

Financial Anomalies in Malaysia: Does Shari'ah Compliance Matter?

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Murat Yaş
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Dissertation Supervisors

Assoc. Prof. Dr Mohamed Eskandar Shah Mohd. Rasid
Asst. Prof. Dr Ginanjar Dewandaru

CERTIFICATION OF APPROVAL

Financial Anomalies in Malaysia: Does Shari'ah Compliance Matter?

By

Murat Yaş

2020

Assoc. Prof. Dr Mohamed Eskandar Shah Mohd.

Rasid

Main Supervisor

Date:

Asst. Prof. Dr Ginanjar Dewandaru

Co-Supervisor

Date:

Prof Dr Shamsheer Mohamad Ramidili Mohd

Internal Examiner

Date:

Prof Dr Saad Azmat

External Examiner

Date:

Prof Dr Zulkarnain Muhammad Sori

Viva Voce Chairman

Date:

Prof. Dr. Mansor H. Ibrahim

Dean

Date:

DECLARATION

I hereby declare that this dissertation is the result of my own investigation, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at INCEIF or any other institutions.

Murat Yaş

Signature

Date:

**THE INTERNATIONAL CENTRE FOR EDUCATION IN ISLAMIC
FINANCE (INCEIF)**

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Date: -----

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Abstract

It is difficult to understand how markets work without a thorough understanding of how investors behave. Ethical and religious commitments can exert enormous influence on economic behaviours of investors by integration of social, environmental and governance issues into investment analysis. Therefore, this study attempts to address the question of how non-financial aspect of Shari'ah compliant investment as a subset of ethical and religious investing can affect investor behaviour and consequently, financial markets in the context of Malaysia. The thesis addresses gaps in three main research issues of interest to understand how Shari'ah compliance as non-financial information affects investor behaviour and leads to financial anomalies in Malaysia.

Firstly, the study investigated the effect of changes in List of Shari'ah compliant securities on stock price and trading volume over the period 2000-2015. The study employs the market model as part of event study methodology to analyse the impact of announcements about Shari'ah compliant status of listed securities on stock trading volume and price in short- and long-term horizons. Our finding suggests that Islamic institutional and Muslim retail investors increase the demand for added Non-IPO stocks in the long term and cause a permanent increase in abnormal returns and trading volume. Meanwhile, pressure to sell removed stocks leads to negative abnormal return and increase in trading volume in the short term. However, the equity companies sell in an initial public offering tends to be underpriced in Bursa Malaysia. Consequently, there is a substantial price jump and decreasing the trading volume on the early days of trading and analysing the financial impact of Shari'ah compliance is more elusive. We find that the single objective of generating financial returns cannot explain the decision-making process of because Shari'ah conscious investors can have a trade-off between financial

returns and heavenly rewards. Therefore, Shari'ah non-compliant stocks are not close substitutes of newly classified Shari'ah compliant securities while coordinated trading of a large number of Islamic Institutional and Muslim retail investors create severe limits to arbitrage. These findings show that non-financial aspect of Shari'ah compliant securities affects behaviours of Shari'ah conscious investors and induce to market anomalies in Bursa Malaysia.

Secondly, the study analyses flow-return relation of Islamic and conventional funds in Malaysia. The study adopts Panel Data analysis by using random effects model to evaluate the determinants of money-flows to Islamic and conventional funds. The study finds that flows to Islamic funds are more sensitive to positive lagged returns than conventional fund flows. Given that the average return of funds is negative, Islamic funds still enjoy capital inflows whereas conventional funds had money outflows. Then, the study captured the effect of Ramadhan month on flow-performance relation of Islamic and conventional funds in Malaysia. We find that fund outflows of conventional funds increase during Ramadhan month while it does not affect the direction of money flows either into or out of an Islamic fund. Although high religiosity during Ramadhan month can lead to money flows from conventional funds to Islamic funds, Muslims may withdraw from Islamic funds for giveaways and *Hari Raya Aildul Fitri* celebration. The study also examines the impact of relative performance on money flows and conclude that top and bottom performers of Islamic funds attract larger money-flows than their conventional counterparts. These findings indicate that investors of Islamic funds derive non-financial utility from investing in Shari'ah compliant financial assets. Therefore, they are more loyal compared to investors of conventional funds.

Thirdly, the study examines the effect of analyst recommendation revisions on prices of Shari'ah compliant and Shariah non-compliant listed securities in Bursa Malaysia. The study uses event study methodology and the market model to analyse both the short and long-term performance of upgraded and downgraded stocks over the period 2005-2016. The study finds that while stocks added-to-buy had positive abnormal returns, the stocks added-to-sell and remove-from-buy had negative abnormal returns in short- and long-term horizons. This finding shows that analysts' recommendation revisions carry valuable information. Secondly, the study examined the effect of analysts' recommendation revisions issued contemporaneously with earnings announcements and without earnings announcements on price reactions over various time horizons. The results show that earnings announcements can trigger analysts' recommendation revisions because the investors react strongly to analysts' recommendation revisions issued contemporaneously with earnings announcements. Last but not least in importance, the study suggests that performance differences of Shari'ah compliant and Shari'ah non-compliant stocks in response to analysts' recommendation revisions are negligible. This finding shows that analysts' recommendation revisions for Shari'ah compliant companies do not own any additional investment value than those for Shari'ah non-compliant stocks.

In a broad sense, this thesis provides a further understanding of how non-financial aspect of Shari'ah compliant investment influences the behaviour of investors and leads to non-market behaviour in Malaysian financial markets. We find that even though there is higher cost of providing financial services, Shari'ah compliant labels still attract Shari'ah sensitive investors. It shows that the clientele of Islamic financial institutions behaves differently from their conventional counterparts because they may derive

additional utility from investing in Shari'ah compliant financial assets. Finally, the thesis concludes that although Shari'ah compliance is non-financial information, it can often add financial value to Islamic financial institutions and their products. Overall, this study shows Shari'ah compliant investment is not a purely ration decision. Thus, Shari'ah compliance matters for financial anomalies in Malaysia.



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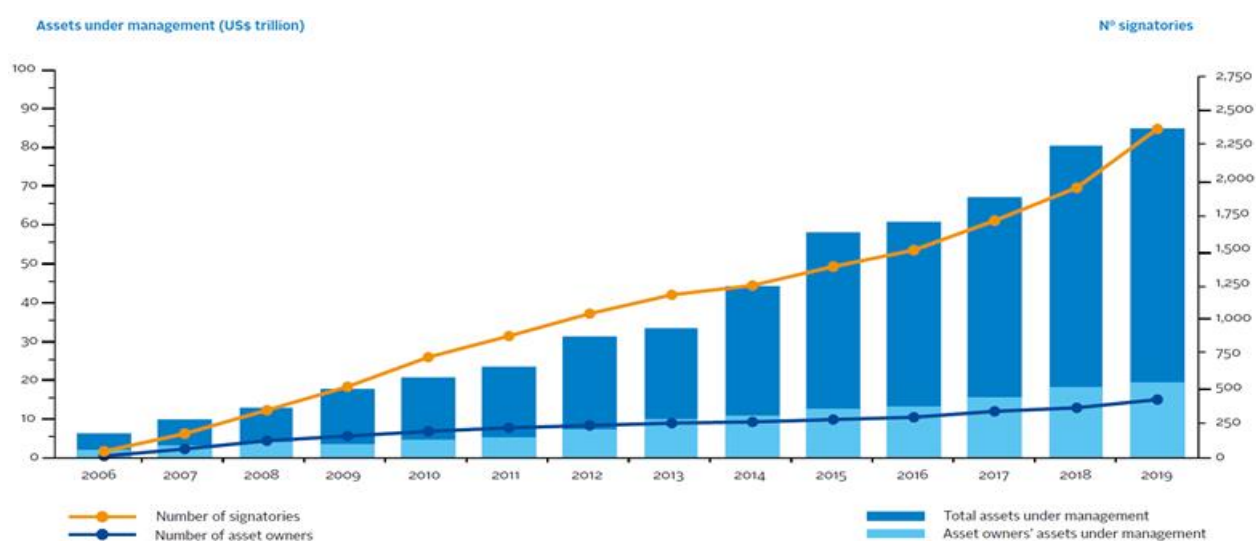


Chapter 1: Introduction

1.1 Background Information

Over the past decade, the rapid growth of ethical and religious investing has continued apace around the world and become a multi-trillion-dollar market. The number of Principles for Responsible Investment (PRI) signatories were less than 200 with less than US\$ 7 trillion in assets under management (AUM) in 2006. However, today US\$ 90 trillion in AUM – more than 50% of the total global institutional assets base – are currently managed by more than 2,300 PRI signatories reaching all around the world (see Figure 1). The rapid growth in the ethical and religious investing market over the last two decades demonstrates that much has changed with regards to the attitude of investors towards ethical and religious investing. More and more investors reinforced their commitment to integrating moral, social, environmental and governance issues into investment processes.

Figure 1: The Growth of Sustainable and Responsible Investing and the Number of UN PRI Signatories



Source: UN PRI, 2019

It is essential to understand whether the trend in the growth of investments in alignment with ethical and religious values is sustainable or not. Many academic research and reports show that incorporating environmental, social, and governance issues into the financial analysis are gradually becoming a mainstream debate. Long-standing moral and ethical restrictions and lessons learnt from recent social, environmental and financial crises in last few decades have been the catalyst for the growth of ethical and religious investing (Dallas, 2011; Mathras et al., 2016; Schoen, 2017). Along the same line, respondents of the survey conducted by Morgan Stanley (2018) overwhelmingly agree that ethical and religious investing is not a fad, with 89% stating it is here to stay. Moreover, there is a strong demand for ethical and religious investing by millennials. 29% of them say they seek financial advisors integrating environmental, social and governance issues into investment decisions. US\$30 trillion of inheritable wealth will be received by millennials over the next few decades and lead to the proliferation of ethical and religious funds (Ernst & Young, 2018)¹. Therefore, the impact of ethical and religious investing on financial markets would become a long-standing phenomenon rather than occurring once and vanishing. Consequently, it can challenge fundamental assumptions and theories in financial economics.

Incorporating environmental, social and governance issues into financial analysis has stimulated many questions regarding long-held beliefs and main foundations in finance theory. Ethical and religious investors can integrate their values and principles

¹ That is why, Blackrock's CEO Larry Fink sent letters to world's biggest corporations' management to ask them "serve a social purpose". He believes that having social purpose has a strong relationship with a company's ability to maintain its profits.

into investment decision to achieve moral, social and environmental objectives. Individuals allocate capital toward companies whose activities align with their ethical and religious values instead of solely focusing on maximising risk-adjusted financial return. However, there are strong assumptions and theories about almost all financial behaviours in neoclassical financial economics. Individuals and agents have stable, well-defined preferences, make rational choices in the market to maximise their utility. An empirical result is considered as an anomaly if it is difficult to "rationalise," within the framework of neoclassical financial economics. Therefore, many studies revisited and questioned fundamental theories and assumptions about investor behaviour, market efficiency, portfolio theory and asset pricing models under the light of empirical studies about ethical and religious investing.

Prior researches on the link between personal values and investor behaviour have important implications for understanding the role of ethical and religious values in astonishing growth of ethical and religious investing. Many research papers about ethical and religious investing reported deviations of actual human behaviour from rational behaviours of *homo economicus* derived from unrealistic assumptions of neoclassical finance theories (Azzi and Ehrenberg, 1975; Iannaccone, 1998; Asutay, 2007; Bollen, 2007; Benson & Humphrey, 2008; Ahmed & Salas, 2008; Marzuki & Worthington, 2015; Khayruzzaman, 2016). Azzi & Ehrenberg (1975), Cullis, Lewish & Winnett (1992), Asutay (2007) and Gundlach & Opfinger (2013) show that investors could gain non-financial utility from investments in ways that are consistent with ethical or religious values. Similarly, the studies of Bollen (2007), Benson & Humphrey (2008), and Marzuki & Worthington (2015) reported that ethical and religious investors are less sensitive to past performance of SRI and Islamic funds than that of conventional funds. Therefore,

high loyalty of ethical and religious investors can be linked to additional satisfaction and utility derived from investing in financial assets to achieve social and environmental changes.

Recent literature challenged capital asset pricing models (CAPM) and show that non-financial factors could affect asset prices temporarily or permanently in financial markets. Cadsby & Ratner (1992), Yen & Shyy (1993), Husain (1998), Frieder & Subrahmanyam (2004), Seyyed et al. (2005), and Umesh (2012) analysed performance of market benchmarks during Christian, Jewish, Islamic, Hindu and Chinese religious holidays to capture investor sentiment and behaviour during days surrounding religious holidays. These studies documented the positive effect of religious holidays on financial return in the post-holiday period. These results show that when a large number of investors' behaviour is correlated, they can drive prices of financial assets farther and farther from its fundamental value. According to survey of A4S, GRI, & Radley Yeldar (2012), an overwhelming majority of respondents believe that extra-financial information about environmental, social and governance (ESG) issues of companies play a significant role in their investment process and financial analysis. Friede, Busch, & Bassen (2015) analysed more than 2000 empirical researches on the relationship between ESG issues and corporate financial performance (CFP) and found that more than 90% of those studies documented a non-negative relationship between the ESG-CFP.

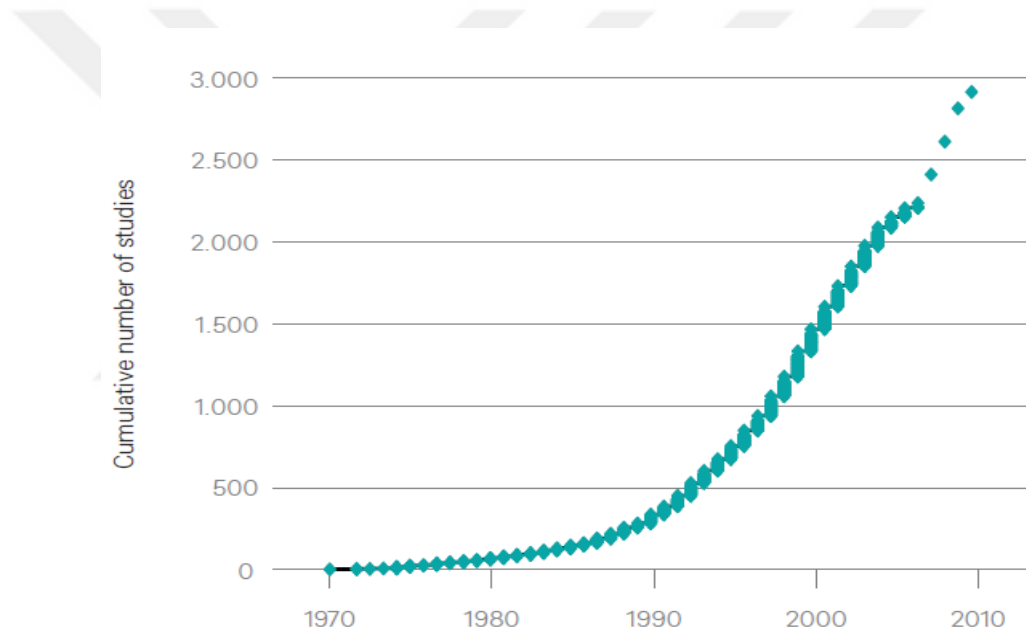
Prior studies on ethical and religious investing challenged fundamental assumptions and theories in terms of measuring risk, diversification and portfolio management. Unlike traditional investors, ethical and religious institutional and retail investors employ often five investment strategies, namely negative screening

(Maveyraud & Jégourel, 2010) which is the most widespread approach for integrating values into investment strategy, positive screening (Elias, 2017), divesting, shareholder activism (Yegnasubramanian, 2008), and ESG integration (Townsend, 2017). It is crucial to note that these investment strategies have non-financial biases of picking financial assets for building a portfolio. Therefore, it is entirely different from what mainstream investment theory suggests. Achieving particular moral, social and environmental objectives might require large institutions and individual investors to channelise their investment into specific geography, sectors and people with particular income level. Overconcentration of investment diminishes the ability of diversification to reduce risk and volatility within a portfolio (Yegnasubramanian, 2008; A4S, GRI, & Radley Yeldar, 2012; Gond, 2017). Therefore, risk-adjusted return of ethical and religious investing can deviate from the market's benchmark. In other words, ethical and religious investing would either increase risk or decrease the profitability of the portfolio by ending up being less efficient than a conventional portfolio (Carhart, 1997; Cox et al., 2004). Therefore, a religious or ethical investor would be willing to pay a premium because it is difficult to beat the market benchmark with the constraint of achieving religious or ethical goals. Consequently, it is usual to observe financial anomalies in the ethical and religious investing market (Iyer, 2016; Szyszka, 2013).

Many studies have been investigating the relationship between ESG criteria and financial performance to reconsider the assumption of rational behaviour, modern portfolio theory, asset pricing models, and market efficiency in the context of ethical and religious investing in last two decades (see Figure 2). However, a substantial body of research on financial impact of ESG criteria approached this relationship by considering link between socially responsible investment (SRI), impact investing or ESG investing

and their financial performance (Hamilton & Statman, 1993; Mueller, 1994; Kurtz & DiBartolomeo, 1996; Margolis & Walsh, 2003; Statman & Glushkov, 2009). Although researchers sometimes document a positive relation between the ESG and CFP, studies often claim that there is intricate relation between ESG criteria and financial performance (Griffin & Mahon, 1997; Rowley & Berman, 2000; van Beurden & Gössling, 2008; Hoepner & McMillan, 2009; Revelli & Viviani, 2015).

Figure 2: The Number of Empirical Studies Tracking the Link Between ESG and CFP over Time

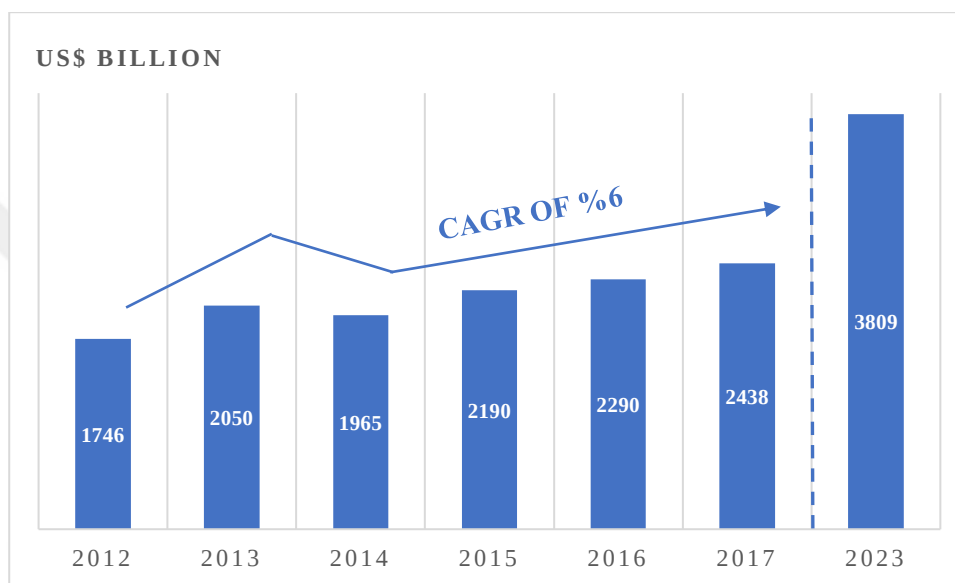


Source: Friede, Busch, & Bassen (2015)

Shari'ah compliant investment whose rules and principles has roots in the Qur'an and Sunnah, have been considered as similar to SRI due to conducting negative screening as investment strategy to eliminate any involvement into sinful activities associated with alcohol, gambling, pork and any other harmful activities to human and environment (Wilson, 1997; Chong & Anderson, 2008; Pitluck, 2008; Elias, 2017). In parallel with the growing trend for sustainable and responsible investing, Islamic finance industry also

witnessed sustainable growth over the last twenty years. Global Islamic finance assets have reached to US\$ 2.4 trillion in assets in 2017 by CAGR growth of 6% from 2012, based on data reported for 56 countries, mostly in the Middle East and South and Southeast Asia (see Figure 3).

Figure 3: The Growth of Global Islamic Finance Assets



Source: Thomson Reuters, 2018

Concomitant with the growth in investor support for Shari'ah compliant investment as a subset of ethical and religious investing, there has been an increasing academic interest in the phenomenon. Recently, many researchers have produced hundreds of studies focusing on the definition of Shari'ah compliant investment, the financial performance of Islamic financial institutions and Shari'ah compliant investment, and behaviour of Shari'ah conscious investors. Although there is an ongoing debate on the effect of the non-financial aspect of ethical and religious investing on financial markets, limited empirical studies focus on the link between Shari'ah compliant investment and financial anomalies. This triggers the main motivation of our study:

providing insights to understand how non-financial aspect of Shari'ah compliant investment affects investor behaviour and financial markets. Seeking fresh evidence to understand behaviours of Shari'ah sensitive investors by exploring the relation between Shari'ah compliant investment and financial anomalies will provide a deeper and more complete understanding of ethical and religious investors' behavioural dimensions and anomalies in financial markets.

Islamic finance has become an increasingly significant industry with its rapid growth in the Middle East, Southeast Asia, and other parts of the world over two decades. However, it is crucial to explain why Malaysia particularly provides a compelling case which differs from other countries to detect financial anomalies associated Shari'ah compliant investment. The country has dual financial system and government's market neutrality policy to ensure fair competition between Islamic and conventional financial institutions where Islamic finance industry has a robust legal infrastructure, prudential regulatory framework, high level of Islamic finance market awareness and substantial market share (Boyd & De Nicoló, 2005; Uhde & Heimeshoff, 2009; Barom, 2013). Even though each of these two financial institutions provides financial services to a specific clientele, they both operate with similar roles and function in the same market. Thus, Malaysia ensures an environment of fair competition to identify anomalies in financial markets resulting from behaviours of Shari'ah sensitive investors.

Uncovering potential behavioural differences between Shari'ah sensitive and conventional investors has recently become a contentious topic in academic literature (Hassan, 2009; Srairi, 2010; Čihák & Hesse, 2010; Hoepner, Rammal & Rezec, 2011; Ho et al., 2014; Marzuki & Worthington, 2015; Rao et al., 2016; Aysan et al., 2017). To

advance this thorny issue, this study uses Malaysia as a country case and aims to examine financial anomalies associated with Shari'ah compliant investment in three different areas of capital markets in Malaysia

A branch of literature on financial anomalies associated with Shari'ah compliant investment focuses on effect of changes in an Shariah index composition or a list of Shari'ah compliant securities (LSCS) on financial markets to understand how non-financial aspect of Shari'ah compliant investment influence behaviour of Shari'ah sensitive investors (Yazi, Morni, & Imm, 2015; Ng & Zhu, 2016; Kassim, Ramlee, & Kassim, 2017). Voluminous studies focused on index effect to understand how stock price and trading volume changes in response to investors' trading behaviour after announcement of change in index compositions (Harris & Gurel, 1986; Amihud & Mendelson, 1986; Dhillon & Johnson, 1991; Beneish & Whaley, 1996; Malkiel & Radisich, 2001; Denis et al., 2003; Chen et al., 2004; Kappau, Brooks, & Ward, 2007). Prior studies (Ariel, 1990; Yen & Shyy, 1993; Frieder & Subrahmanyam, 2004; Umesh, 2012) which focus on stock market anomalies highlight the discernible effect of religious events on investor behaviour. On the other hand, there is a limited number of studies analysing the financial impact of changes in Shari'ah index composition (Yazi, Morni, & Imm, 2015; Ng & Zhu, 2016; Kassim, Ramlee, & Kassim, 2017). Thus, the thesis seeks fresh evidence for financial anomalies in Malaysia associated with Shari'ah sensitive behaviour by investigating the effect of changes in LSCS on return and volume anomalies as the first subject of interest.

Examining financial anomalies in the fund management industry is essential to understand whether Islamic institutional and Muslim retail investors have considerations

of Islamic rules and principles rather than solely focusing on a financial return during investment decision. Quite many studies have been exploring anomalies in socially responsible investment (SRI) funds by comparing flows-performance relation in conventional and SRI funds. Prior studies found that the performance of ethical and conventional funds is not significantly different (Hamilton & Statman, 1993; Kurtz & DiBartolomeo, 1996; Statman & Glushkov, 2009). However, Bollen (2007), Benson & Humphrey (2008), Peifer (2009) and Renneboog et al. (2011) showed that SRI fund investors are less sensitive towards past performance than conventional investors because ethical and religious investors can derive non-financial utility from investing into financial assets in alignment with a set of ethical and religious values. However, there is limited research to understand behaviours of Shari'ah conscious investors under the light of a comparative analysis of flows-performance relation in Islamic and conventional funds (Marzuki & Worthington, 2015; Rao et al., 2016). Therefore, as the second subject of interest, the thesis examines fund flow-return relation of Islamic and conventional funds in Malaysia to understand how Shari'ah compliance as non-financial criteria affects the sensitivity of the flow-performance relationship of Islamic

Comparing the impact of analysts' recommendation revisions on Shari'ah-compliant and Shari'ah non-compliant can be beneficial to gain further evidence for Shari'ah compliant investment-related financial anomalies in Malaysia. Recently, investors and analysts pay more attention to extra-financial information as an integral part of investment strategy and financial analysis (CSR Europe, Deloitte, & Euronext, 2003; A4S, GRI, & Radley Yeldar, 2012). A large body of literature shows that there is a non-negative relation between ESG and CFP (Peloza, 2009; Clark, Feiner, & Viehs, 2014; Friede, Busch, & Bassen, 2015). Few empirical studies uncovered the link between

corporate social performance (CSP) and sell-side analysts' reports (Dhaliwal et al., 2012; Ioannou & Serafeim, 2010; Alazzani et al., 2019). Although Al-Khazali et al. (2014) and Lean & Parsva (2012) documented that Islamic indexes often outperform their conventional counterparts, few studies analysed the relationship between Shari'ah compliance as extra-financial information and corporate financial performance (Farooq, 2014; Sabrun et al., 2018). It is crucial to address the question of how Shari'ah sensitive investors react to analysts' recommendation revisions for Shari'ah compliant stocks. As the third subject of interest, the thesis investigates whether analysts' recommendation revisions give rise to different price reactions for Shari'ah compliant stocks or not.

1.2 Financial Anomalies

Anomaly has a literal meaning of strange or unusual occurrence. From a social science perspective, George & Elton (2001) defines anomaly as a deviation from or unexpected phenomenon in any theory, model or hypothesis. Meanwhile, Tversky & Kahneman (1989) describes anomalies as a deviation from the scientific models and theories which is too common to be dismissed or too systematic to be ignored as an error term. Financial anomalies often refer to deviations of market data from assumptions, theories, and models of finance. Theories in finance cannot explain such deviations in financial markets. Thus, economists call such inconsistent results as financial anomalies (Silver, 2011). Therefore, inefficient markets, asset mispricing and irrational human behaviour are popular explanations for financial anomalies (Frankfurter and McGoun, 2001).

Economists tend to perceive inconsistent empirical results with maintained assumptions, models and theories of financial economics as anomalies until finding

alternative explanations for the occurrence of anomalies in financial markets. Thus, many economists reconstructed theories of finance to explain potential underlying causes of anomalies in financial markets (Kuhn, 1977; Lo & MacKinlay, 1990; Boudoukh et al., 1994; Wouters, 2006).

Prominent psychologists, anthropologists, and sociologists have long posited a crucial link between religiosity and human behaviour (Durkheim 1912; Freud, 1927; Allport, 1950). Thus, ethical and moral values provide excellent insight to understand fundamentals of human psychology. However, investors have been deemed to behave rationally since the early 1960s. Statman (2004) affirms that the first foundation block of modern finance is the notion of rational investors. In other words, many theories and models in modern finance have developed on the base of rationality assumption over the last four decades.

Nowadays, it is generally accepted that it is essential to understand how investors behave if investors want to understand how prices behave in financial markets. Therefore, the economists of behavioral finance constructed with few tools to reflect a different model of human behavior and to understand deviations from Efficient Markets Hypothesis, Capital Asset Pricing Model and Portfolio Theory (Statman, 1999). Therefore, financial anomalies in the previous studies have been gradually considered as the new normal under the theories of behavioural finance.

A large body of the literature on behavioural finance showed the impact of ethical and religious values on investor behaviour and financial markets (Statman, 1999; Sosis & Ruffle, 2003; Tan & Vogel, 2008; Kumar, Page, & Spalt, 2011; Noussair et al., 2012;

Bennett & Einolf, 2017). Therefore, it has become clear that basic facts about investor behaviour, asset pricing and market efficiency are not easily understood in neoclassical framework because the last few decades have spun many research papers reporting deviations of actual human behaviour from the benchmark predictions theoretically derived from unrealistic neoclassical assumptions and theories. Moreover, many studies showed that there is a possibility of a large number of investors to behave and react together through the influence of ethical and religious values. Subsequently, coordinated behaviour of ethical and religious investors induces unexpected movements in financial markets within theories of neoclassical economics (Bollen, 2007; Renneboog et al., 2008; Barom, 2013).

Even though there is a fierce discussion in the literature about the misuse and misapplication of the word “anomaly”, this study broadly consider the impact of non-financial information on investor behavior and financial markets as financial anomalies, consistent with early literature of behavioural finance (Schwert, 2003). Ethical and religious forces orient the investor behavior from being fully profit-maximizing to prioritizing ethical and religious goals. Therefore, ethical and religious investment strategies often implement negative screening criteria to eschew from investments in companies or sectors that are involved in sinful activities such as gambling, alcoholic beverages and pork-related food, conventional banking and conventional insurance. Thus, satisfying both religious and financial objectives can be a challenging task for the investors.

Shari'ah compliant investment which ensures requirements of Islamic values and principles in investment can influence the decision-making process of Shari'ah sensitive investor. Therefore, coordinated behaviour of Shari'ah sensitive investors to prefer "Islamic" and "Shari'ah compliant" labels for choosing financial institutions and products to comply with ethical and religious principles by screening stocks or investments based on Islamic values may potentially hinder them from maximizing their returns and causes to financial anomalies. Therefore, many researchers started to analyse the impact of Shari'ah compliant status as non-financial information on the behaviour of Muslim investors (Ahmad, Rustam, & Dent, 2011; Muhamad & Mizerski, 2012). Moreover, many studies documented that Islamic holy days can play a vital role to influence behaviour of Shari'ah sensitive investors and leads to anomalies in financial markets (Oguzsoy & Guven, 2004; Tan & Özlem, 2018). Hence, financial anomalies have recently become associated with Shari'ah compliant investment.

