia have a better knowledge of Islamic principles underlies Islamic banking products as the country received aggressive support from their government in terms of promotion. Meanwhile, Hidayat & Al-Bawardi (2012) found that Islamic banking customers in Saudi Arabia are aware and have Islamic prior Islamic finance exposure even among non-Muslim customers.

Furthermore, how much the differences in the fund flow-performance sensitivity of IEFs across countries could be explained? This study expects that the differences in the level of Islamic financial system development across countries would explain the differences in how investors react to fund performance. The idea is that a country with more developed Islamic financial system would be followed by groups of sophisticated investors. They have depth experience and market knowledge that makes them eligible benefits and opportunities in investing with unit trust/mutual funds. This idea could be supported by the study of Ferreira et al. (2012), which expects that mutual funds investors in more developed countries to be more sophisticated. The study also suggested that sophisticated investors are those who are not chasing best-performing funds but letting go of poor-performing funds. They also expect that investors' sophistication to be negatively correlated with asymmetry relationship. It indicates that more sophisticated investors are likely to be less sensitive to the top-performing funds but more sensitive to bottom performing funds. In addition, Berk and Green (2004) suggested that the development level and the convexity/ asymmetric relationship could be related. They argued that fund industries that are younger (less developed) and are further away from

their long-run state are more likely to have investors that chase top-performing funds more intensely.

Translating the ideas from the studies of Berk and Green (2004) and Ferreira et al. (2012), the current study is interested to see whether the quantitative aspect of the Islamic financial development indicators (IFDIs) will make significant contributions to IEFs investors' investment decision. Therefore, hypothesis 3 is addressed as follows:

Hypothesis 3: The more developed the Islamic financial system of the country is, the more sophisticated its IEFs investors are.

Table 3.1 below displays the link between the research questions with the corresponding hypotheses.

Table 3.1: The link Between Research Questions and Hypotheses

Research Questions	Hypotheses
RQ1: Is there any asymmetric relationship in the fund flow-performance relationship of IEFs, and how does the relationship differ from those of the CEFs?	H1: The fund flow-performance relationship of IEFs is asymmetric H2: The fund flow-performance relationship of IEFs is not equal to the fund flow-performance relationship of CEFs
RQ2: Does a country's Islamic financial system development influence the sensitivity of the fund flow-performance relationship of IEFs?	H3: The more developed the Islamic financial system of the country is, the more sophisticated its IEFs investors are.

3.3 Data Descriptions

The data are extracted from Thompson Reuters Datastream[4]. This study restricts the samples to open-ended equity funds, which have 100% of asset allocation in equity or mixed allocation of asset with some percentage of equity such as the balanced funds. The purpose of restricting to equity funds was because the funds are categorised as the aggressive fund, which is more volatile as compared to the non-equity funds. Moreover, the equity funds are also suitable for aggressive investors who aim to achieve higher returns from capital appreciation and income growth. The data excluded other funds such as the exchange-traded funds, the money market funds, fixed-income funds, and Sukuk funds that possessed different investment objective and risk-tolerance.

The samples consisted of funds labelled as Shari'ah compliance funds of three countries, namely Malaysia, Saudi Arabia, and Indonesia. The data were unbalanced panels since the inception dates were different among funds. The study period was from 2007 to 2019[5] since many of the Islamic funds are available from 2007 and onward in most countries. For comparison purpose, samples of conventional funds data were also collected. The funds selected comprise of both domestic and international funds.[6]

The monthly data were collected for the fund total return and fund total net asset (TNA) to proxy the fund size. The samples were free from survivorship-bias since both active funds, as well as inactive and liquidated funds, were included. According to Brown and Goetzmann (1995), funds that were no longer in existence were likely to have inferior performance and could not survive in the market. The exclusion of these funds into the sample will render an upwards bias in the fund's return. However, several studies have proven that there was no significant difference in the results obtained from the

[4] The data for the earlier version of this thesis were taken from Bloomberg database. Due to some difficulties, all data are re-collected from Thompson Reuters Datastream.
[5] The study period for the earlier version of this thesis is 2007- 2015.
[6] Domestic funds are invested primarily in stock owned by the country of domicile; while, international funds are invested primarily in stocks of other countries from the country of domicile.

survivorship free bias and survivorship-bias samples (Chevalier and Ellison, 1997; Goetzamann and Peles, 1997; and Sirri and Tufano, 1998).

Table 3.2 shows the sample selection criteria by country. The initial samples consisted of both Islamic and conventional funds from all fund types, which the based date is on 2007. The selection process involved filtering out funds that are not equity funds[7]. In addition, the funds must have a minimum of 24 months of data; thus, excluding funds with insufficient and too many missing data. The initial samples consisted of 495 Malaysian funds, 270 Saudi Arabian funds and 173 Indonesian funds. After the filtering process, the final sample left were 74 Malaysian IEFs, 150 Malaysian CEFs, 49 Saudi Arabian IEFs, 31 Saudi Arabian CEFs, 11 Indonesian IEFs, and 129 Indonesian CEFs.

Table 3.2: Samples Selection Criteria

	Malaysia		Saudi Arabia		Indonesia	
	IEFs	CEFs	IEFs	CEFs	IEFs	CEFs
Initial sample (overall funds)	495		270		173	
Equity funds only	100	264	85	43	17	135
Missing/ insufficient data filtered	26	114	36	12	6	6
Final sample	74	150	49	31	11	129

Furthermore, for the research objective 4 of this thesis, the Islamic Financial Development Indicator (IFDI) as prescribed by Zawya Thomson Reuters, was used to measure the country's Islamic financial development. The indicators were made of five aspects of development indicators, which consist of qualitative development, knowledge, corporate social responsibility, and awareness. Meanwhile, the qualitative development aspect consists of five areas, namely Islamic Banking, Takaful, other Islamic Financial Institutions (IFIs), Sukuk, and Islamic funds. However, due to the lack of data provided

[7] To confirm the fund types, each funds are cross-checked with Bloomberg website.

by Zawya, data needed to measure the Islamic financial development were collected manually from various sources including the Securities Commission of Malaysia (SC), Bank Negara Malaysia (BNM), Bank Negara Indonesia (BNI), Indonesia Financial services authority (OJK), Saudi Arabia Monetary Authority (SAMA), and the Ernst and Young Islamic Banking Competitive report.

However, due to limited data available across countries as some Islamic financial sectors in certain countries are relatively new, this study is only able to employ Islamic banking development and Islamic funds development. This study opts to proxy for Islamic banking development using Islamic banking assets (IBasset) and numbers of Islamic banks (IBnum). While Islamic funds NAV (IFnav) and numbers of Islamic funds (IFnum) are proxies for Islamic funds development.

3.4 Variables Descriptions

The following section discussed the variables under study that includes the fund flow as the dependent variables, control variables that include the fund size, age, and risk and the adopted Islamic financial development indicators.

3.4.1 Dependent Variable

The dependent variable for this study is the fund flow, which is explained as the net flow in fund assets beyond the reinvested dividends. It reflects the percentage growth of a fund above the growth that would have occurred or had no new funds flowed in and had all dividends been reinvested. In the manner of Ferreira et al. (2012) is as follows:

$$Flow_{i,c,t} = \frac{TNA_{i,c,t} - TNA_{i,c,t-1}(1+R_{i,c,t})}{TNA_{i,c,t-1}} \quad \textbf{3.3}$$

Where,

$TNA_{i,c,t}$ = total net asset values in the local currency of fund *i* in country *c* at time *t*,

$TNA_{i,c,t-1}$ = total net asset values in the local currency of fund *i* in country *c* at time *t-1*

$R_{i,c,t}$ = fund *i* raw return from country *c* in month *t*.

This measure assumes that the flow occurs at the end of the period. However, Sirri & Tufano (1998) had confirmed that the results are not affected if the flows are to be calculated at the beginning or in the middle of the period. Furthermore, in order to ensure the extreme values did not drive the analysis results, the fund flow is winsorised by country at the bottom and top of 1% level of distribution.

3.4.2 Independent Variables

The independent variable of this study is the fund performance that is measured using the total (raw) returns measures in local currency obtained from Thompson Reuters Datastream. The fund total return is the actual rate of return on an investment in a given valuation period. It includes unrealised capital gains (paper profit), that is not realised until the fund's holdings are sold, and dividends realized over a given period (Gitman & Joehnk, 2008). The calculation of the total return involves the appreciation in the unit price plus with any dividends paid, divided by the original unit price of the fund. The unit price is equivalent to the net asset value per unit.

$$\textbf{\textit{Total return}} = \frac{(\boldsymbol{P_1 - P_0}) + \boldsymbol{D}}{\boldsymbol{P_0}} \quad \textbf{3.4}$$

Where,

P_0 = Initial unit price

P_1 = Ending unit price

D = Dividends

Previous studies supported the use of fund total return as a performance measure as it is easier to calculate and understand. Sirri & Tufano (1998) opined that in general, the individual investor decides on which fund to select based on relatively basic measures as such the historical data of the fund. Also, Guercio & Tkac (2008) opined that the fund raw return could be the most appropriate measure of fund performance.

3.4.3 Control Variables

Other variables that might have an impact on fund flow were also taken into account. They are also known as the non-performance related variables, which are important in explaining the fund flow and the sensitivity to the fund's performance. These variables are controlled for in the regression.

The first control variable was the natural log of fund size. Larger funds were expected to capture more money flow as they could afford to spend more on advertising and were, therefore, more likely to receive media attention. The second control variable is the natural log fund age. In previous literature, older funds are expected to receive less flow as compared to the younger funds. According to Marzuki & Worthington (2011), the fund age may also act as a proxy for investor awareness of the fund. Thus, older funds with established reputation may be deemed good or bad depending on their past performance. Previous studies found that money flows of young funds are more sensitive to past performance than those of older funds (Benson & Humphrey, 2008; Chevalier &

Ellison, 1997; Ferreira et al., 2012; and Sirri & Tufano, 1998). Nevertheless, more recent fund performance may also be informative to young funds that yet to have a reputation (Barber et al., 2005).

3.4.4 Islamic Financial Development Indicator (IFDI)

Furthermore, for the third objective of this thesis, in order to investigate the influence of the Islamic financial system development on fund flow-performance relationship, this thesis introduces two variables based on the IFDI as prescribed by Zawya Thomson Reuters. The IFDI aims to introduce a new way of measuring Islamic finance development by combining data from different sectors of the industry. It helps to facilitate further comprehension of how the different parts of the market are developing over time.

In this study, the two selected variables of IFDI are as follows:

i **Islamic Banking development**

Islamic banking is a banking activity, which operates according to the law prescribed by Shari'ah. In this study, the development of Islamic banking is represented by two proxies. The first proxy of concern is the Islamic banking asset of the country (IBasset) in local currency. The second proxy is the number of Islamic Banks operating in the country (IBnum).

ii Islamic funds development

In this study, the development of Islamic funds is indicated by two proxies. The first proxy is the total net asset value of Islamic funds in the country (IFnav) in local currency. The second proxy is the number of Islamic funds from all fund types, which are available in the market of the country (IFnum).

3.5 Panel Data Analysis

This study employs panel data analysis as the estimation technique. Previous studies in this topic mostly employed the static panel analysis, such as the ordinary least squared method and fixed-effect method. However, Benson & Humphrey (2008) has employed the generalized method of moment estimation (GMM). Panel data analysis is suitable as it examines the individual-specific effect, time effect, or both in order to deal with heterogeneity or individual effect (cross-sectional or time-specific effect) that may or may not be observed.

Frees (2004) and Hsiao et al. (1985) outlined some advantages of panel data that can give more accurate, as well as efficient results in exploring the parameter of the coefficient. The reason is that larger samples and the period (large observations) in panel data can reduce the standard error in the model regression, and the collinearity problem among the independent variable will be minimized as the degree of freedom increases. Also, there are several panel data advantages, as outlined by Baltagi (2013). First, it allows the measurement of the heterogeneity of individuals over time, whereby, it takes into account the effect of any omitted variables in the model. Second, panel data give informative variability of data. Moreover, the data are less collinear among variables, more degree of freedom, and more is efficient since it combines the element of individuality and time effect. Third, panel data are better suited to study the dynamics of change, which allow the study on the long-term adjustment of a different unit. Fourth,

panel data can better measure the effect that cannot be observed in pure cross-sectional and time series data.

3.5.1 Diagnostic Tests for Panel Data

The diagnostic tests should be implemented to identify the problems that might exist in the model as well as among the variables**.** These tests are initially done in order to assess the presence of an econometric problem in the estimation model. There are several diagnostic tests in panel data, including the panel unit root test, multicollinearity test, heteroskedasticity test and autocorrelation test.

Unit root test

Since panel data is the combination of time series data and cross-sectional data, thus panel data might be facing the problem of non-stationary. The non-stationary variable is one of the problems faced by time-series data; thus, is it essential to run the unit root test for stationarity on panel data variables. Non- stationary variables will render the regression to be spurious and nonsense. According to Baltagi (2013), the idea of the unit root is that the coefficient of the lagged dependent variable is assumed to be homogenous across all cross-section units in the panel. The tests for a unit root employed in this thesis are:

i. Pesaran-Shin panel unit root test

This test is based on the IPS test (Im et al., 2003). The basic idea of this test is assuming that H_1 $\rho_1 = \rho_2 = \ldots . \rho_N$. Consider the *t*- test for each cross- section units is based on *T* observation. Let $t_{i,T}(i = 1,2, \ldots \ldots, N)$ denote the t-statistic for testing the unit roots, and let $E(t_{i,T}) = \mu$ and $V(t_{i,T}) = \sigma^2$.According to Maddala & Wu (1999), the IPS test combines the evidence on the unit root hypothesis from the N unit root tests performed on the N cross-section units as equation 3.5 below.

$$\sqrt{N}\ \frac{(t_{N,T}-\mu)}{\sigma} => \textit{where,}\ \mathrm{N}\ (0,1)\ \ t_{N,T} = \frac{1}{N}\sum_{i-t}^{N} t_{i,t} \qquad \textbf{3.5}$$

Where, the implicit in the test is the assumption that T is the same for all cross-section units and hence $E(t_{i,T})$ and $V(t_{i,T})$ are the same for all *i*. In the case of serial correlation, it is suggested by IPS to use the ADF t-test for individual series. However, $E(t_{i,T})$ and $V(t_{i,T})$) will vary as the lag length included in the ADF regression varies. They tabulate $E(t_{i,T})$ and $V(t_{i,T})$ for different lag lengths.

ii. Augmented Dickey-Fuller test (ADF)

The ADF test is conducted by adding the lagged value of the dependent variable, ΔY_t into the equation as follow:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} \sum_{i=1}^{m} \alpha i\, \Delta Y_{t-1} + \varepsilon_t \qquad \textbf{3.6}$$

Where, ε_t is pure white noise error term and where ΔY_{t-1}= $(Y_{t-1} - Y_{t-2})$, where ΔY_{t-2}= $(Y_{t-2} - Y_{t-3})$. The number of lagged difference term to include is often determined empirically; the idea is to include enough terms so that the error term is serially uncorrelated to obtain the unbiased estimation (Gujarati & Porter, 2009).

iii. Fisher-type test

The Fisher-type test was developed by Maddala & Wu (1999) and Choi (2001). It is a combination of *p*-values and *t*-statistic for testing the existence of a unit root in each cross-sectional unit, which can be performed either based on ADF test or Phillips Perron test. This test does not require balance data only, and it can be used for unbalanced panel data. Besides that, the lag of lengths of the individual ADF tests is allowed to differ. The null

hypothesis stated that all panels contain a unit root, which is similar to the other unit root tests. The formula of the test looks as follows:

$$p = -2\sum_{i=1}^{N} lnp_i \qquad \textbf{3.7}$$

The test is asymptotically chi-square distributed with 2N degrees of freedom ($Ti \rightarrow \infty$ for finite N).

Multicollinearity Test

Multicollinearity refers to the high correlation among independent variables and that weaken the predicting power of independent variables and reduce the total variance explained in the dependent variables (Hair, 2006). The Variance Inflation Factor (VIF) test is used to examine the existence of multicollinearity in the panel data. If the VIF result is smaller than 10, it can be concluded that all independent variables did not suffer from multicollinearity problem.

Heteroskedasticity test

Heteroskedasticity problem may exist in a panel data estimator. It is because the panel data involves different samples and variance, and they are not constant across the observations. Hence, the existence of heteroskedasticity can be tested by using Modified Wald test.

Autocorrelation test

A linear regression model assumes that the autocorrelation does not exist in the disturbances, *u*. In this sense, the model assumes that the disturbance term relating to any observation is not influenced by the disturbance term relating to any other observation.

The existence of autocorrelation can be tested using the Wooldridge test for autocorrelation in panel data.

3.5.2 Static Panel Data Analysis

The static panel data estimation includes the ordinary least squares method (OLS), the fixed-effect model (FEM) and the random effect model (REM). The specific tests will determine the most appropriate model to be used. The Breusch and Pagan Lagrangian Multiplier test is used in order to choose between the OLS or REM. The Hausman test is used to choose between the REM and FEM.

Ordinary Least Square (OLS)

If the individual effect does not exist, the OLS estimation will produce efficient and consistent parameters.

$$Y_{it} = \alpha + X_{it}\beta + u_{it} \qquad \textbf{3.8}$$

Where, $u_{it} = \mu_i + \lambda_t + \nu_{it}$

$$\mu_i + \lambda_t = 0$$

OLS consist of five core assumptions which as follows:

i Linearity in parameter

ii Exogeneity: Disturbances are not correlated with any regressor.

iii Disturbances have constant variance (homoscedasticity) and are not related to each other (no autocorrelation).

iv The observations on the independent variable are not stochastic but fixed in repeated samples without measurement errors.

v No multicollinearity problem.

If the individual effect does not equal to zero, the heterogeneity or individual-specific characteristics that are not captured in the regressors may influence the second and third assumptions. If the second assumption is violated, it may render the random-effect estimator to be biased. Hence, the OLS estimator is no longer the best unbiased linear estimator (BLUE).

Random Effect Model (REM)

A random-effect model (REM) explores the differences in error variance component across individual or periods.

$$Y_{it} = \alpha + X'_{it}\beta + \mu_i + \lambda_t + \nu_{it} \qquad \textbf{3.9}$$

REM assumes that the individual effects (heterogeneity) are not correlated with any regressor; while, the estimate error variance is specific to a group (or time). Hence, u_i is an individual specific random heterogeneity of the composite error term. The intercept and the slopes of regressors are the same across individuals. Thus, the difference among individuals or periods lies in their specific errors, not in their intercepts.

There are several advantages of REM, as discussed by Hsiao (2007). First, the number of parameters remains constant when N increases. Second, it allows the derivation of efficient estimators that make use of both within and between-group variations. Third, it allows the estimation of the impact of time-invariant variables.

Fixed Effect Model (FEM)

A fixed-effect model examines if intercept varies across groups or periods.

$$Y_{it} = \alpha + \mu_i + \lambda_t + X_{it}\beta + \nu_{it} \quad \textbf{3.10}$$

Where $\alpha + \mu_i + \lambda_t$ show a different intercept for each variable.

Since the variables' specific effect is time-invariant and considered as part of the intercept; thus, the individual effect is allowed to be correlated with the other regressors. Hence, the second assumption of OLS is not violated. The model is called the fixed effect because, although the intercept may differ across subject (funds), each entity's intercept does not vary over time or known as time-invariant.

3.5.3 Dynamic Panel Data

In addition to static panel data estimations, in order to produce efficient estimation, this study further estimates the data by using the dynamic panel data estimation, specifically the Generalized Method of Moment (GMM). The dynamic panel data with the ability of first differencing is a tool to remove the unobserved heterogeneity problem in the regression.

This model is developed by Hansen (1982), the Arellano-Bond GMM estimator was originated by Arellano & Bond (1991). The dynamic GMM estimator is employed as instrumental lag values of the dependent variable in terms of levels and differences. Besides that, Schaffer, Baum, & Stillman (2003) suggested that this technique should also be used to deal with the problems of endogeneity, heteroskedasticity, and autocorrelation in panel data. This estimation technique is a better estimation than the OLS method and the Generalized Least Squares (GLS) method.

However, the use of lagged dependent variable could be a poor instrument if there is a serial correlation in the errors that may cause the estimator to become imprecise and biased. Due to these weaknesses observed in differenced GMM estimator, Areliano & Bover (1995) and Blundell & Bond (1998) further introduced the System GMM estimator which was believed to be more efficient than the differenced GMM especially when the time variable is smaller than the number of the cross-sectional. The System GMM comprises of two types of simultaneous equations in which one equation is in the lagged difference of the dependent variable as instruments for the equation in levels while the other is the lagged levels of dependent variables as instruments for the equation in first difference.

3.5.4 Diagnostic Tests for GMM

In order to certify the consistency of the GMM estimator, this study employs two post-estimation tests. The first test is the overidentifying restrictions test by using the Sargan test in order to ensure the validity of the instruments. Failure to reject the null hypothesis indicates that the instruments are valid and can be used in the regression.

i The Validity of Instruments (Sargan Test)

A test for the validity of the over-identifying restrictions called the Sargan test is employed. Sargan (1958) test or *J*-test is also known as the Hansen test by Hansen (1982). The null hypothesis for this test is that all the instruments are valid. The null hypothesis should not be rejected in order to proceed with GMM estimation. The rejection of the null hypothesis indicates that at least one of the instruments is not valid.

ii Autocorrelation of Residuals (Arellano- Bond Test)

The second test is the Arellano-Bond test for autocorrelation. GMM estimators are expected to have the first-order autocorrelation, but the crucial requirement for GMM estimators to be consistent is the absence of second-order autocorrelation. If the autocorrelation exists, some lags are the invalid instruments and should be removed from the instrument set. Arellano & Bond (1991) developed a test for the serial correlation in the disturbance term. However, the absence of second-order autocorrelation is the critical condition that should be satisfied. Therefore, the test should reject the null hypothesis of no first-order autocorrelation AR(1) but it should not reject the null hypothesis of there is no second-order serial correlation AR(2) (Roodman, 2009). Thus, the Arellano-Bond test specifies that the estimates are consistent if there is no second-order autocorrelation.