More and more studies regarding the impact of non-financial aspect of Shari'ah compliant investment on financial markets begun to enter the literature of behavioural finance (Oguzsoy & Guven, 2004; Ahmad, Rustam, & Dent, 2011; Tan & Özlem, 2018). However, many studies show that financial anomalies associated with Shari'ah compliant investment differentiate themselves from behavioural anomalies in their conventional counterparts. Whereas financial anomalies occurs in relation to coordinated behaviour of Shari'ah sensitive investors to comply with Islamic values and beliefs during making financial decision, behavioral anomalies often are explained by the impact of psychological factors on decision making process. Therefore, there are different types of anomalies in peculiar to Shari'ah compliant investment and behaviours of Shari'ah

sensitive investors. Hence, this study is unique in terms of purely investigating behavioural anomalies associated with Shari'ah compliant investment.

1.3 Ethical and Religious Investing and Financial Anomalies

History of integrating non-financial elements into investment decision with various moral and religious motivation dates back to centuries ago. In the early history of non-financial criteria for making an investment decision, investors of different faiths such as Judaism, Christianity and Islam had religious restrictions on investing into particular business or using specific contracts such as the production of alcohol or tobacco and gambling equipment. Religious organisations, charities and labour unions had concerns that their investments are in alignment with a set of ethical and moral values. Ethical and religious investing remained a small niche market among these investors until the early 1990s.

Beginning early 2000s, ethical and religious investing has gained global momentum and been the agenda for regulators, policymakers, and intergovernmental organisations as part of the strategies to contribute to the development of a more sustainable global financial system. In 2006, the United Nations launched Principles for Responsible Investment (UN PRI) by inviting the world's largest institutional investors with \$45 trillion in signatories' assets. The UN PRI encourages adoption of the Principles and incorporating Environmental, Social, and Governance (ESG) issues into investment practice to achieve a sustainable global financial system.

Ethical and religious investing has many terms associated with the plethora of financial analysis that concerns environmental, social and governance issues. Ethical and religious investing is often interchangeably used with socially responsible investment,

sustainable investment, impact investing and ESG investing. Most of those terms lack formal definitions, but they can be defined broadly as an investment approach which considers ethical, religious, social and environmental consequences of investments, both positive and negative, within the context of rigorous investment analysis (Social Investment Forum (SIF), 2001; Malaysia World's Islamic Finance Marketplace, 2015; The Global Impact Investing Network (GIIN), 2009). With the development of ethical and religious investing, investors started to implement new investment strategies of positive screening, divesting, shareholder activism and ESG integration to achieve environmental and social objectives.

Incorporating environmental, social and governance criteria into investment analysis is finally moving out of a specialised niche into the mainstream because assets under management of Principles for Responsible Investment (PRI) signatories is currently around US\$90 trillion which is more than 50% of the total global financial assets (PRI 2018). The rise of ethical and religious investing indicates the commitment of investor to consider environmental, social, and governance (ESG) performance as part of a more comprehensive investment analysis. However, almost two-thirds of analysts and investors think comparing and understanding the financial impact of social information is challenging to talk which in turn undermines the benefit of disclosed social information (A4S, GRI, & Radley Yeldar, 2012). Moreover, less than 10% of financial analysts have the opportunity to participate a formal training on how to integrate ESG criteria in investment analysis (CFA Institute, 2015). Therefore, academic researchers have an vital role in exploring how considering non-financial factors regarding ethical, religious and the ESG issues as part of investment strategy affect portfolio returns, investor behaviour, market efficiency, and asset pricing theories.

As discussed in the literature, many researchers looked into relationship that financial behaviour may have with different dimensions of religious and ethical values (Keister, 2003; Kumar, Page, & Spalt, 2011; Dallas, 2011; Noussair et al., 2012; Mathras et al., 2016; Schoen, 2017). Several studies have found that there is an empirical link between being an adherent of a religion and risk-taking behaviour (Keister, 2003; Page, & Spalt, 2011; Noussair et al., 2012). Meanwhile, many researchers also highlighted that religious belief and ethical values can shape a variety of consumer behaviour through their effect on the psychology of consumers (Swimberghe, Sharma & Flurry, 2011; Cutright, 2012; Shachar, Erdem, Cutright, & Fitzsimons, 2011). Therefore, ethical and religious individuals may derive non-financial utility from spending with religious and ethical considerations (Azzi & Ehrenberg, 1975; Leightner, 2005; Asutay, 2007; Gundlach & Opfinger, 2012). Thus, the literature on religious and ethical investing challenge rational choice and utility maximisation theory of neoclassical finance.

Currently, the question of how integrating ethical, religious, environmental, social and governance issues affect financial performance has remained as a central debate because practices of ethical and religious investing are fundamentally different from what mainstream finance theories suggest. Economists put great effort to understand the link between the ESG criteria and corporate financial performance (CFP) and researchers published more than 2000 empirical studies to provide evidence on this issue by using different methodologies, data and variables since the 1970s. However, the relation between the ESG and CFP has remained a central debate (Griffin & Mahon, 1997; Rowley & Berman, 2000; van Beurden & Gössling, 2008; Hoepner & McMillan, 2009; Revelli & Viviani, 2015).

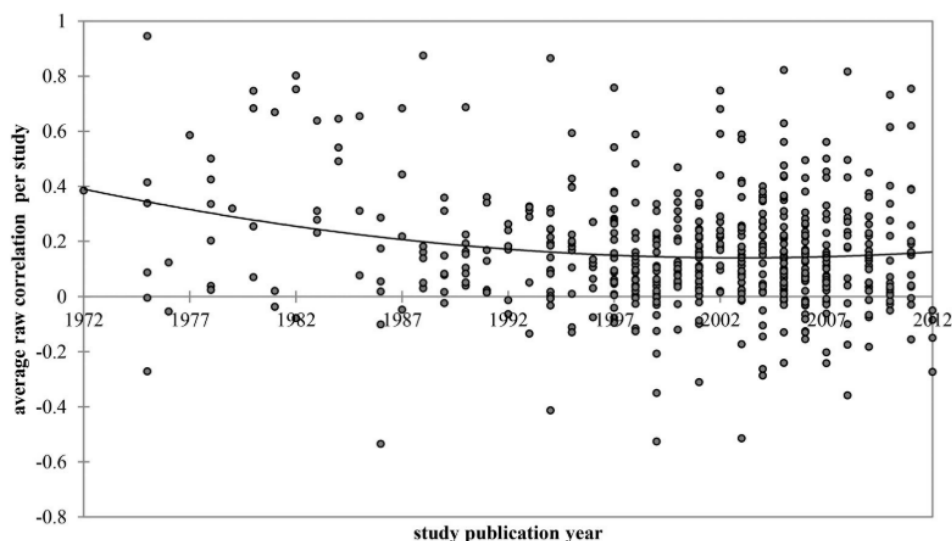
Although many researchers explored positive or negative relation between ESG and CFP, most researchers are undecided about the effect of ESG including its durability and measurement (Barnett, 2007; Wood, 2010; Orlitzky et al., 2011; Borgers et al., 2015). Similarly, numerous studies found that there is no significant difference in the performance of SRI and conventional fund (Hamilton & Statman, 1993; Kurtz & DiBartolomeo, 1996; Statman & Glushkov, 2009).

Voluminous studies uncover an information-based mechanism for negative empiric relation between ESG and financial performance after conducting a comparative performance analysis of SRI and conventional funds. Various empirical research showed that conventional funds exhibit higher risk-adjusted returns than SRI funds due to overlapping effects of systematic and idiosyncratic risks (Luo & Bhattacharya, 2009), portfolio construction constraints (Clarke, de Silva, & Thorley, 2002), and higher costs for portfolio implementation (Carhart, 1997; Khorana, Servaes, & Tufano, 2007) in SRI funds.

In contrast to negative findings for the ESG-CFP relation, many researchers found a positive relationship between the ESG and CFP. Peloza (2009) and Clark, Feiner, & Viehs (2015) conducted a meta-analysis to review 159 and 41 studies respectively on CSP-CFP relation, and results show that CSP-CFP correlation is often positive. Friede, Busch, & Bassen (2015) conducted a meta-analysis on 1902 studies concentrating on the link between CSP and CFP and found that 48.2% of all studies displayed a positive correlation between CSP and CFP.

The studies on the relationship between ESG criteria and CFP often yield ambiguous and inconclusive results. However, the study of Friede, Busch, & Bassen (2015) which examined 551 studies in meta-analyses found that the positive ESG impact on CFP is stable over time and investing in ESG promises positive financial return (see Figure 4). The long-standing positive ESG-CFP relation in the literature implies that ESG criteria can affect prices of financial assets in the long-term. Integrating ESG factors into the financial analysis can mitigate operational, reputational, regulatory and financial risk in long-term (Bennani et al., 2018). Thus, investors need to identify ESG factors for companies and to adjust cash flows and discount rates as key concerns of valuation models (El Ghouli et al., 2011; Brown et al., 2013; Chava, 2014). Thus, applying ESG factors in company valuation as a more precise asset pricing model for estimating medium- and long-term performance challenged traditional asset pricing models (Leila et al., 2018).

Figure 4: ESG-CFP Correlation Over the Time



Source: Friede, Busch, & Bassen (2015)

Recent studies suggest that ESG is a new risk factor and ESG signals entails information influencing a portfolio's risk-return characteristics (Hvidkjær, 2017; Jin, 2017; Lioui, 2018). Therefore, constructing an optimal portfolio based on ESG factors is vital to manage long-term risks and earn a competitive return. Sassen, Hinze & Hardeck (2016) find that ESG factors influence all market-based risk measures, namely total, idiosyncratic, and systematic risk negatively. On the other hand, Jin (2018) suggests that there is ESG-related systematic risk for firms, and it is significantly priced in the market.

Meanwhile, Harjoto & Jo (2015) and Orlitzky & Benjamin (2001) also reported that portfolios with ESG integration should generally decrease stock performance risk. Thus, recent literature suggests that scholars and practitioners should reconsider limitations of modern portfolio theory and integrate ESG-related risks into the portfolio optimisation process.

Previously, most empirical researches concentrated on financial anomalies associated with ethical and religious investing by analysing a direct link between ESG integration and anomalies in financial markets (Peloza, 2009; El Ghouli et al., 2011; Brown et al., 2013; Chava, 2014; Clark, Feiner, & Viehs, 2015). However, there are limited studies that examine how non-financial aspect of Shari'ah compliant investment as a subset of ethical and religious investing influence financial markets. Therefore, there is a high need to penetrate the black box linking Shari'ah compliant investment and financial anomalies to gain a more comprehensive understanding of underlying mechanisms of value-based investment.

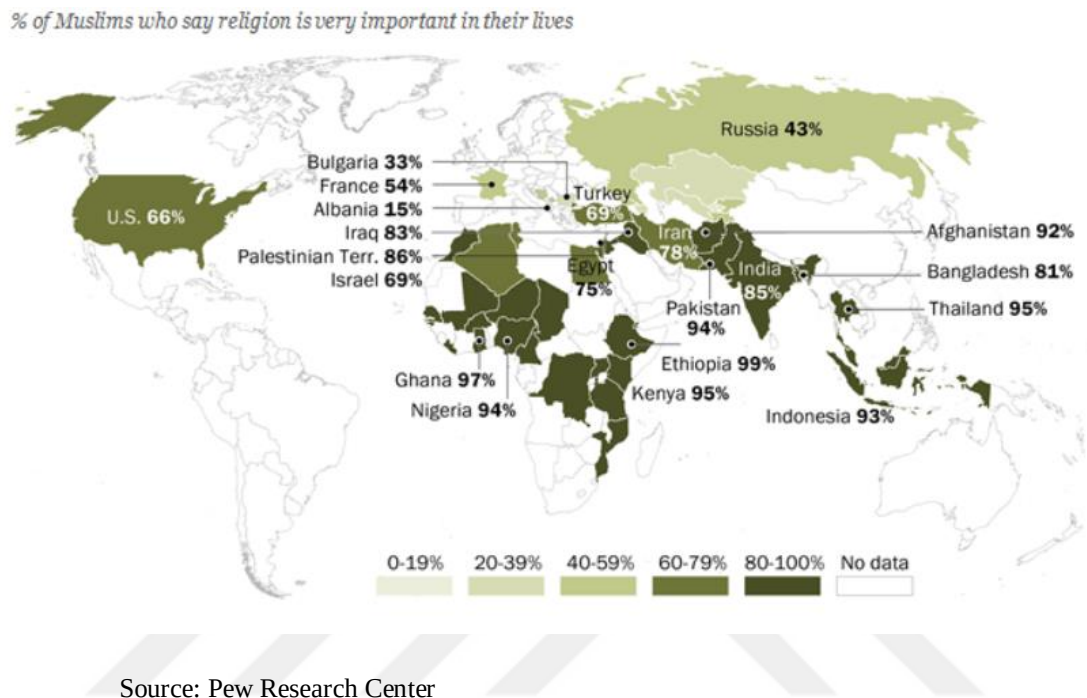
1.4. Shari'ah Compliant Investment and Financial Anomalies

The recent decades have spun a large body of studies focusing on the effect of religion on individual behaviours (Minkler & Coşgel, 2004; Bjarnason, 2007; Bakir & Vitell, 2010). As part of ongoing debate in the literature, many researchers attempted to examine influence of Islamic beliefs and values on the behaviour of Muslim consumers (Ahmad, Rustam, & Dent, 2011; Muhamad & Mizerski, 2012). While Islam has a deep connection with different aspects of Muslim culture, it has doctrines, and teachings touch upon many different aspects of life including in how to do business, trade and make contracts (Kotler, 1994; Lindridge, 2005). However, many researchers note that the degree of religiosity has a strong link with purchasing decisions varying extents (Essoo & Dibb, 2004; Taks & Shreim, 2009).

Today, there is a growing number of Muslim populations which represents more than 20% of the world population as the world's second-largest religious group. According to survey of Pew Research Center (2018), at least 70% of Muslims consider religion as very important in their lives in the Middle East, Africa, and Southeast Asia (see Figure 5). According to Asutay (2007) and Arif (1989), Muslims would have two-dimensional utility function which does not focus on pure selfishness but also conduct economic behaviour in accordance with Islamic principles and constraints regarding social, environmental and hereafter which leads to *Homo Islamicus* or "*tab'ay*" (obedient) human being. Many studies claim that Muslim investors may derive non-financial utility from conforming to their religious beliefs and investing into Islamic financial products and services because there is often a positive link between religious consumption and life satisfaction (Azzi & Ehrenberg, 1975; Leightner, 2005; Asutay, 2007). Along the same line, some empirical studies show that religious conviction is the

most important criteria to invest in Islamic financial institutions (Gait & Worthington, 2008; Barom, 2013)

Figure 5: Importance of Islam Among Muslims Around the World



Few decades ago, standard-setting bodies, regulatory bodies of Financial Institutions such as Central Banks and Stock Exchanges, Islamic finance experts, Shari'ah scholars and private financial institutions started to conduct comprehensive research and workshops to determine a Shari'ah screening methodology for identifying which companies are compliant with Shari'ah rules and principles so that they can attract savings and investment of Muslim investors who are not only concerned about making profit but also being consistent with their Islamic belief during making investment decision (Datin & Muhammed, 2013; Moisseron, Moschetto, & Teulon, 2015). Thus, Shari'ah compliant investments often implement negative screening as an investment strategy to avoid any involvement into prohibited activities and contracts such as gambling, sale of alcohol, pork, tobacco (Wilson, 1997; Chong & Anderson, 2008; Elias,

2017). Besides, Islamic financial institutions such as Islamic banks, takaful companies and Islamic funds have been established to provide financial services in compliance with Shari'ah rules and principles. Shari'ah committees or Shari'ah Boards in Islamic financial institutions determine whether any financial product and service of Islamic financial institutions violate Islamic law and ensures that overall activities of Islamic financial institutions are managed and administered in accordance with Shari'ah principles (IFSB, 2009).

Shari'ah compliant investment as a subset of ethical and religious investing integrates non-financial biases into investment analysis to conform to religious beliefs and to achieve social and environmental objectives rather than only concentrating on maximising financial return. Islamic financial institutions and Shari'ah compliant investment attract substantial capital inflows of Shari'ah sensitive investors who are deeply concerned about ensuring that all aspects of the investment management operations are Shari'ah compliant. When a large number of Shari'ah conscious investors who pay less attention to financial returns react together, it is usual to observe limitations to arbitrage, asset mispricing and inefficient market. Therefore, Shari'ah screening plays an important role to understand financial anomalies in Islamic financial markets.

Recently, there is an increasing number of studies focusing on link between Shari'ah compliant investment and financial anomalies since it attracted the attention of many researchers that global Islamic financial assets including Islamic banking, takaful, and Islamic capital market have reached to almost US\$2.5 trillion in 2018 while it was less than US\$500 million just a few decades ago (IFDR, 2018). On the other hand, many studies found that Shari'ah compliant approach to investing often do not outperform

conventional counterparts and mostly, risk-adjusted returns of Shari'ah compliant and conventional investments are not significantly different (Elfakhani et al., 2005; Girard & Hassan, 2008; Ergec and Arslan, 2013). However, the high growth of Islamic financial markets all around the world provides prima facie evidence that financial returns may not be the only criteria used by a large number of investors since many Muslim investors are willing to pay a premium for financial products and services that are consistent with their Islamic values. In response to the glimpses of these non-market behaviours, more and more researchers examined the effect of Islamic beliefs on investor psychology and behaviour through seeking evidence from Islamic finance markets.

A large body of literature focuses on the link between Shari'ah compliant investment and non-market behaviour by gaining empirical evidence from Islamic banking. Prior studies document that Islamic and conventional banks are similarly affected by and give a common response to monetary policy (Kasri & Kassim, 2009; Ergec & Arslan, 2013). Moreover, some empirical studies show that Islamic banks are subjected to interest rate risk and as a consequence, mimic deposit rates of conventional banks (Bacha, 2004; Chong & Liu, 2009, Ergec & Arslan, 2013). Despite offering similar deposit rates, overwhelming majority of Islamic banking customers responded that religion is the most significant factor for choosing a bank (Omer, 1992; Hegazy, 1995; Metawa & Almossawi, 1998).

Various empirical studies investigated market anomalies associated with Islamic funds to understand how behaviours of Shari'ah sensitive investors exert an influence on financial markets. Elfakhani et al. (2005) and Girard & Hassan (2008) reported that performances of Islamic and conventional funds are not significantly different. However,

the results of questionnaire conducted by Barom (2013) exhibits that almost three-quarters of Muslim investors in Malaysia prefer to invest into only Islamic funds since the halal return is the most important criteria during their investment decisions. Consequently, many researchers explored that investors of Islamic funds are relatively less responsive toward poor performance compared to investors of conventional funds (Peifer, 2009; Rao et al., 2016; Marzuki & Worthington, 2015). Thus, they claim that investors of Islamic funds are more loyal compared to conventional investors.

Although many empirical studies examined the behaviour of Shari'ah sensitive investors and its impact on financial markets, findings from those studies can be often contradictory and inconclusive (Elfakhani et al., 2005; Abdullah et al., 2007; Hassan, 2009; Aysan et al., 2017). There is still a limited number of studies to understand the relationship between financial anomalies and Shari'ah compliant investment (Khayruzzaman, 2016; Ahmed & Salas, 2008; Alam et al. 2012). Therefore, this thesis aims to fill the gap in the literature by conducting further research on financial anomalies associated Shari'ah compliant investment.

1.5 Malaysia, Shari'ah Compliant Investment and Financial Anomalies

Before discussing the scope of the study in details, it is essential to argue why the thesis investigates financial anomalies associated with Shari'ah compliant investment in the context of Malaysia. Whereas the overall development of Islamic finance has been evolutionary over thirty years, the pace has recently intensified in the Middle East, Southeast Asia, and other parts of the world. However, Malaysia is particularly a fertile testing ground to examine financial anomalies linked to Shari'ah compliant investment. A wide range of country-specific factors may exert a significant influence on

performance, efficiency and stability of Islamic financial institutions. To be able to analyse the impact of religion on investor behaviour and consequently on financial markets, a country must have suitable financial ecosystem and demographic characteristics. In this section, we will elaborate on how the country's demographic factors and characteristics of its financial market play a vital role to capture the link between financial anomalies and Shari'ah compliant investment.

1.5.1 Financial Market and its Characteristics

Malaysia has a dual financial system where Islamic and conventional financial institutions operate side by side. However, Islamic financial institutions, products and services have distinctive features from its conventional counterparts (Beck, Demirgüç-Kunt, & Merrouche, 2013; Daher, Masih, & Ibrahim, 2015; Raditya & Ibrahim, 2016). Asset-backed and risk-sharing nature of contracts and financial models in Islamic finance industry sometimes can create challenges related to agency problems (Srairi, 2010; Beck, Demirgüç-Kunt, & Merrouche, 2013), taxation (Hassan & Bashir, 2003), liquidity (Choong, Thim, & Kyzy, 2012), and financial sector development (Tamimi, 2010) and consequently, affect performance, efficiency and stability of Islamic financial institutions negatively. Thus, regulatory and supervisory bodies need to put great attention to eliminate these challenges that may cause distortions in financial markets and undermine harmony in the ecosystem that both Islamic and conventional financial institutions operate.

In an effort to confront these challenges that Islamic financial institutions face, Malaysia has implemented various measures to ensure the transition of the country to become the global hub of Islamic finance in the early 2000s. As part of `Malaysia

International Islamic Financial Centre (MIFC)` in 2006, Malaysian regulatory and supervisory bodies embraced the principle of neutrality in ensuring fair treatment for Islamic financial institutions in comparison with its conventional peers in terms of the taxation, laws and regulations. Thus, Malaysian regulatory bodies started to provide tax relief, incentives, guidelines and regulatory frameworks, and to promote Islamic finance education for human capital development of the Islamic finance industry. Recently, IFSA 2013 developed legal infrastructure by providing clarity of laws and ensuring effective enforceability of Islamic finance transactions.

Islamic Finance Industry in Malaysia gradually achieved to operate almost in all markets that its conventional peers do business including Islamic banking and takaful industry, other specialised financial institutions, Islamic money and capital markets. Ensuring no-worse off environment for choosing Islamic or conventional financial institutions, products and services under the name of ‘principle of market neutrality’ eliminate distortions and arbitrages related to poor regulation framework, tax treatment, shortage of experts, and limited financial products available to investors. Therefore, Shari’ah conscious investors can always find alternative Shari’ah compliant financial products that conventional financial institutions offer to their clientele. Thus, the development of the Islamic finance industry enables researchers to examine whether the behavioural pattern of Shari’ah sensitive investors is different from conventional investors or not.

1.5.2 Demographic Characteristics

Muslims are equipped with a unique set of Islamic beliefs, rituals, and values (Mathras et al., 2016). Thus, Islam potentially shapes Muslim investors’ preferences,

consumer psychology and economic behaviour through self-regulation role of religion that God punishes sinners in Hell and rewards good doers in Paradise (McCullough & Willoughby, 2009; Ghassan, 2015).

Many studies document that religion has vital role in influencing behaviours of Muslims (Alam et al., 2011; Idris, Bidin & Saad, 2012; Białkowski, Etebari & Wisniewski, 2012; Campante & Yanagizawa-Drott, 2013). Over 84% of Muslims in Malaysians reports that religion is very crucial and affects their daily behaviour and 86% of Muslims in Malaysians are in favour of making Shari'ah the law of the land (PEW Forum, 2013). The studies of Idris et al. (2011) and Barom (2013) examine the impact of religious commitment on financial behaviour and find that overwhelming majority of Muslim investors in Malaysia consider halal return as most crucial factor to invest into Islamic financial institutions. Shari'ah sensitive investors often construct their portfolio based on non-financial biases by picking only Shari'ah compliant financial assets. Therefore, the coordinated behaviour of Shari'ah sensitive investors in Malaysia can lead to financial anomalies peculiar to Shari'ah compliant investment and financial institutions that many studies on behavioral finance paid less attention.

Malaysia is a multi-confessional country, where Muslims, Buddhists, Christians and Hindus represent respectively 61.3%, 19.8%, 9.2%, and 6.3% of the total population. Unlike many other countries where Muslims are a vast majority or minority of total population, Muslim and Non-Muslim population both compose significant part of the population. Many studies document that while Muslim retail investors and Islamic financial institutions choose Shari'ah compliant products due to religious injunctions and ensuring compliance with Shari'ah requirements, non-Muslim retail investors and

conventional financial institutions are often more concerned with competitive risk-adjusted return (Idris et al., 2011; Jamaludin & Gerrans, 2013; Barom, 2013). Moreover, Mukhtar & Butt (2012) explored that religiosity among Muslims living in multi-religious societies influences the attitudes of consumers towards Halal (permissible) products positively.

Malaysia's unique dual financial system that Islamic and conventional institutions operate side by side have substantial demand by both motivations of ensuring Shari'ah compliance and financial return. If Islamic financial institutions and Muslim investors, which are concerned with the non-financial aspect of Shari'ah compliant investment, trade against rational investors in a coordinated manner, they can put limits to arbitrage and induce to market frictions in Malaysia.

1.6 The Motivation and the Scope of the Study

1.6.1 Introduction

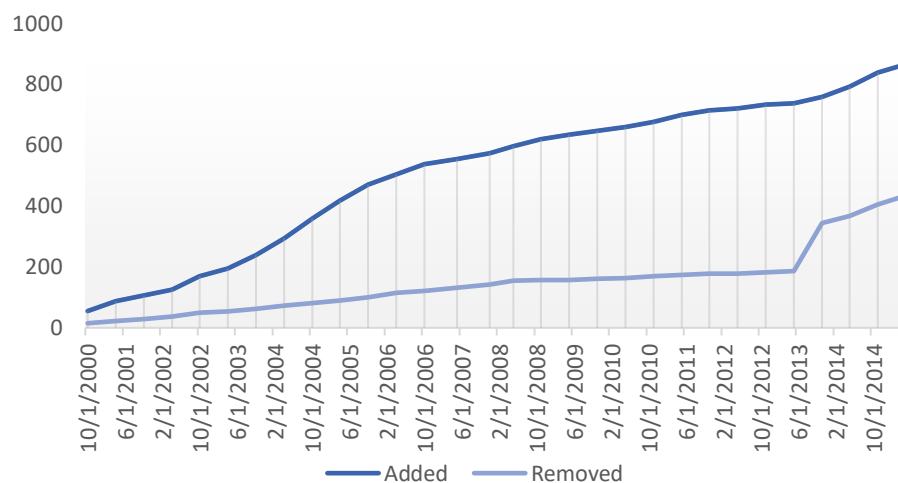
So far, we discussed the need of significant effort to shed light on financial anomalies associated with Shari'ah compliant investment as a subset of ethical and religious investing and why Malaysia is a fertile ground to examine the role of the behavioural pattern of Shari'ah conscious investors to uncover the potential interlinkage between Shari'ah compliant investment and non-market behaviours.

In order to obtain more robust and comprehensive findings, the thesis aims to investigate behavioural anomalies linked to Shari'ah compliant investment in three different areas of Malaysia's capital market. The following sections 1.6.2, 1.6.3 and 1.6.4 elaborate rationale and motivations behind three objectives of the thesis.

1.6.2 Shari'ah Compliance Announcement and Anomalies

To meet the demand of Islamic Institutional and Muslim retail investors for Shari'ah-compliant investments, Shari'ah Advisory Committee (SAC) of the SCM established the methodology to undertake Shari'ah screening process for listed companies in 1995 to introduce Shari'ah compliant securities as one of the earliest Islamic Capital Markets (ICM) products available in Malaysia. SCM has been publishing and updating the list of Shari'ah compliant Securities twice a year since 1997. Over the last 20 years, Shari'ah-compliant stocks have become extremely popular as 74% of listed companies were Islamic in 2015. While more than 900 listed companies as added into list of Shari'ah compliant Securities (LSCS), less than 500 listed companies are removed from LSCS (see Figure 6).

Figure 6: Number of Total Added and Removed Stocks in List of Shari'ah compliant Securities (LSCS)



Source: Security Commission, Malaysia

Although information related to Shari'ah compliant status of listed securities do not convey new information about the financial performance of a listed company, many Islamic institutional and Muslim retail investors in Malaysia are willing to invest by

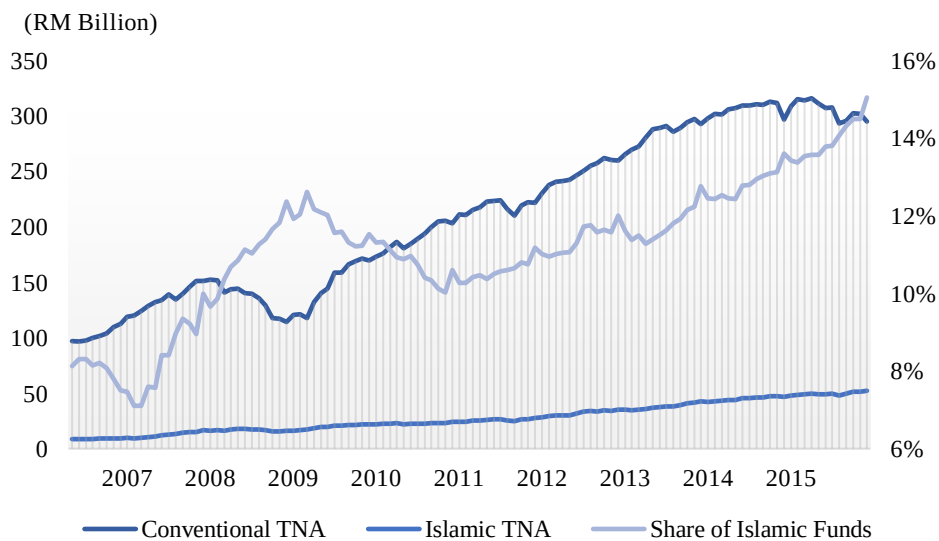
following Shari'ah rules and principles. When a large number of Islamic Institutional and Muslim retail investors use SCM's LSCS announcement as stock screening criteria and investment strategy, their correlated investment behaviour to buy and sell listed securities can induce abnormal trading volume and return for listed securities and lead to financial anomalies.

In the last two decades, numerous studies are concentrating on the index effect and the relation between the stock market and religion since recently, the impact of religious information on stock performance and trading volume attracted more considerable attention of academics, investors and regulatory bodies. Many researchers documented that Christian (Ariel, 1990), Chinese (Yen & Shyy, 1993), Jewish (Frieder & Subrahmanyam, 2004) and Hindu (Umesh, 2012) holidays affect trading volume and performance of listed securities during pre- and post-holiday days. Moreover, many researchers analysed the index effect to understand how index additions and removals can influence the price and trading volume of listed securities. The studies of Harris & Gurel (1986), Elliott et al. (2006), Beneish & Whaley (1997), and Kappau, Brooks, & Ward (2007) report that positive (negative) stock price reactions to the announcement of stock additions (removals from) to a benchmark index. However, the number of studies which investigate the relationship between the announcement of Shari'ah compliant status of listed securities and financial anomalies is minimal (Yazi, Morni, & Imm, 2015; Ng & Zhu, 2016; Kassim, Ramlee, & Kassim, 2017). Thus, the first objective of the thesis is examining whether correlated behaviours of Shari'ah sensitive investors affect price and trading volume of listed securities which are recently added in or deleted from LSCS.

1.6.3 The Relationship Between the Fund Flows and Past Performance

Fund management industry in Malaysia has experienced tremendous growth, from the total net asset value (NAV) of RM121.41 billion in 2006 to RM431.11 billion in 2015. However, the share of Islamic funds' NAV in overall fund management industry has reached from 8.13% to 14.48 % within the same period (see Figure 7). Many studies report that Islamic funds do not perform significantly different from conventional funds (Elfakhani et al. 2005; Girard & Hassan, 2008). Thus, the rapid growth of Islamic funds compared to conventional funds in Malaysia provides prima facie evidence that the behavioural pattern of Shari'ah sensitive investors can be different from conventional investors.

Figure 7: The NAV of Unit Trust and Wholesale Funds



Source: Security Commission, Malaysia

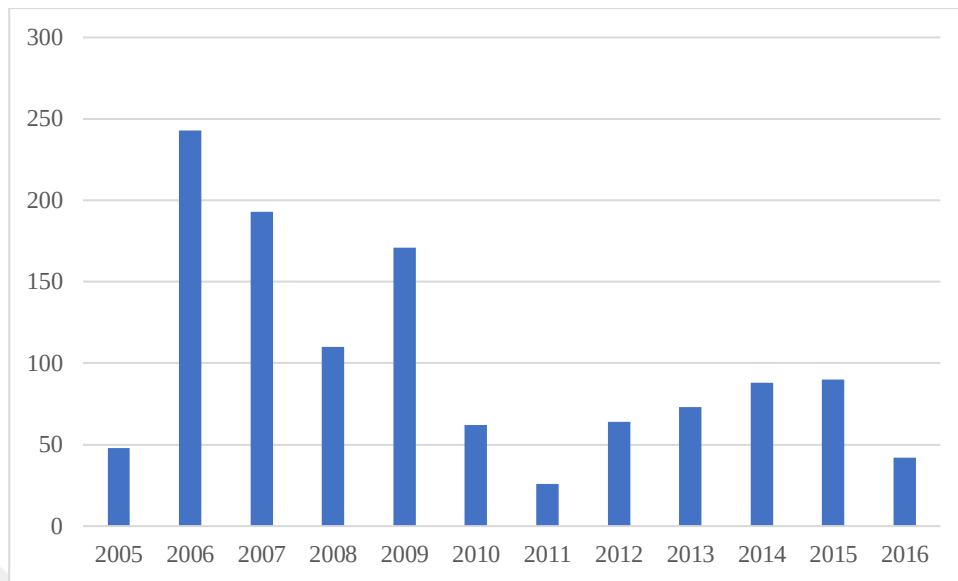
Scholars have long been interested in seeking evidence of anomalies in socially responsible investment (SRI) funds by examining the relation between flows and past returns in conventional and SRI funds. While previous studies of Hamilton & Statman

(1993), Kurtz & DiBartolomeo (1996), and Statman & Glushkov (2009) documented that performance of SRI and conventional fund are not significantly different, few studies found that socially responsible funds have lower risk-adjusted returns than conventional ones (Mueller, 1994). However, numerous studies have explored that SRI funds have a weaker flows-performance relation than conventional funds (Bollen, 2007; Benson & Humphrey, 2008; Peifer, 2009; Renneboog et al., 2011). This finding is consistent with studies of Cullis, Lewish & Winnett (1992), Asutay (2007). Along the same line, Gundlach & Opfinger (2012) suggests that investors can derive non-financial utility from an investment that aligns with ethical or religious values. However, there are a limited number of studies on flows-performance relation in Islamic and conventional funds (Marzuki & Worthington, 2015; Rao et al., 2015). Thus, the second objective of the thesis is exploring financial anomalies in the fund management industry linked to behavioural patterns of Shari'ah sensitive investors through analysing flows-performance relation in Malaysian Islamic and conventional funds.

1.6.4 Analyst Recommendation Revisions and Anomalies

Equity analysts play essential roles in examining publicly available financial data about firms and convey the information of earnings estimation to retail investors and institutions. To increase of the number of analyst coverage for listed companies and facilitate price formation in Malaysia, Bursa Malaysia and Capital Market Development Fund (CMDF) had established the CMDF-Bursa Research Scheme (CBRS) in 2005. Thus, investors had gained free access to a large number of analysts' recommendation revisions for the period 2005 to 2016 (see Figure 8).

Figure 8: The Number of Analysts' Recommendation Revisions in the CBRS



Source: Bursa Malaysia

For decades researchers have investigated average abnormal returns in response to changes in analysts' recommendations. The universal finding is that the recommendation revisions predict future short-term and long-term returns in the same direction as the change. Short-term price reaction is associated with role of analysts to facilitate market efficiency and price formation while long-term abnormal returns which is known as post-revision return drift (PRD) is related to slow adjustment of price and neglected public information in inefficient market (Givoly & Lakonishok, 1979; Womack, 1996; Hong, Lim, & Stein, 2000; Gleason & Lee, 2003; Jegadeesh, Kim, Krische, & Lee, 2004).

Recently, investors and analysts went beyond traditional valuation tools by integrating extra-financial information into investment strategy and financial analysis (Bennani et al., 2018; Leila et al., 2018). Initially, researchers analysed how corporate social responsibility affect analysts' assessments of firms' future financial performance

(Ioannou & Serafeim, 2010). Later, integrating ESG factors into financial analysis have been considered as a more precise tool to estimate the long-term performance of companies since ESG issues can decrease weighted average cost of capital (WACC) and increasing Return on Invested Capital (ROIC) of companies (Elber, 2008). A strand of literature attempted to uncover the link between CSR and CFP and the correlation of CSR and CFP was often non-negative (McWilliams & Siegel, 1997; Hillman & Keim, 2001; Margolis & Walsh, 2003; Orlitzky, Schmidt, & Rynes, 2003; Barnett & Salomon, 2006; Clark, Feiner, & Viehs, 2014; Friede, Busch, & Bassen, 2015). Along the same line, few studies demonstrated that there is positive relation between analysts' recommendations and ESG factor (Ioannou & Serafeim 2010, Alazzani et al., 2019). Although few prior works (Farooq, 2014; Sabrun et al., 2018) attempted to uncover the link between Shari'ah compliance and financial performance, there is still a significant need of efforts to understand such intricate relation and its implications by conducting further studies. Thus, as the third subject of interest, the thesis aims to analyse whether investors react to analysts' recommendation revisions for Shari'ah compliant stocks differently from Shari'ah non-compliant stocks.

1.7 Research Questions, Objectives and Hypotheses

This thesis aims to extend existing empirical literature on interlinkage between Shari'ah compliant investment and financial anomalies with a particular focus on capital markets of Malaysia. Although the development of research hypotheses is discussed in section 2.3 in more details, the thesis is designed to address the following research research questions;

- 1) Do announcements of LSCS affect trading volume and prices of newly classified Shari'ah compliant and Shari'ah non-compliant stocks in Bursa Malaysia?
- 2) Does Shari'ah compliance as a non-financial attribute of Islamic funds in Malaysia lead to different flows-performance relation in Islamic and conventional funds?
- 3) Do investors react analysts' recommendation revisions for Shari'ah compliant and Shari'ah non-complaint stocks differently in Malaysia?

In order to address the aforementioned research questions, the thesis aims to achieve following research objectives and test their hypotheses in the following sections 1.7.1, 1.7.2, and 1.7.3.

1.7.1 Research Objective 1 and its Hypotheses

The first objective of the thesis is to investigate the effect of changes in LSCS on stock price and trading volume. Based on the research objective, there are four research hypotheses to be addressed in this study;

H1a. Non-IPO additions to LSCS will lead to an increase in stock prices while deletions from LSCS will lead to a decline in stock prices in the short term and the long term.

H1b. IPO additions to LSCS will not lead to changes in stock prices in either short term or long term.

H1c. Non-IPO additions to and deletions from LSCS will lead to an increase in stock trading volume in the short term and the long term.

H1d. IPO additions to LSCS will not lead to an increase or decrease in stock trading volume.

1.7.2 Research Objective 2 and its Hypotheses

The second objective of the thesis is to examine flow-return relation of Islamic and conventional funds in Malaysia. The study will analyse the impact of positive and negative performance on the fund flow of Islamic and conventional funds. Moreover, the study aims to explore how Ramadhan month affects, to capture behaviours of Shari'ah sensitive investors, fund flows of Islamic and conventional funds. Finally, it aims to investigate flow-return relation of top and bottom performers of Islamic and conventional funds for a more in-depth understanding of flow-return relationship in Islamic and conventional funds in Malaysia. Based on the research objectives mentioned above, this study is going to test the following six research hypotheses:

H2a. The flow-return relation of Islamic funds is stronger than that of conventional funds for positive performers while it is weaker than that of conventional funds for negative performers.

H2b. The Ramadhan month causes fund outflows from conventional mutual funds while it causes fund inflows into Islamic mutual funds.

H2c. The fund flow-return relation of Islamic funds is weaker than that of conventional funds for bottom performers while it is stronger than that of conventional funds for top performers.

H2d. Fund flows of Islamic funds are less fee-sensitive than conventional funds.

H2e. Fund flows of Islamic funds are less size-sensitive than conventional funds.

H2f. Young Islamic funds attract more fund flows than conventional funds.

1.7.3 Objective 3 and its Hypotheses

The third research objective of this study is understanding the impact of analyst recommendations participating in the financial analysts' coverage incentive scheme over firms in Malaysia. More importantly, the study aims to compare the price reactions of Shari'ah non-compliant and Shari'ah compliant firms in Malaysia in response to analysts' recommendation revisions. Finally, the study aims to explore whether analyst recommendations in Malaysia piggyback on the news related to financial results of corporations or not and how prices of Shari'ah non-compliant and Shari'ah compliant firms in Malaysia react to analyst recommendation revisions. Based on research objectives mentioned above the following four research hypotheses to are going to be addressed in this study:

H3a. Analysts' recommendation revisions lead to price reactions in short-term horizons and long-term horizons.

H3b. Price reactions for Shari'ah compliant stocks subsequent to analysts' recommendation revisions are stronger than Shari'ah non-compliant stocks in short-term horizons and long-term horizons.

H3c. Analysts' recommendation revisions which are issued contemporaneously with earnings announcements lead to stronger price reactions in short-run stock returns and long-run stock returns.

H3d. Price reactions for Shari'ah compliant stocks subsequent to analysts' recommendation revisions which are issued contemporaneously with and without earnings announcements are stronger than Shari'ah non-compliant stocks in short-term horizons and long-term horizons.

Achieving all three research objectives and testing relevant research hypotheses are very important to understand whether the behaviours of Shari'ah sensitive investors exert substantial influence on financial markets in the context of Malaysia. Therefore, fulfilling three objectives of this study will provide more comprehensive and robust findings to uncover potential interlinkage between Shari'ah compliant investment and financial anomalies.

1.8 Contribution and Significance of the Thesis

The study of financial anomalies associated with ethical and religious investing has attracted the attention of many scholars since the early 1990s. Although many prior studies (Carhart 1997; Clarke, de Silva, & Thorley, 2002; Khorana, Servaes & Tufano 2009; Luo & Bhattacharya, 2009) found negative correlation between ESG and CFP, many researchers like Pelozo (2009) Lean, Ang, & Smyth (2015) and Clark, Feiner, &

Viehs (2015) showed ESG-CFP relation is positive. However, most studies show that controversy and uncertainty on CSP-CFP relation still persist because international research literature has yielded largely mixed results. (Hamilton & Statman, 1993; Kurtz & DiBartolomeo, 1996; Statman & Glushkov, 2009; Orlitzky, 2011; Borgers et al., 2015).

Recently, more and more studies concentrated on behavioural pattern of Shari'ah sensitive investors and their impact on financial markets (Asutay, 2007; Gait & Worthington, 2008; Barom, 2013). Hegazy (1995), Metawa & Almossawi (1998), Al-Sultan (1999), Gait & Worthington (2008) and Barom (2013) found evidence from Egypt, Bahrain, Kuwait, and Malaysia that most Muslim investors consider *halal* return as the most important criteria in the financial decision process. Considering investment decisions on the ground of non-financial bias, several studies explored the link between Shari'ah compliant investment and financial anomalies. For example, studies of Peifer (2009), Rao et al. (2016) and Marzuki & Worthington (2015) documented that Islamic funds experience a weaker cash outflow in response to producing negative risk-adjusted returns than do conventional funds. Meanwhile, they enjoy more substantial cash inflows after producing positive risk-adjusted returns. However, Aysan et al. (2017) show that there is not a significant behavioural difference in the clientele of Islamic and conventional banks in Turkey and surprisingly, depositors of Islamic banks were more responsive to the opportunities created by changes in interest rates in conventional banks.

There is a limited number of studies on behavioral anomalies associated with Shari'ah compliant investment as a subset of ethical and religious investing. Moreover, findings of previous studies on the matter are often far from conclusive (Peifer, 2009; Rao et al., 2016; Marzuki & Worthington, 2015; Aysan et al., 2017). As discussed earlier,

Malaysia is a very suitable country to examine whether the non-financial aspect of Shari'ah compliant investment induces non-market behaviours.

The thesis aims to provide comprehensive and robust findings on this field by examining financial anomalies associated with Shari'ah compliant investment in three different areas of capital markets in Malaysia. As the first research issue of interest, the thesis examines whether changes in Shari'ah compliant status of listed securities influence the decision of Shari'ah sensitive investors or Islamic fund managers to trade Shari'ah compliant and Shari'ah non-compliant stocks by analysing their impact on stock prices and trading volume. As the second research issue of interest, the thesis investigates how Shari'ah compliance as a non-financial attribute of Islamic funds and Ramadhan month influence investor behaviour and whether it causes a different flow-performance relation for Islamic and conventional funds in Malaysia. As the third research issue of interest, the thesis examines the relation between analyst recommendation revisions and stock price reactions for Shari'ah compliant and Shari'ah non-compliant stocks in Malaysia to understand whether coordinated behavior of Shari'ah sensitive investors may vary stock price reactions for Shari'ah compliant stocks.

In particular, the study fill important gaps on the three main research issues of interest.

The first strand of study extends existing scholarship in four strands of literature. Firstly, the study employs the largest available dataset through using all added and deleted Shariah-compliant securities between 2000 and 2015. To the best of our knowledge, it will be the first study to analyse impact of changes in list of Shari'ah

compliant securities (LSCS) on trading volume and long-term performance. Moreover, the research is unique in terms of dividing sample of stock additions into two sub-samples, namely IPO and Non-IPO additions to examine the effect of stock additions into SCSL.

The second strand of study fill important gaps in the literature through investigating three important issues related money-flows and fund performance relationship of Islamic and conventional funds in Malaysia. First of all, the study attempts to address the issue whether fund flows into Islamic funds are less sensitive to past performance than conventional funds. To the best of our knowledge, this is the first study to investigate the impact of Ramadhan month over fund flows of Islamic and conventional funds in Malaysia. Thirdly, the study aims to contribute literature by analysing sensitivity of fund flows-return relationship for top and bottom performers in Islamic and conventional funds to understand whether investors consider Islamic and conventional financial assets as different asset class.

The third strand of study contributes extant literature by attempting to fill several important gaps in literature. To our knowledge, there is very limited research which examined the impact of financial analysts' coverage in the Malaysian stock market. Thus, we contribute to the literature by examining the impact of the incentive scheme of financial analysts' coverage in Bursa Malaysia within different time horizons by using the largest available data set. Secondly, we analyse how analyst recommendation revisions related to earnings announcements affect stock price reactions and whether analyst recommendations beyond earnings announcements cause significantly different price reactions. Thirdly, the study investigates whether analyst recommendation revisions

cause greater price reactions for Shariah compliant stocks to understand whether Shariah criteria as extra-financial information affect investor behaviour and financial performance of Shariah-compliant firms.

In a broad sense, these three studies are linked in terms of seeking the impact of Shari'ah compliant status as non-financial attribute on investor behaviour and financial markets. Therefore, all research subjects focus on financial anomalies associated with Shari'ah compliant investment in Malaysia and contributes to the existing literature in the following ways;

- 1) Examining the impact of behavioural pattern of Shari'ah sensitive investors on financial markets in the case of Malaysia
- 2) Understanding whether Shari'ah compliance affects the performance of Islamic financial institutions and Shari'ah compliant firms
- 3) Testing whether the clientele of Islamic financial institutions behaves differently from their conventional counterparts.

In summary, the thesis contributes to existing literature by exploring a strong relationship between Shari'ah compliant investment and financial anomalies.

As first research issue of interest, we find that changes in the list of Shari'ah compliant securities (LSCS) leads to a permanent increase in abnormal returns and trading volume for added Non-IPO stocks in the long-term while it causes to abnormal loss and increase in trading volume deleted stocks in the short-term. On the other hand, there is a substantial price rise and falling the trading volume on the early days of trading

for added IPO stocks which can be related to existence of underpriced IPOs in Bursa Malaysia.

As the second research issue of interest, we show that Islamic funds attract more capital inflows than that of conventional counterparts during both positive and negative returns. Secondly, the research find that conventional funds suffer from capital outflows during Ramdhan month. Finally, we find that top performers of Islamic and conventional funds attract more funds than bottom and middle performers. Overall, we find that investors consider Islamic and conventional funds as different asset class and investors of Islamic funds are more loyal.

As the third research issue of interest, the study shows that analysts' recommendation revisions carry valuable information since upgraded (downgraded) stocks display positive (negative) price reactions. Secondly, we find that earnings announcements can trigger analysts' recommendation revisions because the investors react strongly to analysts' recommendation revisions issued contemporaneously with earnings announcements. Another important finding is that performance differences of Shari'ah compliant and Shari'ah non-compliant stocks in response to analysts' recommendation revisions are negligible. We conclude that analysts' recommendation revisions for Shari'ah compliant companies often do not own any additional investment value than those for Shari'ah non-compliant stocks.

1.9 Organization of the Thesis

Including the introduction chapter, this thesis is composed of six chapters. The organisation of the thesis is as follow;

- Chapter 1 states the research background, followed by motivations and justification of the research topic. Then, it elaborates the scope of the study, followed by research objectives and hypotheses. The chapter concludes with the contribution and significance of the thesis.
- Chapter 2 focuses on the literature review and theoretical framework regarding the impact of ethics and religion on consumer behaviour, foundations of ethical and religious investing, financial anomalies associated with ethical and religious. Then, it discusses the literature on the link between Islam and consumer behaviour, Shari'ah compliant investment and its investment strategies, and non-market behaviours linked to Shari'ah compliant investment. Finally, the chapter elaborates the relevant literature on three research areas of the thesis related to interlinkage between financial anomalies and Shari'ah compliant investment in the context of Malaysia.
- Chapter 3 gives detailed information about the history and overview of financial markets in Malaysia. It focuses on the background of Shari'ah compliant securities, Islamic capital markets and analyst recommendations in Malaysia.
- Chapter 4 covers data, research methodology and empirical models that the thesis uses to answer research questions and test research hypotheses.
- Chapter 5 exhibits empirical results and discuss empirical findings to analyse the abnormal trading volume and short-term and long-term performance of stocks that were added to and deleted from the list of Shari'ah compliant securities

(LSCS) by Security Commission of Malaysia (SCM). Then, it examines econometric results and discuss findings of the study regarding flows and past performance relation for Islamic and conventional funds in Malaysia to understand whether Shari'ah compliance as non-financial criteria weakens the sensitivity of fund flows-performance relation for Islamic funds. Finally, it provides empirical results to analyse the price reactions to different types of recommendation changes, both at short-term and long-term event windows. The chapter provides an in-depth examination of the impact of recommendation revisions issued related to earnings news and investigates whether analysts' recommendation revisions cause different price reactions for Shari'ah compliant stocks or not.

- Chapter 6 provides conclusions of the study with a summary of primary research findings and theoretical implications of the study. Then, it argues the policy implications of the study for brokers, fund managers, investors, regulatory bodies. Finally, the chapter discusses the limitation of the study regarding the data, variables, research methodologies and empirical models and ends with recommendations for further researches.

Chapter 2: Literature Review and Theoretical Framework

2.1 Introduction

Chapter 2 presents the theoretical framework of the relationship between Shari'ah compliant investment and financial anomalies. Ethical and religious investing as a superset of Shari'ah compliant investment has a large body of literature on financial anomalies associated with ethical and religious investing. Firstly, this chapter provides a theoretical foundation for understanding the impact of ethical and religious values on investor behaviour and consequently, on financial markets. After uncovering interlinkage between financial anomalies and ethical and religious investing, the thesis focuses on three research issues of interests to uncover potential linkages between financial anomalies and Shari'ah compliant investment in the context of Malaysia.

2.2 Theoretical Foundations

Although many prominent scholars of social science such as Karl Marx, Sigmund Freud, and Auguste Comte have considered that religious behaviour of individuals and institutions often contradicts with rationality and it is doomed to disappear after spread of positivism and development of science in the modern world, religion is still an crucial part of life for most individuals, with 80% of people worldwide affiliating with a religion (Pew Forum, 2013). Therefore, understanding the influence of religion in the decision-making process and behaviour is the key to explain the driving forces behind recent financial anomalies associated with ethical and religious investing.

In contrast to cold and calculative *homo economicus* that neoclassical finance theories assume, religious people are subject to doctrinal instruction and the foundational premise that God desires the obedience of believers in terms of following religious rule, principles and rituals, and that the deviation thereof is sin ending up with punishments of

wrongdoers in hell. Thus, religious belief and behaviour foster self-regulation and, more specifically, self-control (McCullough & Willoughby, 2009).

In theories of preference and utility function, economists often assumed that utility functions depend either directly on the goods and services consumed, yet religious factors are either ignored or left to lurk in the background as part of the general environment. Azzi and Ehrenberg's (1975) utility-maximising model of household behaviours to analyse determinants of religious activities suggests that individuals allocate their time and goods among religious and secular commodities to maximise lifetime and afterlife utility. Azzi and Ehrenberg posit "afterlife consumption" as the primary goal of religious behaviour, an assumption that implies a strong restriction on the way religious commodities enter household utility functions.

Islamic faith of Muslims plays a significant role in guiding economic behaviour by connecting the worldly life to the hereafter. Thus, religiosity is an additional form of consumption for Muslim consumers because they have a two-dimensional utility function for maximizing materialistic and spiritual satisfaction (Ghassan, 2015). Thus, many studies highlight contribution of religious belief on prosocial behaviour such as concerns for trust (Tan & Vogel, 2008), altruism (Bennett & Einolf, 2017), environment (Greeley, 1993), reciprocity (Barrios & Gandelman, 2011) and cooperation (Sosis & Ruffle, 2003). The most of those religious behaviours challenged assumptions and theories of the neoclassical framework because these studies showed that individual could gain non-financial utility by enjoying non-pecuniary benefits from ethical and religious aspects of financial behaviour (Azzi & Ehrenberg, 1975; Iyer, 2016; Asutay 2007).

Numerous studies highlighted the link between religion and investor behaviour. Many studies show the effect of religion on risk-taking behaviour of investors (Keister, 2003; Kumar, Page, & Spalt, 2011; Noussair et al., 2012). Keister (2003) argues that Jews show a higher degree of gambling propensity than non-Jews and thus, they can earn higher financial returns while Kumar, Page, & Spalt (2011) finds that Catholics are more risk-taker than Protestants. On the other hand, Noussair et al. (2012) also find that a higher degree of religiosity is associated with a higher propensity for risk aversion.

Ethical and religious investors can integrate their values and principles into investment decision to achieve moral, social and environmental objectives. There are various terms of ethical and religious investing such as socially responsible investment (SRI)², impact investing³ and environmental, social and governance (ESG) investing⁴. Unlike traditional investors in financial markets, ethical and religious investors allocate capital toward companies whose activities align with their ethical and religious values by

² A specific type of investment through applying a particular set of religious or ethical values and beliefs (Social Investment Forum (SIF), 2001). SRI investors tend to seek investment returns by avoiding specific sectors by using a screening methodology called negative screening to eliminate sin stocks in their portfolios

³ Investments made into companies, organisations and funds to generate measurable social and environmental impact alongside a financial return” (The Global Impact Investing Network (GIIN), 2009).

⁴ ESG (Environmental, Social and Governance) investing refers to a class of investing that is also known as “sustainable investing.” This is an umbrella term for investments that seek positive returns and long-term impact on society, environment and the performance of the business

using investment strategies of negative screening⁵, positive screening⁶, shareholder activism⁷, divestment⁸ and ESG integration⁹.

Shari'ah-compliant investment is briefly defined as an investment which is consistent with Shari'ah principles and rules. Thus, Shari'ah compliant investment should eschew certain type of contracts with prohibited characteristics such as usury (*riba*), gambling (*maisir*) and ambiguity (*gharar*). Moreover, it should also avoid investments in companies or sectors that are involved in forbidden activities such as gambling, alcoholic beverages and pork-related food, conventional banking, conventional insurance by using often negative screening as investment strategy. Coordinated trading of many investors who have similar ethical or religious values can create severe limits to arbitrage and lead to market inefficiency. Therefore, many researchers decided to reconsider and challenge fundamental assumptions and theories about rational investors, market efficiency, portfolio theory and asset pricing models by conducting empirical studies on ethical and religious investing.

⁵ Negative screening refers to excluding companies from portfolios based on religious, ethical, social or environmental criteria.

⁶ Positive screening refers to favouring investments in certain companies and sectors whose business activities create positive impact related to environmental, ethical, social issues.

⁷ Shareholder activism is described as the strategy of ethical and religious investors to change business activities of a corporation toward more ethical and moral direction through using engagement and proxy voting.

⁸ Divestment is literally antonym of investment while the term refers to the process of selling an asset for achieving certain ethical, religious, social or political goals.

⁹ ESG integration means integrating information related to ESG factors into investment analysis and decision-making processes.

It is important to note that the impact of the coordinated trading activity of Islamic financial institutions to ensure Shari'ah compliance on financial markets shall be also considered as financial anomalies associated with the behaviour of Shari'ah sensitive investors. Even if ensuring Shari'ah compliance is more related to meeting the regulatory requirement for Islamic financial institutions, the preference of investors to choose Islamic financial institutions can be often explained by religious behaviour (Alam et al., 2012; Barom, 2013; Khayruzzaman, 2016). In other words, Islamic financial institutions act as agents for Shari'ah sensitive investors by investing in accordance with Islamic rules and principles. Therefore, their coordinated trading activity can have an important role to understand financial anomalies associated with Shari'ah compliant investment.

Numerous empirical studies attempted to understand how integrating ethical and religious investment strategies affect financial performance since investment strategies of ethical and religious investing often have non-financial biases of selecting financial assets for portfolio construction (Carhart 1997; Peloza, 2009; Orlitzky 2011; Borgers et al. 2015). However, evidence from a large body of literature on the impact of ethical and religious investing on financial performance has mainly suggested mixed results.

Many studies explore the negative impact of ethical and religious investing on financial performance. Clarke, de Silva, & Thorley (2002) show that constraints on the investment universe that ethical and religious investing put for achieving particular social and environmental goals do not allow portfolio managers to exploit their ability to forecast returns adequately and thus, decrease the expected value-added. ARCH results of Chong, Her & Phillips (2006) suggest that the Vice Fund -an antithesis of socially responsible funds- has outperformed both the benchmark S&P500 Index and the Domini

Social Equity Fund while the S&P 500 index outperformed the Domini Social Equity Fund. Geczy, Stambaugh, & Levin (2003) found that ethical and religious constraint imposes higher costs which depends crucially on investors' prior beliefs in the validity of specific asset pricing models and stock-picking skills of fund managers, by at least 3.6 % per year on investors. Friede, Busch, & Bassen (2015) analysed 1816 vote-count studies in the gross sample and found that only 10.7% of all studies provide evidence for a negative ESG–CFP relation. Along the same line, various empirical studies on banking and fund management explored that there is a negative association between Shari'ah compliant investment and financial performance (Elfakhani et al., 2005; Girard & Hassan, 2008; Kasri & Kassim, 2009; Srairi, 2010; Miah & Uddin, 2017). Elfakhani et al. (2005) used a sample of 46 Islamic funds for the period 1997 to 2002 to compare performance of Islamic funds with conventional counterparts and conclude that investing in Shari'ah compliant mutual funds does not cause any statistically significant risk-adjusted abnormal return or loss. Sarker (1999) investigate the performance of Islamic and conventional banks in Bangladesh and display that, given that it operates under a conventional framework, Islamic banks operate with low efficiency. Srairi (2010) examined both cost and profit efficiency of the Islamic and conventional banks in Gulf cooperation council (GCC) countries over the period 1999 to 2007 and find that conventional banks are more efficient than Islamic banks. The study of Miah & Uddin (2017) find a similar result that Islamic banks in GCC countries are less efficient in managing costs than conventional counterparts.

In contrast to empirical studies which provide evidence for a negative association between CSP and CFP, there is an increasing number of studies on positive impact of integrating ethical and religious values into investment analysis on financial performance.

Statman (2006) examines the performance of four SRI indexes and compare them with the performance of the S&P 500 index and find that returns of four SRI indexes often exceeded returns of the S&P 500 index during 1990- 2004 period. Lean, Ang, & Smyth (2015) examined performance and performance persistence of SRI funds in North America and Europe, and they had empirical evidence that SRI funds outperformed the market benchmark over the period from January 2001 to December 2011. Elber (2008) reports that many institutional investors believe ESG engagement can improve the long-term performance of a company through decreasing the weighted average cost of capital (WACC) and increasing Return on Invested Capital (ROIC). On the social side, studies of Edmans (2011) and Gartenberg, Prat & Serafeim (2016) show that firms with a stronger sense of corporate purpose and better employee satisfaction improves financial performance. On the environmental side, earlier works of Konar & Cohen (2001) and Matsumura, Prakash & Vera-Muñoz (2014) display that a worse environmental footprint reduces the market valuation of firms. Margolis & Walsh (2003) conducts a meta-analysis to review findings of 127 empirical studies on CSP-CFP relation across many countries and find that there is a positive correlation, and often very little evidence of a negative correlation, between a company's financial performance and its social performance. Along the same line, few studies reported that there is a positive link between Shari'ah compliant investment and financial performance. Ho et al. (2014) used twelve indexes, and Boo et al. (2017) used 131 Islamic funds across many countries as sample and both studies demonstrate that Islamic equity funds outperformed conventional counterparts during the Subprime Mortgage Crisis while the results are inconclusive during the post-crisis period.