In this study, if these GMM requirements are not satisfied, all the analysis are not able to be estimated further using the GMM estimation. Hence, the results generated from the static panel estimations will be used. Table 3.1 illustrates the flow of panel data analysis employs throughout the analysis of this study.

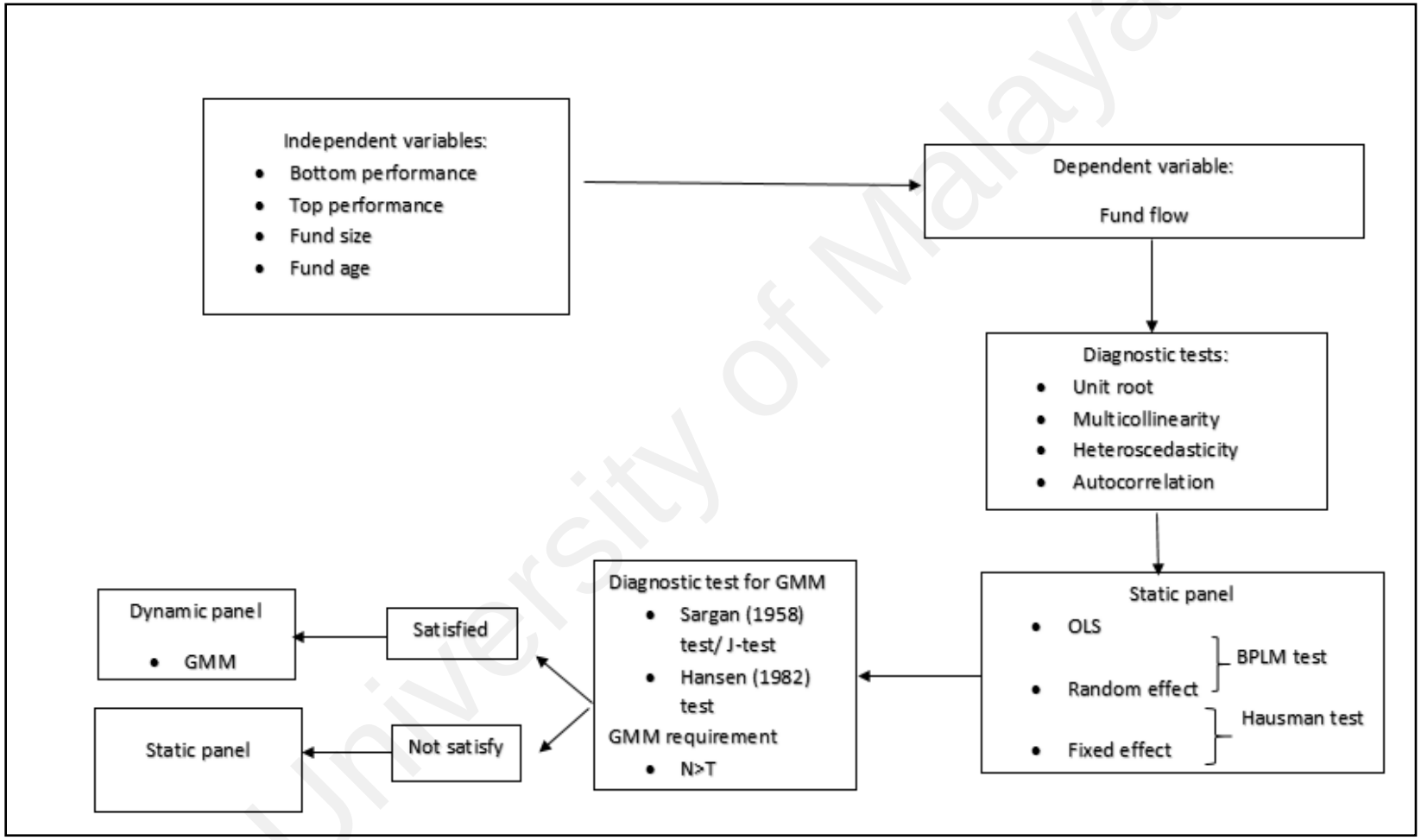


Figure 3.1: Flow of Panel Data Analysis

3.5.5 Regression Models

Based on Bollen (2007), the coefficients in the fund flow-performance relationship are interpreted in term of money inflows and outflows by investors. A positive coefficient following a positive performance corresponds to an increase in cash inflow. It indicates that for every 1% increase in a fund, positive performance will increase cash inflow. Whereas, positive coefficients on negative performance corresponds to a cash outflow. It indicates that for every 1% decrease in a fund, negative performance will increase cash outflow. Besides, Benson & Humphrey (2008) suggested that positive (negative) coefficient on performance variable implies that investors are more (less) sensitive to fund performance. Whereas, an insignificant relationship implies that fund flows are not related to the fund's performance in which investors did not react to the fund's performance.

For the first objective of this study, the fund flow is modelled as a function of current and past fund performance based on the total return performance measures followed by the control variables. The equation is modelled as:

$$\boldsymbol{FF_{i,t} = \beta + \beta_1 FP_{i,t} + \beta_2 LN(size) + \beta_3 LN(age)_{i,t} + \varepsilon_{i,t}} \quad \textbf{3.11}$$

Where,

$FF_{i,t}$ = Fund flow at time *t*

$FP_{i,t}$ = Fund performance measured in total return

$LN(size)_{i,t}$ = the natural logs of a total net asset of fund *i* at time *t*

$LN(age)_{i,t}$ = the natural logs of the age of fund *i* at time *t*

$\varepsilon_{i,t}$ = Error term

Equation 3.11 will be the base model for the fund flow-performance relationship. In order to examine the differences in the fund flow-performance relationship for the best-performing and poor-performing funds, the funds are divided into bottom performance, mid-performance and top performance. In the manner of Benson and Humphrey (2008), the dummy variables are assigned for the bottom, mid and top performers. However, only the bottom and top performances are included in the regression in order to avoid the dummy trap. Equation 3.11 is augmented as follows:

$$\boldsymbol{FF_{i,t} = \beta + \beta_1 FP_{i,t} * Dbot_{i,t} + \beta_2 FP_{i,t} * Dtop_{i,t} + \beta_3 LN(size)_{i,t} + \beta_4 LN(age)_{i,t} + \varepsilon_{i,t}} \quad \textbf{3.12}$$

Where,

$\boldsymbol{Dbot_{i,t}}$= Dummy variable: 1 for fund bottom performance, 0 otherwise

$\boldsymbol{Dtop_{i,t}}$= Dummy variable: 1 for fund top performance, 0 otherwise

Equation 3.12 estimates the regression in the current performance. Besides, in the manner of Benson and Humphrey (2008), lag-1, lag-2, lag-3 and lag-13 are assigned to re-estimate the regression in the past performances. The current study did not employ the optimal lag method to determine the lag to be used since the regression analysis is run using a static panel estimation instead of the panel autoregressive distributed lag (ARDL) approach.

Meanwhile, for the fourth objective of this study, the equations are modelled in the way that the fund flow is regress on the fund bottom and top performance, which are interacted with the proxies for IFDI variables and the control variables, which had been previously addressed. The equations are as follows:

$$\boldsymbol{FF_{it} = \beta + \beta_1 FPbot_{i,t} * LN(Ibasset) + \beta_2 FPtop_{i,t} * LN(Ibasset) + \beta_3 LN(size)_{i,t} + \beta_4 LN(age)_{i,t} + \beta_5 LN(Ibasset) + \varepsilon_{i,t}} \quad \textbf{3.13}$$

$$\boldsymbol{FF_{it} = \beta + \beta_1 FPbot_{i,t} * LN(Ibnum) + \beta_2 FPtop_{i,t} * LN(Ibnum) + \beta_3 LN(size)_{i,t} + \beta_4 LN(age)_{i,t} + \beta_5 LN(Ibnum) + \varepsilon_{i,t}} \quad \textbf{3.14}$$

$$\boldsymbol{FF_{it} = \beta + \beta_1 FPbot_{i,t} * LN(Ifnav) + \beta_2 FPtop_{i,t} * LN(Ifnav) + \beta_3 LN(size)_{i,t} + \beta_4 LN(age)_{i,t} + \beta_5 LN(Ifnav) + \varepsilon_{i,t}} \quad \textbf{3.15}$$

$$\boldsymbol{FF_{it} = \beta + \beta_1 FPbot_{i,t} * LN(Ifnum) + \beta_2 FPtop_{i,t} * LN(Ifnum) + \beta_3 LN(size)_{i,t} + \beta_4 LN(age)_{i,t} + \beta_5 LN(Ifnum) + \varepsilon_{i,t}} \quad \textbf{3.16}$$

$FF_{i,t}$ = fund flow at time *t*

$FPbot_{i,t}$ = bottom fund performance measured in total return

$FPtop_{i,t}$ = top fund performance measured in total return

$LN(Ibasset)$ = the natural log of Islamic banking asset

$LN(Ibnum)$ = the natural log of the number of Islamic banks

$LN(Ifnav)$ = the natural log of Islamic fund NAV

$LN(Ifnum)$ = the natural log of the number of Islamic funds

LN(size) = the natural log of fund size measured by fund TNA

LN(age) = the natural log of fund age

$\varepsilon_{i,t}$ = error term

Equations model 3.13 and 3.14 measure the relationship between the fund flows against the interaction of fund performance with the proxies of Islamic banking development. While equation 3.15 and 3.16 measure the relationship between the fund flows against the interaction of fund performance with the proxies of Islamic fund development. Each model is regressed separately as combining all in one model would render a serious multicollinearity problem.[8]

3.6 Chapter Summary

This chapter mainly explains the design of the research framework formulated by discussing the research approach. The data selection procedure is specified in which the study period takes place from 2007 to 2019[9]. The key variables are specified, in which the fund flow is the dependent variable; while the independent variables are the fund performance, which is measured, in total return followed by control variables that comprise of the fund total net asset and fund age. Furthermore, the hypotheses are formulated based on the discussion from the related theories and literature. The underlying assumption underlies the

[8] Based on VIF test.

[9] The study period has been extended to 2019 where in the earlier version of this thesis, the study period took place from 2007 to 2015.

fund flow-performance relationship of IEFs is based on the notion that IEFs investors' decision is assumed to be influenced by the non-financial aspects or personal values which is also regarded as the additional utility to the traditional returns and risk optimization of the Portfolio theory. This chapter has also introduced the relevant preliminary test and the estimation techniques to be used. The main estimation method is panel data analysis. Also, the most appropriate model to be used shall be determined by the diagnostic tests for panel data. Finally, all the regression models are specified.

CHAPTER 4: RESULTS

4.1 Introduction

In chapter three, a detailed discussion of the research methodology and research design has been presented. This chapter shall present the analysis and the results that sought to answer the research questions of this study. The current study employs the panel data analysis as the estimation technique. Panel data analysis is suitable as it examines the individual-specific effect, time effect, or both in order to deal with heterogeneity or individual effect (cross-sectional or time-specific effect) that may or may not be observed. The two types of panel data analysis related to the current study are the static panel and the GMM estimator. However, after testing for the suitability, the two GMM requirements are not met by all the samples. Moreover, GMM estimator was designed for a situation with small T (period) and large N (number of cross-sectional or groups) (Hansen, 1982). After testing for the suitability, the current study does not satisfy this requirement since the study period of the data consists of 12 years of monthly data, which equal to 144 months. Thus, the period is larger than the number of cross-sectional (T>N). Therefore, the analysis is not suitable to be further estimated with GMM estimation. Hence, all estimations shall be analysed with the static panel estimator.

This chapter is organized as follows: Section 4.2 presents the preliminary analysis, section 4.3 presents the estimation findings for fund flow-performance relationship of overall IEFs and the comparison with CEFs, section 4.4 presents the findings for individual country IEFs as well as the comparison with CEFs. Section 4.5 presents the results obtained to answer the fourth research question. Finally, section 4.6 summarises the chapter.

4.2 Preliminary Analysis

This section presents the preliminary structures of all the variables used in this study. Section 4.2.1 presents the descriptive analysis; section 4.2.2 presents the correlation analysis among the variables, and section 4.2.3 presents the unit root analysis.

4.2.1 Descriptive analysis

Descriptive analysis of the variables used in this study is presented in Table 4.1. It comprises of the descriptive statistic for the dependent and independent variables for both IEFs and CEFs for Malaysian, Saudi Arabian, and Indonesian. The number of observations the mean, the standard deviation, minimum and maximum for each variable is reported.

Table 4.1: Descriptive statistic for Dependent and Independent variables

Variables	Obs	Mean	Std. Dev	Max	Min
Malaysia Islamic equity funds					
Fund flow (%)	N= 10684 n = 74	0.7780	7.740987	76.9781	-67.2160
Total return (%)	N = 10722 n = 74	0.1745	3.853175	37.2141	-37.8313
Size (myr mill)	N = 10764 n = 74	361.4441	842.0379	5,975.99	0
Fund age (months)	N = 10775 n = 74	128.3346	110.9551	615	0
Malaysia conventional equity funds					
Fund flow (%)	N = 22534 n = 150	0.1478	7.0231	68.5728	-62.7451
Total return (%)	N = 22552 n = 150	0.1559	3.606868	52.64228	-53.30189
Fund size (myr mil)	N = 22683 n = 150	234.6362	708.8595	10427.14	0.107
Fund age (months)	N = 22684 n = 150	151.0164	108.79	636	1
Saudi Arabia Islamic Equity Funds					
FUND FLOW (%)	N = 6990 n = 49	-0.6586	8.1273	66.5967	-67.1178
TOTAL RETURN (%)	N = 7020 n = 49	0.4881	5.8681	44.6125	-35.2284
FUND SIZE (SAR MILL)	N = 7039 n = 49	317.1275	617.2953	4821.63	0.0527
FUND AGE (MONTHS)	N = 7059 n = 49	113.0708	70.11117	331	0
Saudi Arabia Conventional Equity Funds					
Fund flow (%)	N = 3706 n = 31	-0.7714	9.1010	78.2154	-75.2798
Total return (%)	N = 3719 n = 31	.4059645	6.059115	39.82301	-33.87909
Fund size (sar mill)	N = 3737 n = 31	243.736	527.3532	4416.813	0.0174
Fund age (months)	N = 3744 n = 31	98.7383	76.8541	331	0

Table 4.1: Descriptive statistic for the variables in this study (continued)

Variables	Obs	Mean	Std. Dev	Max	Min
Indonesia Islamic Equity Funds					
Fund flow (%)	N = 1342 n = 11	-0.0373	13.2236	91.7691	-91.3974
Total return (%)	N = 1342 n = 11	0.4756	6.1466	37.2164	-29.0142
Fund size (idr triill)	N = 1353 n = 11	162398.1	200248.1	1, 193. 14	1000
Fund age (months)	N = 1360 n = 11	72.2985	44.8157	187	0
Indonesia conventional equity funds					
Fund flow (%)	N = 16691 n = 129	0.6384	11.0618	74.1317	-69.8434
Total return (%)	N = 16721 n = 129	0.6079	4.9266	45.1071	-49.0054
Fund size (idr trill)	N = 16876 n = 129	582375.7 0	1481628	1.84	0
Fund age (months)	N = 16874 n = 129	95.25732	60.38492	282	0

For Malaysian funds, the mean of fund flow for IEFs is positive at 0.77% with a standard deviation of 7.74%. Meanwhile, the mean of fund flow for CEFs is positive at 0.64% with a standard deviation of 13.23%. It implies that on average, Malaysian funds experienced money inflow into funds where cash outflow into IEFs is more than money inflows into CEFs by 0.13%. For fund performance, in 13 years, the mean of total return in IEFs is 0.17% as compared to 0.15% in CEFs. The maximum total return obtained by IEFs was 37.21%, which is lower than the maximum total return obtained by CEFs, which was 52.64%. Other than that, the maximum fund size of IEFs is RM5, 975.99 million, which is equal to USD 1,396.48 million while, the maximum size of CEFs, is RM10, 427.14 million, which is equal to USD 2,436.48 million. The older fund in the sample is 51 years and 53 years for IEFs and CEFs, respectively.

For Saudi Arabia funds, the mean of fund flow for IEFs is negative by 0.66% with a standard deviation of 7.74%. Meanwhile, the mean of fund flow for CEFs is negative by 0.77% with a standard deviation of 9.12%. It implies that in average Saudi Arabian funds experienced money outflows from funds whereby CEFs outflow is higher than IEFs by 0.11%. The mean of total return is 0.488% and 0.406% For IEFs and CEFs respectively. The maximum total return obtained by IEFs was 44.61%, which is higher than the maximum total return obtained by CEFs, which was 39.82%. The largest fund size for IEFs was SAR 4, 821.63 million, which equal to USD 1, 285.6 million. Meanwhile, the largest fund size of CEFs was SAR 4, 416.81 or USD 1, 177.82. Whereas, the oldest Saudi Arabian IEFs and CEFs in the sample are both 27 years.

For Indonesian funds, the mean of fund flow of IEFs is negative by 0.073% with 13.22% standard deviation. The mean of fund flow, on the other hand, is positive by 0.6384% with 11.06% standard deviation. The figures show that on average, IEFs experienced money outflows while CEFs received money inflows. The fund size of IEFs was IDR 1, 193.14 trillion or USD 84.23 million while the fund size of CEFs was IDR 18, 352.46 trillion, which equals to USD 1, 296.99 million. The oldest IEFs for Indonesian funds is 15 years while 23 years for CEFs funds.

In addition to Table 4.1, the descriptive statistic for Islamic Financial development indicators variables is presented in Table 4.2.

Table 4.2: Descriptive Statistics of Islamic banking and Islamic funds development

	Obs	Mean	Std. Dev	Max	Min
Malaysia					
Ibasset (MYR billion)	N = 11544 n = 74	4.05	2.10	8.18	7.12
Ibnum	N = 11544 n = 74	15.6537	1.6473	17	11
Ifnav (MYR billion)	N = 11544 n = 74	4.34	2.52	9.12	1.07
Ifnum	N = 11544 n = 74	177.3782	35.6886	238	94
Saudi Arabia					
Ibasset (SAR billion)	N = 7644 n = 49	9.36	2.61	4.34	1.36
Ibnum	N = 7644 n = 49	4	0	4	4
Ifnav (SAR billion)	N = 7644 n = 49	1.01	1.57	7.48	1.60
Ifnum	N = 7644 n = 49	172.7949	14.3575	198	140
Indonesia					
Ibasset (IDR trillion)	N = 1716 n = 11	2.18	1.49	5.25	2.69
Ibnum	N = 1716 n = 11	10	3.6455	14	3
Ifnav (IDR trillion)	N = 1716 n = 11	1.24	1.25	5.73	1.27
Ifnum	N = 1716 n = 11	89.8846	69.2304	265	20

Note:

Ibasset = Islamic banking asset Ifnav = Islamic fund NAV

Ibnum = number of Islamic bank Ifnum = number of Islamic fund

Table 4.2 presents the descriptive analysis of four variables employed in the regression to indicate Islamic banking and Islamic funds development throughout 2007-2019. As the pioneer country operating Islamic financial system, Malaysia has 17 fully-fledged Islamic banks with RM 8.18 billion or USD 1.91 billion of total asset. Saudi Arabia owns Islamic banking assets amounted to SAR 4.34 billion USD 1.16 billion with five fully-fledged Islamic banks in the country. Whereas, Indonesia owns 12 fully-fledged Islamic banks with a total asset of IDR 5.25 trillion or USD 0.37 billion.

Furthermore, in the Islamic funds' sector, as of December 2019, Malaysia owns 238 Islamic funds with RM 9.12 billion or USD 2.13 billion of net asset value. Meanwhile, Saudi Arabia owns 198 Islamic funds with SAR 7.48 billion or USD 1.199 billion of net asset value. Whereas, Indonesia owns 265 Islamic funds with IDR 5.73 trillion or USD 1.52 billion of net asset value.

4.2.2 Correlation coefficient analysis

Before estimating the model's equations, the correlation structure between the variables in these studies was first determined. The correlation analysis explains the relationship between variables, which also examines the directions and the degree of the strength of the relationship between variables. According to Cohen's guidelines, a correlation coefficient between 0.3 and 0.49 is regarded as moderately strong, while a value of higher than 0.5 indicates the high strength of the relationship.

Furthermore, if the high correlation between any two independent variables exists, it might be a sign of multicollinearity problem. According to Pallant (2010), a correlation coefficient value of above 0.7 indicates the presence of multicollinearity and highly

recommended to remove one of the variables showing the high *R*-value in the inter-correlated independent variables from the model being tested since it might influence the model estimation and affect the statistical significance of the variables. Moreover, multicollinearity also exhibits when two separate variables are truly measuring the same thing. The correlation matrix of dependent and non-dummy independent variables for this study for IEFs and CEFs are presented in Table 4.3 and Table 4.4.

Table 4.3: Correlation Matrix of Dependent and Independent (non-dummy) variables -Islamic equity funds (IEFs)

	Flow	Total return	ln(size)	ln(age)
Panel A: Overall IEFs				
Flow	1.0000			
Total return	-0.120***	1.0000		
ln(size)	0.0237***	0.0076***	1.0000	
ln(age)	-0.0644***	-0.0089***	-0.0034***	1.0000
Panel B: Malaysia IEFs				
Flow	1.0000			
Total return	0.0165***	1.0000		
ln(size)	0.0588***	-0.0215***	1.0000	
ln(age)	-0.0838***	-0.0077***	0.1041***	1.0000
Panel C: Saudi Arabia IEFs				
Flow	1.0000			
Total return	-0.2303***	1.0000		
ln(size)	-0.0280***	0.0031***	1.0000	
ln(age)	0.0187***	0.0200***	0.2167***	1.0000
Panel D: Indonesia IEFs				
Flow	1.000			
Total return	-0.1835***	1.000		
ln(size)	-0.1299***	-0.0513***	1.000	
ln(age)	0.0996 ***	0.0174***	-0.0959***	1.000

Note: *** Correlation is significant at 0.01 level (2-tailed). ** Correlation is significant at the 0.05 level (2-tailed).

Table 4.3 highlights the ordinary correlation coefficients between variables for IEFs for 2007-2019. Although the correlation is low, they are statistically significant. It is shown that except for Malaysia (0.0165), flow is significant and negatively correlated with a total return for overall IEFs (-0.120), Saudi Arabia (-0.2303) and Indonesia (-0.1835). Furthermore, flow also positively correlated with ln(size) in the overall IEFs (0.0237) and Malaysian IEFs (0.0588), while negatively correlated with Saudi Arabian IEFs (-0.0280) and Indonesian IEFs (-0.1299). Finally, Flow is significant and negatively correlated with ln (age) of overall (-0.0644) and Malaysian IEFs (-0.0838) while positively correlated with Saudi Arabian (0.0187) and Indonesian IEFs (0.0996).

Table 4.4: Correlation Matrix of Dependent and Independent (non-dummy) variables - Conventional equity funds (CEFs)

	Flow	Total return	ln(size)	ln(age)
Panel A: Overall CEFs				
Flow	1.0000			
Total return	0.0116***	1.0000		
ln(size)	0.0353***	0.0454***	1.0000	
ln(age)	-0.0543***	-0.0323***	-0.1666***	1.0000
Panel B: Malaysia CEFs				
Flow	1.0000			
Total return	-0.2390***	1.0000		
ln(size)	0.0552***	-0.0050***	1.0000	
ln(age)	-0.0299***	-0.0214***	0.1713***	1.0000
Panel C: Saudi Arabia CEFs				
Flow	1.0000			
Total return	-0.1052***	1.0000		
ln(size)	0.0359***	0.0397***	1.0000	
ln(age)	-0.0447***	0.0338***	0.2880***	1.0000
Panel D: Indonesia CEFs				
Flow	1.0000			
Total return	0.1932***	1.0000		
ln(size)	0.0536 ***	0.0114***	1.0000	
ln(age)	-0.0732***	-0.032***5	0.1029***	1.0000

Note: *** Correlation is significant at 0.01 level (2-tailed). ** Correlation is significant at the 0.05 level (2 tailed).

Furthermore, Table 4.4 reports the correlation coefficients between dependent variables and independent variables for CEFs. It is shown that flow is significantly correlated with all other variables even though the correlation coefficients are low. Specifically, Flow is positively correlated with the total return for overall (0.0116) and Indonesian CEFs (0.1932) while negatively correlated with Malaysian (-0.2390) and Saudi Arabian CEFs (-0.1052). It is also shown that flow is positively correlated with ln(size) in all groups while negatively correlated with ln(age) in all groups.

Table 4.5 reports the Pearson pairwise correlation coefficients for the Islamic financial development indicator variables for 2007-2019. The correlation between the flows with the four IFDI variables is low and statistically significant for all countries. Specifically, except for Ifnav in Saudi Arabian IEFs, flow is negatively correlated with all the IFDI variables.

Table 4.5: Correlation Matrix for Dependent variable and Islamic Financial Development Indicator Variables

	Flow	Total return	ln(Ibasset)	Ibnum	Ifnav	Ifnum
Malaysia						
Flow	1.0000					
Total return	0.0165***	1.0000				
ln(Ibasset)	-0.0430***	-0.0186***	1.0000			
ln(Ibnum)	-0.0165***	0.0599***	0.5353***	1.0000		
ln(Ifnav)	-0.0318***	-0.0292***	0.9722***	0.3593***	1.0000	
ln(Ifnum)	-0.0462***	-0.0573***	0.9876***	0.4838***	0.9799***	1.0000
Saudi Arabia						
Flow	1.0000					
Total return	-0.2303***	1.0000				
ln(Ibasset)	-0.0150***		1.0000			
ln(Ibnum)	-	-	-	-		
ln(Ifnav)	0.0184***	0.0098***	0.6543***	-	1.0000	
ln(Ifnum)	-0.0116***	-0.1691***	0.5235***	-	-	1.0000
Indonesia						
Flow	1.0000					
Total return	-0.1835***	1.0000				
ln(Ibasset)	-0.1041***	-0.0782***	1.0000			
ln(Ibnum)	-0.1230***	-0.0121***	0.8809***	1.0000		
ln(Ifnav)	-0.1045***	-0.0578***	0.9295***	0.7838***	1.0000	
ln(Ifnum)	-0.1174***	-0.0655***	0.9094***	0.7473***	0.9732***	1.0000

Note: This table presents the correlation results between fund flow (dependent variable) with Islamic banking and Islamic funds development variables. * 10% significant level, ** 5% significant level and *** 1% significant level.

Flow = Fund flow
Total return = Fund performance measured in total return
ln(Ibasset) = Natural log of Islamic banking asset
ln(Ibnum) = Natural log of number of Islamic bank
ln(Ifnav) = Natural log of Islamic fund NAV
ln(Ifnum) = Natural log of number of Islamic fund

4.2.3 Unit Root Analysis

Table 4.6 presents the results of unit root tests by using Im-Pesaran-Shin unit-root and Fisher-type unit-root, which is based on augmented Dickey-Fuller tests on all non-dummy variables of all samples of IEFs. The results in Panel A, B and C show that all testing reject the null hypothesis on all variables, which indicate that all variables are stationary at level for Malaysian, Saudi Arabian, and Indonesian funds. Hence, all variables in all samples are satisfied for further analysis.

Meanwhile, Table 4.7 presents the results of unit root tests by using Im-Pesaran-Shin unit-root and Fisher-type unit-root, which is based on augmented Dickey-Fuller tests on all non-dummy variables for CEFs data. The results in Panel A, B and C show that all testing reject the null hypothesis on all variables, which indicate that all variables are stationary at level. Therefore, all variables in all samples are satisfied for further analysis.

Table 4.6: Unit Root Test for Stationarity for Islamic Equity Funds (IEFs)

Variables (non-dummy)	IPS Test	FT test
Panel A: Malaysian IEFs		
Flow	-61.7412***	-50.0601***
Total return	-68.2757***	-56.4171***
ln(size)	-4.5856***	-2.6233***
ln(age)	-96.3627***	-65.9420***
Panel B: Saudi Arabian IEFs		
Flow	-61.4669***	-50.6160***
Total return	-53.7013***	-45.9172***
ln(size)	0.0510	-2.0496**
ln(age)	-77.8005***	-55.8584***
Panel C: Indonesian IEFs		
Flow	-22.8885***	-19.2353***
Total return	-23.4877***	-18.9451***
ln(size)	-0.8588***	-0.8588***
ln(age)	-30.5878***	-26.9505***
Panel D: Overall IEFs		
Flow	-89.6109***	-73.3201***
Total return	-89.9437***	-75.1196***
ln(size)	-3.4722***	-3.4349***
ln(age)	-1.3e+02***	-65.9420***

Note: *** Significant at 0.01 level, ** significant at the 0.05 and * significant at 0.10 level

IPS	Im-Pesaran-Shin
FT	Fisher-type unit-root test
Flow	Fund flow
Total return	Fund performance in total return
LN(size)	Natural log of fund size
LN(age)	Natural log of fund age

Table 4.7: Unit Root Test for Stationarity for Conventional equity funds (CEFs)

Variables (non-dummy)	IPS Test	FT test
Panel A: Malaysian CEFs		
Flow	-1.0e+02***	-82.2856***
Total return	-1.0e+02***	-84.9716***
ln(size)	-1.0e+02***	-0.2938***
ln(age)	-	-95.1719***
Panel B: Saudi Arabian CEFs		
Flow	-41.3627***	-35.2780***
Total return	-37.1238***	-32.7114***
ln(size)	0.2501	-1.6482**
ln(age)	-53.3541***	-55.8584***
Panel C: Indonesian CEFs		
Flow	-78.7448***	-66.9105***
Total return	-81.3464***	-69.9582***
ln(size)	-5.4836***	-3.6889***
ln(age)	-1.2e+02***	-92.2924***
Panel D: Overall CEFs		
Flow	-1.4e+02***	-111.5817***
Total return	-1.4e+02***	-114.5989***
ln(size)	-	-140.0595***
ln(age)	-2.4804***	-3.0908***

Note: *** Significant at 0.01 level, ** significant at the 0.05 and * significant at 0.10 level

IPS	Im-Pesaran-Shin
FT	Fisher-type unit-root test
Flow	Fund flow
Total return	Fund performance in total return
LN(size)	Natural log of fund size
LN(age)	Natural log of fund age

Table 4.8: Unit Root Test for Stationarity for Islamic Financial Development Indicator Variables

Variables (non-dummy)	IPS Test	FT test
Panel A: Malaysian IEFs		
ln(Ibasset)	-29.7878***	-30.4952***
ln(Ibnum)	-18.2696***	-19.3746***
ln(Ifnav)	-2.2727**	-6.9203***
ln(Ifnum)	-32.6896***	-28.9867***
Panel B: Saudi Arabian IEFs		
ln(Ibasset)	-19.0665***	-18.3429***
ln(Ibnum)	-	-
ln(Ifnav)	16.1055	0.9974
ln(Ifnum)	-9.0363***	-11.8755***
Panel C: Indonesian IEFs		
ln(Ibasset)	-6.8855***	-9.8371***
ln(Ibnum)	-3.7538***	-2.4135***
ln(Ifnav)	4.3255	3.9893
ln(Ifnum)	6.5102	6.9320

Note: *** Significant at 0.01 level, ** significant at the 0.05 and * significant at 0.10 level

IPS	Im-Pesaran-Shin
FT	Fisher-type unit-root test
Flow	Fund flow
Total return	Fund performance in total return
LN(size)	Natural log of fund size
LN(age)	Natural log of fund age

Table 4.8 presents the results of unit root tests by using Im-Pesaran-Shin unit-root and Fisher-type unit-root, which is based on augmented Dickey-Fuller tests on all Islamic Financial Development Indicator (IFDI) of each country. The results in Panel A show that all testing reject the null hypothesis on all variables, which indicate that all variables are stationary at level for Malaysian funds. Meanwhile, panel B shows that LOGIFNAV for Saudi Arabian fund is non-stationary at level since either testing failed to reject the null hypothesis. Likewise, panel

C shows that both testings reject the null hypothesis on LOGIFNAV and LOGIBNUM; these indicate that these variables are non-stationary at level for Indonesian funds. Thus, in order to treat the non-stationary variables, the normal practice is to run the regression in the first difference. The subsequent section shall present the estimation results for the first research objective.

4.3 Fund Flow-performance Relationship across countries

This section presents the estimation results for the first objective, which sought to determine the sensitivity of fund flows to performance of the IEFs across countries. Specifically, this objective seeks to determine whether the relationship of fund flow to the bottom and top performers are asymmetric where the fund flow is less responsive to the bottom performing funds while more responsive to the top-performing funds.

4.3.1 IEFs across countries

This section presents the regression results for the sensitivity of fund flow to the performance of the overall IEFs in which data from the three countries are combined to form a single dataset. Before going any further, the diagnostic tests are initially done in order to assess the presence of any econometric problem in the model. The most appropriate model should be considered to produce the best estimation results.

Based on the diagnostic tests, the results of the VIF test for all the estimations to analyse the overall IEFs data are below 10, indicating the absence of multicollinearity problem among the variables. The results of the Breusch and Pagan LM test obtained for all the regressions allow the analysis for the overall IEFs to be further estimated using REM besides the OLS estimator. Further to that, the results of the Hausman test indicate that FEM is more appropriate than the REM estimator is. The problems of heteroscedasticity and autocorrelation are corrected for robust standard errors.

Table 4.9: Fund flow-performance Relationship: Overall IEFs

Dependent variable: $FF_{i,t}$						
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	3.016* (1.422)	2.615 (1.403)	2.231 (1.393)	0.810 (1.439)	-1.662 (1.628)	-1.134 (1.550)
$TR_{i,t}$	-0.205*** (0.0327)	-	-	-	-	-0.259*** (0.0323)
$TR_{i,t-1}$	-	0.455*** (0.0264)	-	-	-	0.455*** (0.0276)
$TR_{i,t-2}$	-	-	0.161*** (0.0205)	-	-	0.105*** (0.0199)
$TR_{i,t-3}$	-	-	-	0.0839*** (0.0151)	-	0.0322** (0.0116)
$TR_{i,t-13}$	-	-	-	-	-0.0614*** (0.0108)	-0.0497*** (0.0104)
$LN(size)_{i,t}$	1.160** (0.384)	1.116** (0.380)	1.196*** (0.368)	1.251*** (0.368)	1.494*** (0.349)	1.260*** (0.340)
$LN(age)_{i,t}$	-2.622*** (0.518)	-2.469*** (0.508)	-2.307*** (0.511)	-1.641** (0.544)	-0.643 (0.629)	-0.708 (0.600)
R-squared	0.024	0.080	0.017	0.008	0.005	0.102

Note: This table presents the results of the static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = the fund flow at time *t*
$TR_{i,t}$ = Fund performance measured in Total return
$LN(size)_{i,t}$ = the natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = the natural log of the fund's age i at time *t*

Table 4.9 and Table 4.10 present the estimation results of IEFs across the overall countries. Column (1) to (5) presents the results for the current performance, lag-1 month, lag-2 months, lag-3 months and lag-1 year, respectively. While column 6 presents the overall time settings in one model. Table 4.9 presents the results of the fund flow-performance relationship of the overall IEFs. The coefficients on the current and one-year lag performances are significantly negative at 1% level. At the same time, the coefficients of the first three lags of monthly performances are significantly positive at 1% level. Furthermore, in the control variables, the coefficients show that fund flow is positively related to the log of fund size across all time settings while most of the coefficients of the log of fund age are significantly negative.

Table 4.10: Fund Flow-performance Relationship in Bottom and Top Performance: Overall IEFs

Dependent variable: $FF_{i,t}$						
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	4.248** (1.463)	3.410*** (0.554)	1.994 (1.458)	0.605 (0.596)	-2.049 (1.674)	-1.809 (1.716)
$TR_{i,t} * D_{bot}$	-0.0789 (0.0409)	-	-	-	-	-0.260*** (0.0440)
$TR_{i,t} * D_{top}$	-0.370*** (0.0374)	-	-	-	-	-0.282*** (0.0351)
$TR_{i,t-1} * D_{bot}$	-	0.536*** (0.0195)	-	-	-	0.481*** (0.0331)
$TR_{i,t-1} * D_{top}$	-	0.361*** (0.0205)	-	-	-	0.418*** (0.0364)
$TR_{i,t-2} * D_{bot}$	-	-	0.146*** (0.0291)	-	-	0.0891** (0.0298)
$TR_{i,t-2} * D_{top}$	-	-	0.183*** (0.0279)	-	-	0.126*** (0.0252)
$TR_{i,t-3} * D_{bot}$	-	-	-	0.0607** (0.0199)	-	-0.0206 (0.0196)
$TR_{i,t-3} * D_{top}$	-	-	-	0.107*** (0.0210)	-	0.0915*** (0.0212)
$TR_{i,t-13} * D_{bot}$	-	-	-	-	-0.0917*** (0.0203)	-0.0689*** (0.0197)
$TR_{i,t-13} * D_{top}$	-	-	-	-	-0.0300 (0.0200)	-0.0208 (0.0184)
$LN(size)_{i,t}$	1.165** (0.383)	1.160*** (0.176)	1.202** (0.369)	1.261*** (0.182)	1.489*** (0.348)	1.291*** (0.339)
$LN(age)_{i,t}$	-3.079*** (0.536)	-2.746*** (0.213)	-2.199*** (0.539)	-1.569*** (0.233)	-0.495 (0.642)	-0.448 (0.662)
R-squared	0.024	0.080	0.017	0.008	0.005	0.102

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = the fund flow at time *t*
$TR_{i,t}$ = Fund performance measured in Total return
$Dbot_{i,t}$ = Dummy variable: 1 for bottom performer, 0 otherwise
$Dtop_{i,t}$ = Dummy variable: 1 for top performer, 0 otherwise
$LN(size)_{i,t}$ = the natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = the natural log of the fund's age i at time *t*

Further, Table 4.10 presents the regression result for the fund flow-performance relationship in the bottom and top-performing funds for the overall IEFs. In column (1), the result in current fund performance shows that the sensitivity of fund flow is insignificant to bottom performance but significant and negatively related to its top performance at a 1% level. However, in column (6), the relationships are significant and negatively related to both the bottom and top fund performances at 1% level.

Meanwhile, the coefficients in the first three lags of monthly fund performances indicate that the fund flows are significant and positively related to both the bottom and top fund performances. Whereas, in the lag of one-year performance, it shows that fund flow is significant and negatively related only to bottom performing funds at 5% level. The results of the control variables are consistent with Table 4.9.

4.3.2 Comparison between the Overall IEFs and CEFs

This section sought to compare the sensitivity of fund flow to fund performances between Islamic Equity Funds (IEFs) and Conventional Equity Funds (CEFs). Following the extant literature in this topic, this study did not employ the t-test to compare the means between the two funds groups for comparison purpose since the data employed are panel data that combines the time series and cross-sectional data. This type of data leads to the present of the covariate in the data, and the observations are clustered within the number of funds. For these reasons, the t-test is inappropriate to be used in the analysis. Furthermore, the current study was constrained to combine both IEFs and CEFs data to be run in a single dataset. Thus, the current study employed the conservative way to compare between the two funds group in which the overall IEFs and CEFs are run separately in two different estimations without using a dummy variable to identify the funds' group.

Before going further with the estimations, the diagnostic tests are initially done in order to assess the presence of any econometric problems in the model. The most appropriate model is considered to produce the best estimation results. The results of the VIF test for all the regressions are below 10, indicating the absence of multicollinearity problem among the variables. The Breusch and Pagan LM test and Hausman test allow the analysis to be further estimated using REM and FEM besides the OLS estimator. The problems of heteroscedasticity and autocorrelation are corrected for robust standard errors.

Table 4.11: Fund Flow-performance Relationship of the Overall CEFs

Dependent variable: $FF_{i,t}$						
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	2.082*	0.746	0.466	0.332	-0.0910	-0.315
	(1.002)	(0.987)	(0.993)	(0.995)	(1.078)	(1.051)
$TR_{i,t}$	0.0131	-	-	-	-	-0.0130
	(0.0360)					(0.0357)
$TR_{i,t-1}$	-	0.336***	-	-	-	0.313***
		(0.0225)				(0.0233)
$TR_{i,t-2}$	-	-	0.0800***	-	-	0.0406***
			(0.0125)			(0.0118)
$TR_{i,t-3}$	-	-	-	0.0699***	-	0.0408***
				(0.0115)		(0.0090)
$TR_{i,t-13}$	-	-	-		-0.0482***	-0.0388***
					(0.0111)	(0.0103)
$LN(size)_{i,t}$	1.051***	1.054***	1.086***	1.104***	1.129***	1.061***
	(0.245)	(0.244)	(0.243)	(0.245)	(0.266)	(0.260)
$LN(age)_{i,t}$	-2.550***	-1.943***	-1.813***	-1.766***	-1.579***	-1.418***
	(0.362)	(0.348)	(0.353)	(0.351)	(0.377)	(0.359)
R-squared	0.007	0.034	0.006	0.006	0.004	0.031

Note: This table presents the results of the static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = the fund flow at time *t*
$TR_{i,t}$ = Fund performance measured in Total return
$LN(size)_{i,t}$ = the natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = the natural log of the fund's age i at time *t*

Table 4.11 presents the estimation result for the sensitivity of fund flow to the performance of the overall CEFs without specifying whether the performance belongs to the bottom or top performers. The results show that the fund flow is significant and positively related to the first three lags of monthly performances at 1% level; while significantly negative related to the lag of one-year performance. The coefficients of the control variables show that fund flows are positively related to the log of fund size while negatively related to the log of fund age. These results are consistent with the coefficients obtained in column (6).