Many studies concentrating on integrating ethical and religious values into investment strategies demonstrate that there is no significant difference in the performance of ethical and conventional funds (Hamilton & Statman, 1993; Kurtz & DiBartolomeo, 1996; Benson, Brailsford & Humphrey, 2008; Statman & Glushkov, 2009). Hamilton, Jo, & Statman (1993), Goldreyer & Diltz (1999), and Bauer, Koedijk & Otten (2002) show that the risk-adjusted returns of socially responsible mutual funds and conventional funds are not statistically different in the USA. A neutral CSP-CFP link has been revealed by and Choi and Jung (2008) document that the association between financial performance and ethical commitment is not statistically significant. Surroca et al. (2010) analysed the impact of the mediating effect of a firm's intangible resources and found that there is no direct relationship between CSP and CFP. Friede, Busch, & Bassen (2015) reviewed 568 non-portfolio related studies on CSP-CFP relation and demonstrated that 18.8% of those studies found neutral findings, while 18.7% of them yielded mixed results. Along the same line, a large body of literature shows that there is no direct link between Shari'ah compliant investment and financial performance. The study of Čihák & Hesse (2010) uses 77 Islamic banks and 397 commercial banks as a sample to examine the role of Islamic banks in financial stability and conclude that small Islamic banks tend to be more stable than small commercial banks while large commercial banks tend to be more stable than large Islamic banks. The study of Hoepner, Rammal & Rezec (2011) analyses the financial performance of 265 Islamic equity funds from 20 countries and found no significant differences in the performance of conventional and Islamic funds.

Despite the proliferation of literature on the link between integrating ethical and religious values into investment strategy and financial performance, results remain mostly an unsolved puzzle (Kurtz & DiBartolomeo, 1996; Orlitzky et al., 2003; Statman

& Glushkov, 2009; Borghers et al. 2015). However, recently, assets under management in UN PRI signatories experienced noticeably fast growth. As of 2019, US\$90 trillion in assets under management – exceeding half of the total global institutional assets base – had publicly committed to integrating ESG factors in financial analysis although this initiative has a history of shorter than 14 years. Along the same line, Islamic finance industry also witnessed sustainable growth over the last two decades. Global Islamic finance assets have reached to US\$ 2.4 trillion in assets in 2017 by CAGR growth of 6% from 2012, based on data reported for 56 countries, mostly in the Middle East and South and Southeast Asia. Despite inconclusive and ambiguous findings on the impact of ethical and religious investing on financial performance, the increasing size of the ethical and religious investing market triggered further a research question of how behaviours of ethical and religious investors affect financial markets.

Various studies documented that ethical and religious values of investors can be the most significant catalyst for the growth of the ethical and religious investing market (Bollen, 2007; Renneboog et al., 2008; Barom, 2013). Many studies report that investors pay attention to social, environmental, ethical and religious aspects of their investment rather than seeking solely financial return (Bollen, 2007; Renneboog et al., 2008; Barom, 2013; Szyszka, 2013; Iyer, 2016; Białkowski & Starks, 2016). Thus, the number of studies on financial anomalies associated with ethical and religious investing has recently increased. Bollen (2007), Benson & Humphrey (2008) and Renneboog et al. (2011) analysed the relationship between fund flows and return for SRI and conventional funds and found that SRI fund flows are more (less) sensitive to positive (negative) past returns than conventional funds. By examining U.S. equity mutual funds, the study of Białkowski & Starks (2016) found that ESG funds attract more substantial inflows to than inflows to

conventional funds without similar mandates. Peifer (2009) finds that religious SRI funds are the most sensitive towards positive past returns while they are the least sensitive toward negative past returns among religious SRI, religious non-SRI, conventional SRI and conventional funds. Marzuki & Worthington (2015) examines relationship between fund flows and past returns for conventional and Islamic funds in Malaysia over the period 2001-2009 and find that Islamic funds in Malaysia are less sensitive towards poor performance while a response of Islamic funds' investors to better-performing funds is much the same way as investors of conventional funds. These findings show that SRI and Shari'ah sensitive investors are more loyal since deriving non-financial utility can exert influence on investors' decision-making processes and consequently, induces different relation between money-flows and performance of ethical and religious funds compared to conventional funds. Although many studies suggest that ethical and religious behaviour can cause to asset mispricing and market inefficiency as result of investors' willingness to bear financial loss for fulfilling ethical and religious objectives, Azmat & Ghaffar (2020) show that ethical commitment can play more effective role to reduce externalities on society than ethical preferences. Therefore, ethical commitment can undermine the neo-classical notion of utility.

There is also a large body of literature examining how religious days affect the behaviours of investors and consequently, lead to anomalies in financial markets. Many researchers reported that Chinese (Yen & Shyy, 1993), Christian (Ariel, 1990), and Hindu (Umesh, 2012) religious holidays exert substantial influence on performance of listed securities during surrounding days of those religious days since each of these religions have millions of adherents and observing or celebrating these religious days can affect psychology and behaviours of large number of investors in many countries. Studies of

French (1980) and Gibbons & Hess (1981) examined the impact of weekly holidays on stock prices and found that returns are higher on Friday and lower on Monday. Similarly, prior studies of Dyl (1977) and Jacobs & Levy (1988) conclude that stocks have abnormal returns in January as a positive impact of Christian new year. Yen & Shyy (1993) investigated the impact of Chinese New Year – a combination of rituals from Buddhism, Daoism and Confucianism- on Asian stock markets and document that Chinese New Year leads to positive abnormal returns in Asian stock market. Frieder & Subrahmanyam (2004) analysed the impact of Catholic holy day of St. Patrick's Day and Jewish High Holy Days of Rosh Hashanah and Yom Kippur on U.S. equity market and captured the significant positive effect of the two festive occasions on stock prices. These findings provide evidence that holy days exert enormous influence on financial markets and induce stock market anomalies associated with behaviours of religious investors.

Religion and ethics play a vital role in influencing the behaviours of investors in financial markets. Prior studies documented that integrating ethical and religious values into investment analysis can give rise to non-market behaviours. Theories of traditional finance are so weighted down with anomalies so behavioural finance has burgeoned by reconstructing financial theory along behavioural lines at the end of 1990s. Shari'ah compliant investment is a subset of ethical and religious investing, yet limited studies are focusing on the effect of Shari'ah compliant status on investor behaviour and financial markets. Therefore, it raises the question of whether financial anomalies associated with Shari'ah compliant investment has a similar pattern with that of ethical and religious investing or not.

Although a large body of literature on ethical and religious investing provides significant findings to understand financial anomalies linked to ethical and religious

investing, it is essential to contribute to existing the literature of behavioural finance by seeking evidence from Shari'ah compliant investment for a more comprehensive understanding of the impact of religious biases on the decision-making process in financial markets.

One of the interesting findings from the empirical work in previous studies on financial anomalies associated with ethical and religious investing is that many of the well-known anomalies in the finance literature do not hold up in different sample periods. In particular, this study attempts to find the impact of a non-financial aspect of Shari'ah compliant investment on financial markets in Malaysia. However, financial anomalies associated with Shari'ah compliant investment may gradually disappear after more behavioural studies on Shari'ah compliant investment that highlight them are published. At about the same time, practitioners may begin investment vehicles that implemented the strategies implied by the academic papers.

2.3 Shari'ah Compliant Investment and Financial Anomalies in Malaysia

2.3.1 Introduction

In recent years, many studies attempted to uncover potential linkage between financial anomalies and ethical and religious investing (Bollen, 2007; Renneboog et al, 2008; Benson & Humphrey, 2008; Renneboog et al., 2011; Szyszka, 2013; Rao et al., 2016; Marzuki & Worthington, 2015; Iyer, 2016; Białkowski & Starks, 2016; Cao et al., 2019). However, there exist three significant limitations in the current studies on financial anomalies linked to ethical and religious investing.

Many researchers investigate financial anomalies associated with ethical and religious investing by examining the impact of from ESG factors, CSP or socially

responsible investors on financial markets (Orlitzky & Benjamin, 2001; Iyer, 2016; Białkowski & Starks, 2016; Cao et al., 2019). One limitation is the lack of focus on Shari'ah compliant investment since few studies have concentrated on the investigation of financial anomalies related to ethical and religious investing in the context of Shari'ah compliant investment (Peifer, 2009; Nathie, 2011; Rao et al., 2016; Marzuki & Worthington, 2015). Therefore, it is essential to understand whether Shari'ah sensitive investors have a similar behavioural pattern with ethical and religious investors. Thus, this study aims to contribute to the literature of behavioural finance by providing fresh evidence from Shari'ah compliant investment.

There is a growing body of literature focusing on the impact of non-financial aspects of Shari'ah compliant investment on financial markets. However, the findings of previous studies often yield mixed and inconclusive results (Girard & Hassan, 2008; Kasri & Kassim, 2009; Srairi, 2010; Čihák & Hesse, 2010; Hoepner, Rammal & Rezek, 2011; Ho et al., 2014; Rao et al., 2016; Marzuki & Worthington, 2015; Aysan et al., 2017). Country-specific factors mainly can yield mixed results from prior studies on different risk/return patterns of Shari'ah compliant investment and impact of Shari'ah sensitive investors on financial markets. For example, Pew Research Center (2017) and Pew Research Center (2018) show that percentage of Muslims who say religion is important and they favour making Islamic law the official law vary significantly across countries. Many studies documented that religiosity of investors can exert a significant influence on financial markets and cause market frictions if they act in a coordinated manner by trading against rational traders or arbitrageurs (Metawa & Almossawi, 1998; Al-Sultan, 1999; Gait & Worthington, 2008). Considering many country-specific factors such as Shari'ah awareness (Barom, 2013; Mukhtar & Butt, 2012) and development of

Islamic finance industry (Boyd & De Nicoló, 2005; Uhde & Heimeshoff, 2009) show that Malaysia is fundamentally different from many countries and provide a suitable environment to capture financial anomalies associated with Shari'ah compliant investment.

Several studies investigated the impact of the religious identity salience and religious commitment on the economic behaviour of individuals in the context of Muslims in Malaysia. Alam et al. (2012) documented that customers' religiosity level in Klang Valley plays a vital role also towards influencing their intention to undertake Islamic home financing. Idris, Bidin & Saad (2012) investigated how different dimensions of religiosity affected the zakah compliance behaviour among business owners in Kedah, Malaysia and found that there is a positive relationship between religiosity and in zakah compliance behaviour. Fauzi et al. (2016) find evidence for the impact of religion on economic behaviour and show that religious commitment is the primary motivating factor for Muslim customers to patronise Islamic retail stores in Malaysia. Ahmed, Rahman & Rahman (2015) conducted a comparative analysis of the attitude of Muslim consumers in Malaysia towards Halal food and Halal cosmetic products. The study found that consumers are more sensitive to halal food products compared to halal cosmetics due to the lack of halal knowledge of cosmetic products. Therefore, religious identity plays an important role to exert influence on the behaviour of Muslim consumers. As a result, coordinated behaviour of Shari'ah sensitive investors can put a limit to arbitrage and create the new normal for price equilibrium in financial markets.

Recently, there is a growing number of studies on the impact of Shari'ah sensitive investors on Malaysian financial markets, yet the existing literature is still minimal

(Marzuki & Worthington, 2015; Yildiz and Dia-Eddine, 2016; Kassim, Ramlee, & Kassim, 2017). Thousands of studies on ESG, SRI, and impact investing produced results in understanding the intricate impact of ethical and religious values on investors and financial markets. This thesis attempts to extend the existing literature on behavioural finance by investigating how the non-financial aspect of Shari'ah-compliant investment affects investor behaviour and financial markets. Thus, this study has three research objectives to gain robust and comprehensive evidence from different aspects of capital markets in Malaysia for understanding whether the non-financial aspect of Shari'ah compliant investment affects financial markets. In section 2.4.2, 2.4.3, and 2.4.4, the thesis elaborates the relevant literature on three research objectives of the thesis in detail.

2.3.2 Shari'ah Compliance Announcements and Anomalies

Unlike conventional types of investments, Islamic funds apply a set of investment screens to select stocks from an investment universe based on two-tier approach in measuring Shari'ah-compliance stocks, namely quantitative and qualitative approach. The quantitative approach measures the percentage contribution of Shari'ah non-compliant activities to total revenue or total assets while the qualitative approach looks at the business activities and image of the firm.

Securities Commission Malaysia (SCM) has been implementing Shari'ah screening methodology and releasing an updated list of Shari'ah Compliant Securities (LSCS) already more than two decades since its first inception. Shari'ah screening process is undertaken by the Shari'ah Advisory Council (SAC) of the Securities Commission Malaysia (SCM) who will also update the list of Shari'ah compliant securities twice a year during the second and fourth quarter of the year.

The topic of the first subject of interest is at the intersection of two strands of literature: calendar effect (Rozeff & Kinney, 1976; Fama, 1980) and index effect (Shleifer, 1986). Although religious characteristics and announcements about stock additions and deletions into indexes do not convey any information about financial statements or cash flow, it can have a significant effect on trading volume and performance of listed securities. Therefore, in early studies, the financial impact of such non-financial information on listed securities was considered as financial anomaly since trading volume and price reactions of the listed securities to such information often did not fit well into theories and models of neoclassical finance.

To start with the first strand of literature, early studies on the financial impact of religious days were mostly related to closed-market occasions such as Christmas and Good Friday. Thaler (1987) and Jacobs & Levy (1988) reported abnormal equity returns on the turn of the year, month, week, and day, and around holidays. Lakonishok & Schmidt (1988) use ninety years of DJIA daily returns as a sample to analyse the effect of holiday on market benchmark's performance and documented the average pre-holiday return rate is 0.220% despite the regular daily rate of return of 0.0094%. In other words, the pre-holiday rate of return is almost 23 times greater than the regular daily rate of return. Moreover, the same study showed that holidays cause more than 50% of the return anomalies in the DJIA. Pettengill (1989) finds the consistent result and show that the pre-holiday returns have abnormal returns while the impact of company size is not significant. Ariel (1990) finds that in the US, pre-holiday returns are ten times greater than the average daily return between 1963 and 1982. Cadsby & Ratner (1992) documented that pre-holiday effect is significant in Canada, the UK, Australia, Switzerland, and West Germany as well. In Southeast Asia, Yen & Shyy (1993) showed significant excess

returns before Chinese New Year in Hong Kong, Japan, Malaysia, Singapore, South Korea and Taiwan. In India, Umesh (2012) found out the abnormal return and volatility during Diwali on Indian stock market.

Even though many of past researches have provided strong evidence on abnormal return preceding closed-market holidays, the issue of whether market closures cause market anomalies with possible reasons of covering short-positions before closed-market days and positive sentiment during secular and religious holidays remains unclear. Therefore, some research papers which investigated market anomalies during open-market holy days has made significant contribution to determine whether a trading activity, including the abnormal return and trading volume, is solely affected by nature of the occasion. Along this line, Frieder & Subrahmanyam (2004) which examines the impact of the Jewish holy days of Rosh Hashanah and Yom Kippur and Catholic Irish holiday of St. Patrick's day finds that stock returns are significant and positive on the days that precede Rosh Hashanah and St. Patrick's Day, but significant and negative on the days that precede Yom Kippur while volume drops on Rosh Hashanah and Yom Kippur.

The literature on the relationship between Islamic holy days and the stock market is minimal, but a relevant strand of research has documented the role of Islamic religious holidays in equity return. Husain (1998) and Seyyed, et al. (2005) investigate the effect of Ramadhan on the Karachi Stock Exchange and the Tadawul respectively, and both studies do not find a significant abnormal return but lower volatility during the month of Ramadan. Oguzsoy & Guven (2004) finds that the Istanbul Stock Exchange has strikingly high returns on the last two days of Ramadhan. Al-Hajieh et al. (2011) document a

positive return during Ramadan for a subset of Middle Eastern countries during the period 1992–2007.

The second strand of literature focuses on empirical studies on index effect (Shleifer, 1986; Harris & Gurel, 1986; Elliott et al., 2006). Recently, there are also numerous researches which investigate the relationship between index revision and stock performance. Shleifer (1986) and Harris & Gurel (1986) are the first researchers to report significant positive stock price reactions to the announcement of new stocks added to the S&P 500 Stock Index. Beneish & Whaley (1996) examines the effects of the new Standard and Poor's announcement policy implemented in October 1989 and finds an abnormal price increase of 4% after the stock is included into S&P500 index. Kappau, Brooks, & Ward (2007) examining a unique sample of deletions of international companies and replacements with US companies, found that deleted stocks experienced a considerable and permanent price fall.

To our knowledge, Bacha & Abdullah (2001) conducted the earliest research which investigated the impact of stock inclusion and exclusion from LSCS on stock prices and trading volume. The study used 39 inclusions and 21 exclusions as a sample and found that deletions had a negative impact on both stock prices and trading volume while inclusions had a positive impact on both stock prices and volume. Yazi, Morni, & Imm (2015) published one of the earliest researches on the impact of changes in LSCS announcement and/or Shari'ah index revision. The study investigated the impact of major Shari'ah screening revision in Malaysia on 29 November 2013 regarding additions and deletions of stocks into List of Shari'ah Compliant Securities, suggests that high-

abnormal return (loss) is observed for added (deleted) stock behaviour just before and after the announcement date. Ng & Zhu (2016) found that index revision of FTSE Bursa Malaysia EMAS Shari'ah Index between 2007 and 2014 increases trading volume and causes abnormal return for added stocks. Yildiz & Dia-Eddine (2016) inspected the impact of additions and deletions of Participation Index in Turkey and found inconsistent results that deleted stocks had abnormal return while added stocks had negative performance. Likewise, Kassim, Ramlee, & Kassim (2017) used constituent changes for FTSE Bursa Malaysia EMAS Shari'ah Index as sample and used two periods of observations to analyse the impact of stock additions and deletions, namely the announcements before and after SCM's major Shari'ah screening revision on 29 November 2013 to investigate the impact of stock additions and deletions. The results indicate that during the period before the revision, there is not any significant effect on both price and trading volume of added stocks, yet the deleted stocks had a loss in the short-term period. After the revised screening, the index addition (deletions) showed significant abnormal return (loss) and high trading volume.

If SCM announces a stock that was previously Shari'ah compliant as Shari'ah non-compliant and vice versa, it is expected that investors or fund managers who are concerned that their wealth, investments and profits are compliant with Shari'ah would then buy and sell stocks to replace Shari'ah non-compliant stocks with Shari'ah compliant ones. The pressure to buy Shari'ah compliant (sell Shari'ah non-compliant) stocks to rebalance their Shari'ah compliant holdings would cause abnormal return (loss) for Shari'ah compliant (Shari'ah non-compliant) stocks. Such an explanation for potential abnormal trading volume and abnormal is consistent with the *Price Pressure Hypothesis* (PPH) of Harris & Gurel (1986). The price pressure hypothesis suggests that prices of

newly added stocks (newly listed Shari'ah compliant stocks) increase by the excess demand of Islamic institutional and Muslim retail investors and then reverse gradually after the announcement date since excess demand by investors is temporary for rebalancing their Shari'ah compliant portfolio.

Another explanation of market anomaly regarding Shari'ah compliant status of listed securities is consistent with the *Imperfect Substitutes Hypothesis* (ISH) formalized by Shleifer (1986) asserting that stocks that are added to the list of Shari'ah compliant securities are no longer close substitutes for Shari'ah non-compliant stocks. Thus, price increases are expected to be permanent by assuming the demand curve is downward sloping for Shari'ah compliant stocks.

According to the *Investor Awareness Hypothesis* (IAH) based on Merton (1987) and Polonchek & Krehbiel (1994), if a stock is added to LSCS, awareness of Islamic Institutional and Muslim retail investors about newly listed Shari'ah compliant stock will be higher than before, and many investors will consider buying it seriously. The attraction of new potential investors to the company by increasing the recognition of the company's shares will lead to a permanent appreciation of stock price. However, deleted stocks will not experience a permanent negative price change because the investors are still familiar with them (Chen et al., 2004; Elliott et al., 2006; Ng & Zhu, 2016).

Muslim investors and Islamic financial institutions would not have a reference to make investment decision if there is not any information about the compatibility of securities with Shari'ah rules and principles. According to *the Theory of Asymmetric Information* of Akerlof (1970), lack of information about the quality and features of a

product is a costly and challenging task for traders. Thus, SCM's announcements regarding Shari'ah compliant status would decrease information asymmetry and conveying such news would create a positive impact on the stock market (McGowan & Muhammad, 2010).

According to the *Liquidity Cost Hypothesis (LCH)* by Amihud & Mendelson (1986), and Beneish & Gardneur (1996), added stocks would have higher analyst coverage, liquidity and lower systematic risk since obtaining information about stocks would be a costly procedure. Moreover, stocks with higher liquidity have lower bid-ask spreads which result in a decrease in transaction costs. Besides, stocks with more information generally have a lower systematic risk. This hypothesis argues that higher liquidity and lower required rate of return will increase the price of newly classified Shari'ah compliant stocks permanently.

Sometimes stocks might be added into an index soon after their initial public offering. Pham et al. (2003) find a positive relationship between initial under-pricing and secondary market liquidity. Moreover, high liquidity enables companies to decrease their required return to investors. According to the *Ownership Dispersion Hypothesis (ODH)* of Booth & Chua (1996), issuers tend to promote ownership dispersion through initial under-pricing to enhance the liquidity of a company in the secondary market. In short, promoting oversubscription by initial under-pricing will disperse initial ownership, increases secondary-market liquidity and in turn, decreases cost of capital. It is worth to mention that considering the massive trading volume and exponential rise of prices, initial under-pricing can create more significant impact over trading volume and price of a listed company than its addition into an index. Along the same line, many studies show that

Malaysian IPO underpricing was around 30% to 40% (Ahmad-Zaluki & Kect, 2012; Sundarasan & Leong, 2012). Moreover, Sapian, Rahim and Yong (2013) showed a positive link between Shari'ah compliant status and oversubscription ratio which implies that companies with Shari'ah compliant status could attract more attention of the investors. Recently, Yaakub & Sherif (2019) showed that Shari'ah compliant IPOs are more underpriced than their conventional counterparts, implying that IPO investors in Malaysia earn higher profit by investing in Shari'ah compliant IPOs as compared to conventional IPOs. That is why, analysing performance of added IPO and Non-IPO stocks into LSCS separately has a critical role in understanding the impact of index revision. Moreover, almost 40% of stocks are added to LSCS after a few months of their initial public offering (IPO). Therefore, using combined data of IPO and Non-IPO additions in event-window estimation may distort overall empirical results if trading volume and returns of added IPO stocks are significantly different from added Non-IPO stocks.

Early empirical studies which analysed price changes occur in the absence of new information focused on block trades, index effects, equity issues, and stock splits, but the literature on the impact of changes in Shari'ah index or list of Shari'ah compliant securities on price and trading volume is limited. In order to address to the first research objective, the thesis investigates the impact of changes in LSCS on price and trading volume expect fundamental contributions to understanding the effect of the non-financial aspect of Shari'ah compliant investment on price and trading volume in various time horizons.

2.3.3 The Relationship Between the Fund Flows and Past Performance

Fund management is an investment programme funded by clients that purchasing their shares to invest in a portfolio of securities which is managed professionally. Islamic fund refers to the management of a portfolio of Shari'ah compliant securities and assets based on Shari'ah law to provide competitive returns for investors. Although the history of conventional fund management dates back almost two centuries ago, Islamic fund management first emerged in the 1960s when Muslim investors sought an alternative to the conventional funds to be able to make investments into Shari'ah compliant securities and assets.

The total assets under management of Islamic and conventional funds in Malaysia have demonstrated an striking growth pattern in the last two decades. In December 2006, the total net asset value (NAV) of unit trust and wholesale funds was RM121.41 billion with conventional amounting to RM112.31 billion and Islamic-based RM9.10 billion. In December 2015, the total net asset value (NAV) of unit trust and wholesale funds had reached to RM431.11 billion with conventional amounting to RM347.32 billion and Islamic-based RM83.79 billion. Given that Islamic funds often do not perform significantly different from conventional funds, the higher growth of Islamic funds compared to conventional funds in Malaysia provides prima facie evidence that financial returns may not be the only criteria used by a large number of investors (Elfakhani et al., 2005; Girard & Hassan, 2008).

The studies of Rockness & Williams (1988), Cowton (1999) and Barom, (2013) showed that investors have notable ethical and religious motivations to invest into socially responsible, ethical and Islamic funds. Islamic principles and Shari'ah

restrictions to invest in only Islamic funds may also play a vital role to explain the different relationship between fund flows and past return of Islamic funds compared to conventional funds.

In the context of the efficient market hypothesis, if fund flows are less related to fund performance, the flow-performance relation is a financial anomaly as it contradicts with a rational choice hypothesis. However, investors in socially responsible or Islamic funds may derive utility from owning the securities of companies which are consistent with a set of personal or religious values or societal concerns in addition to financial utility and allow them (Bollen, 2007; Renneboog et al., 2008; Marzuki & Worthington, 2015).

Recent studies had a significant contribution to the literature by comparing returns of socially and non-socially responsible investing. The evidence of those studies suggested mixed results. Prior studies of Geczy, Stambaugh, & Levin (2003) and Her & Phillips (2006) found that integrating ethical and religious issues into process of portfolio construction decrease risk-adjusted returns while Studies of Statman (2000), Statman (2006), and Lean, Ang, & Smyth (2015) show that socially responsible funds outperform their conventional counterparts. On the other hand, many studies found out there is no significant difference in the performance of the ethical and conventional fund (Hamilton & Statman, 1993; Kurtz & DiBartolomeo, 1996; Statman & Glushkov, 2009).

Evidence from comparative performance analysis of Islamic and conventional funds suggest also similar results. Elfakhani et al. (2005) and Girard & Hassan (2008) finds that risk-adjusted returns of Shari'ah compliant funds are not statistically

significantly different from those of conventional funds. On the other hand, Abdullah et al. (2007) and Hassan (2009) documented that Islamic funds performed better than the conventional funds during economic downturns while conventional funds performed better than Islamic funds during the bullish period.

Many portfolio studies investigated flow-performance relation in SRI and conventional funds and explored that the relation between flow and performance differs between conventional and SRI funds (Bollen, 2007; Benson & Humphrey, 2008; Renneboog et al., 2011). Bollen (2007) conclude that flows to SRI funds are less sensitive to negative lagged returns than conventional fund flows, yet positive returns attract more capital inflows for socially responsible funds than conventional funds. Benson & Humphrey (2008) and Renneboog et al. (2011) uses an international data set of SRI funds and find that flows to SRI funds are less sensitive to past performance than conventional fund flow. These results show that flows are persistent, and SRI investors are more likely to invest in a fund they already own relative to conventional investors.

Many researchers highlight that the potential utility from the non-financial aspect of Shari'ah compliant portfolio may affect investor choices of Islamic funds. Barom (2013) finds that 75.6% of Muslim investors consider a halal return as a very important factor to invest in Islamic funds and 72.1% among them only invest in Islamic mutual funds. Along the same line, Marzuki & Worthington (2015) finds that investors in Malaysia are relatively less responsive toward poorly performing Islamic funds, suggesting an asymmetry in the expected positive fund flow-performance relationship. Rao et al. (2016) find that Islamic funds in Pakistan are more sensitive to lagged positive returns compared to conventional funds while they are less sensitive to lagged loss. Peifer

(2009) finds that religious SRI funds are the least responsive towards past performance among religious SRI, religious non-SRI, conventional SRI and conventional funds.

There is a growing body literature which shows that a religious belief can, through its influence on investors' psychology, affect the behaviour of the market. The holy month of Ramadhan is one of the Hijri calendar months that many researchers investigated seasonal anomalies because there is a positive effect of Ramadhan month on religiosity and consequently, investor behaviour in relation to increasing religious engagement during the month (Oguzsoy & Guven, 2004; Al-Hajieh et al., 2011; Campante & Yanagizawa-Drott, 2013). In pursuant of the crucial relationship between the behaviour of Shari'ah sensitive investors and financial anomalies associated with Shari'ah compliant investment, examining the impact of Ramadhan month on flow-performance relation is crucial to understand how different dimensions of religiosity affect financial markets (Oguzsoy & Guven, 2004; Al-Hajieh et al., 2011). In the presence of collective enthusiasm derived from Ramadhan, many Islamic asset management companies conduct smart marketing for promoting their products and services (Keenan & Yeni, 2003; Odabasi & Argan, 2009). Therefore, Ramadhan month influence behaviour of investors through an increasing preference for investing in Shari'ah compliant products and services (Alam et al., 2012; Barom, 2013; Khayruzzaman, 2016). Therefore, it is likely to observe capital outflows from conventional funds to Islamic counterparts in response to an increasing degree of religiosity among Muslim investors. Moreover, Muslims often spend more money for giving their Zakat, Infaq and Sadaqah and buying clothes and banquet foods to celebrate Aidul Fitri, a festive at the end of Ramadhan month. Along the same line, Abadir & Spierdijk (2005) show that consumers spend more on consumption and invest less in financial assets. Thus, the increase in

spending during Aidul Fitri can affect capital flows of both Islamic and conventional funds negatively.

Numerous studies relate the importance of past performance to understand the direction of capital flows among funds (Chevalier & Ellison, 1997; Goetzmann & Peles, 1997; Sirri & Tufano, 1998; Kempf & Ruenzi, 2008). According to the survey of ICI (2018), investors consider historical performance as the most important factor to pick a fund. Almost 90% of fund-owning households highlighted the significance of historical performance to choose a fund when 50% of survey participants rated historical performance as very important. Along the same line, many researchers show that money-flows and past performance of funds have a convex or an asymmetric relationship (Ippolito, 1992; Chevalier & Ellison, 1997; Goetzmann & Peles, 1997; Sirri & Tufano, 1998; Rao et al., 2016). The studies of Sirri & Tufano (1998), and Rao et al. (2016) demonstrate that fund investors flock to top-performing funds while poor-performing funds experience small money outflows. Goetzmann & Peles (1997) concluded that while the market rewards the best-performing funds each year, it fails to discipline worst-performing funds. Kempf & Ruenzi (2008) show that top performers within a fund family enjoy large money inflows.

Other than past performance, many studies documented that fund size is another crucial attribute of a fund which can exert a strong influence on fund flows. Zeckhauser, Patel, & Hendricks (1991) documented that money-flows have a positive correlation with fund size. Fant & O'Neal (2000), which uses 1423 funds between 1977 and 1997 as sample, found that the size of fund affects money-flows into funds positively. Rakowski & Wang (2009) finds that the size of the fund has a significant and positive impact on

money flows into equity funds. Del Guercio & Tkac (2011) observes that the pension funds have a negative relationship between money flows and fund size, although the fund size of mutual funds is positively correlated with money inflows.