Table 4.12: Fund Flow-performance Relationship of the Overall CEFs in the Bottom and Top Fund Performance

Dependent variable: $FF_{i,t}$						
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	1.498 (1.010)	0.659 (0.490)	0.0864 (1.008)	-0.341 (0.517)	0.135 (1.102)	-2.486* (1.124)
$TR_{i,t} * D_{bot}$	-0.0481 (0.0338)	-	-	-	-	-0.146*** (0.0346)
$TR_{i,t} * D_{top}$	0.0754 (0.0472)	-	-	-	-	0.138** (0.0452)
$TR_{i,t-1} * D_{bot}$	-	0.328*** (0.0155)	-	-	-	0.304*** (0.0281)
$TR_{i,t-1} * D_{top}$	-	0.344*** (0.0162)	-	-	-	0.342*** (0.0269)
$TR_{i,t-2} * D_{bot}$	-	-	0.0419* (0.0162)	-	-	0.0304 (0.0180)
$TR_{i,t-2} * D_{top}$	-	-	0.121*** (0.0209)	-	-	0.0772*** (0.0184)
$TR_{i,t-3} * D_{bot}$	-	-	-	0.0050 (0.0156)	-	0.0218 (0.0159)
$TR_{i,t-3} * D_{top}$	-	-	-	0.143*** (0.0163)	-	0.0799*** (0.0137)
$TR_{i,t-13} * D_{bot}$	-	-	-	-	-0.0312 (0.0176)	-0.0222 (0.0179)
$TR_{i,t-13} * D_{top}$	-	-	-	-	-0.0632** (0.0196)	-0.0580** (0.0188)
$LN(size)_{i,t}$	1.052*** (0.246)	1.068*** (0.107)	1.091*** (0.243)	1.106*** (0.109)	1.125*** (0.265)	1.076*** (0.268)
$LN(age)_{i,t}$	-2.332*** (0.359)	-1.905*** (0.180)	-1.674*** (0.354)	-1.513*** (0.195)	-1.671*** (0.390)	-0.574 (0.379)
R-squared	0.008	0.034	0.007	0.007	0.004	0.035

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = the fund flow at time *t*
$TR_{i,t}$ = Fund performance measured in Total return
$Dbot_{i,t}$ = Dummy variable: 1 for bottom performer, 0 otherwise
$Dtop_{i,t}$ = Dummy variable: 1 for top performer, 0 otherwise
$LN(size)_{i,t}$ = the natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = the natural log of the fund's age i at time *t*

Table 4.12 above presents the estimation results for the fund flow-performance relationship in the bottom and top performer. The coefficients in column (1) show that the relationship of fund flow to fund performance in the current month is insignificant. However, column (6) produces different results in which the fund flow is significant and negatively related to the bottom performing funds at 1% level but significantly positive related to the top-performing funds at 5% level. Further, the results show that the relationship of the fund flow is significantly positive in the bottom and top-performing funds in the first two lags of monthly performances. At the same time, the coefficients of bottom performing funds of three months lag, and one-year lag is insignificant. However, the relationships are significantly positive in the top-performing funds in the three-month lag at 1% level and significantly negative in the top performance of one-year lag performance at 5%. The coefficients of the control variables are consistent as in the previous table. The following section shall present the estimation results for the second objective.

4.4 Individual Country Fund Flow-performance Relationship

In order to examine whether there are differences in the way that investors from different countries respond to funds that performed well and those that performed poor-performing funds, the overall IEFs and CEFs data are separated into country domicile which is divided into Malaysian, Saudi Arabian and Indonesian funds. The results for the fund flow-performance relationship of IEFs and the comparison of the fund flow-performance relationship between IEFs and CEFs are presented in the following subsections. Section 4.4.3 and 4.4.4 display the results for Malaysian fund, followed by Saudi Arabian funds in section 4.4.5 and 4.4.6, while section 4.4.7 and 4.4.8 display the results for Indonesian funds.

4.4.3 Malaysian IEFs

Table 4.13 and 4.14 present the results for the fund flow-performance relationship of Malaysian IEFs and the fund flow-performance relationship of IEFs for the bottom and top performances. Based on the diagnostic tests, the results of the VIF test for all the estimations to analyse Malaysian IEFs data are below 10, indicating the absence of multicollinearity problem among the variables. The Breusch and Pagan LM test and Hausman test allow the analysis to be further estimated using REM and FEM besides the OLS estimator. The problems of heteroscedasticity and autocorrelation are corrected for robust standard errors.

Table 4.13: Estimation Result for Fund Flow-performance Relationship of IEFs: Malaysia

Dependent variable: $FF_{i,t}$						
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	5.182** (1.718)	4.740** (1.751)	4.577** (1.708)	2.609 (1.425)	0.200 (1.554)	-0.514 (2.029)
$TR_{i,t}$	0.0350* (0.0166)	-	-	-	-	0.00912 (0.0156)
$TR_{i,t-1}$	-	0.627*** (0.0399)	-	-	-	0.620*** (0.0409)
$TR_{i,t-2}$	-	-	0.256*** (0.0425)	-	-	0.206*** (0.0425)
$TR_{i,t-3}$	-	-	-	0.114*** (0.0256)	-	0.0506* (0.0219)
$TR_{i,t-13}$	-	-	-	-	-0.0397* (0.0188)	-0.0121 (0.0187)
$LN(size)_{i,t}$	0.749 (0.465)	0.882 (0.465)	0.791 (0.438)	0.585*** (0.162)	0.662*** (0.159)	0.938* (0.416)
$LN(age)_{i,t}$	-2.897*** (0.715)	-2.843*** (0.734)	-2.639*** (0.718)	-1.473* (0.664)	-0.363 (0.725)	-0.316 (0.869)
R-squared	0.011	0.105	0.025	-	-	0.120

Note: This table presents the results of the static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = the fund flow at time *t*
$TR_{i,t}$ = Fund performance measured in Total return
$LN(size)_{i,t}$ = the natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = the natural log of the fund's age i at time *t*

Based on Table 4.13, the results in column (1) to (5) show that the fund flow is significant and positively related to current month performance at 10% level. While, in past performances, the fund flow is significant and positively related to the first three lags of monthly performance at 1% level and significant and negatively related to the lag of one-year performance at 10% level. Meanwhile, the coefficients of the control variables show that fund flows significantly positive related to the log of the size of the funds in column (4) and (5). Whereas, fund flow is significantly negative to the log of funds age in column (1) to (4).

Table 4.14: Estimation Result for Fund Flow-performance Relationship of IEFs in Bottom and Top performances: Malaysia

Dependent variable: $FF_{i,t}$						
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	6.899*** (0.608)	5.210*** (0.585)	4.504*** (0.615)	2.060*** (0.543)	0.0782 (0.655)	-1.003 (0.670)
$TR_{i,t} * D_{bot}$	0.261*** (0.0321)	-	-	-	-	0.0934** (0.0314)
$TR_{i,t} * D_{top}$	-0.243*** (0.0347)	-	-	-	-	-0.105** (0.0335)
$TR_{i,t-1} * D_{bot}$	-	0.674*** (0.0306)	-	-	-	0.547*** (0.0306)
$TR_{i,t-1} * D_{top}$	-	0.559*** (0.0330)	-	-	-	0.671*** (0.0333)
$TR_{i,t-2} * D_{bot}$	-	-	0.258*** (0.0313)	-	-	0.182*** (0.0304)
$TR_{i,t-2} * D_{top}$	-	-	0.246*** (0.0339)	-	-	0.239*** (0.0332)
$TR_{i,t-3} * D_{bot}$	-	-	-	0.0140 (0.0309)	-	-0.0149 (0.0301)
$TR_{i,t-3} * D_{top}$	-	-	-	0.230*** (0.0335)	-	0.147*** (0.0329)
$TR_{i,t-13} * D_{bot}$	-	-	-	-	-0.0483 (0.0302)	-0.0291 (0.0290)
$TR_{i,t-13} * D_{top}$	-	-	-	-	-0.0229 (0.0329)	0.0145 (0.0313)
$LN(size)_{i,t}$	0.717*** (0.208)	0.900*** (0.199)	0.778*** (0.205)	0.577*** (0.127)	0.660*** (0.124)	0.699*** (0.118)
$LN(age)_{i,t}$	-3.456*** (0.274)	-2.979*** (0.263)	-2.564*** (0.279)	-1.299*** (0.253)	-0.318 (0.311)	0.104 (0.308)
R-squared	0.020	0.100	0.024	-	-	-

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = the fund flow at time *t*
$TR_{i,t}$ = Fund performance measured in Total return
$Dbot_{i,t}$ = Dummy variable: 1 for bottom performer, 0 otherwise
$Dtop_{i,t}$ = Dummy variable: 1 for top performer, 0 otherwise
$LN(size)_{i,t}$ = the natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = the natural log of the fund's age i at time *t*

Table 4.14 presents the results obtained to measure the sensitivity of fund flow to the bottom and top fund performances. The coefficients of the current performance show that fund flow is significantly positive in the bottom performance at 1% level while significantly negative in a top performance at a 1% level. For the past performances, the coefficients in the first two lags show that the fund flow is significantly positive at both the bottom and top performances at 1% level. However, the coefficient for a lag of three-month performance is insignificant at the bottom performance; while significantly positive at the top performance at 1% level. Meanwhile, the fund flow-performance sensitivity is insignificant for the lag of one-year performance.

4.4.4 Comparison between Malaysian IEFs and CEFs

This subsection specifically presents the comparison measures of the differences between the fund flow-performance sensitivity between IEFs and CEFs for Malaysian funds. Table 4.15 and Table 4.16 report the obtained results. Based on the diagnostic tests, the results of the VIF test for all the estimations to analyse Malaysian IEFs and CEFs data are below 10, indicating the absence of multicollinearity problem among the variables. The Breusch and Pagan LM test and Hausman test allow the analysis to be further estimated using REM and FEM besides the OLS estimator. For robust standard errors, correction made to the problems of heteroscedasticity and autocorrelation.

Table 4.15: Comparison of Fund Flow-performance relationship between IEFs and CEFs: Malaysia

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Variables	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**
$TR_{i,t}$	0.0590	-0.461***			-	-	-	-	-	-	0.0397	-0.456***
	(0.0302)	(0.0297)									(0.0299)	(0.0279)
$TR_{i,t-1}$	-	-	0.581***	0.257***	-	-	-	-	-	-	0.565***	0.327***
			(0.0701)	(0.0372)							(0.0742)	(0.0357)
$TR_{i,t-2}$	-	-	-	-	0.262***	0.0222	-	-	-	-	0.215***	0.0030
					(0.0457)	(0.0381)					(0.0442)	(0.0214)
$TR_{i,t-3}$	-	-	-	-	-	-	0.116***	-0.0128	-	-	0.0531*	-0.0126
							(0.0311)	(0.0156)			(0.0265)	(0.0126)
$TR_{i,t-13}$	-	-	-	-	-	-	-	-	-0.0287	0.0062	-0.0064	-0.0568***
									(0.0186)	(0.0158)	(0.0202)	(0.0150)
$LN(size)_{i,t}$	0.0081	1.893**	0.0093*	1.979**	0.0080	1.697**	0.0073	1.870***	0.0078	2.255***	0.0091*	2.160***
	(0.0046)	(0.636)	(0.0045)	(0.637)	(0.0043)	(0.529)	(0.0043)	(0.496)	(0.0043)	(0.511)	(0.0041)	(0.513)
$LN(age)_{i,t}$	-0.0265***	-2.349*	-0.0266***	-2.358*	-0.0226**	-1.474	-0.0157	-1.455	0.0004	-1.022	0.0032	-1.014
	(0.0076)	(1.060)	(0.0075)	(1.068)	(0.0081)	(0.850)	(0.0084)	(0.769)	(0.0108)	(0.768)	(0.0102)	(0.764)

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively. IEF is the Islamic equity funds, CEFs is conventional equity funds, $FF_{i,t}$ is the fund flow at time *t*, $TR_{i,t}$ is the fund performance measured in total return, $Dbot_{i,t}$ is the dummy variable: 1 for bottom performer, 0 otherwise, $Dtop_{i,t}$ is the dummy variable: 1 for top performer, 0 otherwise, $LN(size)_{i,t}$ is the natural log of the total net asset of fund *i* at time *t*, $LN(age)_{i,t}$ is the log of fund age *i* at time *t*.

Table 4.16: Comparison of Fund Flow-performance relationship between IEFs and CEFs in Bottom and Top performances: Malaysia

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Variables	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**
$\boldsymbol{BTR_{i,t}}$	0.332**	-0.418***	-	-	-	-	-	-	-	-	0.0640	-0.502***
	(0.102)	(0.0356)									(0.0984)	(0.0336)
$\boldsymbol{TTR_{i,t}}$	-0.0972	-0.525***	-	-	-	-	-	-	-	-	0.00718	-0.402***
	(0.0741)	(0.0520)									(0.0678)	(0.0431)
$\boldsymbol{BTR_{i,t-1}}$	-	-	0.115	0.262***	-	-	-	-	-	-	-0.0643	0.245***
			(0.175)	(0.0498)							(0.203)	(0.0419)
$\boldsymbol{TTR_{i,t-1}}$	-	-	0.527***	0.244***	-	-	-	-	-	-	0.588***	0.445***
			(0.143)	(0.0462)							(0.166)	(0.0487)
$\boldsymbol{BTR_{i,t-2}}$	-	-	-	-	-0.0223	-0.0415	-	-	-	-	-0.0713	-0.0417
					(0.0729)	(0.0443)					(0.0663)	(0.0393)
$\boldsymbol{TTR_{i,t-2}}$	-	-	-	-	0.273***	0.0995	-	-	-	-	0.250***	0.0809**
					(0.0594)	(0.104)					(0.0618)	(0.0262)
$\boldsymbol{BTR_{i,t-3}}$	-	-	-	-	-	-	-0.219**	-0.0806***	-	-	-0.178**	-0.0465*
							(0.0741)	(0.0230)			(0.0605)	(0.0215)
$\boldsymbol{TTR_{i,t-3}}$	-	-	-	-	-	-	0.226***	0.0671*	-	-	0.146**	0.0562*
							(0.0559)	(0.0301)			(0.0456)	(0.0264)
$\boldsymbol{BTR_{i,t-13}}$	-	-	-	-	-	-	-	-	0.0040	-0.0310	-0.0334	-0.106***
									(0.0570)	(0.0213)	(0.0642)	(0.0212)
$\boldsymbol{TTR_{i,t-13}}$	-	-	-	-	-	-	-	-	-0.0314	0.0506	0.00950	0.0154
									(0.0333)	(0.0291)	(0.0344)	(0.0285)

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively. IEF is the Islamic equity funds, CEFs is conventional equity funds, $FF_{i,t}$ is the fund flow at time *t,* $TR_{i,t}$ is the fund performance measured in total return, $Dbot_{i,t}$ is the dummy variable: 1 for bottom performer, 0 otherwise, $Dtop_{i,t}$ is the dummy variable: 1 for top performer, 0 otherwise. Excluding from the table, *LN(size)* and *LN(age)* for brevity.

Based on Table 4.15, results obtained show that the fund flow-performance sensitivity of IEFs is significantly positive at 1% level in the first three lags of monthly performance. On the other hand, the fund flow-performance sensitivity of CEFs is significant and negatively related to the performance in the current month at 1% level, while significantly positive related to the lag of one-month performance at 1% level. For control variables, the coefficients show that there is a positive relationship between fund flow with the fund size for both IEFs and CEFs. At the same time, the fund flow is negatively related to fund age for both IEFs and CEFs.

Meanwhile, Table 4.16 display the results obtained for the sensitivity of fund flow to the bottom and top fund performance. In current performance, the results indicate that the fund flow has a positive relationship with the bottom performance of IEFs at 5% level; while negatively related to both the bottom and top performances of CEFs at 1% level. In the past performances, the coefficients in column (7) show that the fund flow is significantly negative in the lag of three months in the bottom performance of IEFs at 5% level. Meanwhile, in the top performances, the fund flow is significantly positive at 1% level. For CEFs, on the other hand, the coefficients in the lag of one-month performance shown in column (4) are significantly positive at 1% in both the bottom and top performances. The coefficients in the lag of 3 months performance are significantly negative in the bottom performance at 1% level and significantly positive in the top performance at 10% level. The results of the control variables are consistent with Table 4.15.

4.4.5 Saudi Arabian IEFs

Table 4.17 presents the estimation results for the fund flow-performance relationship of Saudi Arabia IEFs, while Table 4.18 presents the results for the fund flow-performance relationship at the bottom and top performances. Based on the diagnostic tests, the results of the VIF test for all the estimations to analyse Saudi Arabian IEFs data are below 10, indicating the absence of multicollinearity problem among the variables. The Breusch and Pagan LM test and Hausman test allow the analysis to be further estimated using REM and FEM besides the OLS estimator. The problems of heteroscedasticity and autocorrelation are corrected for robust standard errors.

Table 4.17: Estimation Result for fund Flow-performance Relationship of IEFs: Saudi Arabia

Dependent variable: $FF_{i,t}$						
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	-4.495 (2.242)	-2.383 (2.115)	-4.548* (2.208)	-6.181** (2.160)	-5.827* (2.470)	-4.015 (2.097)
$TR_{i,t}$	-0.322*** (0.0508)	-	-	-	-	-0.386*** (0.0483)
$TR_{i,t-1}$	-	0.392*** (0.0341)	-	-	-	0.419*** (0.0391)
$TR_{i,t-2}$	-	-	0.0904*** (0.0230)	-	-	0.0309 (0.0199)
$TR_{i,t-3}$	-	-	-	0.0599** (0.0178)	-	0.0249 (0.0132)
$TR_{i,t-13}$	-	-	-	-	-0.0757*** (0.0142)	-0.0645*** (0.0125)
$LN(size)_{i,t}$	2.656*** (0.651)	1.829** (0.590)	2.475*** (0.681)	2.754*** (0.719)	2.644** (0.773)	1.982** (0.592)
$LN(age)_{i,t}$	-0.552 (0.752)	-0.979 (0.716)	-0.438 (0.689)	0.117 (0.639)	0.0838 (0.753)	-0.205 (0.713)
R-squared	0.063	0.090	0.013	0.010	0.011	0.163

Note: This table presents the results of the static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = the fund flow at time *t*
$TR_{i,t}$ = Fund performance measured in Total return
$LN(size)_{i,t}$ = the natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = the natural log of the fund's age i at time *t*

Table 4.18: Estimation Result for Fund Flow-performance Relationship of IEFs in Bottom and Top performances: Saudi Arabia

Dependent variable: $FF_{i,t}$						
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	-3.990***	-1.480	-4.999***	-5.802***	-6.341***	-4.195**
	(1.163)	(1.158)	(1.233)	(1.263)	(1.482)	(1.414)
$TR_{i,t} * D_{bot}$	-0.272***	-	-	-	-	-0.451***
	(0.0260)					(0.0259)
$TR_{i,t} * D_{top}$	-0.387***	-	-	-	-	-0.317***
	(0.0277)					(0.0285)
$TR_{i,t-1} * D_{bot}$	-	0.481***	-	-	-	0.508***
		(0.0254)				(0.0262)
$TR_{i,t-1} * D_{top}$	-	0.293***	-	-	-	0.328***
		(0.0272)				(0.0287)
$TR_{i,t-2} * D_{bot}$	-	-	0.0557*	-	-	0.0322
			(0.0264)			(0.0262)
$TR_{i,t-2} * D_{top}$	-	-	0.146***	-	-	0.0363
			(0.0283)			(0.0283)
$TR_{i,t-3} * D_{bot}$	-	-	-	0.0925***	-	-0.0115
				(0.0264)		(0.0254)
$TR_{i,t-3} * D_{top}$	-	-	-	0.0191	-	0.0510
				(0.0283)		(0.0272)
$TR_{i,t-13} * D_{bot}$	-	-	-	-	-0.110***	-0.0610**
					(0.0253)	(0.0235)
$TR_{i,t-13} * D_{top}$	-	-	-	-	-0.0417	-0.0548*
					(0.0274)	(0.0259)
$LN(size)_{i,t}$	2.657***	1.946***	2.465***	2.780***	2.641***	1.992***
	(0.377)	(0.372)	(0.390)	(0.393)	(0.399)	(0.371)
$LN(age)_{i,t}$	-0.767*	-1.324***	-0.263	-0.0258	0.270	-0.144
	(0.366)	(0.365)	(0.392)	(0.406)	(0.516)	(0.495)
R-squared	0.063	0.090	0.014	0.011	0.011	0.160

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = the fund flow at time *t*
$TR_{i,t}$ = Fund performance measured in Total return
$Dbot_{i,t}$ = Dummy variable: 1 for bottom performer, 0 otherwise
$Dtop_{i,t}$ = Dummy variable: 1 for top performer, 0 otherwise
$LN(size)_{i,t}$ = the natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = the natural log of the fund's age i at time *t*

The results in Table 4.17 show that in all time settings, fund flow is significantly related to fund performance. Column (1) and column (5) show that fund flow is a negative function of current and lag of one-year performances at 1% level while the rest shows that the fund flow is significant and positively related to fund performance at 1% level. The coefficients of the control variables show that the fund flow is only significant and positively related to fund size.

Meanwhile, Table 4.18 indicates that the fund flow is negatively related to bottom and top current performance at 1% level. Whereas, in past performances, it is shown that the fund flow-performance sensitivity is significant and positively related to the bottom and top performances in the first two lags of monthly performances. However, the relationship is significant and negatively related to the bottom performance in the lag of one-year performance. The coefficients of the control variables are consistent with the results obtained in Table 4.17.

4.4.6 Comparison between Saudi Arabian IEFs and CEFs

Table 4.19 and Table 4.20 display the estimation results for the comparison of the fund flow-performance relationship between IEFs and CEFs domiciled in Saudi Arabia. Based on the diagnostic tests, the results of the VIF test for all the estimations to analyse the Saudi Arabian IEFs and CEFs data are below 10, indicating the absence of multicollinearity problem among the variables. The Breusch and Pagan LM test and Hausman test allow the analysis to be further estimated using REM and FEM besides the OLS estimator. Correction made to the problems of heteroscedasticity and autocorrelation for robust standard errors.

Table 4.19: Comparison of Fund Flow-performance relationship between IEFs and CEFs: Saudi Arabia

Variables	(1) IEFs	(2) CEFs	(3) IEFs	(4) CEFs	(5) IEFs	(6) CEFs	(7) IEFs	(8) CEFs	(9) IEFs	(10) CEFs	(11) IEFs	(12) CEFs
$TR_{i,t}$	-0.322*** (0.0506)	-0.159** (0.0470)	-	-	-	-	-	-	-	-	-0.386*** (0.0481)	-0.200*** (0.0494)
$TR_{i,t-1}$	-	-	0.392*** (0.0340)	0.199** (0.0636)	-	-	-	-	-	-	0.419*** (0.0390)	0.244*** (0.0589)
$TR_{i,t-2}$	-	-	-	-	0.0904*** (0.0229)	0.0562* (0.0249)	-	-	-	-	0.0309 (0.0199)	-0.0036 ((0.0187))
$TR_{i,t-3}$	-	-	-	-	-	-	0.0599** (0.0177)	0.0725* (0.0337)	-	-	0.0249 (0.0132)	0.0505 (0.0259)
$TR_{i,t-13}$	-	-	-	-	-	-	-	-	-0.0757*** (0.0142)	-0.0032 (0.0230)	-0.0645*** (0.0124)	-0.0206 (0.0216)
$LN(size)_{i,}$	2.656*** (0.649)	0.677 (0.592)	1.829** (0.588)	0.637 (0.519)	2.475*** (0.679)	0.825 (0.553)	2.754*** (0.717)	0.924 (0.607)	2.644*** (0.770)	0.475 (0.436)	1.982** (0.590)	0.348 (0.409)
$LN(age)_{i,}$	-0.552 (0.749)	-1.571 (0.917)	-0.979 (0.713)	-0.750 (0.904)	-0.438 (0.686)	-0.209 ((0.853)	0.977 (0.717)	-0.0908 (0.926)	0.0838 (0.750)	-0.270 (0.867)	-0.205 (0.711)	-0.279 (0.872)

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 4.20: Comparison of Fund Flow-performance relationship between IEFs and CEFs in Bottom and Top Performances: Saudi Arabia

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Variables	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**
$\boldsymbol{BTR_{i,t}}$	0.140**	0.169**	-	-	-	-	-	-	-	-	-0.119**	0.0498
	(0.0409)	(0.0577)									(0.0408)	(0.0564)
$\boldsymbol{TTR_{i,t}}$	-0.395***	-0.251***	-	-	-	-	-	-	-	-	-0.324***	-0.231***
	(0.0569)	(0.0640)									(0.0446)	(0.0587)
$\boldsymbol{BTR_{i,t-1}}$	-	-	0.154**	0.0702	-	-	-	-	-	-	0.128*	0.0315
			(0.0489)	(0.0589)							(0.0499)	(0.0543)
$\boldsymbol{TTR_{i,t-1}}$	-	-	0.311***	0.200***	-	-	-	-	-	-	0.360***	0.226**
			(0.0373)	(0.0535)							(0.0468)	(0.0698)
$\boldsymbol{BTR_{i,t-2}}$	-	-	-		-0.0755	-0.0389	-	-	-	-	0.0027	-0.0437
					(0.0512)	(0.0569)					(0.0587)	(0.0518)
$\boldsymbol{TTR_{i,t-2}}$	-	-	-		0.130***	0.0890	-	-	-	-	0.0278	0.0110
					(0.0341)	(0.0494)					(0.0307)	(0.0392)
$\boldsymbol{BTR_{i,t-3}}$	-	-	-	-	-	-	0.0625	0.112	-	-	-0.0622	0.0045
							(0.0451)	(0.0641)			(0.0394)	(0.0438)
$\boldsymbol{TTR_{i,t-3}}$	-	-	-	-	-	-	0.0271	-0.0045	-	-	0.0544*	0.0493
							(0.0296)	(0.0369)			(0.0235)	(0.0286)
$\boldsymbol{BTR_{i,t-13}}$	-	-	-	-	-	-	-	-	-0.0718	0.0367	0.0140	0.0238
									(0.0469)	(0.0511)	(0.0416)	(0.0501)
$\boldsymbol{TTR_{i,t-13}}$	-	-	-	-	-	-	-	-	-0.0377	-0.0357	-0.0680**	-0.0736
									(0.0280)	(0.0394)	(0.0245)	(0.0379)

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively. IEF is the Islamic equity funds, CEFs is conventional equity funds, $FF_{i,t}$ is the fund flow at time *t,* $TR_{i,t}$ is the fund performance measured in total return, $Dbot_{i,t}$ is the dummy variable: 1 for bottom performer, 0 otherwise, $Dtop_{i,t}$ is the dummy variable: 1 for top performer, 0 otherwise. Excluding from the table, *LN(size)* and *LN(age)* for brevity

The results in Table 4.19 show that the fund flow is significantly negative related to IEFs at 1% level and CEFs at a 5% level in current performance. Meanwhile, in the past performance, the relationship is significantly positive for both IEFs and CEFs in the first three lags of monthly performance. Whereas, the relationship is only significantly negative related to the lag of one-year performance of IEFs. The results of the control variables indicate that the fund flow has a positive relationship with fund size in both IEFs and CEFs.

Meanwhile, the results in Table 4.20 display the relationship of fund flow to the bottom and top performances. The coefficients in the current performance show that the fund flow is significantly positive related both bottom IEFs and CEFs at 5% level; while, the relationship is significant and negatively related to the top performance of both IEFs and CEFs at 1% level. For the past performances, the relationship in the first lag is significantly positive in the bottom performance of IEFs at 5% level; while significantly positive in the top performance at a 1% level. Whereas, the relationship is only significantly positive in the top performance of CEFs at 1%. Meanwhile, in the second-lag, the relationship is only significant and positive in the top performance of IEFs at 1% level. The results of the control variables are consistent with Table 4.19.

4.4.7 Indonesian IEFs

Table 4.21 display the estimation results for Indonesia IEFs, while Table 4.22 displays the results for the relationship in the bottom and top performances. Based on the diagnostic tests, the results of the VIF test for all the estimations to analyse Indonesian IEFs data are below 10, indicating the absence of multicollinearity problem among the variables. The Breusch and Pagan LM test and Hausman test allow the analysis to be further estimated using REM and FEM besides the OLS estimator. Problems of heteroscedasticity and autocorrelation are corrected for robust standard errors.

Table 4.21: Estimation Result for Fund Flow-performance Relationship of IEFs: Indonesia

Dependent variable: $FF_{i,t}$						
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	-3.412 (8.338)	-6.463 (7.506)	-5.125 (8.230)	-7.821 (7.877)	-19.18** (5.425)	-16.92* (5.493)
$TR_{i,t}$	-0.421*** (0.0466)	-	-	-	-	-0.551*** (0.0426)
$TR_{i,t-1}$	-	0.234** (0.0518)	-	-	-	0.166* (0.0528)
$TR_{i,t-2}$	-	-	0.183** (0.0539)	-	-	0.136* (0.0505)
$TR_{i,t-3}$	-	-	-	0.0691 (0.0640)	-	0.0100 (0.0427)
$TR_{i,t-13}$	-	-	-	-	-0.0701* (0.0301)	-0.0982** (0.0263)
$Logsize_{i,t}$	2.889 (1.369)	2.874 (1.319)	2.729 (1.390)	3.031* (1.302)	3.841*** (0.728)	3.757*** (0.704)
$Logage_{i,t}$	-6.029* (1.933)	-4.465* (1.744)	-4.793* (1.943)	-4.112 (2.033)	-0.131 (2.122)	-1.060 (2.127)
R-squared	0.071	0.037	0.033	0.023	0.014	0.084

Note: This table presents the results of the static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = the fund flow at time *t*
$TR_{i,t}$ = Fund performance measured in Total return
$LN(size)_{i,t}$ = the natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = the natural log of the fund's age i at time *t*

Table 4.22: Estimation Result for Fund Flow-performance Relationship of IEFs in Bottom and Top Performances: Indonesia

Dependent variable: $FF_{i,t}$						
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	1.652 (8.237)	-4.873 (5.521)	-4.425 (7.735)	-10.21 (5.806)	-21.21** (5.519)	-12.41* (5.408)
$TR_{i,t} * D_{bot}$	-0.179 (0.0933)	-	-	-	-	-0.407*** (0.0895)
$TR_{i,t} * D_{top}$	-0.646*** (0.0771)	-	-	-	-	-0.660*** (0.0817)
$TR_{i,t-1} * D_{bot}$	-	0.321** (0.0992)	-	-	-	0.159 (0.124)
$TR_{i,t-1} * D_{top}$	-	0.160 (0.0906)	-	-	-	0.185* (0.0856)
$TR_{i,t-2} * D_{bot}$	-	-	0.223* (0.0742)	-	-	0.119 (0.0790)
$TR_{i,t-2} * D_{top}$	-	-	0.150 (0.0914)	-	-	0.122* (0.0581)
$TR_{i,t-3} * D_{bot}$	-	-	-	-0.0372 (0.0996)	-	-0.154 (0.0847)
$TR_{i,t-3} * D_{top}$	-	-	-	0.160 (0.0904)	-	0.148 (0.0811)
$TR_{i,t-13} * D_{bot}$	-	-	-	-	-0.179** (0.0486)	-0.222*** (0.0575)
$TR_{i,t-13} * D_{top}$	-	-	-	-	0.0148 (0.0444)	0.0192 (0.0397)
$Logsize_{i,t}$	2.467 (1.380)	2.775** (0.948)	2.693 (1.356)	3.218*** (0.968)	3.881*** (0.727)	1.750* (0.742)
$Logage_{i,t}$	-7.343** (1.885)	-4.921*** (1.168)	-5.005* (1.834	-3.461** (1.282)	0.675 (2.209)	1.469 (1.901)
R-squared	0.079	0.038	0.033	0.024	0.016	-

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = the fund flow at time *t*
$TR_{i,t}$ = Fund performance measured in Total return
$Dbot_{i,t}$ = Dummy variable: 1 for bottom performer, 0 otherwise
$Dtop_{i,t}$ = Dummy variable: 1 for top performer, 0 otherwise
$LN(size)_{i,t}$ = the natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = the natural log of the fund's age i at time *t*

Table 4.21 shows that the coefficients in the current performance are significantly negative at 1% level. While, in the past performances, the coefficients on the first two lags months performances indicate a positive relationship at 5% level. Whereas, the coefficient of in the lag of one year is significantly negative at the 10% level. The results of the control variables show little evidence of a positive relationship between the fund flow with the fund size and negative relationship with the fund age.

Furthermore, the relationship between the funds flows to the bottom and top performances of Indonesian IEFs, as displayed in Table 4.22. The results in the current performance show that the fund flow is significantly negative in the top-performing funds at 1% level. In the past performances, the fund flow is significantly positive in the first two lags of the bottom performance at 5% and 10 % level respectively. In the lag of one-year performance, fund flow is significantly negative in the bottom performance at 5% level. Meanwhile, the results of the control variables provide more evidence that the fund flow is a positive function of the fund size while a negative function of fund age.

4.4.8 Comparison between Indonesian IEFs and CEFs

Table 4.23 and Table 4.24 display the results for the comparison of fund flow-performance relationship between IEFs and CEFs. Based on the diagnostic tests, the results of the VIF test for all the estimations to analyse Indonesian IEFs and CEFs data are below 10, indicating the absence of multicollinearity problem among the variables. The Breusch and Pagan LM test and Hausman test allow the analysis to be further estimated using REM and FEM besides the OLS estimator. Adjustment is made to the problems of heteroscedasticity and autocorrelation for robust standard errors.

Table 4.23: Comparison of Fund Flow-performance relationship between IEFs and CEFs: Indonesia

Variables	(1) IEFs	(2) CEFs	(3) IEFs	(4) CEFs	(5) IEFs	(6) CEFs	(7) IEFs	(8) CEFs	(9) IEFs	(10) CEFs	(11) IEFs	(12) CEFs
$TR_{i,t}$	-0.410*** (0.0360)	0.552*** (0.0431)	-	-	-	-	-	-	-	-	-0.526*** (0.0353)	0.515*** (0.0449)
$TR_{i,t-1}$	-	-	0.223*** (0.0463)	0.302*** (0.0357)	-	-	-	-	-	-	0.156*** (0.0431)	0.202*** (0.0366)
$TR_{i,t-2}$	-	-	-	-	0.158** (0.0508)	0.101*** (0.0249)	-	-	-	-	0.104* (0.0397)	0.0359 (0.0246)
$TR_{i,t-3}$	-	-	-	-	-	-	0.0610 (0.0614)	0.151*** (0.0203)	-	-	0.00135 (0.0402)	0.0657*** (0.0163)
$TR_{i,t-13}$	-	-	-	-	-	-	-	-	-0.0595* (0.0259)	-0.108*** (0.0290)	-0.0880*** (0.0237)	-0.0412 (0.0273)
$LN(size)_{i,t}$	1.900 (1.264)	3.275*** (0.546)	1.863 (1.247)	3.107*** (0.541)	1.712 (1.322)	3.115*** (0.538)	1.996 (1.226)	3.133*** (0.528)	2.752*** (0.792)	3.490*** (0.549)	2.686*** (0.772)	3.351*** (0.541)
$LN(age)_{i,t}$	-5.948** (1.780)	-4.903*** (0.715)	-4.445** (1.619)	-4.658*** (0.756)	-4.827** (1.822)	-4.508*** (0.764)	-4.154* (1.903)	-4.181*** (0.807)	-0.350 (1.972)	-3.687*** (0.934)	-1.317 (1.961)	-2.594** (0.934)

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 4.24: Comparison of Fund Flow-performance relationship between IEFs and CEFs in Bottom and Top Performances: Indonesia

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Variables	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**	**IEFs**	**CEFs**
$\boldsymbol{BTR_{i,t}}$	0.325** (0.106)	-0.258** (0.0802)	-	-	-	-	-	-	-	-	0.114 (0.125)	-0.376*** (0.0917)
$\boldsymbol{TTR_{i,t}}$	-0.562*** (0.0581)	0.676*** (0.0589)	-	-	-	-	-	-	-	-	-0.581*** (0.0756)	0.689*** (0.0633)
$\boldsymbol{BTR_{i,t-1}}$	-		0.0696 (0.125)	-0.200** (0.0693)	-	-	-	-	-	-	-0.108 (0.183)	-0.127* (0.0579)
$\boldsymbol{TTR_{i,t-1}}$	-		0.191* (0.0813)	0.398*** (0.0504)	-	-	-	-	-	-	0.208* (0.0871)	0.276*** (0.0503)
$\boldsymbol{BTR_{i,t-2}}$	-	-	-	-	0.120 (0.118)	-0.326*** (0.0593)	-	-	-	-	0.114 (0.0792)	-0.119 (0.0634)
$\boldsymbol{TTR_{i,t-2}}$	-	-	-	-	0.102 (0.0856)	0.257*** 0.0415)	-	-	-	-	0.0370 (0.0404)	0.123** (0.0400)
$\boldsymbol{BTR_{i,t-3}}$	-	-	-	-	-	-	-0.213 (0.135)	-0.242*** (0.0561)	-	-	-0.298** (0.107)	0.0286 (0.0435)
$\boldsymbol{TTR_{i,t-3}}$	-	-	-	-	-	-	0.160 (0.107)	0.267*** (0.0346)	-	-	0.135* (0.0563)	0.0724** (0.0251)
$\boldsymbol{BTR_{i,t-13}}$	-	-	-	-	-	-	-	-	-0.148 (0.0876)	0.121 (0.0885)	-0.134 (0.0921)	0.172* (0.0859)
$\boldsymbol{TTR_{i,t-13}}$	-	-	-	-	-	-	-	-	0.0095 (0.0455)	-0.166** (0.0547)	-0.0216 (0.0465)	-0.131* (0.0523)

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively. IEF is the Islamic equity funds, CEFs is conventional equity funds, $FF_{i,t}$ is the fund flow at time *t,* $TR_{i,t}$ is the fund performance measured in total return, $Dbot_{i,t}$ is the dummy variable: 1 for bottom performer, 0 otherwise, $Dtop_{i,t}$ is the dummy variable: 1 for top performer, 0 otherwise. Exclude from the table, *LN(size)* and *LN(age)* for brevity.

The results shown in Table 4.23 show that in the current performance, the fund flow is significantly negative in IEFs performance at 1% level while significantly positive in CEFs performance at 1% level. In the past performances, the fund flow is significantly positive in both IEFs and CEFs performances in the first three monthly lags except for IEFs performance in the third lag. Meanwhile, in the lag of one-year performance, the fund flow is significant and negatively related to both IEFs and CEFs performances at 10% and 1% level respectively. The results of the control variables indicate that the fund flow significantly positive for CEFs. At the same time, fund flow is significantly negative related to fund age in both IEFs and CEFs.

Further, Table 4.24 displays the results for the comparison of fund flow-performance sensitivity between IEFs and CEFs in the bottom and top performances. The coefficients in the current performance of IEFs are positive for the poor-performing funds at 5% significant level, while negative for the best-performing funds at 1% significant level. Whereas, for CEFs, the coefficients are negative at 5% significant level for the poor-performing funds while significantly positive at 1% level in the top performance. For the past performances, the results in the first three lags show that the sensitivity of fund flow is significantly negative in the bottom performance of CEFs; while significantly positive for the best- performing funds of CEFs at 1% to 10% levels. Besides, the fund flow is significantly negative in for the best-performing funds of the lag of one year at a 10% level. The results of the control variables remain as in Table 4.23.

The following section shall present the estimation results for the third objective.

4.5 Explaining the Flow-performance Relationship of IEFs

This section presents the results obtained to answer the fourth research question, which states that to what extent does the country's Islamic financial development influence the sensitivity of the fund flow-performance relationship of IEFs? Reminiscing chapter three of this study, the influence of Islamic financial system development of a country on the fund flow-performance sensitivity implies the level of investors' awareness on Islamic financial products and services. The link between the level of investors' awareness and the sensitivity towards Islamic fund performance could be used to indicate investors' confidence to patronage Islamic financial products. In addition, according to Ferreira et al. (2012), not chasing the best-performing funds but letting go of poor-performing funds is a sophisticated thing to do. Countries with higher sophistication are likely to be less sensitive to top-performing funds and more sensitive to bottom performing funds. Hence, does the awareness level among Islamic funds investors on the Islamic financial products development will influence them to become more sophisticated in making an investment decision? This study expects investors' sophistication to increase, along with the development of Islamic banking and Islamic funds sectors.

Table 4.25 and Table 4.26 present the results of the estimation using proxies for Islamic banking development and Islamic fund development to explain the fund flow-performance sensitivity. Based on the diagnostic tests, the results of the VIF test for all the estimations to analyse all the data are below 10, indicating the absence of multicollinearity problem among the variables. The results of the Breusch and Pagan LM test obtained for all the regressions allow the analysis for the overall IEFs to be further estimated using REM besides the OLS estimator. Problems of heteroscedasticity and autocorrelation are corrected for robust standard errors.

Table 4.25: The Determinants of Fund Flow-performance Sensitivity: Islamic Banking Development (Overall IEFs)

Dependent variable: $FF_{i,t}$	(A)	(B)
$Constant$	-6.535 (6.331)	6.993** (2.393)
$BTR_{i,t} * LN(IBasset)_{i,t}$	-0.0109* (0.0051)	-
$TTR_{i,t} * LN(IBasset)_{i,t}$	-0.0456*** (0.0048)	-
$BTR_{i,t} * LN(IBnum)_{i,t}$	-	0.0003 (0.0420)
$TTR_{i,t} * LN(IBnum)_{i,t}$	-	-0.387*** (0.0447)
$LN(IBasset)_{i,t}$	1.586 (0.948)	-
$LN(IBnum)_{i,t}$	-	-3.156 (2.406)
$LN(size)_{i,t}$	1.058** (0.390)	1.134** (0.381)
$LN(age)_{i,t}$	-3.991*** (0.858)	-2.857*** (0.552)
R-squared	0.030	0.024

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = Fund flow
$BTR_{i,t}$ = Bottom performance
$TTR_{i,t}$ = Top performance
$LN(IBasset)_{i,t}$ = The natural log of Islamic Banking NAV
$LN(IBnum)_{i,t}$ = The natural of the number of Islamic banks
$LN(size)_{i,t}$ = The natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = The natural log of the fund's age i at time *t*

For Islamic banking development, with the Islamic banking asset, the results in Table 4.25 show that the fund flow is significant and negatively related to the interaction between the bottom and top performances with the log of IBasset at 10% and 1% levels respectively. While, with the number of Islamic banks, the fund flow is unrelated to the bottom

performance but negatively related to the interaction between the top performances with the log of IBnum at 1% level.

Table 4.26: The Determinants of Fund Flow-performance Sensitivity: Islamic Funds Development (Overall IEFs)

Dependent variable: $FF_{i,t}$	(A)	(B)
$Constant$	-5.424 (6.164)	6.493* (2.783)
$BTR_{i,t} * LN(IFnav)_{i,t}$	-0.0053 (0.0049)	-
$TTR_{i,t} * LN(IFnav)_{i,t}$	-0.0423*** (0.0047)	-
$BTR_{i,t} * LN(IFnum)_{i,t}$	-	-0.0363 (0.0189)
$TTR_{i,t} * LN(IFnum)_{i,t}$	-	-0.169*** (0.0179)
$LN(IFnav)_{i,t}$	1.284 (0.805)	-
$LN(IFnum)_{i,t}$	-	-1.357 (1.444)
$LN(size)_{i,t}$	1.044** (0.388)	1.198** (0.384)
$LN(age)_{i,t}$	-3.733*** (0.710)	-2.719*** (0.647)
R-squared	0.026	0.029

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = Fund flow
$BTR_{i,t}$ = Bottom performance
$TTR_{i,t}$ = Top performance
$LN(IFnav)_{i,t}$ = Natural log of Islamic fund NAV
$LN(IFnum)_{i,t}$ = Natural log of the number of Islamic funds
$LN(size)_{i,t}$ = The natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = The natural log of the fund's age i at time *t*

Furthermore, for Islamic fund development, the results in Table 4.26 show that the fund flow is insignificantly related to the interaction between the bottom performance with the logs of IFnav and IFnum. Meanwhile, in the top performance, the fund flow is significant and negatively related to the logs of IFnav and IFnum at 1% level.