Many empirical studies found an interesting relationship between fund age and fund flows. Chevalier & Ellison (1997) found that money flows into old funds are much less sensitive to past performance than money-flows into young funds. Berk & Green (2002) finds the negative and significant coefficient for fund age where fund flow is a dependent variable. Rakowski & Wang (2009) observed that money-flows to younger funds respond more dramatically to performance compared to flows to older funds.

There is an ongoing debate in the literature as to whether fees affect money-flows into funds. Siri & Tufano (1998) found a negative relationship between fees and money-flows which is consistent with the notion that investors aim to maximise their investment return. Shu et al. (2002) found the different impact of management fees over large funds and small funds in Taiwan. While small funds with higher management fees attract more money-flows, the inflows of large funds generally respond negatively to management fees. Shinozawa & Vivian (2015) finds limited support for the hypothesis that fund flow is affected by the level of fees charged in Japan. The recent literature which examine impact of fund fees on flows towards ethical and Islamic funds yields mixed results. Zhang (2006) found conventional funds charging lower fees can attract more money-flows due to offering more competitive pricing for investment management services while increases in the total fees to SRI investors do not significantly reduce the money-flows. Méndez-Rodríguez et al. (2015) finds that Australian SRI investor are both fee and

performance conscious and fund fees have a negative impact on the level of investment in SRI funds in Australia.

To sum up, the second objective of this study aims to investigate flow-performance relation in Islamic and conventional funds in Malaysia to understand how Shari'ah compliance as a non-financial attribute of Islamic funds can influence investor choice and fund flows to Islamic funds. The study also looks into the importance of Ramadhan month and relative performance to provide a more comprehensive understanding of flow-performance relation in Islamic and conventional funds in Malaysia.

2.3.4 Analyst Recommendation Revisions and Anomalies

Equity analysts play a significant role in collecting and processing publicly available information about firms and disseminating that information to retail investors and institutions. Analysts provide forecasts of earnings and stock recommendations based on their private research and own valuation models. Many investors believe analysts' reports embody valuable information, so they are willing to pay millions of dollars annually to have access analysts' earnings forecast and recommendation data from vendors such as First Call and I/B/E/S.

For decades researchers have investigated average abnormal returns after analysts change their recommendations for buying and selling stocks. The universal finding is that the recommendation revisions predict future short-term and long-term returns in the same direction as the change. In other words, upgrades are followed by positive returns while downgrades are followed by negative returns. Lloyd-Davies & Canes (1978) show that

investors react to analyst recommendations by causing to average abnormal stock price performance on the day of publication of analysts' recommendations in the "Heard on the Street" column of the Wall Street Journal. Elton et al. (1986) and Womack (1996) documented that buy (sell) recommendations tend to cause cumulative averaged abnormal return (loss) following one to six months of the day of announcement. Findings of Barber et al. (2001) confirm the previous studies regarding the return forecasting power of analyst recommendations. Short-term price reaction is associated with role of analysts to facilitate market efficiency and price formation while long-term abnormal returns which is known as post-revision return drift (PRD) is related to slow adjustment of price and neglected public information in inefficient market (Givoly & Lakonishok, 1979; Womack, 1996; Hong, Lim, & Stein, 2000; Gleason & Lee, 2003; Jegadeesh, Kim, Krische, & Lee; 2004).

Almost three-quarters of analyst recommendation revisions in Bursa Malaysia's Research Scheme take place within one week after earnings announcements. The concentration of recommendation revisions posits that analysts' valuation significantly changes in response to the newly available information. Many studies highlight the role of earnings announcements over analyst recommendations and investigate whether analyst recommendations itself has any information value for investors. Ivkovic & Jegadeesh (2004) suggest that the timing of recommendation revisions related to earnings announcements have a significant effect over the abnormal return of stocks. Menendez-Requejo (2005) found that an abnormal return of 0.5% is observed before the publication of buy recommendations, but there is not significant abnormal return after that the information related buy recommendation is published. The same study observes an abnormal loss of 0.77% three days before the release of publication following sell

recommendations. Altinkılıç & Hansen (2009) documents that the analyst recommendation revisions by downgrading or upgrading stocks is information-free. In other words, the stock prices often react to corporate events and related news, and they react to analyst recommendations if it is related to the announcement of any financial result. Yezegel (2015) shows that almost a quarter of sell-side analyst recommendation revisions took place within the three days after earnings announcements and found that stock prices react more to recommendation revisions related to recent earnings announcements.

Recently, investors and analysts went beyond traditional valuation models by using various extra-financial information of a company to calculate its financial value. ESG issues such as corporate governance, human rights, occupational health and safety, innovation, research and development (R&D), customer satisfaction, climate change and natural resource management can have a short, medium and long-term effect on business performance. According to a joint survey of CSR Europe, Deloitte, and Euronext (2003), 79% of fund managers and analysts 388 fund managers and financial analyst responded that social management create positive value for firm in the long term while 50% of investors use corporate information on social and environmental performance as input during investment decision. According to A4S, GRI, & Radley Yeldar (2012), over 80% of their research sample believe that extra-financial information is very relevant or relevant in their investment decision-making and company analysis. Friede, Busch, & Bassen (2015) reviewed more than 2000 empirical studies which investigated the relationship between ESG issues and corporate financial performance (CFP). Roughly 90% of studies showed that ESG–CFP relation is non-negative. More importantly, most

studies documented positive ESG–CFP relation, and the positive impact of ESG is more stable over time.

Considering the growing number of studies on ESG-CFP relation, several studies attempted to understand how the relation between CSP (or ESG) and CFP can influence analyst recommendations. Luo et al. (2015) find that there is a positive association between firm CSP and analyst recommendations. In other words, analysts incorporate CSP information to prepare equity reports when they recommend to buy or sell stocks for general investors. On the other hand, Ioannou and Serafeim (2016) show that analysts tend to downgrade their recommendations for firms with higher ESG scores, yet this pessimism gradually vanished. Alazzani et al. (2019) also conclude that there is a positive link between analysts' recommendations and ESG disclosure in the middle east.

Although there is an increasing number of studies on relation between analysts' recommendations and ESG issues, there are limit studies which focus on the link between Shari'ah criteria as extra-financial information and CFP, and how investors react to analysts' recommendation revisions for Shari'ah compliant stocks. Al-Khazali et al. (2014) found that the European, US, and global Islamic stock indexes perform better than conventional ones during the 2007–2012 period. Along the same line, Lean & Parsva (2012) documented that Islamic indexes in Malaysia have earned a higher return than the investment at the same level of risk. Farooq (2014) argues that information disclosure of Shari'ah compliant firms which have low leverage, low account receivables, and low cash and interest-bearing securities, should have better performance than Shari'ah non-compliant firms. Therefore, better disclosure environment of Shari'ah compliant firms improves the ability of analysts to make profitable recommendations, yet the study found

that analysts are not able to make any value relevant recommendations for Shari'ah compliant firms. Sabrun et al. (2018) found that although Islamic principles and values encourage ethical behavioural in business management, the empirical analysis showed that Shari'ah compliant firms in Malaysia did not deter from earnings management behaviour. Thus, satisfying Shari'ah screening criteria determined by financial regulatory bodies or ETF fund managers do not guarantee that a company and its management follow Islamic principles and values in all aspects of their business management and practices. In other words, a Shari'ah compliant firm may create unfavourable environmental and social impact and have poor corporate governance while it is still able to meet Shari'ah screening criteria based on its financial ratios and business activities.

Fatema et al. (2013) suggest that Shari'ah compliance help the Islamic Brands identifiable and increases reputation of firms. According to Euronext (2003), many analysts also indicate that they would grant a stock price premium to socially responsible activities and company reputation. Moreover, Muslim retail and Islamic institutional investors are less likely to react to analyst recommendation for buying or selling Shari'ah non-compliant stocks since Islam put a restriction of investing into stocks of a company which involves in forbidden business activities (McCullough & Willoughby, 2009). Therefore, Muslim retail investors and Islamic financial institutions can cause higher pressure to buy and sell Shari'ah compliant stocks in line with the *Price Pressure Hypothesis* (PPH) of Harris and Gurel (1986) and the *Imperfect Substitutes Hypothesis* (ISH) of Shleifer (1986).

Despite the growing importance of the non-financial aspect of Shari'ah compliant investment, the academic debates on the value implication of Shari'ah compliance are

still very limited. Thus, to address the third research objective, we investigate whether analyst recommendation revisions cause more significant price reactions for Shari'ah compliant stocks to understand whether Shari'ah criteria as extra-financial information affect investor behaviour and financial performance of Shari'ah compliant firms. The study also analyses the financial impact of analyst recommendations beyond and related to earnings announcements on Shari'ah compliant stocks for better understanding of investor behaviour in Malaysia.

2.4 Conclusion

Although increasing number of studies uncovered the potential impact of ethical and religious investing on behavioral anomalies in financial markets, limited studies focus on the link between Shari'ah compliant investment as subset ethical and religious investing and financial anomalies. Therefore, studying the interlinkages between Shari'ah compliant investment and financial anomalies should be the focus of attention. All three research objectives of this study attempt to understand the impact of non-financial aspect of Shari'ah compliant investment on financial markets by providing a wide range of evidence from capital markets in Malaysia.

Chapter 3: A History and Overview of Financial Markets and Institutions in Malaysia

3.1 Introduction

In this chapter, the study aims to provide an overview of financial markets and institutions in Malaysia.

First of all, we discuss a brief history of Shari'ah compliant securities in Malaysia, role and functions of Shari'ah Advisory Council of SCM, Shari'ah screening criteria and regulations for disposal of Shari'ah non-compliant securities in Islamic funds. To achieve the first research objective, this study focuses on the impact of changes in the list of Shari'ah compliant Securities by Securities Commission Malaysia on stock price and trading volume over the period 2000-2015. Therefore, it is crucial to discuss Shari'ah screening methodology suggested by Shari'ah Advisory Committee. Shari'ah criteria for listed securities changed over time. Therefore, it is essential to discuss the brief history of Shari'ah compliant securities in Bursa Malaysia. Finally, providing the guidelines of SCM for when and what to dispose of for newly classified Shari'ah non-compliant securities is crucial to understand the difference between price reactions and trading volumes of added and deleted stocks from LSCS over various time horizons.

Secondly, the study describes the background of Islamic capital markets and Islamic funds in Malaysia. In particular, we review incentives for Islamic funds in Malaysia, brief history and overview of Islamic capital markets and Islamic funds in Malaysia to understand the development and growth of Islamic capital markets and Islamic funds in Malaysia. To address the second research objective, this study investigates the flow-performance relation of Islamic and conventional funds in

Malaysia. Therefore, it is essential to provide a brief history of Islamic capital market, an overview of the fund management industry and special incentives for Islamic funds in Malaysia.

Thirdly, this chapter discusses the history of analyst recommendations and equity research reports in Malaysia. According to studies of Givoly & Lakonishok (1979), Womack (1996), and Gleason & Lee (2003), financial analysts' equity research reports have a critical role in facilitating the price discovery and improving market efficiency. Thus, analysing market information and financial data by certified equity research analysts in Malaysia can help retail investors in their investment strategies and listed companies to have more visibility in Bursa Malaysia. Thus, Bursa Malaysia decided to launch an initiative to cooperate with equity research institutions in Malaysia to provide free research reports from mainly two sources, namely CMDF-Bursa Research Scheme (CBRS) and Non-CBRS Research Reports. To address the third research objective, this study concentrates on the impact of analyst recommendation revisions on Shari'ah compliant and Shari'ah non-compliant stocks. Therefore, it is crucial to elaborate on equity research institutions and analyst recommendations in Malaysia.

3.2 The Background of Shari'ah compliant Securities in Malaysia

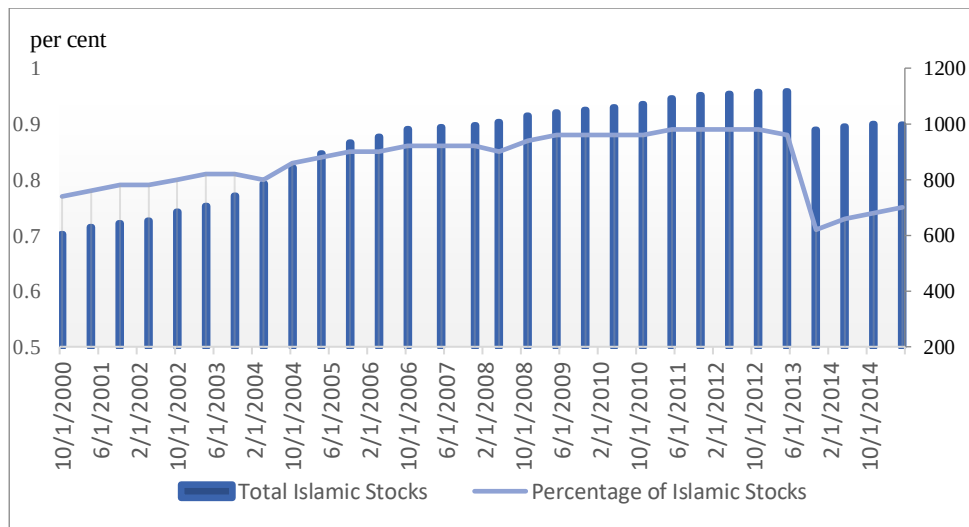
3.2.1 Brief History of Shari'ah compliant Securities in Malaysia

In 1995, the Islamic Instrument Study Group (IISG) had conducted comprehensive research through consulting Islamic finance experts and Shari'ah scholars within or outside of Malaysia and decided to implement four essential primary elements as screening criteria for listed securities in Bursa Malaysia to determine which securities comply with Shari'ah principles or not.

In 1996, the Shari'ah Advisory Council (SAC) of Security Commission Malaysia (SCM) discussed what Islam rules for mixed companies which manage both permissible and prohibited business activities. The SAC concluded that if such companies with a certain level of prohibited business activities do not transcend the benchmark limits determined by the SAC, they can be added into the List of Shari'ah compliant Securities by the SAC of the SCM.

The SAC has played an important role to create a Shari'ah Screening Methodology and to filter Shari'ah Compliant securities in Bursa Malaysia by ensuring Shari'ah principles during the procedure, management and its implementation. In June 1997, the Commission announced a list of Shari'ah compliant securities based on certain Shari'ah principles. In the first list of Shari'ah compliant securities, the number of Shari'ah compliant securities was only 371 or approximately 57% of the total listed securities.

On 27 October 2006, the number of Shari'ah compliant securities has reached to the maximum level by 886 Shari'ah compliant securities or 86% of the total listed securities. By 27 May 2011, the percentage of Shari'ah compliant securities has reached to the maximum level as 89% of the total listed securities were found to comply with the Shari'ah principles (see Figure 9).

Figure 9: Market Share and Size of Shari’ah Compliant Stocks in Bursa Malaysia

Source: Security Commission, Malaysia

The IISG and the SAC conducted their research to create a Shari’ah screening methodology from various angles, including paying attention to the views from within and outside the country before publishing the first list of Shari’ah compliant securities. However, recently launched many global Shari’ah screening criteria had some critical difference in their screening methodology compared to the SAC’s Shari’ah screening methodology while the criteria used for filtering the securities were improved continuously based on the research and case studies of all the listed securities in Bursa Malaysia.

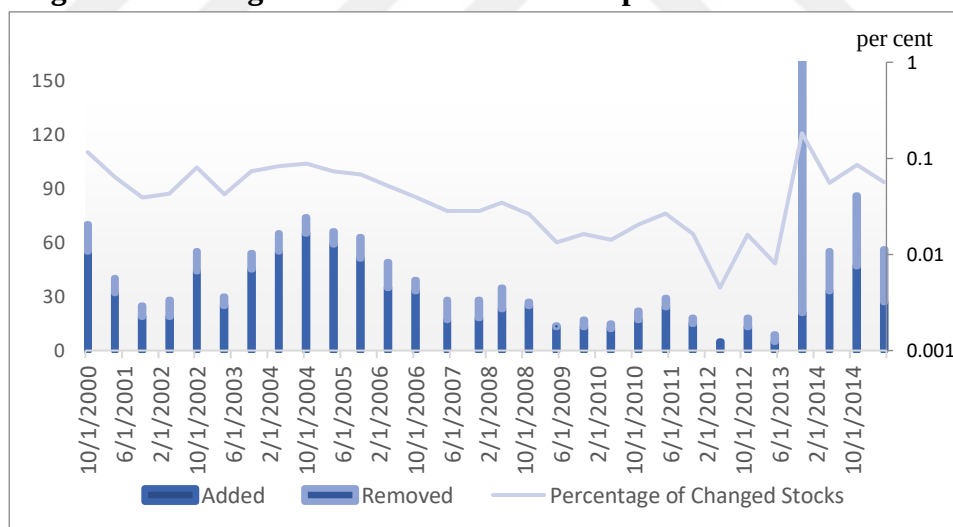
When most of the securities in Bursa Malaysia has been listed as Shari’ah compliant in late 2011, the SAC had announced to revise its screening methodology for determining the Shari’ah compliant status of companies listed in Bursa Malaysia on 18 June 2012. The revised Shari’ah screening methodology was decided to take into effect only on 29 November 2013. The revision of Shari’ah Screening criteria was also in line

with the SCM's initiatives to expand the Islamic capital market's international reach as outlined in the Capital Market Masterplan 2.

By 29 November 2013, the number of Shari'ah compliant securities had dramatically fallen to 653 Shari'ah compliant securities or 71% of the total listed securities. However, the number of Shari'ah compliant securities has grown gradually to 75% of the total listed securities at the end of 2015.

In each announcement, some stocks are added to and removed from LSCS of SCM. While sometimes sum of removed and added stock has explained as high as 18.2% of a total number of Shari'ah compliant stocks, sometimes it was as low as 0.4%.

Figure 10: Changes in List of Shari'ah Compliant Securities of SCM



Source: Security Commission, Malaysia

3.2.2 The Shari'ah Advisory Council of Securities Commission Malaysia

On 16 May 1996, Securities Commission Malaysia (SCM) has established the Shari'ah Advisory Council. Members of the SAC aims to ensure Shari'ah compliance of

products in the Islamic Capital Market (ICM) in Malaysia. It is the sole regulatory body for the regulation and development of the ICM in Malaysia. The SAC has responsibility for the regulating and supervising ICM activities of the market institutions such as the stock exchanges, clearinghouses, and monitoring of licensees.

The key role of SAC in the SCM is to boost continuous development of the ICM in Malaysia especially in providing resolutions for ICM products and services as well as developing and implementing a robust Shari'ah governance process. The SAC has vital function to ensure greater consistency and clarity to issuers, intermediaries and investors ICM in Malaysia.

The SAC embraced two approaches to facilitate ICM products in Malaysia. The first approach refers to the research to identify whether structure, mechanism and use of the instruments in conventional instruments of the local capital market are against Islamic rules or not. The second approach refers to the research to design and improve new Islamic financial products in the ICM of Malaysia.

The SAC in the SCM announces the list of Shari'ah Compliant Securities twice in a year since 17 April 1999 to clarify and identify which securities in Bursa Malaysia are compliant with Shari'ah principles. Such function is very important for Muslim investors to boost their confidence while making investments ICM of Malaysia while having a great concern to follow Islamic principles.

3.2.3 Shari'ah Criteria for Listed Securities in Malaysia

3.2.3.1 Primary Activities Criteria

The primary business activities of a company regarding its goods and services has been the main focus since primary activities are the source of returns for the company in which shareholders make a profit as capital gain or dividends. Identification of primary business activity is essential to understand whether they are against Islamic law. In the case that primary activities of a business are not complying with Shari'ah principles, their securities are excluded from the list of Shari'ah compliant securities.

In general, primary activities criteria are determined after referring to any evidence from the Quran, hadith and general Shari'ah principles, and were formulated according to the activities of a company.

First of all, a company with primary business activity based on *riba* as practised by conventional financial institutions, including commercial banks, merchant banks, finance companies are considered to be Shari'ah non-complaint due to strict prohibition in Quran.¹⁰ Secondly, a company with primary business activity based on gambling, such as companies running casinos, gaming and others is considered as Shari'ah non-complaint.¹¹ Thirdly, a company with primary business activity based on production and

¹⁰ See, e.g., Surah al-Baqarah 275 "Those who consume interest cannot stand [on the Day of Resurrection] except as one stands who is being beaten by Satan into insanity. That is because they say, "Trade is [just] like interest." But Allah has permitted trade and has forbidden interest. So whoever has received an admonition from his Lord and desists may have what is past, and his affair rests with Allah. But whoever returns to [dealing in interest or usury] - those are the companions of the Fire; they will abide eternally therein."

¹¹ See, e.g., Surah al-Maidah 90 "O you who have believed, indeed, intoxicants, gambling, [sacrificing on] stone alters [to other than Allah], and divining arrows are but defilement from the work of Satan, so avoid it that you may be successful."

sale of goods and services that are prohibited in Islam such as processing, producing, marketing alcoholic drinks, supplying non-halal meat like pork, and providing immoral services like prostitution, pubs, and clubs.¹² The fourth, a company with primary business activity based on uncertainty (*gharar*) such as conventional insurance trading, is considered to be Shari'ah non-complaint.¹³

3.2.3.2 Mixed Companies

The SAC determined three criteria regarding mixed companies before adding them into a list of Shari'ah compliant securities. First of all, mixed companies must have good public perception. Secondly, their core business activities must not be against four primary criteria, and additionally, prohibited activities must be a tiny part of the overall business. Finally, the main activities of a company must have a significant benefit to the Muslim community and the country and in other words, must be considered as *Maslalah*.

The matter of having prohibited activities in a company is not new and, some contemporary Muslim scholars already discussed this issue. To illustrate, Al-Khayyat (1989) states that a company's main activities are separate from its management practice.

¹² See, e.g., Surah al-Isra' 32 "And do not approach unlawful sexual intercourse. Indeed, it is ever an immorality and is evil as a way." and Surah al-Maidah 3 "Prohibited to you are dead animals, blood, the flesh of swine, and that which has been dedicated to other than Allah, and [those animals] killed by strangling or by a violent blow or by a head-long fall or by the goring of horns, and those from which a wild animal has eaten, except what you [are able to] slaughter [before its death], and those which are sacrificed on stone altars, and [prohibited is] that you seek decision through divining arrows. That is grave disobedience. This day those who disbelieve have despaired of [defeating] your religion; so fear them not, but fear Me. This day I have perfected for you your religion and completed My favor upon you and have approved for you Islam as religion. But whoever is forced by severe hunger with no inclination to sin - then indeed, Allah is Forgiving and Merciful"

¹³ See, e.g., Sunan Ibn Majah "It was narrated that Ibn 'Abbas said: "The Messenger of Allah (ﷺ) forbade Gharar transactions."

Thus, if the management of the company decides to sign the *riba* contract, the sins are borne by the staff in the company's management and main activities of the company is not part of the sins.

It is also common to find such cases that when a company's primary business activity is permissible, but it also operates prohibited business activities. For example, a big real estate company has a subsidiary of hotels or resorts where liquor is sold within its premises. Although the main activity is permissible and beneficial to the public, subsidiary activities provide a service to only non-Muslims. Thus, its prohibited activities fail to give benefit to the Muslim community.

Islamic jurisprudence also has a record of discussions related to the status of mixed companies by some early Islamic jurists. In the case of companies which are jointly owned by Muslims and non-Muslims, the non-Muslim partners may carry out prohibited activities for Muslims such as signing *riba* contract and selling liquor. Islam gives freedom to non-Muslims to practise such business, yet Zaydan (1989) highlights that part of the business and return related to such prohibited activities must be only belonging to non-Muslim partners. Moreover, Islam has ruling that Muslims cannot violate the property rights of the non-Muslims even if their business activities or assets are prohibited for Muslims.

Another question arises when a company is jointly owned by only Muslim partners, yet one partner is involved in a prohibited activity such as gambling or liquor trading. Resolutions of the SC Shari'ah Advisory Council (2007) emphasizes that some scholars argue that the sins of a person not shared or transferred to another. Thus, business

transactions are among such partners are permissible. Moreover, early Shari'ah scholars did not consider religion as an important factor for incorporating a company except a *mufawadhah* company.¹⁴

The Islamic jurists from the Shafi'i Madhab, and some from the Hanafi, Maliki and Hanbali Madhab argued that it is permissible for Muslims to partner non-Muslims to jointly own a company despite not encouraging it (Al-Ramli, 1984; Al-Buhuti, 1982). However, some prominent Hanafi Madhab scholars such as Imam Hanafi and Muhammad ruled against business partnership among Muslims and non-Muslims through *mufawadhah*.

3.2.3.3 Benchmarks

It is essential to determine specific benchmarks to keep prohibited activities at a minimal level for a mixed company in Shari'ah compliant status. Early Islamic jurists did not mention any threshold limit for prohibited activities to determine the status of a mixed company. Thus, contemporary Shari'ah scholars have played a vital role to draw up benchmarks for mixed companies.

The SAC considers The Prophet Muhammad's(ﷺ) condition of 1/3 (33.33%) is a very generous boundary for prohibited activities which can be taken into account as the benchmark for mixed companies¹⁵.

¹⁴ A *mufawadhah* company is a company with partners who share the capital, action, debts and profits, starting from the beginning of the company's operations right up to the end. See Al-Khafif, *Ahkam al- Muamalat*, p. 458. Nazih Hammad, *Mu`jam al-Mustalahat*, p. 169

¹⁵ See, e.g., Abu Daud, Nasa'i and Ibn Majah "Amir bin Sa'd bin Abi Waqqas narrated that his father said, "In the year of the last Hajj of the Prophet (ﷺ) I became seriously ill and the Prophet (ﷺ) used to visit me inquiring about my health. I told him, 'I am reduced to this state because of illness and I am wealthy and have no inheritors except a daughter, (In

*Ghabn fahisy*¹⁶ during trade is not permissible, yet the *ghabn* in a small amount can be ignored. The theory of *ghabn fahisy* refers to making an excessive profit through cheating. If there is not any cheating involved during a sale transaction or business contract, it is permissible.

The majority of Islamic jurists from the Maliki, Shafi'i and Hanbali Madhab rules that if the business activity of *tanajusy*, that is manipulation, is mixed with *ghabn fahisy*, it gives buyers right to cancel the sale and purchase contract. In other words, the mixing element of *ghabn fahisy* with the element of *tanajusy* is not allowed in Islam. On the other hand, the prohibition can be overlooked if it is under certain benchmark levels. The Hanafi Jurisprudence rules *ghabn fahisy* should be less than 5% for ordinary goods, 10 per cent for animals and 20% for fixed assets (Al-Zarqa, 2014).

3.2.3.4 Image as Criteria for Listed Companies

The SAC resolved to use three benchmarks related to company image to determine whether its securities are Shari'ah compliant or not. First of all, the benchmark related to an image based on *maslahah rajihah* (tangible deeds) in mixed companies is

this narration the name of 'Amir bin Sa'd is mentioned and in fact it is a mistake; the narrator is 'Aisha bint Sa'd bin Abi Waqqas). Should I give two-thirds of my property in charity?' He said, 'No.' I asked, 'Half?' He said, 'No.' then he added, 'One third, and even one-third is much. You'd better leave your inheritors wealthy rather than leaving them poor, begging others. You will get a reward for whatever you spend for Allah's sake, even for what you put in your wife's mouth.' I said, 'O Allah's Messenger (ﷺ)! Will I be left alone after my companions have gone?' He said, 'If you are left behind, whatever good deeds you will do will upgrade you and raise you high. And perhaps you will have a long life so that some people will be benefited by you while others will be harmed by you. O Allah! Complete the emigration of my companions and do not turn them renegades.' But Allah's Messenger (ﷺ) felt sorry for poor Sa'd bin Khaula as he died in Mecca." (but Sa'd bin Abi Waqqas lived long after the Prophet (ﷺ))"

¹⁶ Ghabn refers to profits arising in an exchange contract which can be divided into *ghabn fahisy*, i.e. excessive, and *ghabn yasir*, i.e. minimal. Please refer to Nazih Hammad, Mu'jam al-Mustalahat, p. 210.

25%. Secondly, the benchmark related to an image based on *sadd zari`ah* where the benefit of good is disputable is less than 5%. Finally, if there is an image based on factor between *sadd zari`ah* and *maslahah* such as the sale of liquor in public transport, the benchmark is based on the discretion of the SAC.

3.2.3.5 Revised Shari`ah Screening Benchmarks

Resolutions related to Shari`ah screening criteria are continuously updated after the SAC meetings since new the SAC may need to address new Shari`ah matters to draw up rules and benchmarks for Shari`ah compliant stocks.

The screening methodology has been revised by adopting a two-tier approach to the quantitative assessment in financial ratios in addition to previous business activities benchmark as part of development and sophistication of the Islamic finance industry in Malaysia. This revision was in line with the SC's initiatives to further build scale in the Shari`ah compliant equity and investment management segments as well as expand the Islamic capital market's (ICM). The revised methodology has been on 18 June 2012 to be reflected in the List of Shari`ah compliant Securities by the SC's SAC effective from 29 November 2013. Table 3 shows the differences between the former and the latter Shari`ah screening benchmarks.

Table 1: Previous and Revised Screening Benchmarks

Previous Screening Benchmarks (May 2013)		Revised Screening Benchmarks (November 2013)	
5%	This benchmark is used to assess the level of mixed contributions from activities which are clearly prohibited such as <i>riba</i> (interest-based companies like conventional banks), gambling, liquor and pork.	5%	The five-per cent benchmark applies to the following businesses/ activities: • conventional banking; • conventional insurance; • gambling; • liquor and liquor-related activities; • pork and pork-related activities; • non-halal food and beverages; • Shari'ah non-compliant entertainment; • tobacco and tobacco-related activities; • interest income¹ from conventional accounts and instruments
10%	This benchmark is used to assess the level of mixed contributions from activities which involve the element of <i>'umum balwa</i> that is a prohibited element affecting most people and difficult to avoid.		
20%	This benchmark is used to assess the level of contribution from mixed rental payment from Shari'ah non-compliant activities, such as rental payments from premises used in such as gambling, sale of liquor.	20%	The 20-per cent benchmark applies to the following businesses/ activities: • hotel and resort operations; • share trading; • stockbroking business; • rental received from Shari'ah non-compliant activities;
25%	This benchmark is used to assess the level of mixed contributions from activities which are generally permissible according to Shari'ah and have an element of <i>maslahah</i> to the public, but there are other elements which may affect the Shari'ah status of these activities. Among the activities that belong to this benchmark are hotel and resort operations, share trading, stockbroking and others	33%	The 33-per cent benchmark applies to the following financial ratios: (i) Cash over total assets Cash only includes cash placed in conventional accounts and instruments, whereas cash placed in Islamic accounts and instruments is excluded from the calculation. (ii) Debt over total assets Debt only includes interest-bearing debt whereas Islamic financing or sukuk is excluded from the calculation.

Source: Securities Commission Malaysia

3.2.3.6 *Shari'ah Compliance Review for PRE-IPO Securities*

In 2004, the SAC provided a framework for Shari'ah Compliance Review for Pre-IPO Securities. Thus, the SAC not only conduct Shari'ah compliance review on securities listed but only for securities to be listed in Bursa Malaysia since 2004.

At the pre-IPO stage, prospective issuers make an application to the SC for Shari'ah compliance review. If they are eligible to have Shari'ah compliant IPO, they can disclose or advertise the Shari'ah status of their securities in the prospectus of the company during the offering period to attract investment of Muslim investors or Islamic financial institutions.

Application for Shari'ah Compliance Review for Pre-IPO Securities requires a processing fee. The computation for the processing fee is as follow;

$RM10,000 + 5\% [SC's \text{ fee for listed initial public offering (IPO) proposal}]$ where a maximum fee of RM50,000

Applying for Shari'ah compliance review is optional for issuers. Moreover, the decision to advertise or disclose the result of the Shari'ah status of securities during IPO is at the discretion of the applicants.

3.2.4 **Disposal of Shari'ah Non-compliant Securities?**

The Shari'ah Advisory Council (SAC) suggest investors what and when to dispose of securities which are recently delisted from the list of Shari'ah Compliant Securities.

The investor has a right to retain only the investment cost, and if they gain any profit from capital gain or dividend received after the disposal of the securities after the announcement day, they are required to transfer it to *baitulmal* and/or charitable bodies.

If the market price of Shari'ah non-compliant securities exceeds or is equal to the investment cost on an effective day, investors must dispose of new Shari'ah non-compliant Securities off. If investors have any return from dividends up to the date of the announcement and capital gains arising from the disposal of Shari'ah non-compliant securities on the date of the announcement, investors can keep it. On the other hands, if investors make any money from dividends received and excess capital gain from the disposal of Shari'ah non-compliant stocks after the date of the announcement, it should be transferred to *baitulmal* and/or charitable bodies.

If the market price of the new Shari'ah non-compliant securities is below the investment cost, investors can hold their investment in the Shari'ah non-compliant securities. It is also allowed for the investors to hold the dividends received until such time that the sum of dividends received and the market value of the Shari'ah non-compliant securities are equal the investment cost.

The SAC suggests investors who follow Shari'ah principles to dispose of any Shari'ah non-compliant securities which they presently keep in their portfolio, within a month of knowing the status of the securities.

3.3 Background of Islamic Capital Markets (ICM) and Islamic Funds in Bursa Malaysia

3.3.1 Brief History of Islamic Capital Markets (ICM) in Malaysia

The history of Islamic capital markets in Malaysia started with establishment of Shari'ah Advisory Council in 1996 and first product in Islamic capital markets was Shari'ah compliant securities which are announced by the Shari'ah Advisory Council (SAC) in Securities Commission Malaysia (SCM) as list of Shari'ah compliant securities (LSCS) in June 1997 after screening all securities in Bursa Malaysia against a clear set of guiding principles.

In April 1999, the FTSE Group and Bursa Malaysia launched Kuala Lumpur Shari'ah Index (KLSI) to meet the demands from investors who are concern with Shari'ah principles during their investments. KLSI has acted as the basis of price and performance of Shari'ah compliant securities in Malaysia. After Bursa Malaysia decided to deactivate KLSI, FTSE Bursa Malaysia Emas Shari'ah Index (FBM Emas Shari'ah) was launched in January 2007. In May 2007, Bursa Malaysia launched another Islamic index, namely Bursa Malaysia Hijrah Shari'ah Index (FBM Hijrah Shari'ah) to be served as a benchmark for Shari'ah compliant investment products that meet the screening requirements of global Shari'ah compliant investor.

In 2009, Bursa Malaysia initiated Bursa Suq Al-Sila', the world's first end-to-end Shari'ah-based electronic commodity trading platform for providing commodity *murabahah* facility platform. Bursa Suq Al-Sila' had an important role in improving the liquidity of financial institutions and for meeting the demand of investors who seek a stable return from their Shari'ah compliant investments such as *sukuk* or Islamic deposits.

In 2012, FTSE Bursa Malaysia Small Cap Shari'ah Index was launched by the FTSE Group and Bursa Malaysia launched to be used as a benchmark for Shari'ah compliant investments in companies with a small market capitalisation in Bursa Malaysia. In 2013, DanaInfra Nasional Berhad and MRT Corp. had the first issuance of new asset class for Islamic investors called Exchange Traded Bond and Sukuk (ETBS) to be listed in Bursa Malaysia. In 2016, Bursa Malaysia-i was introduced in Bursa Malaysia as the world's first dedicated to development of Shari'ah compliant capital market to facilitate investment with Shari'ah restrictions.

3.3.2 An Overview for Islamic and Conventional Funds in Malaysia

Even though Malayan Unit Trust Ltd. launched the first unit trust in Malaysia in 1959, lack of money inflows and public attention were essential challenges for the development of the unit trust industry during its first two decades. During the 1960s and the 1970s, only five-unit trust management companies were established, with a total of 18 funds being introduced.

In the 1980s, the government's initiative to participate in the unit trust industry has catalysed growth and development in the unit trust industry. After Permodalan Nasional Berhad (PNB) launched Amanah Saham Nasional (ASN) in 1981, investment in unit trust has become popular among investors in Malaysia. ASN played a critical role in the growth of capital markets in Malaysia through channelising domestic household savings into the unit trust industry. The implementation of the Securities Commission's new Regulations related to the unit trust industry in 1996 enhanced deregulation of the industry and enabled more significant product innovation.

Malaysia has accomplished many milestones in the Islamic fund management industry, beginning with the establishment of two Islamic unit trust funds in 1993. In the 1990s, the unit trust industry has recorded the fastest growth when the size of assets under management has increased from RM15.72 billion in 1992 to RM59.95 billion in 1996. However, the Asian Financial Crisis has led to almost 50% of the fall of the Net Asset Value (NAV) of the unit trust industry in Malaysia.

In the early 2000s, the unit trust industry recorded double-digit growth in the NAV from RM43 billion in 2000 to RM169 billion in 2007. Although the NAV of the unit trust industry in Malaysia fell to RM138 billion with a spark of the global financial crisis in 2008, the NAV has rebounded to RM205 billion in 2009. Meanwhile, the total units in the circulation of 118 billion in 2004 doubled in 2009 by reaching to 273.88 billion. However, the number of fund management companies rose just slightly from 36 companies in 2004 to 39 companies in 2009. In 2007 and afterwards, the government has launched several initiatives to provide tax neutrality and incentives for Islamic unit trust funds to ensure Islamic finance industry has a competitive ecosystem with conventional finance for its sustainable growth and development. For three years, the number of Islamic funds had a remarkable rise from 92 in 2006 to 163 in 2009 despite the global financial crisis. Similarly, while the NAV of conventional unit trust funds fell 28% from RM151 billion to RM114 billion during 2008, the NAV of Islamic unit trust funds stayed almost unchanged around RM16 billion.

On 18 February 2009, “the Guidelines on Wholesale Funds” was introduced by Securities Commission Malaysia to increase the flexibility of fund managers for more

significant product innovation and better capacity to follow alternative investment strategies. After the introduction of wholesale funds, the increase in unit trust number has slowed down, yet a total number of wholesale and unit trust funds in Malaysia had stable growth from 629 funds in 2009 to 905 funds in 2015. Meanwhile, the number of approved Islamic funds had galloping rise from 170 at the end of 2009 to 295 at the end of 2015. The NAV of Islamic funds has surged from RM17 billion in 2007 to RM83 billion in 2015, while the NAV of conventional funds increased from RM151 billion to RM347 billion during the same period. In other words, the share of Islamic funds among wholesale and unit trust funds has reached from 10% in 2007 to 25% in 2015.

Table 2: Summary of Statistics for the Malaysian Unit Trust and Wholesale Funds

	12/2006	12/2007	12/2008	12/2009	12/2010	12/2011	12/2012	12/2013	12/2014	12/2015
No. of Approved Management Companies	38	39	39	39	39	40	40	38	36	37
No. of Approved Funds	411	506	550	658	696	756	797	824	871	934
• Conventional	314	378	409	488	522	559	574	579	605	639
• Islamic-based	97	128	141	170	174	197	223	245	266	295
No. of Launched Funds	387	484	532	629	671	720	760	788	842	905
• Conventional	295	360	392	466	500	528	550	558	585	619
• Islamic-based	92	124	140	163	171	192	210	230	257	286
Units in Circulation (in billion)	153.72	206.84	236.39	287.92	309.24	343.55	405.56	448.27	498.85	547.29
• Conventional	135.25	170.56	187.54	227.91	248.85	275.29	319.81	353.22	382.56	408.79
• Islamic-based	18.47	36.27	48.86	60.02	60.39	68.25	85.75	95.06	116.29	138.51
No. of Accounts (in '000)	11,163	12,274	13,046	14,110	14,631	15,439	16,116	16,783	17,421	17,999
• Conventional	10,398	11,024	11,411	12,333	12,826	13,461	14,004	14,534	15,030	15,431
• Islamic-based	765	1,250	1,635	1,777	1,804	1,978	2,112	2,249	2,391	2,567
Total NAV (in RM billion)	121.41	168.03	130.44	205.67	245.47	276.87	347.33	394.96	416.32	431.11
• Conventional	112.31	151.24	114.32	180.41	217.19	241.69	295.75	335.71	346.21	347.32
• Islamic-based	9.10	16.79	16.12	25.26	28.28	35.18	51.58	59.26	70.11	83.79
Bursa Malaysia Market Capitalization (in RM bil)	853	1,150	663	999	1,275	1,284	1,465	1,702	1,651	1,694
% of NAV to the Mkt. Cap.	14.23	14.60	19.65	20.58	19.25	21.55	23.70	23.20	25.21	25.44
Ave. funds per FMC	10.82	12.97	14.10	16.87	17.85	18.90	19.93	21.68	24.19	25.24
Ave. units per FMC (in bil)	4.05	5.30	6.06	7.38	7.93	8.59	10.14	11.80	13.86	14.79
Ave. NAV per FMC (in RM bil)	3.20	4.31	3.34	5.27	6.29	6.92	8.68	10.39	11.56	11.65
Ave. NAV per unit (RM)	0.79	0.81	0.55	0.71	0.79	0.81	0.86	0.88	0.83	0.79

Source: Securities Commission Malaysia

3.3.3 Special Incentives for Islamic Funds in Malaysia

The Malaysian Government has been promoting Islamic Finance industry in Malaysia and very keen to stay as global hub of the Islamic finance industry. Therefore, Malaysian government has effective policies not only to ensure tax neutrality through relieving certain tax charges that are supposed to be imposed onto the Islamic financial institutions and transactions but also to provide significant incentives for further development and growth of Islamic Finance industry.

In any funding structure, tax regulation is critical in the finance industry since it can significantly affect performance of financial institutions. Thus, the tax regulation in Islamic Finance industry is vital for survival in the long term because asset-backed and trade-based nature of Islamic financial transactions may lead to over-taxation for the industry. Thus, the regulatory bodies have a crucial role in managing potential tax liability and tax inefficiencies in the Islamic Finance industry.

Indeed, the Malaysian government has provided plenty of tax incentives and neutrality in Islamic capital markets and Islamic funds as part of “Malaysia: Islamic Finance Marketplace” (MIFC). Islamic Funds had income tax neutrality and exemptions to be refined over the years. More particularly, Islamic funds registered in Malaysia with foreign investors and local investors have income tax exemption on income received from services of fund management from 2007 and 2008 respectively until 2020. Moreover, Islamic funds of business trust or REIT have income tax exemption on income obtained from services of fund management between 2014 and 2020. As a result, Malaysia has been ranked as the first country to accord tax neutrality to Islamic finance instruments and transactions (MIA, 2012).

The Malaysian government encourages the participation of foreign experts on Islamic finance in line with the nation's goals for talent development. Firstly, the Malaysian government established 'Green Lane' for fast and easy immigration approval for Islamic finance expatriates and their families. Secondly, tax exemption for non-resident experts in Islamic finance is provided between 8 September 2007 and 31 December 2016. Moreover, to increase the number of Malaysian Islamic finance experts, RM5,000 tax relief per annum is provided for expenses by Malaysians to pursue Islamic finance studies in postgraduate level. If Malaysian individuals join Islamic finance programmes organised by INCEIF and IBFIM, it will enable their companies for a double deduction on fees they spent for the education.

3.4 The Background of Analyst Recommendations in Malaysia

3.4.1 CMDF-Bursa Research Scheme (CBRS) Research Report

Many local and international equity research institutions have coverage only for the top 100 stocks listed in Bursa Malaysia. Thus, making an investment decision for the listed companies is a great challenge if they are not among the top 100 stocks listed in Bursa Malaysia. Small-cap and mid-cap stocks might suffer from negative image or price inefficiency since the number of regular publication, and research coverages related to those companies are usually very few.

In June 2005, Bursa Malaysia cooperating with Capital Market Development Fund (CMDF) had launched the CMDF-Bursa Research Scheme (CBRS) for further development and usage of researches related to listed securities in Bursa Malaysia. CBRS

initiative has been a result of a joint effort between Bursa Malaysia and the Capital Market Development Fund (CMDF). While CMDF covers 50% of the cost of analyst recommendations by equity research institutions, Bursa Malaysia took control over as the Administrative role.

3.4.1.1 Eligibility

Any company listed in Bursa Malaysia can participate CBRS, yet they are subjected to the approval of Bursa Malaysia. If a listed company is willing to have equity research coverage for two years by licensed equity research company as Investment Advisors under the Capital Market Securities Act (CMSA), it is required to pay a total fee of RM15,000 where they will receive research coverage for two years.

3.4.1.2 Research Report Content

News and events which can affect a company's financial performance, liquidity and prospects of corporation including management change, acquisitions of material, assets divestment determine the frequency of research coverage by CBRS participants. There are three types of reports that equity analysts are obliged to publish opinions on a company and its stock.

To start with, equity analysts must release "Initiation Report" as their first report related to the listed company. An initiation report is supposed to describe the business, market segment and history of the company. Then, risk factors which can affect performance and earnings of the company should be discussed in detail. Finally, the report should end with analyst forecast of a stock price, valuation and recommendation

to buy, hold or sell the stock after analysing the company's recent balance sheet, profit, loss and cash flow statements.

Secondly, equity analysts must release "Result Report" related to regular announcements of quarterly earnings, profits, loss and other financial results. Analysts should incorporate recent financial results during preparing result reports and revise their stock price and earnings forecasts if there were unexpected updates regarding the performance of the company. Finally, after considering all available financial and non-financial information, equity analysts are obliged to make a recommendation for investors to buy, hold or sell the stocks.

Thirdly, equity analysts are required to publish their opinion about stock price estimation and investment recommendations in "Update Report" if there is any event other than regular announcements of quarterly reports which have great potential to affect financial results and performance of the company. Thus, equity analysts need to investigate the influence of these events on the business prospects of the company.

3.4.1.3 Research Report Frequency

There are specific requirements related to research report frequency from the research company. Firstly, the research company is required to submit one initiation of coverage report within three months that a listed company joined the CBRS. Minimum eight research coverage of result reports related to the listed company's quarterly earnings and one result report related to annual financial results of the listed company is required to be published by the research company. Thirdly, the research company must write two

Update Reports per annum. Finally, the research companies are obliged to conduct the reports above for a period of a minimum of two years.

3.4.2 The Non-CBRS Research Report

Malaysia Research Repository in Bursa Malaysia displays equity research reports of some research companies in Malaysia which publish those reports as part of their regular business activity. Increasing the number of equity research reports and having research coverage of more listed companies are goals that Malaysia Research Repository aims to achieve through hosting Non-CBRS research reports. Investors have free access to Non-CBRS research reports.

Bursa Malaysia offers the Non-CBRS research reports after getting permission from the research companies, and it does not review or monitor reports published by Non-CBRS participants. The research companies are obliged to have a license of Investment Advisors under the Capital Market Securities Act (CMSA) 2007 if they would like Bursa Malaysia to display their research reports

In 2018, Bursa Malaysia announced the following list of CBRS and Non-CBRS Research Companies whose research reports are hosted by Bursa Malaysia;

Table 3: The List of CBRS and Non-CBRS Research Companies in Bursa Malaysia

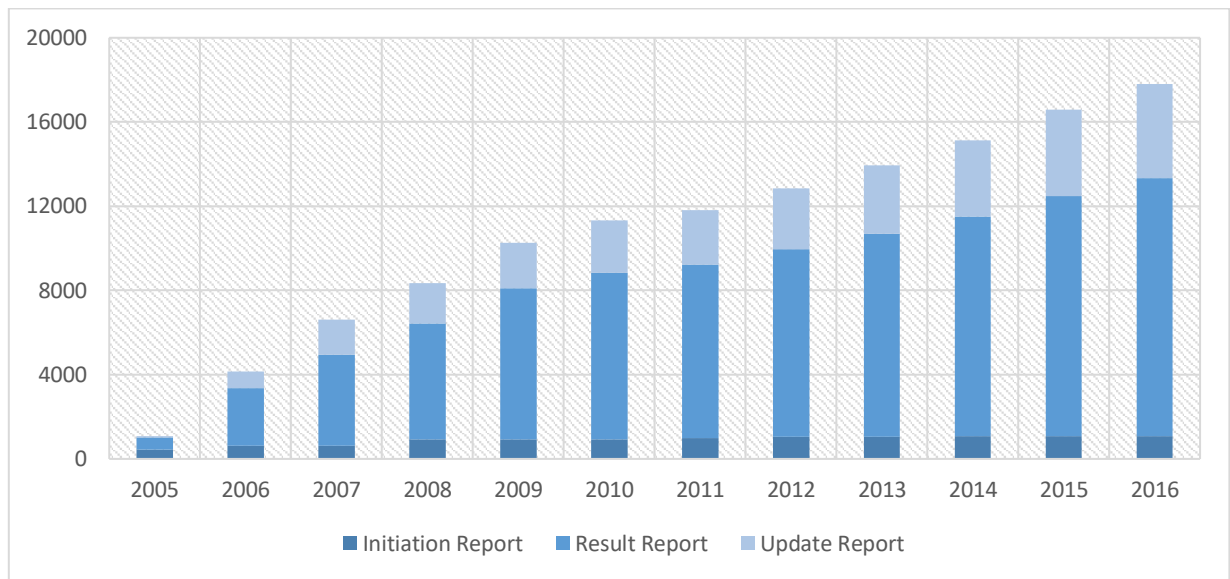
CBRS – Research Companies	Non-CBRS – Research Companies
Participating Research Companies	Alliance DBS Research Sdn Bhd.
Alliance DBS Research Sdn Bhd.	BIMB Securities Sdn Bhd.
Asia Analytica Sdn Bhd.	JF Apex Securities Bhd.
BCT Asia Advisory Sdn Bhd.	Mercury Securities Sdn Bhd.
CIMB Investment Bank	TA Securities Holdings Bhd.
M&A Securities Sdn Bhd.	
Mercury Securities Sdn Bhd.	
TA Securities Holdings Bhd.	
Wilson & York Global Advisors	
ZJ Advisory Sdn Bhd.	

Source: Bursa Malaysia

3.4.3 History of Analyst Recommendation Market in Malaysia

Figure 11 shows the total number of published research reports of the CMDP-Bursa Research Scheme (CBRS) and Non-CBRS annually in Bursa Malaysia for the years 2005 - 2016. There are 25 Research houses which published research in Bursa Malaysia. They published 1095 Initiation Reports, 12150 Result Reports, and 4497 Update Reports between 2005 and 2016.

Figure 11: The Total Number of Published Research Reports of the CMDF-Bursa Research Scheme (CBRS) and Non-CBRS in Bursa Malaysia



Source: CMDF-Bursa Research Scheme (CBRS), Bursa Malaysia

With the launch of the Bursa Malaysia Research Repository project, 449 initiation report has been published during 2005 while 569 result reports and 75 update reports has been written. The following year, a sum of initiation, result and update reports has reached to the maximum level in its history with 3156 reports. The number of reports gradually fell to 1882 in 2009, yet the number of research reports per annum had a drastic fall from 1882 at the end of 2009 to 1078 at the end of 2010 after Standard & Poor's Malaysia Sdn Bhd, which was writing more than 50% of equity research reports between 2006 and 2009 stopped publishing research reports in Bursa Malaysia Research Repository. However, the number of research reports had gradual increase from 504 in 2011 to 1379 in 2015.

Chapter 4: Data, Research Methodology and Empirical Models

4.1 Introduction

This chapter elaborates the empirical models, research methodologies and data used in this study to address the following research questions:

- 1) Do announcements of LSCS affect trading volume and prices of newly classified Shari'ah compliant and Shari'ah non-compliant stocks in Bursa Malaysia?
- 2) Does Shari'ah compliance as a non-financial attribute of Islamic funds in Malaysia lead to different flows-performance relation in Islamic and conventional funds?
- 3) Do investors react analysts' recommendation revisions for Shari'ah compliant and Shari'ah non-complaint stocks differently in Malaysia?

The research questions entail a comparison of the behavioural pattern of Shari'ah sensitive investors with traditional investors and examination of the impact of Shari'ah compliant investment's non-financial aspects on financial markets. In order to address each research question, we have to test relevant hypotheses by using suitable empirical models and research methodology. However, this study sometimes employs the same empirical model and research methodology to test the research hypotheses in different research objectives. Moreover, the study also conducts various research methodologies and empirical models for testing different hypotheses to achieve the same research

objective. The hypotheses of three research objectives, the empirical models to test those hypotheses, the methodology and variables of the empirical model are tabulated in Table 4.



Table 4: Brief Summary of Empirical Models, Methodology and Variables for Respective Research Hypothesis

Research Hypotheses	Empirical Model	Methodology	Variables
The Hypotheses of Research Objective 1			
H1a. Non-IPO additions to LSCS will lead to an increase in stock prices while deletions from LSCS will lead to a decline in stock prices in the short term and the long term.	$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t}$	Event Study Methodology, Market Model	Section 4.2.7.3
H1b. IPO additions to LSCS will not lead to an increase or a decline in stock prices in either short term or long term.			
H1c. Non-IPO additions to and deletions from LSCS will lead to an increase in stock trading volume in the short term and the long term.	$MVR_t = \frac{1}{N} \sum_{i=1}^N VR_{i,t}$	Mean Volume Ratio (MVR)	Section 4.3.5.3
H1d. IPO additions to LSCS will not lead to an increase or decrease in stock trading volume.			
The Hypotheses of Research Objective 2			

H2a. The flow-return relation of Islamic funds is stronger than that of conventional funds for positive performers while it is weaker than that of conventional funds for negative performers.	$fl_{i,t} = \alpha + (\beta_1 + \beta_2 D Negative_{i,t})(r_{i,[t-1,t-6]})$ $+ (\beta_3 + \beta_4 D Negative_{i,t})(r_{i,[t-7,t-12]})$ $+ \beta Controls_{i,t-1} + \varepsilon_{i,t}$	Panel Data, Random Effects Model	Section 4.5.5
H2b. The Ramadhan month causes fund outflows from conventional mutual funds while it causes fund inflows into Islamic mutual funds.	$fl_{i,t} = \alpha + (\beta_1 + \beta_2 D Negative_{i,t})(r_{i,[t-1,t-6]})$ $+ (\beta_3 + \beta_4 D Negative_{i,t})(r_{i,[t-7,t-12]}) + \beta_5 Ram_t$ $+ \beta Controls_{i,t-1} + \varepsilon_{i,t}$	Panel Data, Random Effects Model	Section 4.5.5
H2c. The fund flow-return relation of Islamic funds is weaker than that of conventional funds for bottom performers while it is stronger than that of conventional funds for top performers.	$fl_{i,t} = \alpha + (\beta_1 + \beta_2 D Negative_{i,t})(r_{i,[t-1,t-6]})$ $+ (D Bottom_{i,t})(\beta_1 + \beta_2 D Negative_{i,t})(r_{i,[t-1,t-6]})$ $+ (D Top_{i,t})(\beta_1 + \beta_2 D Negative_{i,t})(r_{i,[t-1,t-6]})$ $+ (\beta_3 + \beta_4 D Negative_{i,t})(r_{i,[t-7,t-12]})$ $+ (D Bottom_{i,t})(\beta_3 + \beta_4 D Negative_{i,t})(r_{i,[t-7,t-12]})$ $+ (D Top_{i,t})(\beta_3 + \beta_4 D Negative_{i,t})(r_{i,[t-7,t-12]}) +$ $\beta Controls_{i,t-1} + \varepsilon_{i,t}$	Panel Data, Random Effects Model	Section 4.5.5

H2d. Fund flows of Islamic funds are less fee-sensitive than conventional funds. H2e. Fund flows of Islamic funds are less size-sensitive than conventional funds. H2f. Young Islamic funds attract more fund flows than conventional funds.	$fl_{i,t} = \alpha + (\beta_1 + \beta_2 D Negative_{i,t})(r_{i,[t-1,t-6]})$ $+ (\beta_3 + \beta_4 D Negative_{i,t})(r_{i,[t-7,t-12]})$ $+ \beta Controls_{i,t-1} + \varepsilon_{i,t}$	Panel Data, Random Effects Model	Section 4.5.5
The Hypotheses of Research Objective 3			
H3a. Analysts' recommendation revisions lead to price reactions in short-term horizons and long-term horizons.	$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t}$	Event Study Methodology, Market Model	Section 4.2.7.7

H3b. Price reactions for Shari'ah compliant stocks subsequent to analysts' recommendation revisions are stronger than Shari'ah non-compliant stocks in short-term horizons.	$CAR_{j,t} = \beta_1 D \text{ Added to Buy}_{j,t}$ $+ \beta_2 D \text{ Removed from Buy}_{j,t}$ $+ \beta_3 D \text{ Added to Sell}_{j,t} + \beta_4 D \text{ Removed from Sell}_{j,t}$ $+ \beta_5 D \text{ Added to Buy}_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t}$ $+ \beta_6 D \text{ Removed from Buy}_{j,t}$ $\times D \text{ Shari'ah noncompliant}_{j,t}$ $+ \beta_7 D \text{ Added to Sell}_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t}$ $+ \beta_8 D \text{ Removed from Sell}_{j,t}$ $\times D \text{ Shari'ah noncompliant}_{j,t} + \varepsilon_{i,t}$	Multiple Linear Regression Model	Section 4.4.3.2
H3c. Analysts' recommendation revisions which are issued contemporaneously with earnings announcements lead to stronger price reactions in short-run stock returns and long-run stock returns.	$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t}$	Event Study Methodology, Market Model	Section 4.2.7.7

H3d. Price reactions for Shari'ah compliant stocks subsequent to analysts' recommendation revisions which are issued contemporaneously with and without earnings announcements are stronger than Shari'ah non-compliant stocks in short-term horizons and long-term horizons.	$ \begin{aligned} CAR_{j,t} = & \beta_1 D Abe_{j,t} + \beta_2 D Abwe_{j,t} \\ & + \beta_3 D ASe_{j,t} + \beta_4 D ASwe_{j,t} \\ & + \beta_5 D RBe_{j,t} + \beta_6 D RBwe_{j,t} \\ & + \beta_7 D RSe_{j,t} + \beta_8 D RSwe_{j,t} \\ & + \beta_9 D Abe_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t} \\ & + \beta_{10} D Abwe_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t} \\ & + \beta_{11} D ASe_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t} \\ & + \beta_{12} D ASwe_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t} \\ & + \beta_{13} D RBe_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t} \\ & + \beta_{14} D RBwe_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t} \\ & + \beta_{15} D RSe_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t} \\ & + \beta_{16} D RSwe_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t} + \varepsilon_{i,t} \end{aligned} $	Multiple Linear Regression Model	Section 4.4.3.4
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4.2 Abnormal Return I

4.2.1 Introduction

In this section, methodologies and empirical models to test the research hypothesis of H1a, H1b, H3a, and H3c are presented. We use event study methodology and market model to analyse price movements in response to the release of new information and test all those research hypotheses.

To address the first research objective, we examine whether announcements about additions and deletions into Shari'ah compliant Stocks List (LSCS) of the SCM cause the price anomalies in the short-term and long term. Thus, the study attempts to test the following null hypotheses;

H1a. Non-IPO additions to LSCS will lead to an increase in stock prices while deletions from LSCS will lead to a decline in stock prices in the short term and the long term.

H1b. IPO additions to LSCS will not lead to an increase or a decline in stock prices in either short term or long term.

The third research objective of this study aims to explore whether analyst recommendations carry valuable information and whether analysts in Malaysia piggyback on the news related to financial results of corporations or not. Therefore, the study attempts to test the following null hypotheses;

H3a. Analysts' recommendation revisions lead to price reactions in short-term horizons and long-term horizons.

H3c. Analysts' recommendation revisions which are issued contemporaneously with earnings announcements lead to stronger price reactions in short-run stock returns and long-run stock returns.

4.2.2 Event Study Methodology

Event study methodology has been used to analyse stock market behaviour for more than 40 years (Ball & Brown, 1968; Fama et al., 1969). The main objective of using event study methodology is estimating the abnormal return around the date that new information about a firm is released to the market (Binder, 1998; Corrado, 2010; Kothari & Warner, 2004). Thus, using event study methodology is the most suitable methodology to compute abnormal returns following the release of new information.

According to most researchers, the basic steps of event study analysis are outlined as follow;

Step 1: To choose an event of interest and the time horizon over which abnormal returns will be analysed.

Step 2: To decide a suitable model in computing abnormal returns. Abnormal return is measured as the actual ex-post return of the security over the event window minus expected return of the firm over the event window where expected return is defined as the return if the event had not occurred. The normal return model, constant mean return

model, market return model, market model, CAPM model, and multi-factor models are among the most commonly used models for measuring abnormal returns.

Step 3: To determine an estimation window for the event. The estimation window is used to calculate the expected return of listed security over different time horizons.

Step 4: To choose a testing procedure. Abnormal returns can be found once the expected returns are estimated by the event-window estimation model. Then, a framework for testing the abnormal returns is developed by defining the null hypothesis and choosing a statistical method for testing significance of abnormal returns.

Step 5: To obtain and present empirical results. After determining the event dates, estimation window and a model of event study methodology, presentation of empirical results and diagnostic tests are helpful to gauge whether or not the influence of a small number of firms may have affected overall results.

Step 6: To discuss empirical results. The main objective of an event study is that the empirical results will give some insight regarding how the event affects security price movements. Additional factors which would have affect security price should be highlighted to capture the real impact of an event over security price.