Table 4.27: The Determinants of Fund Flow-performance Sensitivity: Islamic Banking Development (Malaysian IEFs)

Dependent variable: $FF_{i,t}$	(A)	(B)
$Constant$	-9.169 (7.402)	5.142 (4.439)
$BTR_{i,t} * LN(IBasset)_{i,t}$	0.0308*** (0.0044)	-
$TTR_{i,t} * LN(IBasset)_{i,t}$	-0.0281*** (0.0049)	-
$BTR_{i,t} * LN(IBnum)_{i,t}$	-	0.217*** (0.0304)
$TTR_{i,t} * LN(IBnum)_{i,t}$	-	-0.195*** (0.0320)
$LN(IBasset)_{i,t}$	2.475* (1.185)	-
$LN(IBnum)_{i,t}$	-	1.490 (3.926)
$LN(size)_{i,t}$	0.550 (0.483)	0.721 (0.465)
$LN(age)_{i,t}$	-5.136*** (1.231)	-3.480*** (0.762)
R-squared	0.021	0.019

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = Fund flow
$BTR_{i,t}$ = Bottom performance
$TTR_{i,t}$ = Top performance
$LN(IBasset)_{i,t}$ = The natural log of Islamic Banking NAV
$LN(IBnum)_{i,t}$ = The natural log of the number of Islamic banks
$LN(size)_{i,t}$ = The natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = The natural log of the fund's age i at time *t*

Furthermore, in the individual country, Table 4.27 presents the regression results for Islamic banking development for Malaysia. With Islamic banking asset, the fund flow is significant and positively to the interaction between bottom performance with the log of IBasset at 1% level. On the other hand, the fund flow is significant and negatively related to the interaction between the top performances with the log of IBasset at 1% level.

Likewise, with the number of Islamic banks, the fund flow is significant and positively related to the interaction between bottom performance with the log of IBnum at 1% level but significant and negatively to the interaction between the top performance with the log of IBnum at 1% level.

Table 4.28: The Determinants of Fund Flow-performance Sensitivity: Islamic Funds Development (Malaysian IEFs)

Dependent variable: $FF_{i,t}$	(A)	(B)
$Constant$	-24.68*	-4.569
	(10.07)	(5.671)
$BTR_{i,t} * LN(IFnav)_{i,t}$	0.0242***	-
	(0.00345)	
$TTR_{i,t} * LN(IFnav)_{i,t}$	-0.0214***	-
	(0.0039)	
$BTR_{i,t} * LN(IFnum)_{i,t}$	-	0.113***
		(0.0154)
$TTR_{i,t} * LN(IFnum)_{i,t}$	-	-0.0992***
		(0.0171)
$LN(IFnav)_{i,t}$	3.725**	-
	(1.207)	
$LN(IFnum)_{i,t}$	-	6.427
		(3.323)
$LN(size)_{i,t}$	0.420	0.566
	(0.474)	(0.475)
$LN(age)_{i,t}$	-6.010***	-4.865***
	(1.210)	(1.183)
R-squared	0.024	0.021

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = Fund flow
$BTR_{i,t}$ = Bottom performance
$TTR_{i,t}$ = Top performance
$LN(IFnav)_{i,t}$ = The natural log of Islamic fund NAV
$LN(IFnum)_{i,t}$ = The natural log of Number of Islamic funds
$LN(size)_{i,t}$ = The natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = The natural log of the fund's age i at time *t*

Table 4.28 presents the regression results for Islamic fund development for Malaysia. With Islamic fund net asset value, the fund flow is significant and positively related to the interaction between bottom performances with the log of IFnav at 1% level. On the other hand, the fund flow is significant and negatively related to the interaction between the top performances with the log of IFnav at 1% level.

Similarly, with the number of Islamic funds, the fund flow is significant and positively related to the interaction between bottom performance with the log of IFnum at 1% level but significant and negatively to the interaction between the top performance with the log of IFnum at 1% level.

Table 4.29: The Determinants of Fund Flow-performance Sensitivity: Islamic Banking Development (Saudi Arabian IEFs)

Dependent variable: $FF_{i,t}$	(A)	(B)
$Constant$	-34.01* (14.71)	-3.990 (2.264)
$BTR_{i,t} * LN(IBasset)_{i,t}$	-0.0326*** (0.0067)	-
$TTR_{i,t} * LN(IBasset)_{i,t}$	-0.0460*** (0.0066)	-
$BTR_{i,t} * LN(IBnum)_{i,t}$	-	-0.451*** (0.0922)
$TTR_{i,t} * LN(IBnum)_{i,t}$	-	-0.643*** (0.0934)
$LN(IBasset)_{i,t}$	3.907 (2.027)	-
$LN(IBnum)_{i,t}$	-	-
$LN(size)_{i,t}$	2.634*** (0.655)	2.657*** (0.660)
$LN(age)_{i,t}$	-2.173 (1.332)	-0.767 (0.757)
R-squared	0.064	0.063

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = Fund flow
$BTR_{i,t}$ = Bottom performance
$TTR_{i,t}$ = Top performance
$LN(IBasset)_{i,t}$ = The natural log of Islamic Banking NAV
$LN(IBnum)_{i,t}$ = The natural log of Number of Islamic banks
$LN(size)_{i,t}$ = The natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = The natural log of the fund's age i at time *t*

Table 4.29 presents the regression results for the Islamic banking development for Saudi Arabia. With Islamic banking asset, the fund flow is significant and negatively related to the bottom, and top performances interacted with the log of IBasset at 1% level. While, with the number of Islamic banks, the fund flow is also significant and negatively related to the bottom and top performances interacted with the log of IBnum at 1% level.

Table 4.30: The Determinants of Fund Flow-performance Sensitivity: Islamic Funds Development (Saudi Arabian IEFs)

Dependent variable: $FF_{i,t}$	**(A)**	**(B)**
$Constant$	-61.41*** (13.38)	9.031 (6.326)
$BTR_{i,t} * LN(IFnav)_{i,t}$	-0.0374*** (0.0075)	-
$TTR_{i,t} * LN(IFnav)_{i,t}$	-0.0519*** (0.0076)	-
$BTR_{i,t} * LN(IFnum)_{i,t}$		-0.125*** (0.0252)
$TTR_{i,t} * LN(IFnum)_{i,t}$		-0.173*** (0.0251)
$LN(IFnav)_{i,t}$	8.019*** (2.000)	-
$LN(IFnum)_{i,t}$		-6.121 (3.050)
$LN(size)_{i,t}$	2.565*** (0.594)	2.662*** (0.660)
$LN(age)_{i,t}$	-1.789 (0.895)	-0.431 (0.820)
R-squared	0.066	0.064

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = Fund flow
$BTR_{i,t}$ = Bottom performance
$TTR_{i,t}$ = Top performance
$LN(IFnav)_{i,t}$ = The natural log of Islamic fund NAV
$LN(IFnum)_{i,t}$ = The natural log of the number of Islamic funds
$LN(size)_{i,t}$ = The natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = The natural log of the fund's age i at time *t*

Table 4.30 presents the regression results for Islamic fund development for Saudi Arabia. With Islamic fund net asset value, the fund flow is significant and negatively related to the bottom, and top performances interacted with the log of IFnav at 1% level. While, with the number of Islamic funds, similarly, the fund flow is also significant and negatively related to the bottom and top performances interacted with the log of IFnum at 1% level.

Table 4.31: The Determinants of Fund Flow-performance Sensitivity: Islamic Banking Development (Indonesian IEFs)

Dependent variable: $FF_{i,t}$	(A)	(B)
$Constant$	-49.10* (19.91)	-0.281 (8.136)
$BTR_{i,t} * LN(IBasset)_{i,t}$	-0.0325 (0.0154)	-
$TTR_{i,t} * LN(IBasset)_{i,t}$	-0.0909*** (0.0124)	-
$BTR_{i,t} * LN(IBnum)_{i,t}$	-	-0.285* (0.111)
$TTR_{i,t} * LN(IBnum)_{i,t}$	-	-0.818*** (0.103)
$LN(IBasset)_{i,t}$	8.712* (3.432)	-
$LN(IBnum)_{i,t}$	-	3.203 (3.872)
$LN(size)_{i,t}$	2.674 (1.204)	2.543 (1.332)
$LN(age)_{i,t}$	-14.37** (3.320)	-8.269** (2.499)
R-squared	0.089	0.088

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = Fund flow
$BTR_{i,t}$ = Bottom performance
$TTR_{i,t}$ = Top performance
$LN(IBasset)_{i,t}$ = Natural log of Islamic Banking NAV
$LN(IBnum)_{i,t}$ = Natural log of the number of Islamic banks
$LN(size)_{i,t}$ = The natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = The natural log of the fund's age i at time *t*

Table 4.31 presents the regression results for the Islamic banking development for Indonesia. With Islamic banking asset, the fund flow is insignificantly related to the bottom performance interacted with the log IBasset. However, the fund flow is significant and negatively related to the top performance interacted with the log of IBasset at 1% level.

Meanwhile, with the number of Islamic funds, the fund flow is significant and negatively related to the bottom performance interacted with the log of IBnum at 10% level significant. Moreover, the fund flow is significant and negatively related to the top performance interacted with the log of IBnum at 1% level.

Table 4.32: The Determinants of Fund Flow-performance Sensitivity: Islamic Funds Development (Indonesian IEFs)

Dependent variable: $FF_{i,t}$	(A)	(B)
$Constant$	-30.90* (10.17)	-6.632 (6.878)
$BTR_{i,t} * LN(IFnav)_{i,t}$	-0.0402 (0.0194)	-
$TTR_{i,t} * LN(IFnav)_{i,t}$	-0.114*** (0.0144)	-
$BTR_{i,t} * LN(IFnum)_{i,t}$	-	-0.121 (0.0599)
$TTR_{i,t} * LN(IFnum)_{i,t}$	-	-0.386*** (0.0478)
$LN(IFnav)_{i,t}$	6.491* (2.394)	-
$LN(IFnum)_{i,t}$	-	5.731 (3.643)
$LN(size)_{i,t}$	3.293* (1.078)	3.139* (1.166)
$LN(age)_{i,t}$	-12.67** (3.154)	-10.77* (3.547)
R-squared	0.088	0.085

Note: This table presents the results of the Static panel estimation using STATA. Values in parentheses are a standard error. The ***, **, * signs indicate statistical significance at the 1%, 5% and 10% levels, respectively.

$FF_{i,t}$ = Fund flow
$BTR_{i,t}$ = Bottom performance
$TTR_{i,t}$ = Top performance
$LN(IFnav)_{i,t}$ = Natural log of Islamic fund NAV
$LN(IFnum)_{i,t}$ = Natural log of the number of Islamic funds
$LN(size)_{i,t}$ = The natural log of a total net asset of funds *i* at time *t*
$LN(age)_{i,t}$ = The natural log of the fund's age i at time *t*

Table 4.32 presents the regression results for the development of Islamic funds for Indonesia. With Islamic fund net asset value, the fund flow is insignificantly related to the bottom performance interacted with the log IFnav. However, the fund flow is significant and negatively related to the top performance interacted with the log of IFnav at 1% level.

Likewise, with the number of Islamic funds, the fund flow is unrelated to the bottom performance interacted with the log of IFnum. Whereas, the fund flow is significant and negatively related to the top performance interacted with the log of IFnum at 1% level.

4.6 Chapter Summary

This chapter has presented the regression results for all the research objectives. The discussion has started with the preliminary analysis, which includes the descriptive analysis, correlation coefficients and the unit root analysis. The panel data analysis, specifically the static panel analysis, was mainly employed throughout all objectives since the data are not suited for GMM estimation. The most appropriate model was determined by several diagnostic tests such as the Breusch and Pagan Lagrangian Multiplier test and the Hausman test.

The next chapter shall focus on the in-depth discussions from the results obtained, as presented in this chapter.

CHAPTER 5: DISCUSSION OF FINDINGS

5.1 Introduction

This chapter discusses the empirical findings from the results presented in chapter four. According to Bollen (2007), the coefficients in the flow-performance relationship are easy to interpret in terms of inflows and outflows of investor capital. A positive coefficient on top-performing funds corresponds to a cash inflow, whereas a positive coefficient on poor performing funds corresponds to a cash outflow. Besides, according to Benson & Humphrey (2008), the insignificant relationship indicates that investors did not react to the funds' performance. The equation to determine the fund flow-performance relationship, as discussed in Chapter 3 is reproduced as follow:

$$\mathbf{FF_{i,t} = \beta + \beta_1 FP_{i,t} + \beta_2 LN(size) + \beta_3 LN(age)_{i,t} + \varepsilon_{i,t}} \quad \textbf{3.11}$$

Equation 3.11 explains that the fund flow is modelled as a function of current and past fund performances based on total return performance measures followed by the control variables. $FF_{i,t}$ is the fund flow at time *t,* $FP_{i,t}$ is the fund performance measured in total return, $LN(size)_{i,t}$ is the natural log of a total net asset of fund *i* at time *t,* $LN(age)_{i,t}$ is the natural log of the age of fund *i* at time *t,* and $\varepsilon_{i,t}$ is the error term.

Further, the equation to examine the differences in the fund flow-performance relationship for the best-performing funds and poor-performing funds, the funds are divided into bottom fund performance and top fund performance as follow:

$$\mathbf{FF_{i,t} = \beta + \beta_1 FP_{i,t} * Dbot_{i,t} + \beta_2 FP_{i,t} * Dtop_{i,t} + \beta_3 LN(size)_{i,t} + \beta_4 LN(age)_{i,t} + \varepsilon_{i,t}} \quad \textbf{3.12}$$

Where, $\boldsymbol{Dbot_{i,t}}$ is the dummy variable where 1 indicates bottom performing funds and 0 otherwise; while, $\boldsymbol{Dtop_{i,t}}$ is the dummy indicating 1 for top-performing funds and 0 otherwise.

This chapter proceeds as follows: Section 5.2 discusses the findings of the first research objective, which seeks to determine the fund flow-performance relationship across countries. Further, section 5.3 discusses the findings of the second research objective, which is to investigate the fund flow-performance relationship in individual countries. Finally, section 5.4 discusses the finding for the third research objective, which seeks to investigate the determinant of the fund flow-performance sensitivity followed by chapter summary in section 5.5.

5.2 Measuring Fund Flow-performance Relationship across countries

This section ought to explain the fund flow-performance relationship in the overall IEFs. Based on the results presented in section 4.3.1, the results explain that investors of IEFs are less concern with the current performance and lag of one-year performance. These findings support the assumption that Islamic funds investors are gaining additional utility from the non-financial attributes, which is consistent with Benson & Humphrey (2008) with SRI funds. However, the results also explain that investors of IEFs are more concern with the monthly past performances in their investment decisions which is consistent with the belief that investors use past performance to make an investment decision on fund selection (Sirri & Tufano, (1998).

Now, moving to the fund flow-performance relationship at the bottom and top performances of the overall IEFs. In the bottom performance, the results explain that investors of IEFs did not react to poor-performing funds. However, there is another evidence, which indicates that investors of IEFs reacted to both poor-performing funds and best-performing funds in the current month in which cash outflow decreased with poor-performing funds; likewise, cash inflow decreased with best-performing funds. The finding in the current performance is inconsistent with the asymmetric relationship but rather suggest that both bottom and top performances attracted more outflows (inflows) when current performances are down (up). Hence, the findings do not support hypothesis 1, which states that the fund flow-performance relationship of IEFs is asymmetric.

For the past performances, the results of the first three lags of monthly performances indicate that investors are responsive to both the bottom and top performances. It suggests

that investors of IEFs direct more cash outflow from poor-performing funds as well as directing more cash inflows into best-performing funds. Meanwhile, in the lag of one-year performance, investors directed less outflow from poor-performing funds which is consistent with the findings of Benson & Humphrey (2008). However, investors did not react to the best performing funds. From the findings, it could be concluded that there is no evidence to show that investors of IEFs chasing the best-performing funds and did not let go of poor-performing funds. Therefore, the findings for the past performances, the finding do not support hypothesis 1, which states that the fund flow-performance relationship of IEFs is asymmetric.

5.3 Measuring Individual Country Fund Flow-performance Relationship

The three countries involved in this study are namely Malaysia, Saudi Arabia, and Indonesia. This section proceeds as follows: Section 5.3.1 presents the discussion for Malaysian funds followed by Saudi Arabian funds in section 5.3.2 and Indonesian funds in section 5.3.3.

5.3.1 Fund Flow-performance Relationship in Malaysian IEFs

The results of the fund flow-performance sensitivity of IEFs for Malaysian funds are presented in section 4.4.3. The results indicate that investors of IEFs in Malaysia consider both current and past performances. However, the investors are less concern with the lag of one-year performance.

Moving to the sensitivity of fund flow to the bottom and top performances, the results in current performance indicate that investors of IEFs in Malaysia respond more to the bottom performance but respond less to the top performance. It implies that cash outflow increased with poor-performing funds, while cash inflows decreased with best-performing funds. Hence, the results are inconsistent with the asymmetric relationship. Instead, it implies that investors are sophisticated[10]. Therefore, the findings do not support hypothesis 1, which states that the fund flow-performance relationship of IEFs is asymmetric.

Meanwhile, in the past performances, investors of IEFs in Malaysia are sensitive to both the bottom and top performances, which indicate the symmetric relationship. The results indicate that cash outflows increased with poor-performing funds, while cash inflows increased with best-performing funds. In the lag of three months performance, the investors did not react to the bottom performance while more sensitive to the top performance. Moreover, in the lag of one-year performance, investors of IEFs did not react both the bottom and top performances. Based on the findings, none of the findings in the past performances is consistent with the motivating assumption underlies Islamic funds. The findings are inconsistent with the asymmetric relationship, but it rather suggests that investors of IEFs in Malaysia letting go of poor-performing funds while chasing more best-performing, which is consistent with the act of sophisticated investors. Hence, for Malaysian IEFs, the findings do not support hypothesis 1, which states that the fund flow-performance relationship of IEFs is asymmetric.

[10] Ferreira et al. (2012) suggest that chasing less best-performing funds while let go more poor-performing funds is the act of a sophisticated investor.

5.3.2 Fund flow-performance Relationship in Saudi Arabian IEFs

The results of the sensitivity of fund flow to fund performance in Saudi Arabian IEFs are presented in section 4.4.5. The results explain that investors of IEFs are less responsive to current month performance and lag of one-year performance. However, they are more responsive to the first three lags of monthly performances. The results of the control variables indicate that investors are more concern with larger funds while they did not focus on how long the funds had been in the market.

Turning to the fund flow-performance sensitivity at the bottom and top performances, in the current performance, the results indicate that investors direct less outflow from poor-performing funds and direct less inflow into best-performing funds. The results are inconsistent with the asymmetric relationship. Hence, the findings do not support hypothesis 1, which states that the fund flow-performance relationship of IEFs is asymmetric.

For the past performances, the first two lags of monthly performances explain that investors of IEFs are concerned with both poor-performing funds and best-performing funds. Cash outflow increased from poor-performing funds, while cash inflow increased into best-performing funds. Meanwhile, investors are less sensitive to the lag of one-year performance in which cash outflow decreased from poor-performing funds while did not react to the best-performing funds. From the findings, there is no asymmetric relationship in all-time settings. Similar to Benson & Humphrey (2008), the findings rather suggest that both bottom and top performances attract outflow (inflow) when the performance decrease (increases). The findings are inconsistent with the motivating assumption of additional utility underlies Islamic funds. Thus, in the past performances for Saudi Arabian IEFs, the findings do not

support hypothesis 1, which states that the fund flow-performance relationship of IEFs is asymmetric.

5.3.3 Fund flow-performance Relationship in Indonesian IEFs

The results for the fund flow-performance relationship in Indonesian IEFs are as presented in section 4.4.7. For current performance, investors are less concern with fund performance. Meanwhile, for past performances, investors are more concern with the first two lags performance; while less concern with the lag of one-year performance.

Moving to the results for the fund flow-performance relationship to the bottom and top performances. For the current performance, investors of IEFs did not react to bottom performance. However, in the top performance, investors of IEFs direct less cash inflow into IEFs. These results indicate that investors are less sensitive to fund performance in the current month. The finding is inconsistent with the asymmetric relationship but rather suggest that investors of Islamic funds in Indonesia derived utility from the additive attributes. Thus, the findings do not support hypothesis 1, which states that the fund flow-performance relationship IEFs is asymmetric.

For the past performances, the results indicate that investors of IEFs are sensitive to bottom performances in the first two monthly lags by directing more outflow from poor-performing funds. The finding is inconsistent with the assumption that investors of Islamic funds derived utility from the additional attribute. However, the investors did not react to the top performance. Further, in the lag of one-year performance, investors direct less cash outflow from the poor-performing fund; while not react to the top performance. These findings are consistent with Marzuki & Worthington (2015). In short, none of the findings

above is consistent with the asymmetric relationship; thus, the findings do not support hypothesis 1, which states that the fund flow-performance relationship IEFs is asymmetric.

5.4 Comparison between IEFs and CEFs

This section shall discuss the findings obtained for the comparison between the sensitivity of fund flow to fund performances of Islamic Equity Funds (IEFs) and Conventional Equity Funds (CEFs). Section 5.4.1 presents the discussion for the overall funds, which denotes the IEFs across-countries. Section 5.4.2 discusses in the findings for Malaysian funds followed by 5.4.3 for Saudi Arabian fund, while 5.4.4 presents the discussion for Indonesian funds.

5.4.1 Comparison between IEFs and CEFs across-countries

For the comparison between the fund flow-performance relationships of IEFs against the conventional counterpart, instead of combining the data of the overall IEFs with the overall CEFs, this study has taken a conservative approach by splitting the data instead of using the interaction term; thus, the overall CEFs data were run separately. This approach is taken due to the inability to perform the analysis with the combined data in STATA. The results are presented in section 4.3.2. In the current performance, it can be explained that similar to IEFs investors, CEFs investors are less concerned with the current performance which is inconsistent with numbers of previous studies like Cashman et al. (2012) and Benson & Humphrey (2008). However, investors of CEFs are more concerned with past performances. The results show that investors of CEFs response more to monthly past performances while response less to lag of one-year performance.