4.2.3 The Market Model

Event studies utilising a market model residual method with daily stock data are well documented (Brown & Warner, 1985). The market model is the most suitable model to use in our event study methodology because many studies documented that the market

model works well to calculate abnormal returns and other models often do not provide a better alternative (Armitage, 1995; Binder, 1998; Cable and Holland, 1999).

The market model represents a potential improvement over the constant mean return model. The variance of the abnormal return is decreased by removing the portion of the return that is related to variation in the market's return. This, in turn, can lead to increased ability to detect event effects (MacKinlay, 1997). Although the market model has some limitations such as the variability of the abnormal return estimators, researchers have developed various simple solutions to address these issues (Binder, 1998). Several models have extended the market model for estimating abnormal returns. For instance, Fama & French (1996) expand the single factor model into a three-factor model by using firms' size index and firms' book-to-market index to estimate stock returns. However, the study will use a single-factor market model with constant due to lack of proxy portfolios for three-factor or five-factor models in Malaysia.

The market model which is also known as a single-index model is based on the assumption that there is a constant and linear relation between individual asset returns and the return of a market index (Equation (1)). Event Study Metrics estimates the model parameters by ordinary least squares (OLS) regressions based on estimation-window observations.

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \text{ with } E(\varepsilon_{i,t}) = 0 \text{ and } Var(\varepsilon_{i,t}) = \sigma_{\varepsilon_i}^2 \quad (1)$$

wherein the case of the first day after the event, $R_{i,t}$ is return of security i at the time t while $R_{m,t}$ is the return of market portfolio at the time t. While α_i is the intercept

for the security i , β_i is the slope of coefficient for security i and $\varepsilon_{i,t}$ is the residual for security i at the time t .

The OLS regression analysis estimates the parameter $\hat{\alpha}$ and $\hat{\beta}$ from the (Equation (1)) by using observation of $R_{i,t}$ and $R_{m,t}$ over event window period and then, we calculate the expected return of each security i ($\widehat{R}_{i,t}$) by using the return of the market portfolio ($R_{m,t}$).

$$\widehat{R}_{i,t} = \hat{\alpha} + \hat{\beta} R_{m,t} \quad (2)$$

After calculating the expected returns for each security i at the time t ($\widehat{R}_{i,t}$) from the equation (2), the abnormal return is calculated. We obtain the abnormal return for security i at the time t ($AR_{i,t}$) by calculating the difference between a security's actual returns and the expected returns (Equation (3)).

$$AR_{i,t} = R_{i,t} - (\hat{\alpha} + \hat{\beta} R_{m,t}) \quad (3)$$

Individual cumulative abnormal return ($CAR_{j,i,t}$) of a company j over the event window from the day 'i' to 'T' is calculated in equation (4) as follow;

$$CAR_{j,i,t} = \sum_{t=i}^T AR_{j,i,t} \quad (4)$$

The average abnormal return (AAR_t) is calculated by the sum of abnormal return for all securities j divided by the number of securities N (Equation (5)). The average

abnormal return (AAR) for securities is used to measure the excess return movement of all stock on time t .

$$AAR_t = \frac{1}{N} \sum_{j=1}^N AR_{j,t} \quad (5)$$

The average abnormal returns are summed over the event window in order to obtain a cumulative average abnormal return $CAAR_{i,t}$ for each time horizon from day 'i' to 'T'(Equation (6)).

$$CAAR_{i,t} = \sum_{t=i}^T AAR_t \quad (6)$$

4.2.4 Estimation Window and Event Windows

In this section, the study will discuss about length of estimation window and event windows to be used for explaining the effects of the event over the stock return and testing our hypotheses of H1a and H1b to address the first research objective and H3a and H3c to answer the third research objective of the thesis.

There is no uniform agreement on the length of the estimation window. For example, Cox & Peterson (1994) use 100 days, Carow and Kane (2002) use 200 days, Bildik & Gulay (2008) uses 30 days, Litvak (2007) uses 500 days, Madun (2009) uses 100 days, and Yazi, Morni, & Imm (2015) uses 90 days. Most studies suggest between 30 days and 100 days as the length of the estimation window. Therefore, we define the estimation window from 60 trading days before the announcement date (AD-60) to 6

trading days before announcement day (AD-6) as event-window of (-60, -6) in both studies,. This is the period when the parameters of $\hat{\alpha}$ and $\hat{\beta}$ are estimated and the expected return $\widehat{R}_{i,t}$ for security i at time t is computed. If the abnormal return is significantly different from zero, it suggests that the event has a significant impact over security price.

Regarding the length of the event window, various event windows are used to understand the impact of events over security prices. For example, MacKinlay (1997) uses (-1, +1), Kanas (2005) uses (-3, +3) and Miyajima & Yafeh (2007) use (-5, +5). Longer periods are used for some special cases. For example, Cox & Peterson (1994) use (+4, +20), Bildik & Gulay (2008) uses (-10, +10) and Madun (2009) uses (-120, +120).

Consistent with previous studies of Yazi, Morni, & Imm (2015), Ng & Zhu (2016) and Kassim, Ramlee, & Kassim, (2017), the first strand of the thesis would like to examine pre-announcement period to understand whether investors can estimate stock inclusions or removal by using Shari'ah screening benchmarks of SCM and spread this information to other investors. However, the third strand of the thesis focuses on only post-announcement period because analyst recommendations are often unpredictable and many previous studies on the impact of analyst recommendation revisions concentrate on the only post-announcement period (Womack, 1995; Unlu & Yan, 2009; Pepis & Jong, 2019). Both studies attempt to examine the impact of events on abnormal returns not only in the short-term period but also in the long-term period since there are theoretical discussions on the potential long-term impact of these events in both studies. Therefore, the study employs different event windows to calculate cumulative abnormal returns for various short-term and long-term periods. The study conducts estimation-window for calculating abnormal returns for following event windows;

Pre-announcement period (from AD-5 to AD-1): The study examines the CAARs for event windows of (-5, -1), (-4, -1), (-3, -1), (-2, -1) and (-1, -1) to understand whether information is leaked through other channels before public announcement or another publicly available information related to the announcement is released recently.

Announcement day (AD): If there is no anticipation, it is expected that investors cause abnormal returns for listed securities on the announcement day as a result of information effect. According to the efficient market hypothesis (EMH), all information is immediately incorporated into prices by investors. In other words, EMH suggests that price reacts to the release of new information only during the announcement day.

Short-Term Post-announcement period (from AD+1 to AD+5): The study examines the CAARs for event windows of (0, 1), (0, 2), (0, 3), (0, 4) and (0, 5) to understand whether investors react to new information in short-term since sometimes it can take few days for market to incorporate new information into stock prices as shown by studies of Altinkılıç & Hansen (2009) and Yezegel (2015).

Long-Term Post-announcement period (from AD+10 to AD+60): Later, the research analyses the CAARs for event windows of (0, 10), (0, 20), (0, 40) and (0, 60) to understand whether eventually, a price reversal occurs or abnormal return is permanent.

4.2.5 Testing Procedure

This study uses statistical significance tests and assesses the magnitude of abnormal returns To understand the impact of the newly released information. The

cumulative abnormal return over different time horizons is used to examine the total impact of the information released over the stock prices.

Given the cumulative averaged abnormal returns (the CAARs) for the market model, the study assesses and tests the statistical significance of the CAARs within the event window. Since the study aims to discover whether newly released information cause any price change for stocks, the null hypothesis is defined as the CAARs on event window equals zero. If the null hypothesis is rejected, it means the event has a significant effect on stock prices.

The studies mostly use parametric or non-parametric methods for testing the significance of abnormal returns. In a parametric approach, we assumed that abnormal returns have normal distribution while in a non-parametric test, there is not any assumption about the distribution of the abnormal returns. Event studies often use the t-test statistic and standardised t-test statistic in the parametric approach, while the generalized sign test and the rank test are the leading test statistics in the non-parametric method (Cowan, 1992).

In the event study, we test the null hypothesis that the mean of CAARs on event window equals zero. We use a parametric approach which assumes a normal distribution of CAARs to test its significance. As a parametric approach, we use the time-series t-test which is defined as follow;

$$T_{time} = \frac{CAAR_t}{(T - i + 1)^{\frac{1}{2}} \hat{\sigma}_{AAR_t}} \quad (7)$$

4.2.6 Robustness Tests

In the event study, we use various time horizons as short-term and long-term event windows to capture outliers. Then, we trim the sample to remove inconvenient data points by the arbitrary setting of cut-off thresholds for excluding outliers. Moreover, we use a large sample to minimize the impact of other major events which can affect stock price and trading volume. MacKinlay (1997) and Dale Morse (1984) finds that there is a substantial payoff in terms of the increased power of event study from reducing the sampling interval from monthly or weekly to daily. Therefore, we use daily data as the interval.

In order to get robust results, the study uses the Scholes/Williams estimation method proposed by Scholes & Williams (1977) to handle with the non-synchronous trading problem by using various combinations of lead and lagged estimation. Instead of OLS estimation model, we use Scholes/Williams estimation model as robustness test for the market model.

$$\hat{\beta}_{i,SW} = \hat{\beta}_{i,lag} + \hat{\beta}_i + \hat{\beta}_{i,lead} / 1 + 2\hat{\rho}_M \quad (8)$$

$$\hat{\alpha}_{i,SW} = \frac{1}{L_1 - 2} \left[\sum_{t=T_0+2}^{T_1-1} (R_{i,t}) - \hat{\beta}_{i,SW} \sum_{t=T_0+2}^{T_1-1} (R_{M,t}) \right] \quad (9)$$

where $\hat{\beta}_{i,lag}$, $\hat{\beta}_i$, $\hat{\beta}_{i,lead}$, are the OLS estimates from the regression of $R_{M,t-1}$, $R_{M,t}$, and $R_{M,t-1}$ on $R_{i,t}$ and $\hat{\rho}_M$ is the first-order autocorrelation of $R_{M,t}$.

4.2.7 Data and Variables

4.2.7.1 Data I

For testing research hypothesis H1a and H1b, the study focuses on additions and deletions from LSCS of SCM and examine the price reactions during the post-announcement period. The dataset consists of daily returns of added and deleted companies from LSCS as $R_{i,t}$ and FTSE Bursa Malaysia KLCI Index as $R_{m,t}$ to estimate individual abnormal return (AR), averaged abnormal return (AAR) and cumulative averaged abnormal return (CAAR).

Our sample has three categories of events, namely additions after IPO additions, Non-IPO additions, and deletions. The study uses 30 LSCS announcements as the largest dataset for the event study analysis between November 2000 and May 2015, and there are 370 Non-IPO additions, 288 IPO additions and 284 deletions during this period.

Based on prior studies, listed companies which had stock splits, M&A, delisting, liquidation proceedings, trading halts, name change and divestitures during the observation period are removed from the sample since they will give rise to abnormal return and trading activities (Denis et al., 2003; Bildik & Gulay, 2008; Chen et al., 2013; Azevedo et al., 2014):

Table 5: The Number of Added and Deleted Stocks from the List of Shari'ah Compliant Securities by Security Commission Malaysia, Consolidated (2000-2015)

Event Date	Addition (Total)	Addition (Non-IPO)	Addition (IPO)	Deletion
27/10/2000	40	25	15	10
27/4/2001	25	16	8	5
26/10/2001	12	9	3	4
26/4/2002	16	7	9	7
25/10/2002	34	12	22	5
25/4/2003	17	9	8	3
31/10/2003	38	16	22	7
30/4/2004	40	16	24	5
29/10/2004	51	39	12	5
29/4/2005	54	25	29	3
28/10/2005	34	14	20	7
28/4/2006	24	13	11	11
27/10/2006	22	10	12	2
25/5/2007	14	5	9	8
1/12/2007	15	8	7	8
30/5/2008	20	10	10	9
28/11/2008	18	11	7	0
29/5/2009	8	7	1	0
30/11/2009	2	1	1	3
31/5/2010	10	3	7	2
26/11/2010	15	6	9	3
27/5/2011	19	7	12	4
25/11/2011	10	4	6	2
26/5/2012	4	2	2	0
30/11/2012	8	6	2	5
31/5/2013	5	3	2	4
29/11/2013	18	13	5	110
30/5/2014	28	26	2	8
28/11/2014	34	30	4	29
29/5/2015	18	17	6	15
Total	658	370	288	284

4.2.7.2 Sources of Data I

As a primary source of data, SCM provides us with the names, announcement dates and effective dates of all the stocks that were added to and deleted from LSCS. We extracted the data of daily prices of the stocks and the index from Thomson Reuters Eikon. Finally, the study utilized Event Study Metrics as software to conduct empirical analysis.

4.2.7.3 Variables I

The study uses three variables, namely IPO additions, Non-IPO additions and deletions. The definitions of these variables are as follow;

IPO Additions: IPO additions refer to an event that a listed company which had a recent IPO in Bursa Malaysia is added into LSCS during an announcement.

Non-IPO Additions: Non-IPO additions refer to an event that a listed company which did not have a recent IPO in Bursa Malaysia is added into LSCS during an announcement.

Deletions: Deletions refer to an event that a listed company is removed from LSCS during an announcement.

4.2.7.4 Data II

For testing research hypothesis H3a, the study focuses on analysts' recommendation revisions and examine the price reactions during the post-announcement period. The dataset consists of daily returns of companies that analysts change their recommendation as $R_{i,t}$ and FTSE Bursa Malaysia KLCI Index as $R_{m,t}$ to

estimate individual abnormal return (AR_t), averaged abnormal return (ARR_t), and cumulative averaged abnormal return ($CAAR_t$) at time t .

Our sample has four categories of events, namely Added-to-Buy, Removed-from-Buy, Added-to-Sell and Removed-from-Sell List Changes which is suggested by Womack (1996). As shown in Table 6, the study uses 1096 analyst recommendation revisions to observe how they cause price reactions for listed securities between 1 May 2005 and 31 November 2016 to use the largest dataset for the empirical analysis. There are 320 stocks Added-to-Buy, 348 stocks Removed-from-Buy, 254 stocks Added-to-Sell, and 174 stocks Removed-from-Sell during this period.

4.2.7.5 Data III

For testing research hypothesis H3c, the study focuses on analysts' recommendation changes and examine the price reactions of listed securities during the post-announcement period. Additionally, we want to analyse the impact of analyst recommendations related to and outside the earnings announcements. Therefore, the research also uses two sub-sample categories which is suggested by many previous empirical studies (Ivkvovic & Jegadeesh, 2004; Menendez-Requejo, 2005; Loh & Stulz, 2009), namely the result reports and update reports for each list changes category.

Our sample has eight categories of events, namely Added-to-Buy with earnings announcements, Added-to-Buy without earnings announcements, Removed-from-Buy with earnings announcements, Removed-from-Buy without earnings announcements, Added-to-Sell with earnings announcements, Added-to-Sell without earnings announcements, Removed-from-Sell with the earnings announcement, and Removed-

from-Sell without earnings announcement. Table 6 presents the number of samples for eight categories of analysts' recommendation revisions between 1 May 2005 and 31 November 2016.

The study uses 1096 analyst recommendation revisions to observe how they cause price reactions for listed securities between 1 May 2005 and 31 November 2016. There are 222 stocks Added-to-Buy with earnings announcements, 98 stocks Added-to-Buy without earnings announcements, 280 stocks Removed-from-Buy with earnings announcements, 68 stocks Removed-from-Buy without earnings announcements, 204 stocks Added-to-Sell with earnings announcements, 50 stocks Added-to-Sell without earnings announcements, 134 stocks Removed-from-Sell with the earnings announcement, and 40 stocks Removed-from-Sell without earnings announcement.

Table 6: Description of Analysts' Recommendation Revisions, Result and Update Reports

Sample Category	Sample Sub-Category	Number of Obs in	
		Final Sample	Date Range of Sample
Added-to-Buy List Changes	Total	320	Jun. 2005 - Aug. 2016
	Result Reports	222	Jun. 2005 - Aug. 2016
	Updates Reports	98	Jun. 2005 - Aug. 2016
Removed-from-Buy List Changes	Total	348	May. 2005 - Nov. 2016
	Result Reports	280	May. 2005 - Nov. 2016
	Updates Reports	68	May. 2005 - Nov. 2016
Added-to-Sell List Changes	Total	254	Sep. 2005 - Nov. 2016
	Result Reports	204	Sep. 2005 - Nov. 2016
	Updates Reports	50	Jan. 2006 - Sep. 2016
Removed-from-Sell List Changes	Total	174	May. 2005 - Aug. 2016
	Result Reports	134	May. 2005 - Aug. 2016
	Updates Reports	40	Feb. 2006 - Mar. 2016

4.2.7.6 Source of Data II and III

The dataset consists of information on the submission dates of analyst recommendation reports, types of reports, LSCS announcements and prices of listed companies in Bursa Malaysia. The sample of analysts' recommendation revisions, event dates and daily prices of the stocks is obtained from Malaysia Research Repository, which is created by the Bursa Malaysia, Thomson Reuters Eikon financial database to conduct our empirical analysis.

The primary benefit of Malaysia Research Repository for investors is that it is convenient and it provides free access to reports of a large number of research houses about the largest listed companies in Malaysia since the platform have been established to facilitate efficient pricing in equity markets in Malaysia.

4.2.7.7 Variables II and III

Malaysia Research Repository provides analyst reports which consist of the ratings “buy,” “hold,” and “sell”. We examine only changes in analyst recommendations: either stock added to or removed from attractive category (added-to-buy and removed-from-buy) or stocks added to or removed from the unattractive category (added-to-sell and removed-from-sell).

To test null hypothesis H3a, the study uses four types of analyst recommendation revisions since they would be among the most important news items in a trading day and investors are more likely to cause more significant price reactions during trading those stocks. Therefore, we have four sample categories for analyst recommendation revisions, namely Added-to-Buy, Removed-from-Buy, Added-to-Sell and Removed-from-Sell List Changes based on the study of Womack (1996).

To test null hypothesis H3c, the study uses eight categories of events, namely Added-to-Buy with earnings announcements, Added-to-Buy without earnings announcements, Removed-from-Buy with earnings announcements, Removed-from-Buy without earnings announcements, Added-to-Sell with earnings announcements, Added-to-Sell without earnings announcements, Removed-from-Sell with the earnings announcement, and Removed-from-Sell without earnings announcement. These twelve categories of events are defined as follow;

Added-to-Buy: Added-to-Buy refers to an event that an analyst recently upgraded its recommendation about a listed company to ‘Buy’ rating.

Removed-from-Buy: Removed-from-buy refers to an event that an analyst recently downgraded its recommendation about a listed company from `Buy` to `Hold` rating.

Added-to-Sell: Added-to-Sell refers to an event that an analyst recently downgraded its recommendation about a listed company to `Sell` rating.

Removed-from-Sell: Removed-from-Sell refers to an event that an analyst recently upgraded its recommendation about a listed company from `Sell` to `Hold` rating.

Added-to-Buy With Earnings Announcements: Added-to-Buy With Earnings Announcements refers to an event that an analyst recently upgraded its recommendation about a listed company to `Buy` rating after a news related to earnings announcements.

Added-to-Buy Without Earnings Announcements: Added-to-Buy Without Earnings Announcements refers to an event that an analyst recently upgraded its recommendation about a listed company to `Buy` rating after news beyond earnings announcements.

Removed-from-Buy With Earnings Announcements: Removed-from-Buy With Earnings Announcements refers to an event that an analyst recently downgraded its recommendation about a listed company from `Buy` to `Hold` rating after a news related to earnings announcements.

Removed-from-Buy Without Earnings Announcements: Removed-from-Buy Without Earnings Announcements refers to an event that an analyst recently downgraded

its recommendation about a listed company from `Buy` to `Hold` rating after news beyond earnings announcements.

Added-to-Sell With Earnings Announcements: Added-to-Sell With Earnings Announcements refers to an event that an analyst recently downgraded its recommendation about a listed company to `Sell` rating after a news related to earnings announcements.

Added-to-Sell Without Earnings Announcements: Added-to-Sell Without Earnings Announcements refers to an event that an analyst recently downgraded its recommendation about a listed company to `Sell` rating after news beyond earnings announcements.

Removed-from-Sell With Earnings Announcements: Removed-from-Sell With Earnings Announcements refers to an event that an analyst recently upgraded its recommendation about a listed company from `Sell` to `Hold` rating after a news related to earnings announcements.

Removed-from-Sell Without Earnings Announcements: Removed-from-Sell With Earnings Announcements refers to an event that an analyst recently upgraded its recommendation about a listed company from `Sell` to `Hold` rating after news beyond earnings announcements.

4.3 Abnormal Trading Volume

4.3.1 Introduction

In this section, we present methodologies and empirical models to test null hypotheses of H1c and H1d. The first research objective in the thesis aims to analyse whether announcements about additions and deletions into Shari'ah compliant Stocks List (LSCS) of SCM cause trading volume anomalies in the short-term and long term. By using trading volume ratios as used by Harris & Gurel (1986) and Beneish & Whaley (1996), the study attempts to test the following null hypotheses;

H1c. H1c. Non-IPO additions to and deletions from LSCS will lead to an increase in stock trading volume in the short term and the long term.

H1d. IPO additions to LSCS will not lead to an increase or decrease in stock trading volume.

4.3.2 Methodology to Calculate Trading Volume Ratios (Harris and Gurel, 1986; Beneish and Whaley, 1996)

Trading volume ratios were computed to determine whether trading activity increase in response to the release of new information by a method also employed by Harris & Gurel (1986) and Beneish & Whaley (1996). The average relative stock-to-market volume ratios were estimated over k-j trading days (-k, -j) before the event, considered and compared with the daily stock-to index ratios observed after the event period. The formula for calculating volume ratios are as follow;

$$\overline{BVR}_i = \frac{1}{k-j} \sum_{t=AD-k}^{t=AD-j} \left(\frac{V_{i,t}}{V_{m,t}} \right) \quad (10)$$

where the Base Relative Volume Ratio denoted as $\overline{BVR}_i$ is the average stock-to-index trading volume to average daily trading volume over the k-j trading days prior to the announcement day between the period AD-k and AD-j has been computed (Equation (10)).

$$VR_{i,t} = \frac{V_{i,t}/V_{m,t}}{\overline{BVR}_i} \quad (11)$$

where Volume Ratio denoted as $VR_{i,t}$ while $V_{i,t}$ and $V_{m,t}$ are the trading volume of company i and the corresponding FTSE Bursa Malaysia KLCI volume at each day t of the event window (Equation (11)).

$$MVR_t = \frac{1}{N} \sum_{i=1}^N VR_{i,t} \quad (12)$$

where MVR_t is the Mean Volume Ratio across firms at each day t of the event window and N is the number of companies in the sample.

4.3.3 The Mean Volume Ratio (MVR)

In order to capture the effects of the event on stock trading volume, hypotheses of H1c and H1d are tested by using the following intervals to conduct tests;

There is no uniform agreement on the length of period for BVR. For example, Chakrabarti et al. (2005) use 149 days, Bildik & Gulay (2008) uses 30 days, Yildiz & Dia-Eddine (2016) uses 119 days, and Kassim, Ramlee, & Kassim (2017) uses 60 days for computing BVRs. In the study, we define the period for BSV from 60 trading days before the announcement date (AD-60) to 20 trading days before announcement day (AD-20) as period of (-60, -20). This is the period when the parameters BVR is computed.

Regarding the length of the event window, various event windows are used to understand the impact of events over security prices. For example, Chakrabarti et al. (2005) uses (0, +1), Bildik & Gulay (2008) uses (-10, +10), Yildiz & Dia-Eddine (2016) uses (-5, +5) and Kassim, Ramlee, & Kassim (2017) uses (-60, +10). In this study, we define period for VR from 5 trading days before the announcement date (AD-5) to 60 trading days after announcement day (AD+60) as period of (-5, +60) to analyse trading volume anomalies during pre-announcement and post-announcement periods. The study analyses Mean Volume Ratios (MVRs) to understand whether trading activity increases after the announcement days for following event windows;

In order to capture abnormal trading volume during pre-announcement period, the study analyses the abnormal trading volume for event windows of (-5, -1). To calculate abnormal trading volume in short-term, the study uses Mean Volume Ratio (MVR) for one day (0,1), two days (0,2), one-week (0,5) periods while MVR for event windows of two-weeks (0,10), one-month (0,20) and three-months (0, 60) are used to analyse abnormal trading volume in the long-term.

4.3.4 Testing Procedure

We calculate t-statistics for the null hypothesis is that the mean volume ratio across all firms for each day t of the event period is 1.

$$t - stat = \frac{MVR_t - 1}{\hat{S}(MVR_t)} \quad (13)$$

If trading activity is not abnormal, the mean volume ratio will not be significantly different from one. If it is significantly different from one, it means listed securities had more or less trading volume than its usual trading volume as a result of being added to or deleted from LSCS.

4.3.5 Data and Variables

4.3.5.1 Data

For testing research hypothesis H1c and H1d, the study focuses on additions and deletions from LSCS and analyse the results of mean volume ratio (MVR) of listed securities during the post-announcement period. The sample consists of daily trading volume of added and deleted companies from LSCS denoted as $V_{i,t}$ and FTSE Bursa Malaysia KLCI Index denoted as $V_{m,t}$ to estimate Base Relative Volume Ratio ($\overline{BVR}_i$), Volume Ratio ($VR_{i,t}$) and Mean Volume Ratio (MVR).

The study uses the same sample in section 4.2.7.1 to measure trading volume ratios.

4.3.5.2 Source of Data

As a data source, SCM provides us with the names, announcement dates and effective dates of all the stocks that were added to and deleted from LSCS. We extracted the data of daily trading volume of the stocks and the index from Thomson Reuters Eikon.

4.3.5.3 Variables

The definitions of variables of $V_{i,t}$, $V_{m,t}$, $\overline{BVR}_i$, $VR_{i,t}$, and MVR are shown in section 4.3.2 while definitions of namely IPO additions, Non-IPO additions, and deletion are shown in section 4.2.7.3.

4.4 Abnormal Return II

4.4.1 Introduction

In this section, we present methodologies and empirical models to test hypotheses of H3b, H3d. The third research objective in the thesis aims to explore whether analysts' recommendations revisions cause different the price reactions for Shari'ah non-compliant and Shari'ah compliant firms in Bursa Malaysia while the fourth research objective aims to explore whether analysts' recommendation revisions related to and beyond firms' earnings announcements affects prices of Shari'ah non-compliant and Shari'ah compliant firms differently. The study conducts Multiple Regression Model with Dummy Variables to test following null hypotheses;

H3b. Price reactions for Shari'ah compliant stocks subsequent to analysts' recommendation revisions are stronger than Shari'ah non-compliant stocks in short-term horizons and long-term horizons.

H3d. Price reactions for Shari'ah compliant stocks subsequent to analysts' recommendation revisions which are issued contemporaneously with and without earnings announcements are stronger than Shari'ah non-compliant stocks in short-term horizons and long-term horizons.

4.4.2 Multiple Linear Regression Model with Dummy Variables

4.4.2.1 Multiple Linear Regression Model I

For testing research hypothesis H3b, we would like to analyse whether the impact of analyst recommendation revisions over Shari'ah compliant stocks is significantly different from Shari'ah non-compliant stocks.

The study used the following equation by performing multiple linear regression model with dummy variables to be able to capture the impact of analyst recommendation revisions on four different categories of revisions and to test whether it has a significant effect on Shari'ah non-compliant stocks.

$$\begin{aligned}
 CAR_{j,i,t} = & \beta_1 D \text{ Added to Buy}_{j,t} + \beta_2 D \text{ Removed from Buy}_{j,t} \\
 & + \beta_3 D \text{ Added to Sell}_{j,t} + \beta_4 D \text{ Removed from Sell}_{j,t} \\
 & + \beta_5 D \text{ Added to Buy}_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t} \\
 & + \beta_6 D \text{ Removed from Buy}_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t} \\
 & + \beta_7 D \text{ Added to Sell}_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t} \\
 & + \beta_8 D \text{ Removed from Sell}_{j,t} \times D \text{ Shari'ah noncompliant}_{j,t} + \varepsilon_{i,t}
 \end{aligned} \tag{14}$$

where Individual Cumulative Abnormal Return variable is denoted as $CAR_{j,i,t}$. Added-to-Buy recommendations are denoted as D Added to Buy_j. Removed-from-Buy recommendations are denoted as D Removed from Buy_j. Added-to-Sell recommendations are denoted as D Added to Sell_j. Removed-from-Sell recommendations are denoted as D Removed from Sell_j. Shari'ah non-compliant stocks are denoted as D Shari'ah noncompliant_j.

4.4.2.2 Multiple Linear Regression Model II

For testing research hypothesis H3d, we aim to capture the impact of analyst recommendation revisions with and without earnings announcements over Shari'ah non-compliant stocks. Many studies show that recommendation revisions are often more concentrated after earnings announcements when there is greater mispricing and when it is harder for analysts to obtain information from alternative sources (Ivkovic & Jegadeesh, 2004; Altinkılıç & Hansen, 2009; Yezegel, 2015). Therefore, investigating analyst recommendation revisions related to and outside earnings announcements as control variables would enhance the univariate analysis and provide a more in-depth understanding of the impact of analyst recommendation revisions over Shari'ah non-compliant stocks.

In multiple linear regression model, the study employed the following equation to capture the impact of analyst recommendation revisions over four different categories of revisions with two sub-categories related to earnings announcements for each type of recommendation revision, and we test whether it has significantly different effect for Shari'ah non-compliant stocks.

$$\begin{aligned}
CAR_{j,t} = & \beta_1 D ABe_{j,t} + \beta_2 D ABwe_{j,t} + \beta_3 D ASe_{j,t} + \beta_4 D ASwe_{j,t} \\
& + \beta_5 D RBe_{j,t} + \beta_6 D RBwe_{j,t} + \beta_7 D RSe_{j,t} + \beta_8 D RSwe_{j,t} \\
& + \beta_9 D ABe_{j,t} \times D \text{Shari'ah noncompliant}_{j,t} \\
& + \beta_{10} D ABwe_{j,t} \times D \text{Shari'ah noncompliant}_{j,t} \\
& + \beta_{11} D ASe_{j,t} \times D \text{Shari'ah noncompliant}_{j,t} \\
& + \beta_{12} D ASwe_{j,t} \times D \text{Shari'ah noncompliant}_{j,t} \\
& + \beta_{13} D RBe_{j,t} \times D \text{Shari'ah noncompliant}_{j,t} \\
& + \beta_{14} D RBwe_{j,t} \times D \text{Shari'ah noncompliant}_{j,t} \\
& + \beta_{15} D RSe_{j,t} \times D \text{Shari'ah noncompliant}_{j,t} \\
& + \beta_{16} D RSwe_{j,t} \times D \text{Shari'ah noncompliant}_{j,t} + \varepsilon_{i,t}
\end{aligned} \tag{15}$$

where Individual Cumulative Abnormal Return variable is denoted as $CAR_{j,t}$. Added-to-Buy recommendations with earnings announcement are denoted as $D ABe_{j,t}$. Added-to-Buy recommendations without any recent earnings announcement are denoted as $D ABwe_{j,t}$. Added-to-Sell recommendations with earnings announcement are denoted as $D ASe_{j,t}$. Added-to-Sell recommendations without any recent earnings announcement are denoted as $D ASwe_{j,t}$. Removed-from-Buy recommendations with earnings announcement are denoted as $D RBe_{j,t}$. Removed-from-Buy recommendations without any recent earnings announcement are denoted as $D RBwe_{j,t}$. Removed-from-Sell recommendations with earnings announcement are denoted as $D RSe_{j,t}$. Removed-from-Sell recommendations without any recent earnings announcement denoted as $D RSwe_{j,t}$. Shari'ah non-compliant stocks are denoted as $D \text{Shari'ah noncompliant}_{j,t}$.