Now, moving to the fund flow-performance relationship at the bottom and top-performing funds. By taking the corresponding coefficients[11] , the cash outflow in the current bottom performance of IEFs decreased by 0.519% for every 1% decrease in the poor-performing funds. In the contrarily, the cash outflow from CEFs decreased by 0.276% for every 1% decrease in the poor-performing funds. The results indicate that in the bottom performance, the sensitivity of fund flow to fund performance of IEFs is no different to CEFs, which, is consistent with the assumption that investors view IEFs as another type of investment product. Thus, the findings do not support hypothesis 2, which states that the fund flow-performance relationship of IEFs is not equal CEFs.

Meanwhile, for the top current month performance, cash inflow into IEFs decreased by 0.451% for every 1% increase in best-performing funds. Whereas, cash inflow into CEFs increased by 0.268% for every 1% increase in the best-performing funds. The results indicate that investors of IEFs chased less best-performing fund; while investor of CEFs chased best-performing funds more. Moreover, the evidence obtained from the overall time setting indicates that the fund flow-performance relationship of CEFs was asymmetric since investors are less sensitive to the bottom performance while more sensitive to top performance. From the results, it can be explained that the sensitivity of the fund flows to the fund performance is weaker in IEFs, which is consistent with the assumption of an additive utility underlies Islamic funds investors. Thus in the current performance, the findings support hypothesis 2, which state that the fund flow-performance relationship of IEFs is not equal to CEFs.

[11] Adding the coefficients from the base model in Table 4.9 for IEFs and Table 4.11 for CEFs with the coefficients in Table 4.10 for IEFs and Table 4.12 for CEFs.

Moving to the past monthly performances, investors of IEFs are sensitive to both the bottom and top performances in the first three lags of monthly performances in which poor-performing funds experienced more outflows while best-performing funds attract inflows more. Similarly, investors of CEFs are also sensitive to both the bottom and top performances in the first two lags of monthly performances. Hence, the finding is consistent with the assumption that investors of Islamic funds view IEFs just as another type of investment products. Thus for both the bottom and top performances, the fund flow-performance relationship of IEFs is equal to CEFs which do not support hypothesis 2.

Further, the results in the lag of one year indicate that investors of IEFs are less sensitive to the poor-performing funds and have no reaction to the best-performing funds. While, investors of CEFs did not react to the poor-performing funds but are more sensitive to the best-performing funds. The result for the poor-performing funds support hypothesis 2. Meanwhile, the results for the good-performing funds has similarity with Marzuki & Worthington (2015) which also support hypothesis 2 in the sense that the additive utility underlies Islamic funds investors are less affected by the change in the fund performance which leads to weaker fund flow-performance sensitivity.

In the control variables, the relationship between the fund flow with the fund size and the fund age of IEFs are similar to CEFs. The results suggest that larger funds received more inflows, while older funds received inflows less. These findings explain that larger funds benefited from the economics of scale; while for younger funds, new funds tend to advantage more by advertising and lower price as compared to older funds. The next section shall discuss the findings obtained in measuring the fund flow-performance relationship in the individual countries involved in this study.

5.4.2 Comparison between Malaysian IEFs and CEFs

Turning to the comparison between Malaysian IEFs with its conventional counterpart. Section 4.4.4 presents the results. The findings indicate that investors of IEFs did not react to current performance, but they consider past monthly performance in their investment decisions. Meanwhile, CEFs investors are less sensitive to the current performance, but are more sensitive to the lag of one-month performance.

Furthermore, for the sensitivity of fund flow to the bottom and top performances, the results indicate that in the bottom performance, cash outflow from IEFs increased by 0.391% for every 1% decrease in the poor-performing funds. On the other hand, cash outflow from CEFs decreased by 0.879% for every 1% decrease in the poor-performing funds. The result indicates that in current performance, investors of IEFs directed more cash outflow from poor-performing funds than CEFs investors do; thus, the fund flow-performance relationship of IEFs is more sensitive than of CEFs, which support hypothesis 2. Meanwhile, in the top performance, investors of IEFs did not react to best-performing funds; while, cash inflow into CEFs decreased by 0.986% for every 1% increase in the best-performing funds. The result indicates that investors of CEFs directing less inflow into the funds. Given, the assumption that investors of IEFs view Islamic funds similar to any other type investment funds, therefore the findings do not support hypothesis 2 since the fund flow-performance relationship of IEFs is not equal than of CEFs.

Turning to the past performances, investors of IEFs did not react to bottom performance in the first two lags of monthly performances. On the other hand, CEFs investors were more sensitive to the poor-performing funds in the first lag, where cash outflow of CEFs increased by 0.519% for every 1% decrease in the poor-performing funds. Meanwhile, in in

the lag of three months, investors of IEFs were less sensitive to the poor-performing funds, in which the cash outflow of IEFs decreased by 0.103% for every 1% decrease in the poor-performing funds. Similarly, CEFs investors were less sensitive to the poor-performing funds in the third lag in which the cash outflow of CEFs decreased by 0.0686% for every 1% decrease in the poor-performing funds. Based on the evidence in the first lag, the fund flow-performance relationship of IEFs is weaker than of CEFs; thus, support hypothesis 2.

Meanwhile, in the top performance, the cash inflow into IEFs increased by 1.108% for every 1% increase in best-performing funds. Whereas, cash inflow into CEFs increased by 0.501% for every 1% increase in best-performing funds. In the third lag, cash inflow into IEFs increased by 0.342% for every 1% increase in best-performing funds, which is more than the cash inflow into CEFs, which increased by 0.0543% for every 1% increase in best-performing funds. The findings support hypothesis 2 since the fund flow-performance relationship of IEFs is stronger than of CEFs, which suggest that investors of IEFs perceive Islamic fund just as another type of investment products with an additional assumption of a prior belief. Lastly, for the one-year lag performance, both IEFs and CEFs did not react to fund performance.

For the control variables, the results indicate that larger and younger fund for both IEFs and CEFs received flows more. The reason could be due to larger funds benefit from the economics of scale while younger funds attract more investors for its lower introduction price. The subsequence subsection shall discuss the findings for Saudi Arabia funds.

5.4.3 Comparison between Saudi Arabian IEFs and CEFs

Section 4.4.6 presents the results for the comparison of the fund flow-performance sensitivity between Saudi Arabian IEFs and CEFs. In current performance, both IEFs and CEFs are less sensitive to fund performance in which an increase in fund performance will lead to cash outflow. Meanwhile, in past performances, both IEFs and CEFs are more sensitive to the fund performance in which, cash inflow will increase following the increase in the fund performance.

Turning to the sensitivity of fund flow to the bottom and top performances. In the current month performance, the cash outflow from IEFs decreased by 0.182% for every 1% decrease in poor-performing funds. Whereas, cash outflow from CEFs decreased by 0.01% for every 1% decrease in poor-performing funds. The results show that the fund flow of both IEFs and CEFs are less responsive to the bottom performance, which do not supports hypothesis 2 since the fund flow-performance relationship of IEFs equals to CEFs. Meanwhile, for the top performance, the cash inflow into IEFs decreased by 0.717% for every 1% increase in the best-performing funds; meanwhile, cash inflow into CEFs decreased by 0.41% for every 1% increase in best-performing funds. The results show that the fund flow-performance sensitivity of IEFs is equal to the CEFs. The finding is consistent with the assumption that investors of Islamic funds view IEFs as another type of investment products hence do not support hypothesis 2, which states that the fund flow-performance relationship of IEFs is not equal to the fund flow-performance relationship of CEFs.

For the past performances, the cash outflow from IEFs increase by 0.546% for every 1% decreased in poor-performing funds in the first lag of bottom performance. While investors of CEFs did not react to the bottom performance. The results support hypothesis 2

since the sensitivity of fund flow to fund performance of IEFs is stronger than of CEFs. Meanwhile, in the top performance, the cash inflow into IEFs increased by 0.703% for every 1% increase in the best- performing funds. While the cash inflow into CEFs increased by 0.399% for every 1% increase in the best-performing funds. Besides that, in the second lag, it is evident that investors of IEFs are more concern with the best-performing fund. In short, in the past performance, the fund flow of IEFs is more sensitive to fund performance in both poor-performing funds and best-performing funds. Hence, the finding is consistent with the assumption that investors of IEFs view Islamic funds similar to any other type investment funds with an additional assumption of a more diffused prior belief regarding the expected return of the IEFs than a prior belief about the CEFs. Therefore, the findings support hypothesis 2, since the fund flow-performance relationship of IEFs is stronger than CEFs. Lastly, for the one-year lag performance, both IEFs and CEFs did not react to fund performance.

For the control variables, the results indicate that larger IEFs attracted more flows, while investors of IEFs in Saudi Arabia did not focus on fund age. Meanwhile, investors of CEFs did not focus on both fund size and fund age in their investment decisions. The following sub-section shall discuss the findings for the fund flow-performance sensitivity in Indonesian funds.

5.4.4 Comparison between Indonesian IEFs and CEFs

For the comparison of the fund flow-performance sensitivity between IEFs and CEFs for Indonesian funds, section 4.4.8 presents the results. For the current performance, the results indicate that the fund flow is less sensitive to the performance of IEFs but more sensitive to CEFs. Meanwhile, for past performance, the fund flow is sensitive to both IEFs and CEFs in the first two lags of monthly performances. However, the fund flow is more sensitive to CEFs in the third lag. At the same time, the fund flow is less sensitive to the lag of one-year performance. These findings are consistent with Benson & Humphrey (2008).

For the sensitivity of fund flow to the bottom and top performances of Indonesian IEFs and CEFs, in the current performance, the results indicate that the cash outflow from IEFs decreased by 0.085% for every 1% decrease in the poor-performing funds. On the other hand, cash outflow from CEFs increased by 0.294% for every 1% decrease in the best-performing funds. Hence, in the bottom performance, the result explains that the fund flow is less sensitive to IEFs while more sensitive to CEFs. The findings are consistent with the assumption of the multi-attribute utility function. Thus, the findings support hypothesis 2 since the fund flow-performance relationship of IEFs is weaker than of CEFs. Meanwhile, for the sensitivity of fund flow for the best-performing funds, the cash inflow into IEFs decreased by 0.972% for every 1% decrease in the poor-performing funds. In the contrarily, the cash inflow into CEFs increased by 1.228% for every 1% increase in the best-performing funds. Hence, the results explain that the fund flow is less sensitive to IEFs while more sensitive to CEFs, which is consistent with the assumption that investors of Islamic funds derived multi-attribute utility function. Thus, the findings support hypothesis 2 since the fund flow-performance relationship of IEFs is weaker than of CEFs.

For the past performances, the findings show that there is no relation between the fund flows with the bottom performance of IEFs in the first lag. Whereas, the cash outflow from CEFs decreased by 0.1020% for every 1% decrease in the poor-performing funds. The findings indicate that investors of IEFs did not react to poor-performing funds, while investors of CEFs are less sensitive to the poor-performing funds. The results do not support hypothesis 2, since the fund flow-performance relationship of IEFs equals to CEFs. Meanwhile, the fund flow is sensitive to both IEFs and CEFs in the top performance. The cash inflow into IEFs increased by 0.414% for every 1% increase in the best-performing funds. Whereas, cash inflow into CEFs increased by 0.700% for every 1% increase in the best-performing funds. The findings explain that the fund flow-performance sensitivity of IEFs is no different to CEFs, which is consistent with the assumption that investor of Islamic funds perceived IEFs another type of investment products. Hence, the findings do not support hypothesis 2, since the fund flow-performance relationship of IEFs is equal to CEFs. Lastly, for the lag of one-year performance, investors of IEFs did not react to any of the fund performance, while CEFs investors are less sensitive to the best-performing funds. Hence, it is evident that the investors of IEFs are less concern with fund performance since they are investing in Islamic funds for fulfilling spiritual needs; thus, the investors derived additional utility for investing with IEFs. Hence, the findings support hypothesis 2, since the fund flow-performance relationship of IEFs is weaker than of CEFs.

5.5 Differences in the fund flow-performance sensitivity across countries

The current study seeks to ascertain whether there is variation in the fund flow-performance relationship across countries. If any, could the development of the Islamic financial system explain the variations? In doing so, using the F- test[12], the null hypothesis, which stated that the fund flow-performance relationship is equal across the countries was tested. By treating Indonesian IEFs as the middle category, the results indicate that on average, 0.039% of IEFs investors of Malaysia respond more to funds' return compared as compared to IEFs investors of Indonesia. While -0.033% IEFs investors of Saudi Arabia respond less to the funds' returns as compared to IEFs investors of Indonesia. The null hypothesis is addressed as $H_0: \beta_2 = \beta_3 = 0$, in which there are no differences in the fund flow-performance relationship across countries; while the alternate hypothesis is addressed as $H_1: \beta_2 \neq 0 \; or \; \beta_3 \neq 0$, where there are differences in the fund flow-performance relationship across countries. Should the null hypothesis rejected, the conclusion would be there are differences in the fund flow-performance relationship across countries. Based on the results, the p-value of the F- test is less than 0.05; thus, reject the null hypothesis at 5% significant level. Therefore, the current study confirmed that there are differences in the fund flow-performance relationship across the countries in the study.

Furthermore, are the differences in Islamic financial development can explain the differences in the fund flow-performance sensitivity? To answer this interesting question, let say hypothesis of $\beta_2 = \beta_3 = \beta_4 = 0$, where it indicates that there are no differences in the fund flow-performance relationship across countries by holding the Islamic financial development (IFD) constant. The result rejects the null hypothesis that there are no

[12] Result of the f-test can be found in Appendix C

differences in the fund flow-performance relationship across countries. Hence, the Islamic financial development differences could explain the differences in the fund flow-performance relationship across countries. Therefore, the next section shall discuss the findings for the determinants of the fund flow-performance relationship of IEFs across the countries related to this study.

5.6 Explaining the Flow-performance Relationship of IEFs

This section presents the discussion on the determinants of the fund flow-performance relationship of IEFs. Section 4.5 presents the results. Given, chasing less best-performing funds and selling more poor-performing funds is the act of a sophisticated investor; this study expects investors' sophistication to increase along with the development of the Islamic financial system of the country. The current study, therefore, use two variables to explain the fund flow-performance relationship, drawn from the Islamic financial development indicator (IFDI), namely Islamic banking development and Islamic fund development. Islamic banking asset (IBasset) and the number of Islamic banks (IBnum) are proxies for Islamic Banking development. Besides, Islamic fund net asset value (IFnav) and the number of Islamic funds (IFnum) are proxies for Islamic fund development. The regression models are reproduced as follows:

$$FF_{it} = \beta + \beta_1 FPbot_{i,t} * LN(Ibasset) + \beta_2 FPtop_{i,t} * LN(Ibasset) + \beta_3 LN(size)_{i,t} + \beta_4 LN(age)_{i,t} + \beta_5 LN(Ibasset) + \varepsilon_{i,t} \quad \textbf{3.13}$$

$$FF_{it} = \beta + \beta_1 FPbot_{i,t} * LN(Ibnum) + \beta_2 FPtop_{i,t} * LN(Ibnum) + \beta_3 LN(size)_{i,t} + \beta_4 LN(age)_{i,t} + \beta_5 LN(Ibnum) + \varepsilon_{i,t}$$

3.14

$$FF_{it} = \beta + \beta_1 FPbot_{i,t} * LN(Ifnav) + \beta_2 FPtop_{i,t} * LN(Ifnav) + \beta_3 LN(size)_{i,t} + \beta_4 LN(age)_{i,t} + \beta_5 LN(Ifnav) + \varepsilon_{i,t}$$

3.15

$$FF_{it} = \beta + \beta_1 FPbot_{i,t} * LN(Ifnum) + \beta_2 FPtop_{i,t} * LN(Ifnum) + \beta_3 LN(size)_{i,t} + \beta_4 LN(age)_{i,t} + \beta_5 LN(Ifnum) + \varepsilon_{i,t}$$

3.16

$FF_{i,t}$ = fund flow at time *t*

$FPbot_{i,t}$ = bottom fund performance measured in total return

$FPtop_{i,t}$ = top fund performance measured in total return

$LN(Ibasset)$ = the natural log of Islamic banking asset

$LN(Ibnum)$ = the natural log of the number of Islamic banks

$LN(Ifnav)$ = the natural log of Islamic fund NAV

$LN(Ifnum)$ = the natural log of the number of Islamic funds

LN(size) = the natural log of fund size measured by fund TNA

LN(age) = the natural log of fund age

$\varepsilon_{i,t}$ = error term

To estimate the contribution of the proxies for the IFDI to the fund flow-performance sensitivity, the fund flows for the overall IEFs were regressed on both the poor and best-performing funds, which are interacted with the proxies for the IFDI. For the Islamic banking development, the results indicate that the Islamic banking asset reduces the sensitivity of fund

flows to both the poor and the best-performing funds. Given, not chasing winner but selling losers is a sophisticated thing to do; this finding explains in countries with higher Islamic banking asset, investors of IEFs chasing less best-performing funds and selling less poor-performing funds. Hence, the findings do not support hypothesis 3, which states that the more developed the Islamic financial system of the country is, the more sophisticated its IEFs investors are. Meanwhile, the number of Islamic bank in a country did not make a significant contribution to the poor-performing funds; while, it reduces the sensitivity of the fund flow to the best performing funds. Interestingly, the finding explains that investors of IEFs across-countries chase best performing funds less intensely in countries with more Islamic banks. Hence, the findings do not support hypothesis 3, which states that the more developed the Islamic financial system of the country is, the more sophisticated its IEFs investors are.

For the Islamic funds development, the results show that, the Islamic fund net asset value did not make any significant contribution to the poor-performing fund. However, it reduces the sensitivity of the fund flow to the best-performing funds. Similarly, the number of Islamic funds did not make any significant contribution to the poor-performing fund, while it reduces the sensitivity of the fund flow to the best performing funds. This finding explains that investors of IEFs across-countries chasing less best-performing funds intensely in countries with higher Islamic fund net asset value and number of Islamic funds but did not react to the poor-performing funds. Hence for both proxies, the findings do not support hypothesis 3, which states that the more developed the Islamic financial system of the country is, the more sophisticated its IEFs investors are.

Turning to the contribution of the IFDI at the country-level, the fund flows of the individual country were regressed on both the poor and best-performing funds, which are interacted with the proxies of the IFDI variables. For Malaysia, the results show that with

Islamic banking development, both variables, the Islamic banking asset and the numbers of Islamic banks increase the sensitivity of the fund flow to the poor-performing funds but reduce the sensitivity of fund flow to the best-performing funds. The findings explain that in response to the increase in Islamic banking asset and number of Islamic bank in Malaysia, IEFs investors are chasing less best-performing funds while selling more poor-performing funds, which is consistent with the act of sophisticated investors. Hence, the findings support hypothesis 3, which states that the more developed the Islamic financial system of the country is, the more sophisticated its IEFs investors are.

Similarly, for Islamic fund development, the increase in Islamic fund net asset value and number of Islamic fund will increase the sensitivity of the fund flow to the poor-performing funds but reduce the sensitivity of fund flow to the best-performing funds. The findings explain that in response to the increase in the Islamic fund net asset value and the numbers of Islamic fund in Malaysia, IEFs investors are chasing less best-performing funds while selling more poor-performing funds, which is consistent with the act of sophisticated investors. Hence, the findings support hypothesis 3, which states that the more developed the Islamic financial system of the country is, the more sophisticated its IEFs investors are.

For Saudi Arabia, the results presented explain that with the Islamic banking development in the country, the Islamic banking asset and the number of Islamic banks reduce the fund flow sensitivity to both the poor and the best-performing funds. Similarly, with the Islamic fund development, the Islamic fund net asset value and the number of Islamic funds also reduce the sensitivity of fund flow to both the poor and the best-performing funds. The findings explain that in response to the development of the Islamic financial system in Saudi Arabia, investors of IEFs are chasing less best-performing funds and selling less poor-performing funds, which is inconsistent with the act of a sophisticated investor.

Hence, the findings do not support hypothesis 3, which states that the more developed the Islamic financial system of the country is, the more sophisticated its IEFs investors are.

Finally, for Indonesia, with the development of the Islamic banking in the country, the Islamic banking asset does not make a significant contribution to the poor-performing funds. Moreover, it reduces the sensitivity of the fund flow to the best-performing fund. Whereas, the number of Islamic banks reduces the fund flow sensitivity to both the poor and the best-performing funds. The findings explain that, in response to the development of the Islamic banking in Indonesia, investors of IEFs are chasing less best-performing funds and selling less of poor-performing funds, which is inconsistent with the act of a sophisticated investor. Hence, the findings do not support hypothesis 3. Furthermore, with the development of the Islamic fund in Indonesia, the Islamic fund net asset value and the number of Islamic fund did not make a significant contribution to the poor-performing funds. Moreover, both variables reduce the sensitivity of the fund flow to the top-performing fund. The findings explain that, in response to the development of the Islamic financial system in Indonesia, the investors of IEFs are chasing less best-performing funds and did not reacting investors to the poor-performing funds. Hence, the findings did not support hypothesis 3, which states that the more developed the Islamic financial system of the country is, the more sophisticated its IEFs investors are.

5.7 Chapter Summary

In this chapter, the sensitivity of fund flow to the performance of Islamic equity funds (IEFs) is investigated. The study has been focusing on the overall IEFs across countries in the sample. In addition to that, this thesis has further extended the investigation into the

individual country involving different fund domiciles. The purpose was to ascertain the differences in the fund flow-performance sensitivity in different level of Islamic financial development. Interestingly, the results indicate that the asymmetric relationship is not evidenced either in the across-countries IEFs or in the individual country IEFs.

Moreover, this thesis has also offered a comparative study between the fund flow-performance sensitivity of IEFs and the conventional counterpart. Theoretically, the fund flow-performance relationship of IEFs could be equal, stronger, or weaker than of CEFs. As motivated by the assumption of additional utility which underlies the decision-making on Islamic funds, it is expected that IEFs would experience weaker fund flow-performance relationship as compared to CEFs. However, the results revealed that the fund flow-performance relationship of IEFs could also be equal and stronger than of CEFs. Furthermore, this thesis investigates the link between the developments of Islamic financial system of a country with the fund flow-performance sensitivity. The findings revealed that as the Islamic financial system of the country develops, investors of IEFs might either reduce or widen the level of investor's sophistication.

CHAPTER 6: CONCLUSION

6.1 Introduction

Conventional finance paradigm views that a rational investor would focus on maximizing profit and minimizing risk. On the other hand, Islamic investment investors have mainly two concerns to focus upon, namely maximizing profit and spiritual benefits, which derived from intuitive, or feelings that yield the flow of pleasure in the individual. Some may argue that there are no differences between Islamic and conventional funds as both are meant to serve investors the investment to maximize wealth. Anyhow, both funds are different in term of the mechanism.

The study of the fund flow-performance relationship captures investors' reaction towards fund performance that may give a better understanding of mutual funds investors' behaviour in making an investment decision. The reluctant of investors to punish poor-performing funds as much as the best-performing funds are rewarded analogue an asymmetric fund flow-performance relationship. A study on the reaction of the Islamic funds' investors to the fund performance is worthwhile since Muslim investors' actions are believed to be dictated by their religion obligation besides seeking to gain profit through investment returns.

This remainder of the chapter is structured as follows: Section 6.2 summarised the findings from the three research objectives. Subsequently, section 6.3 presents the implications of this study from the literature and industry perspective. Finally, section 6.4 highlights the limitations of this study and suggestion for future research.

6.2 Summary of Findings

This study has examined investors' reaction to the performance of Islamic equity funds (IEFs) across countries and in the individual country, namely Malaysia, Saudi Arabia, and Indonesia. The purpose of using data from three different countries is to appreciate the differences in the level of Islamic financial development experienced by each country. The static panel data estimations techniques, which comprise of OLS, fixed effect model and random effect models, are employed for analysis. The most appropriate model has been chosen based on the results of the Hausman test and the Breusch and Pagan Lagrangian-Multiplier test. Notably, the analysis could not further be proceeded with the GMM estimator since the requirements for GMM are not met. The summary of all the findings is given in the following subsections.

6.2.1 Fund Flow-performance Relationship

The first objective of this study is to determine whether the asymmetric relationship exists in the fund flow-performance relationship across countries and individual country. Given, investors of Islamic funds seek to balance between the financial return and spiritual value; hence, it is expected that the fund flow-performance relationship of IEFs would be asymmetric as motivated by the assumption of a multi-attribute utility function underlies screened investment (Marzuki & Worthington, 2015; Benson & Humphrey, 2008; and Bollen, 2007).

In general, the fund flow-performance relationship was found to be asymmetric, in which the poor-performing funds are not punished as much as the best-performing funds are rewarded. In the case of Islamic investment, the preferences of Islamic funds investors are governed by the non-financial utility in addition to the combination of return and risk. The concept is known as the multi-attribute utility function. Bollen (2007) explained the multi-attribute utility function as the utility derived from the socially responsible attributes and is separable from the utility, which derived from the investment return and risk.

Interestingly, the current study revealed that the fund flow-performance relationships of IEFs across-countries and in an individual country are inconsistent with the asymmetric relationship in either the current performance or the past performance. Instead, the results rather suggest that both the poor and the best-performing funds attract more outflows when performance is down or attract more inflows when the performance is up.

Furthermore, in the individual country, the findings indicate that IEFs investors in Malaysia are sophisticated where the investors are not chasing for best-performing funds while flocking out of poor-performing funds. Meanwhile, IEFs investors in Saudi Arabia pay little attention to either poor-performing funds or best-performing funds; thus suggest that both the poor and the best-performing funds attract less outflow when the performance decrease or attract less outflow when the performance increases. Similarly, IEFs investors in Indonesia are also less concern to fund performance. Although evidence indicates that investors of IEFs in Indonesia are sensitive to bottom performances in the first two monthly lags by directing more outflow from poor-performing funds, these investors did not react to the best-performing funds. Consistent with Benson & Humphrey (2008), asymmetry relationship is not evident in the monthly measures. Hence, the current study is unable to

support the idea that the multi-attribute utility function governs the preferences of Islamic funds investors.

Concerning the non-performance attributes, our finding suggests that it is a myth to believe that investors decision are influenced by fund age and fund size. The finding suggests that in most of the sample, the larger the fund size, more inflow will go into the funds. For fund size, given high volume, purchases will affect the movement of stock prices, and larger funds have more cash to be invested. Hence, investors would believe that smaller funds would be the better choice over larger funds. However, many larger funds are the outperformers, as the economics of scale will likely to benefit larger funds due to decreasing cost per unit.

Meanwhile, for fund age, both younger and older funds have the same potential to outperform. The findings show that investors believed younger funds are preferable over old funds as the prices of younger funds are offered at a low price. Moreover, younger and newly released funds require more time to be fully invested in the stock market as compared to old funds, which might have been completely invested. Besides, future fund performance depends on the stock market condition, which is difficult to be forecasted. Hence, an increase in stock prices will likely to benefit older funds, while younger funds will be less performed since they carry more cash that is yet to be invested. However, the declining stock market shall advantage younger funds since less cash is invested as compared to older funds.

In a nutshell, the most successful investor of all time named Warrant Buffet has advised that one's should only buy something that they would be happy to hold if the market should down for ten years. Hence, the best investment strategy would be buying at a low price, selling at a high price, since one's should not buy funds that are popular, and doing

well. For example, the findings indicate that IEFs investors of Saudi Arabia and Indonesia hold poor-performing funds instead of flocking out from the funds. When fund's performance is at the bottom, the funds will be offered to investors at a low price, Instead of selling the poor-performing funds, it would be the best time for investors to channel more cash into the funds. It is because, when the funds' performance increases, the funds' price will also increase; thus, investors would gain capital appreciation.

For example, the Covid-19 pandemic, which hit the world in the year 2020, tends to meltdown the global economy where the unit trust industry experienced price knockdown and funds are losing performances. However, when the market rebounded resulted from the recoveries of several industries, especially electronic, rubber gloves and medical equipment, funds prices have been climbing up tremendously; thus, picking up the fund performance. Moreover, funds that are focused in the Asia Pacific market have been among the earliest to recover from the pandemic. Thus, going into the Asia Pacific focused funds would be a wise choice. Anyhow, a unit trust is a mid to long term investment; hence, staying invested would be the right thing to do regardless of how funds are performing. Therefore, the current study suggests that holding poor-performing funds are not the act of irrational investors; instead is it the best investment strategy.

Table 6.1 presents a summary of the hypotheses for the fund flow-performance relationship of IEFs across countries and in the individual country.

Table 6.1: Investigation Results of the Hypotheses on the Fund Flow-performance Relationship of IEFs

Hypotheses	Action
H1: The fund flow-performance relationship of IEFs is asymmetric	**Cross-countries IEFs:** Do not support H1 **Malaysia IEFs:** Do not support H1 **Saudi Arabia IEFs:** Do not support H1 **Indonesia IEFs:** Do not support H1

6.2.2 Comparison of Fund Flow-performance Relationship between IEFs and CEFs

Chapter one of this thesis has provided sufficient evidence to show that the portfolio and management styles of Islamic funds are different from conventional investment products in the market. Concerning the fund flow-performance relationship, in the overall IEFs, findings indicated that investors reacted to poor-performing funds and best fund's performance in the same way as CEFs investors do. Meanwhile, in the individual country, as compared to investors of CEFs, the investors of IEFs in Malaysia are more sensitive to poor-performing funds in current performance, while having either no reaction or less sensitive to poor-performing funds of past performance. Besides, IEFs investors in Malaysia are also more sensitive to the best-performing funds as compared to CEFs investors. For Saudi Arabia, IEFs investors are more responsive to the poor-performing funds and best-performing funds in past performances as compared to CEFs investors. Whereas, IEFs investors in Indonesia either less responsive or having no reaction to fund performances.

Although the sensitivity of IEFs may be weaker or stronger in relative to CEFs, the current study could also conclude that both IEFs and CEFs investors respond equally to funds' performance. In this sense, investors view IEFs as another type of investment products. For example, in multi-religion countries, non-Muslim investors are not restricted to invest in Islamic fund. Having a combination of Islamic and conventional funds in a portfolio will enhance diversification, which enables risk reduction since Islamic funds fit the hedging instrument during the time of a financial meltdown. Furthermore, the use of Arabic words on a fund's name in Saudi Arabia may complicate the differentiation between the Islamic and conventional funds; thus, it was perceived that Islamic and conventional funds as having no difference.

In order to summarise and to assist the interpretation of the results for the comparison of the fund flow-performance relationship between IEFs and CEFs, Table 6.2 presents a summary of the relationship between the fund flow with the bottom and top performances of IEFs in relative to the CEFs outcome.

Table 6.2: Summary of the direction of the sensitivity of fund flow to the performance

Time frame of return	IEFs in relative to CEFs outcomes							
	Bottom performers				Top performers			
	All	MAS	SA	IND	All	MAS	SA	IND
Monthly current	No difference	more	No difference	less	less	No difference	No difference	less
1-month lag	No difference	n/a	more	n/a	No difference	more	more	No different
2-month lag	No difference	n/a	more	n/a	No difference	more	more	n/a
3-month lag	No difference	less	more	n/a	No difference	more	more	n/a
1 year lag	n/a	n/a	n/a	n/a	n/a	n/a	n/a	less

Note: n/a = no relation

All = overall IEFs

MAS = Malaysia

SA = Saudi Arabia

IND = Indonesia

Table 6.3: Investigation Results of the Hypotheses on the Comparison between the Fund Flow-performance Relationship of IEFs and CEFs (Overall funds)

Hypotheses	Action
H2: The fund flow-performance relationship of IEFs is not equal to the fund flow-performance relationship of CEFs	• **Current performance** - **Bottom:** do not support H2 - **Top:** Support H2 • **Past performance (month)** - **Bottom:** Do not support H2 - **Top:** Do not support H2 • **Past performance (year)** - **Bottom:** Do not support H2 - **Top:** Support H2

Table 6.4: Investigation Results of the Hypotheses on the Comparison between the Fund Flow-performance Relationship of IEFs and CEFs (Malaysia)

Hypotheses	Action
H2: The fund flow-performance relationship of IEFs is not equal to the fund flow-performance relationship of CEFs	• **Current performance** - **Bottom:** Support H2 - **Top:** Do not support H2 • **Past performance (month)** - **Bottom:** Support H2 - **Top:** Support H2 • **Past performance (year)** - **Bottom:** N/A - **Top:** N/A

Table 6.5: Investigation Results of the Hypotheses on the Comparison between the Fund Flow-performance Relationship of IEFs and CEFs (Saudi Arabia)

Hypotheses	Action
H2: The fund flow-performance relationship of IEFs is equal to the fund flow-performance relationship of CEFs.	• **Current performance** • **Bottom:** Do not support H2 • **Top:** Do not support H2 • **Past performance (month)** • **Bottom:** Support H2 **Top:** Support H2 • **Past performance (year)** - **Bottom:** N/A - **Top:** N/A

Table 6.6: Investigation Results of the Hypotheses on the Comparison between the Fund Flow-performance Relationship of IEFs and CEFs (Indonesia)

Hypotheses	Action
H2: The fund flow-performance relationship of IEFs is equal to the fund flow-performance relationship of CEFs	• **Current performance** - **Bottom:** Support H2 - **Top:** Support H2 • **Past performance (month)** - **Bottom:** Do not support H2 - **Top:** Do not support H2 • **Past performance (year)** - **Bottom:** Support H2 - **Top:** Support H2

6.2.3 Explaining the Flow-performance Relationship of IEFs

The current study justifies that the reactions of IEFs investors to the fund's performance differ across countries. The differences can be associated with the level of the country's Islamic financial development. Therefore, the current study further ascertains whether Islamic financial system development across countries influence the IEFs investors' decision-making. As far as the current study is concerned, this is the first study to applies Islamic financial development indicator (IFDI) prescribed by Zawya Thomson Reuters to explain differences in the fund flow-performance sensitivity across countries. Out of five qualitative indicators, the current study considers the development of Islamic banking and Islamic funds sectors for the analysis. These two sectors are proxied by the Islamic banking asset, the number of Islamic banks, Islamic funds NAV, and the number of Islamic funds.

Based on the IFSB 2019 report, the Islamic banking industry in Malaysia has been consistent with growth stability which contributed by the positive income and labour market condition. The industry has captured 26.5% of the country's commercial banking system. Malaysian Islamic banks and windows have reported a healthy expansion in their aggregate asset, as well as their home financing product. Meanwhile, Saudi Arabia has increased its Islamic banking asset by 2.4%, which accrued by its deposit-based product. The country has a penetration of 51.5% share as per the second quarter of 2018. Whereas, the Islamic banking sector of Indonesia has been growing with double digits in which the asset has been growing at 14.5% with the deposit and financing products are accounted for 13% and 11.2% respectively.

For Islamic fund industry, of the overall 34 jurisdictions where Islamic funds are domiciled, Malaysia and Saudi Arabia remain the most prominent, collectively accounting for 66% of the total asset under management (AuM) (IFSB, 2019). Saudi Arabia maintained its position as the largest domicile by holding 34% of total Islamic fund AuM followed by Malaysia, which holds 32% of the total AuM. Meanwhile, Indonesia only accounts for about 4.40% of the total AuM, which is much away from the growth of the Islamic fund industry in Malaysia and Saudi Arabia.

Given, not chasing best-performing funds but selling poor-performing funds is the act of a sophisticated investor, the findings revealed that in the IEFs cross-countries, as the increase in the development of Islamic banking asset, investors chased less best-performing funds, and sell less losing funds. Meanwhile, with more number of Islamic banks, investors of IEFs cross-countries chase best-performing funds less intensely, while did not react to poor-performance. Moreover, the finding also indicates that investors of IEFs cross-countries chased best-performing funds less intensely in countries with higher Islamic fund NAV and the higher number of Islamic funds but did not react to the poor-performing funds. Therefore, the development of Islamic banking and Islamic funds industries cross-countries did not influence investors' sophistication.

Moving to the individual country, investors of IEFs in Malaysia are sophisticated in response to the development of Islamic banking and Islamic fund industries. The finding indicates that IEFs investors in Malaysia chase less of best-performing funds while selling more poor-performing funds. Meanwhile, the findings of Saudi Arabia IEFs explain that in response to the development of Islamic banking and Islamic fund in the country, investors of IEFs chased winner funds less as well as letting go less of poor-performing funds, which are

inconsistent with the act of a sophisticated investor. Finally, the findings of Indonesian IEFs explain that in response to the development of Islamic banking and Islamic fund industries in the country, investors of IEFs chased winner funds less; however, investors have no reaction to the poor-performing funds.

Table 6.7: Investigation Results of the Hypothesis on the Determinant of the Fund Flow-performance Relationship of IEFs- Islamic Banking Development

Hypotheses	**Action**
H3: The more developed the Islamic financial system of the country is, the more sophisticated its IEFs investors are.	**Islamic banking asset** Overall: Do not support H3 Malaysia: Support H3 Saudi Arabia: Do not support H3 Indonesia: Do not support H3 **Number of Islamic banks** Overall: Do not support H3 Malaysia: Support H3 Saudi Arabia Do not support H3 Indonesia: Do not support H3

Table 6.8: Investigation Results of the Hypothesis on the Determinant of the Fund Flow-performance Relationship of IEFs- Islamic Fund Development

Hypotheses	Action
H3: The more developed the Islamic financial system of the country is, the more sophisticated its IEFs investors are.	**Islamic fund NAV** Overall: Do not support H3 Malaysia: Support H3 Saudi Arabia: Do not support H3 Indonesia: Do not support H3 **Number of Islamic funds** Overall: Do not support H3 Malaysia: Support H3 Saudi Arabia: Do not support H3 Indonesia: Do not support H3

6.3 Implications of the Findings

This study has implications to the extant literature as well as to the Islamic fund industry. Section 6.3.1 discusses the implication of the study for the literature, while section 6.3.2 discusses the implication to the industry.

6.3.1 Implication for the Literature

First, the multi-attribute utility function suggests that the screened investment is beneficial as it yields some utility to its investors, which is not just focusing on financial benefits alone. Hence, the current study expects that the fund flow-performance relationship of IEFs would be asymmetric since investors of IEFs will be reluctant to move their capital out from losing funds due to limited fund choices. However, the findings of the current study show that the fund flow-performance relationship of IEFs is not asymmetric in most of the samples. Therefore, the finding of this study contributes to the limited literature on Islamic funds by suggesting that the fund flow-performance relationship of IEFs is not asymmetric.

Second, Bollen (2007) suggested that the fund flow volatility of the screened funds should be lower than of the conventional funds as influenced by the additive utility underlies screened funds. However, the findings of the current study reveal that Islamic funds investors in countries with more developed Islamic financial system are more sensitive towards fund performance as compared to conventional funds investors. Hence, the findings of the current study provide new insight to the body of knowledge, specifically in this topic.

6.3.2 Implication for the Industry

This study may be as well useful to the Islamic fund industry specifically to the investors of Islamic funds, financial advisors, fund managers, and the country's capital market authorities. First, the findings of the current study shall shed some lights to Islamic fund investors in the way that it provides useful information regarding investment opportunity with Shari'ah compliance product. Islamic funds serve as the alternative for the conventional funds, which fulfils the religion need of Muslim investors particularly.

Second, the findings of the current study suggest that investors need to consult a certified financial advisor who possesses more knowledge on the investment strategy. Younger and less sophisticated investors who possess less knowledge of market volatility may tend to act in a wrong way, which may expose them to the risk of losing their capital invested. Hence, the financial advisors should advise investors the best way to invest with unit trust funds since they are well informed on the market conditions by the fund managers. Besides, they are also able to suggest the appropriate fund for a different individual based on their risk profile and perform a portfolio balancing for the best diversification. For unit trust investment strategy, one of the most successful American investors named Mr Warrant Buffet once said that "be fearful when others are greedy and greedy when others are fearful." Investors are chasing funds when the market is up, but the unit price is typically high. It will cause them to overpay for the fund's unit that subsequently leads to less return. While, when investors are fearful, the price is low due to bad market condition, yet it may indicate a good value buying opportunity.

Third, not all individual investors have an understanding of the market concept. A unit trust is one of the few avenues of investment where they can obtain professional management by fund managers who generally have access to a wide range of resources and information, including specialised research and market analysis that is required for effective investment management. The vital role of a fund manager is the ability to predict the future prices of the fund to improve performance. The fund managers should consider the findings of the current study to understand that factors such as fund age and fund size are not necessarily essential in attracting new investors. Instead, the findings of this study show that other factors, such as the growth of the Islamic financial industry, significantly influence the sensitivity of the fund flow to fund performance of the IEFs. Hence, the findings provide new insights to fund managers that the Islamic financial system development indicators are a valid estimator in explaining Islamic funds investors' preferences.

Fourth, country's capital market authorities such as the Securities Commission of Malaysia, Capital Market Authority of Saudi Arabia, and Financial Services Authority of Indonesia may consider the findings of the current study to scrutinise the current state of the understanding on the Shari'ah compliance unit trust funds among investors. Based on the findings, although the sensitivity of IEFs may be weaker or stronger in relative to CEFs, the current study could also conclude that both IEFs and CEFs investors respond equally to funds' performance. In this sense, investors view IEFs as another type of investment products. Hence, the capital market authority of the country should enhance investors understanding and knowledge on the concepts and principals of Shari'ah compliance unit trust funds. It could be done through Islamic finance events such as Shari'ah investing programme also through commercial advertisements. The idea will ensure that Islamic funds will remain competitive with conventional funds.

6.4 Limitations and Future Research

Undoubtedly, this study faces several limitations that warrant further research to be conducted to provide conclusive supports for the novice findings of this study. First, due to the Movement controlled order (MCO) in conjunction with the Covid-19 pandemic, the current study has been facing difficulty to recollect data. Previously, data were collected from Bloomberg database; however, the updated version of data was collected from Thompson Reuters Datastream. As a result, several data are unavailable such as Jensen's alpha and fund risk. Thus, these two variables are removed from the final version of this thesis.

Second, the present study mainly employed the quantitative approach with secondary data. Therefore, further study can engage in conducting surveys and questionnaire for the purpose to examine investors' reactions to Islamic fund performance, and the factors influencing their investment decision.

Third, this research will be more interesting if different Islamic financial development indicator could be used to investigate their impact on investors' decision-making. This study only measures the influence of two sectors of the quantitative development indicator, namely Islamic banking and Islamic fund sectors. Therefore, further study should consider more sectors such as Takaful, Islamic Financial Institutions, and Sukuk sectors as more data become available over time.

Forth, besides quantitative development, future research may also consider other elements in the indicator such as Knowledge, Corporate Social Responsible, Governance and awareness across different countries to see how much can these development indicators explain investor' reaction to Islamic fund performance and investment decisions.

Finally, future study should be extended to capture the reaction of Islamic fund investors in broader coverage, such as European countries and other non-Muslim dominant countries, which offer Islamic funds in a different Islamic finance environment.

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LIST OF PUBLICATIONS AND CONFERENCE PROCEEDINGS

Publications

Conference proceedings

Johari, M., Isa, M.M., Ahmad, W.M.W, & Zainir, F. (2016). *Fund Flow-performance Relationship of Islamic Equity Funds.* Paper presented at 18th Malaysian Finance Association (MFA) and 7th Islamic Banking, Accounting and Finance (IBAF) Conference. Melaka, Malaysia

Johari, M., Isa, M.M., Ahmad, W.M.W, & Zainir, F. (2016). *Islamic Equity Funds: Investors' Reaction to the Fund's Performance.* Paper presented at the 2nd Islamic Perspective on Accounting, Finance, Economics and Management (IPAFEM) Conference. Yogyakarta, Indonesia.