4.4.3 Data and Variables

4.4.3.1 Data I

During testing the H3b, the sample consists of 1096 analyst recommendation revisions to observe how they cause price reactions for listed securities between 1 May 2005 and 31 November 2016 to use the largest dataset for the empirical analysis. There are 320 stocks Added-to-Buy, 348 stocks Removed-from-Buy, 254 stocks Added-to-Sell, and 174 stocks Removed-from-Sell during this period. Out 1096 analysts' recommendation revisions, analysts' revised their recommendations for 979 Shari'ah compliant stocks and 117 Shari'ah non-compliant stocks.

4.4.3.2 Variables I

4.4.3.2.1 Dependent Variable

Individual Cumulative Abnormal Return variable ($CAR_{j,i,t}$): Individual Cumulative Abnormal Return variable ($CAR_{j,i,t}$) is calculated as the sum of abnormal return for company j over the event window from the day 'i' to 't' that we obtained the data for $CAR_{j,i,t}$ from results of event study analysis in section 4.1.3.

4.4.3.2.2 Independent Variables

Added-to-Buy recommendations ($D \text{ Added to Buy}_{j,t}$): Dummy variable for Added-to-Buy recommendations ($D \text{ Added to Buy}_{j,t}$) that is equal to 1 if an analyst upgrades a company 'j' to "buy" rating at time t .

Removed-from-Buy recommendations ($D_{\text{Removed from Buy}}_{j,t}$): Dummy variable for Removed-from-Buy recommendations ($D_{\text{Removed from Buy}}_{j,t}$) is equal to 1 if an analyst downgrades a company 'j' from "buy" to "hold" rating at time t.

Added-to-Sell recommendations ($D_{\text{Added to Sell}}_{j,t}$): Dummy variable for Added-to-Sell recommendations is equal to 1 if an analyst downgrades a company 'j' to "sell" rating.

Removed-from-Sell recommendations ($D_{\text{Removed from Sell}}_{j,t}$): Dummy variable for Removed-from-Sell recommendations ($D_{\text{Removed from Sell}}_{j,t}$) is equal to 1 if an analyst downgrades a company 'j' from "sell" to "hold" rating at time t.

Shari'ah non-compliant stocks ($D_{\text{Shariah noncompliant}}_{j,t}$): Dummy variable for Shari'ah non-compliant stocks ($D_{\text{Shariah noncompliant}}_{j,t}$) is equal to 1 if the company 'j' that analyst changes its recommendation for Shari'ah non-compliant stock at time t.

We use $D_{\text{Shariah noncompliant}}_j$ as interaction variable to capture whether Shari'ah compliant firms react differently to any of four categories of analyst recommendation revisions.

4.4.3.3 Data II

During testing the H3d, the study utilises 1096 analyst recommendation changes to observe how they cause price reactions for listed securities between 1 May 2005 and 31 November 2016. There are 222 stocks Added-to-Buy with earnings announcements,

98 stocks Added-to-Buy without earnings announcements, 280 stocks Removed-from-Buy with earnings announcements, 68 stocks Removed-from-Buy without earnings announcements, 204 stocks Added-to-Sell with earnings announcements, 50 stocks Added-to-Sell without earnings announcements, 134 stocks Removed-from-Sell with the earnings announcement, 40 stocks Removed-from-Sell without earnings announcement.

4.4.3.4 Variables II

4.4.3.4.1 Dependent Variable

Individual Cumulative Abnormal Return variable ($CAR_{j,i,t}$): Individual Cumulative Abnormal Return variable ($CAR_{j,i,t}$) is calculated as the sum of abnormal return for company j over the event window from the day 'i' to 't' that we obtained the data for $CAR_{j,i,t}$ from results of event study analysis in section 4.1.3.

4.4.3.4.2 Independent Variable

Added-to-Buy recommendations with earnings announcement ($DABe_{j,t}$): Dummy variable for Added-to-Buy recommendations with earnings announcement ($DABe_j$) is equal to 1 if an analyst upgrades a company 'j' to "buy" rating after any recent earnings announcement at time t .

Added-to-Buy recommendations without any recent earnings announcement ($DABwe_{j,t}$): Dummy variable for Added-to-Buy recommendations without any recent earnings announcement ($DABwe_j$) is equal to 1 if an analyst upgrades a company 'j' to "buy" rating outside earnings announcement at time t .

Added-to-Sell recommendations with earnings announcement ($D ASe_{j,t}$): Dummy variable for Added-to-Sell recommendations with earnings announcement ($D ASe_{j,t}$) is equal to 1 if an analyst downgrades a company 'j' to "sell" rating after any recent earnings announcement at time t.

Added-to-Sell recommendations without any recent earnings announcement ($D ASwe_{j,t}$): Dummy variable for Added-to-Sell recommendations without any recent earnings announcement ($D ASwe_{j,t}$) is equal to 1 if an analyst downgrades a company 'j' to "sell" rating outside earnings announcement at time t.

Removed-from-Buy recommendations with earnings announcement ($D RBe_{j,t}$): Dummy variable for Removed-from-Buy recommendations with earnings announcement ($D RBe_{j,t}$) is equal to 1 if an analyst downgrades a company 'j' from "buy" to "hold" rating after any recent earnings announcement at time t.

Removed-from-Buy recommendations without any recent earnings announcement ($D RBwe_{j,t}$): Dummy variable for Removed-from-Buy recommendations without any recent earnings announcement ($D RBwe_{j,t}$) is equal to 1 if an analyst downgrades a company 'j' from "buy" to "hold" rating outside earnings announcement at time t.

Removed-from-Sell recommendations with earnings announcement ($D RSe_{j,t}$): Dummy variable for Removed-from-Sell recommendations with earnings announcement ($D RSe_{j,t}$) is equal to 1 if an analyst downgrades a company 'j' from "sell" to "hold" rating after any recent earnings announcement at time t.

Removed-from-Sell recommendations without any recent earnings announcement

(D RSwe_{j,t}): Dummy variable for Removed-from-Sell recommendations without any recent earnings announcement (D RSwe_{j,t}) is equal to 1 if an analyst downgrades a company 'j' from "sell" to "hold" rating outside earnings announcement at time t.

Shari'ah non-compliant stocks (D Shariah noncompliant_{j,t}): Dummy variable for Shari'ah non-compliant stocks (D Shari'ah noncompliant_{j,t}) is equal to 1 if the company 'j' that analyst changes its recommendation is not Shari'ah compliant at time t.

4.4.3.5 Source of Data

As a database, SCM provides the names, announcement dates and effective dates of all the stocks that were added to and deleted from LSCS. The data of daily stock prices and daily trading volume of the stocks and the index is extracted from Thomson Reuters Eikon. Finally, the study used Event Study Metrics as software to conduct empirical analysis.

4.5 Fund Flows and Performance Relationship

4.5.1 Introduction

This section presents methodologies and empirical models to test null hypotheses of H2a, H2b, H2c, H2d, H2e and H2f. In order to address the second research objective in the thesis, we examine the flow-performance relation of Islamic and conventional funds in Malaysia. Then, the study also investigates the effect of Ramadhan month on money-flows to Islamic and conventional funds. Finally, the study investigates flows and return relationship for top and bottom performers of Islamic and conventional funds.

The thesis uses Panel data analysis with random effects model used by Renneboog et al. (2011) and Benson & Humphrey (2008) to test following null hypotheses regarding the flow-performance relation of Islamic funds relative to conventional funds;

H2a. The flow-return relation of Islamic funds is stronger than that of conventional funds for positive performers while it is weaker than that of conventional funds for negative performers.

H2b. The Ramadhan month causes fund outflows from conventional mutual funds while it causes fund inflows into Islamic mutual funds.

H2c. The fund flow-return relation of Islamic funds is weaker than that of conventional funds for bottom performers while it is stronger than that of conventional funds for top performers.

H2d. Fund flows of Islamic funds are less fee-sensitive than conventional funds.

H2e. Fund flows of Islamic funds are less size-sensitive than conventional funds.

H2f. Young Islamic funds attract more fund flows than conventional funds.

4.5.2 Empirical Models

4.5.2.1 Panel Data Analysis 1

For testing research hypothesis H2a, H2d, H2e, and H2f, we perform a panel data analysis to examine determinants of fund flows for conventional and Islamic funds in

Malaysia. A similar econometric model is used in the studies of Renneboog et al. (2011) and Benson & Humphrey (2008) by estimating the following regression:

$$\begin{aligned}
 fl_{i,t} = & \alpha + (\beta_1 + \beta_2 D Negative_{i,t})(r_{i,[t-1,t-6]}) \\
 & + (\beta_3 + \beta_4 D Negative_{i,t})(r_{i,[t-7,t-12]}) \\
 & + \beta Controls_{i,t-1} + \varepsilon_{i,t}
 \end{aligned} \tag{16}$$

where fund flow of the fund i , denoted as $fl_{i,t}$, $r_{i,[t-1,t-6]}$ is a semi-annual return on the fund i , $r_{i,[t-7,t-12]}$ is seven months lagged semi-annual return on the fund i . $D Negative_{i,t}$ is a dummy variable for a negative return of the fund i at month t . $Controls_{i,t-1}$ captures the effect of six variables related Fund Characteristics and The Fund Characteristics are lagged by one month and comprise (i) $Age_{i,t-1}$, fund age, (ii) $Age_{i,t-1} \times D Young_{i,t-1}$, a term interacting the age with a dummy variable for young funds ($D Young_{i,t-1}$) (iii) $Size_{i,t-1}$, size of the fund i at month t , (iv) $Management Fees_i$, (v) $Load Fees_i$ and (vi) $Trustee Fees_i$.

4.5.2.2 Panel Data Analysis 2

For testing null hypothesis H2b, we perform the following panel data analysis to be able to capture the effect of Ramadan month over fund flow and past performance relationship for Islamic and conventional funds;

$$\begin{aligned}
 fl_{i,t} = & \alpha + (\beta_1 + \beta_2 D Negative_{i,t})(r_{i,[t-1,t-6]}) \\
 & + (\beta_3 + \beta_4 D Negative_{i,t})(r_{i,[t-7,t-12]}) \\
 & + \beta_5 Ram_t + \beta Controls_{i,t-1} + \varepsilon_{i,t}
 \end{aligned} \tag{17}$$

where Ram_t is variable for Ramadhan month at month t .

4.5.2.3 Panel Data Analysis 3

For testing null hypothesis H2c, we perform the following panel data analysis to capture fund-flow and performance relationship for top performers and bottom performers of Islamic and conventional funds;

$$\begin{aligned}
 fl_{i,t} = & \alpha + (\beta_1 + \beta_2 D Negative_{i,t})(r_{i,[t-1,t-6]}) \\
 & + (D Bottom_{i,t})(\beta_1 + \beta_2 D Negative_{i,t})(r_{i,[t-1,t-6]}) \\
 & + (D Top_{i,t})(\beta_1 + \beta_2 D Negative_{i,t})(r_{i,[t-1,t-6]}) \\
 & + (\beta_3 + \beta_4 D Negative_{i,t})(r_{i,[t-7,t-12]}) \\
 & + (D Bottom_{i,t})(\beta_3 + \beta_4 D Negative_{i,t})(r_{i,[t-7,t-12]}) \\
 & + (D Top_{i,t})(\beta_3 + \beta_4 D Negative_{i,t})(r_{i,[t-7,t-12]}) + \\
 & \beta Controls_{i,t-1} + \varepsilon_{i,t}
 \end{aligned} \tag{18}$$

where $D Bottom_{i,t}$ is a dummy variable for bottom performers while $D Top_{i,t}$ is a dummy variable for top performer the fund i at month t .

We investigate the relationship between fund-flow and performance for top and bottom performers because many studies such as Gruber (1996) and Sirri & Tufano (1998) documented a non-linear relationship between flows and performance. In other words, very top-performing funds often attract enormous fund flows while bottom performers had either fund outflow or very low fund inflow. Thus, we would like to

capture whether fund flow sensitivity of top and bottom performers of Islamic funds are different from their conventional counterparts or not.

4.5.3 Panel Data Models and Estimators

Mainly three types of data are used in econometric models, namely time-series data, cross-sectional data and Panel data. The study conducts panel data analysis since the data has both cross-sections and time-series levels. In the study, panel data models are used because they provide information on individual behaviour, both across individuals and over time.

In this study, the empirical analysis is conducted by employing different models, namely Pooled OLS, Fixed Effects (FE), Random Effects (RE) to choose the most appropriate model and have robust empirical models. It is common for researchers to use Pooled OLS to investigate fund flows-performance sensitivity (Shu et al., 2002; Nathie, 2008; Rakowski & Wang, 2009; Renneboog et al., 2011; Othman et al., 2018). However, Harris & Kalev (2006) and Marzuki & Worthington (2015) used OLS and FE models for researching money-flows and performance relationship.

When the study aims to estimate any individual behaviours both across individuals and over time, there are three static panel data models, namely pooled, fixed effect and random effects models. In the pooled model, we specify constant coefficients which are the usual assumption for ordinary least squares (OLS) regression without dummy variable. Practically, a common constant for all funds (individuals) implies that there are no differences between the estimated cross-sections. Such an assumption is useful under the hypothesis that the data is homogeneous. However, assumptions of the

pooled model are very restrictive and often using fixed and random effects in the method of estimation are more useful to have consistent and efficient estimators.

In the fixed effects model, there is a different constant variable for each fund as group-specific dummy variable. The fixed effects estimator is also known as least-squares dummy variable (LSDV) estimator since the model allows for different dummy variable for each fund. To understand the fixed effect model, consider the following model;

$$y_{i,t} = \alpha_i + x_{i,t}\beta + u_{i,t} \quad (19)$$

In the random effects model, it is assumed that the individual-specific effects are distributed independently of regressors. Thus, α_i is included into the error term. To understand the random effects model, consider the following model;

$$y_{i,t} = x_{i,t}\beta + (\alpha_i + u_{i,t}) \quad (20)$$

The panel data models can be estimated with several estimators, and they differ based on considering the between or within variation in the data. The study uses Panel Data estimation models with different estimators, namely Pooled OLS, Between, Fixed Effects (FE), First Differences and Random effects (RE) to check the robustness of empirical models

In order to choose between fixed and random effects, the study uses the Breusch-Pagan Lagrange Multiplier (LM) test and Hausman test. Breusch and Pagan (1980)

developed the Lagrange multiplier (LM) test for random effects model based on the OLS residual, and it tests whether σ_u^2 (cross-sectional variance components) is significantly different from 0. If the LM test is significant, we use the random effects model instead of the OLS model.

The Hausman test compares the fixed and random effects under the null hypothesis (H_0) that the individual effects are uncorrelated with the other regressors in the model (Hausman 1978). Hausman test tests whether there is a significant difference between the fixed and random effects estimators. If individual effects are correlated (H_0 is rejected), the random effects model creates biased estimator so the study should use the fixed effect model. If H_0 is not rejected, then we use the random effects model.

4.5.4 Robustness Tests

In this section, we will discuss several tests which will be applied to assess the robustness of empirical results. The study conducts robustness tests by using Panel Data estimation with different estimators and using different control variables.

The study uses Panel Data estimation models with different estimators, namely Pooled OLS, Between, Fixed Effects (FE), First Differences and Random effects (RE) to check the robustness of empirical models. Then, we used Pooled OLS, between, within, first differences, and random effects estimators to have robust results. Finally, the study conducted the Breusch-Pagan Lagrange Multiplier (LM) test and Hausman test to choose the most appropriate Panel Data model with consistent estimators.

In the second set of robustness test, we address the concern that using different fee variables, namely management fee, load fee, and trustee fee at the same time may

affect their coefficients and significance as a result of having a high possibility of autocorrelation. Therefore, the study uses different variables for fee ratios charged by fund managers as an additional specification for the robustness test.

4.5.5 Data and Variables

4.5.5.1 Data

The sample includes 169 Malaysian equity funds consisting of 91 Islamic and 78 conventional funds from 2007 to 2016. The data comprises net asset value, asset under management, the date of fund inception, fund size, age, monthly expense ratio, fund management and load fees monthly.

Funds are required to have 48 valid monthly observations to be included in the sample and sample has a total of 8112 observations. We remove the top and bottom 1% of flows to eliminate outlier observations in the sample and prevent potential errors in empirical results. All misleading observations from mergers, liquidations, and splits are removed. We replaced the missing data with the average imputation, and our sample uses such funds that their missing data is less than 5% of all observations.

This study used equity funds in the sample since their cross-sectional variation and volatility provides the richest opportunity for investigating the dynamics of fund flow. This study categorises a fund as an equity fund if the year-end allocation of a fund is more than 66% or higher at some point during the life of the fund.

4.5.5.2 Source of Data

. We extracted data from the Morningstar, Thomson Reuters Eikon and Bloomberg terminal database and information disclosed in the annual reports and prospectuses of the individual funds. The study uses Stata 13.0 as software to run econometric models.

4.5.5.3 Variables

4.5.5.3.1 Dependent Variable

Fund-flows ($fl_{i,t}$): We define the monthly flow of fund i at time t ($fl_{i,t}$) as the net growth in fund asset beyond asset appreciation. We measure $fl_{i,t}$ by using the same formula in the study of Siri and Tufano (1998) as follow;

$$fl_{i,t} = \frac{AUM_{i,t} - AUM_{i,t-1}(1 + r_{i,t})}{AUM_{i,t-1}} \quad (21)$$

where $AUM_{i,t}$ is asset under management of fund i at time t , and $r_{i,t}$ is raw return of fund i at time t , calculated simple return of net asset value of fund i at time t ($nav_{i,t}$) as follow;

$$r_{i,t} = \frac{(nav_{i,t} - nav_{i,t-1})}{nav_{i,t-1}} \quad (22)$$

4.5.5.3.2 Independent Variables

The returns are net of annual management fees, inclusive of dividend or bonus distributions and denoted in Malaysian Ringgit currency. This measure of fund flows has the assumption that all flows took place at the end of month t .

As stated by Sirri & Tufano (1998), individual investors tend to use rudimentary performance measures like raw historical returns to select mutual funds.

Semi-Annual Return on Fund ($r_{i,[t-1,t-6]}$): Semi-annual return on fund ($r_{i,[t-1,t-6]}$) is the average raw return of fund i over the months t-1 to t-6 in local currency.

Seven months Lagged Semi-Annual Return on Fund ($r_{i,[t-7,t-12]}$): Seven months lagged Semi-Annual Return on Fund ($r_{i,[t-7,t-12]}$) is the average raw return of fund i over the months t-7 to t-12 in local currency.

Negative Return ($D Negative_{i,t}$): $D Negative_{i,t}$ is dummy variable for negative return which equals 1 if the average raw return is negative at time t, respectively as otherwise 0. The studies of Bollen (2007), Benson & Humphrey (2008) and Renneboog et al. (2011) documented the asymmetric relationship between money flows and past performance of funds. Thus, we use $D Negative_{i,t}$ variable in Equation (16) (17) and (18) to be able to measure different flow-return sensitivities for positive or negative returns.

The coefficients of independent variables in Equation (16) (17) and (18) can be interpreted as follows: β_1 stands for the sensitivity of fund flows to positive average semi-annual returns of the previous 6 months, $(\beta_1 + \beta_2)$ captures the sensitivity of flows to negative average semi-annual returns of the previous 6 months. Likewise, β_3 expresses the sensitivity of flows to positive average semi-annual returns from the previous 7 months to 12 months while $(\beta_3 + \beta_4)$ captures the sensitivity of flows to negative average semi-annual returns from the previous 7 months to 12 months.

Control Variables ($Controls_{i,t-1}$): The vector of control variables in Equation (16) (17) and (18) denoted as $Controls_{i,t-1}$ captures the impact of six variables related to Fund Characteristics for each fund i at time $t-1$. The Fund Characteristics are lagged by one month and comprise (i) $Age_{i,t-1}$, (ii) $Age_{i,t-1} \times D Young_{i,t-1}$, (iii) $Size_{i,t-1}$, (iv) $Management Fees_i$, (v) $Load Fees_i$ and (vi) $Trustee Fees_i$.

Fund Age ($Age_{i,t-1}$): Fund Age ($Age_{i,t-1}$) is the number of years since the fund's inception. Chevalier and Ellison (1997) and Rakowski and Wang (2009) found that age of fund can influence the sensitivity of flows and performance relationship. Both studies of Chevalier and Ellison (1997) and Rakowski and Wang (2009) concluded that money flows into old funds are less sensitive to past performance.

Young Fund ($D Young_{i,t-1}$): $D Young_{i,t-1}$ is a dummy variable for young funds and it equals one if the age of fund is below the mean of all funds' age. The study uses $D Young_{i,t-1}$ as interaction dummy variable with $Age_{i,t-1}$ ($Age_{i,t-1} \times D Young_{i,t-1}$) to understand whether the age of fund influence sensitivity of flows and performance relationship differently for young funds and has been used in the past study of Zhang (2006).

Fund Size ($Size_{i,t-1}$): Size of fund i at month t , calculated as $AUM_{i,t-1}$ in local currency and has also been used in the past studies of Zeckhauser, Patel, and Hendricks (1991), Fant and O'Neal (2000), and Del Guercio & Tkac (2011) since they found significant and positive relationship with fund size and money flows into funds.

Fund Fees: The study uses fund fees, namely management fees, load fees and trustee fees as control variables and has been also used by previous studies of Siri and Tufano (1998), Shu et. al (2002), Zhang (2006) and Shinozawa and Vivian (2015) since they found fund fees significantly affect money flows into funds.

Management Fees (*Management Fees_i*): Annual management fees (*Management Fees_i*) is a rate of a fee that is paid by investors to the fund i's investment adviser for fund management service.

Load Fees (*Load Fees_i*): Load fee (*Load Fees_i*) is defined as a rate of a fee that investors of fund i pay as maximum initial or deferred sales charge.

Trustee Fees (*Trustee Fees_i*): The annual trustee fee (*Trustee Fees_i*) is a rate of a fee paid to the Trustee for the custodial management and administration of a fund i.

Ramadhan (*Ram_t*): Ramadhan variable denoted as *Ram_t* is defined as the percentage of Ramadhan days in a month t and has been used in previous works of Oguzsoy & Guven (2004) and Tan & Özlem (2018). Our primary data sources provide monthly data based on the Gregorian calendar for variables in the equation (17). Thus, it is challenging to use a dummy variable for Ramadhan month as monthly time series since Ramadhan month is ninth month of the Islamic lunar calendar and the feast starts 11 days earlier each year in terms of the Gregorian calendar. Thus, often two months of Gregorian calendar consists of some days of Ramadhan. While it is sometimes only a few days of a month based on the Gregorian calendar is corresponding to days of Ramadhan month, it is sometimes the most days of a month. Thus, using the percentage of Ramadhan days in a

month can give us more precise information to capture the impact of the Ramadhan month.

Relative Performance Variables: Many studies such as Gruber (1996) and Sirri & Tufano (1998) documented non-linear relationship between flows and performance. Thus, we include dummy variables for bottom and top performers to capture whether fund flow sensitivity of top and bottom performers for both Islamic and conventional funds.

Bottom Performer (*D Bottom*): Bottom Performer (*D Bottom*) is a dummy variable that is equal to 1 if a fund is in the bottom 20% among all funds in terms of performance, and 0 otherwise.

Top Performer (*D Top*): Top Performer (*D Top*) is a dummy variable that is equal to 1 if a fund is in top 10% among all funds in terms of performance, and 0 otherwise.

Chapter 5: Empirical Results and Analysis

5.1 Shari'ah Compliance Announcement and Anomalies

5.1.1 Introduction

Section 5.1 addresses the first research objective of the thesis, and it examines whether changes in Shari'ah compliant status of listed securities influence the decision of investors or fund managers to buy, keep or sell Shari'ah compliant and Shari'ah non-compliant stocks by analysing their impact on stock prices and trading volume. The section presents descriptive statistics and empirical results. Finally, the study examines results under the light of relevant theoretical discussions in previous studies.

5.1.2 Descriptive Statistics

Table 7 shows descriptive statistics for the cumulative abnormal returns (CARs) of added IPO, added Non-IPO and removed stocks in pre-announcement period of (-5, -1) and in post-announcement periods of (0, +1), (0, +2), (0, +5), (0, +10), (0, +20), (0, +60). It is important to note that the number of additions are higher than deletions. The ratio of additions to deletions recommendations in this sample is about 2 to 1. The number of Non-IPO additions is slightly higher than that of IPO additions.

The mean of Non-IPO additions' CARs is positive in the long-term event windows while the mean of CAARs of deletions' CAARs is negative in the short-term event windows. On the other hand, the mean of IPO additions' CARs is positive and very higher than that of Non-IPO additions' CARs. These results show that changes in LSCS may affect investors' behaviour to create pressure to buy (sell) newly classified Shari'ah compliant (Shari'ah non-compliant) stocks. While deleted and added Non-IPO stocks

have a low standard deviation, added IPO stocks have a high standard deviation. Thus, it is crucial to consider the performance of IPO additions separately instead of combining the data of added Non-IPO and IPO stocks since it can distort the empirical findings.

Table 8 presents descriptive statistics for Mean Volume Ratio (MVR) of added and removed stocks in pre-announcement period of (-5, -1) and in post-announcement periods of (0, +1), (0, +2), (0, +5), (0, +10), (0, +20), (0, +60).

The MVRs of Non-IPO additions are higher than 1 in the long-term event windows while it is higher than 1 for deletions in the short-term and long-term event windows. These descriptive statistics indicate that trading volume of Non-IPO additions abnormally increased in the long-term event windows while it abnormally increased for deletions in the short-term and long-term event windows. Abnormal trading volume after the announcement days shows that Shari'ah sensitive investors' effort to rebalance their portfolio may lead to a higher trading volume of newly classified Shari'ah compliant and non-compliant stocks. The MVR of added IPO stocks have higher standard deviation than that of added Non-IPO and deleted stocks. The mean of added IPO stocks' MVR is much higher than its median while its mean is much lower than mean added Non-IPO stocks' MVR. Thus, MVR statistics also implies the importance of considering empirical results regarding the trading volume of added IPO and Non-IPO stocks separately.

The summary of descriptive statistics motivates the study for employing more advanced empirical analysis to examine the impact of changes in LSCS on stock prices and trading volume.

Table 7: Descriptive Statistics of Cumulative Abnormal Returns (CARs) for Stocks Added in and Deleted from List of Shari'ah Compliant Securities by Security Commission Malaysia, Consolidated (2000-2015)

	Pre-Announcement	Short-Term			Long-Term		
Additions, Non-IPO	(-5, -1)	(0, +1)	(0, +2)	(0, +5)	(0, +10)	(0, +20)	(0, +60)
Mean	-0.0160	0.0016	0.0093	0.0042	-0.0070	-0.0080	0.0225
Median	-0.0121	-0.0020	0.0034	0.0002	0.0039	-0.0054	-0.0047
S.D.	0.0040	0.0501	0.0636	0.0944	0.1360	0.2070	0.7053
Minimum	-0.5780	-0.2231	-0.2457	-0.6320	-0.6242	-0.9868	-1.6281
Maximum	0.2515	0.2871	0.3218	0.3259	0.5258	0.7830	7.9495
Sum	-4.6534	0.2996	1.7537	0.7967	-1.3068	-1.5042	4.2249
Count	370	370	370	370	370	370	370
Additions, IPO							
Mean	0.0361	0.0806	0.0806	0.0700	0.1327	0.2605	0.8507
Median	0.0032	0.0049	0.0060	0.0136	0.0068	0.0285	0.0844
S.D.	0.0325	0.8119	0.7070	0.6255	1.3087	2.5823	8.3908
Minimum	-0.2517	-0.1446	-0.1308	-0.1865	-0.2860	-0.4241	-1.3932
Maximum	7.8314	9.7262	8.4502	7.4439	15.6487	30.9100	100.5266
Sum	8.7649	11.6026	11.6038	10.0755	19.1092	37.5088	122.4940
Count	288	288	288	288	288	288	288
Deletions							
Mean	-0.0155	-0.0162	-0.0124	-0.0169	-0.0256	-0.0345	0.0150
Median	-0.0110	-0.0101	-0.0151	-0.0179	-0.0207	-0.0375	-0.0435
S.D.	0.0047	0.0530	0.0643	0.0877	0.1189	0.1856	0.7415
Minimum	-0.4747	-0.2380	-0.2130	-0.3037	-0.5116	-0.7359	-1.5093
Maximum	0.1918	0.1396	0.2904	0.5419	0.5676	0.5720	6.9113
Sum	-3.2441	-1.8651	-1.4203	-1.9386	-2.9489	-3.9676	1.7273
Count	284	284	284	284	284	284	284

Table 8: Descriptive Statistics of Mean Volume Ratio (MVR) for Stocks Added in and Deleted from List of Shari'ah Compliant Securities by Security Commission Malaysia, Consolidated (2000-2015)

		Pre-Announcement	Short-Term			Long-Term		
Addition, Non-IPO		(-5, -1)	(0, +1)	(0, +2)	(0, +5)	(0, +10)	(0, +20)	(0, +60)
	Mean	0.8501	0.9326	0.9695	1.0013	1.0634	1.3547	1.7201
	Median	0.6771	0.5225	0.5351	0.6085	0.6563	0.7981	0.9692
	S.D.	0.0352	1.1552	1.4977	1.7018	1.9427	2.2494	3.8891
	Minimum	0.0370	0.0104	0.0162	0.0267	0.0622	0.0616	0.0560
	Maximum	4.7390	8.7705	21.6766	23.2826	24.7048	26.7119	61.6244
	Sum	309.4319	339.4582	352.9046	364.4703	387.0749	493.1147	626.1206
	Count	370	370	370	370	370	370	370
Addition, IPO								
	Mean	0.6227	0.4361	0.4863	0.4822	0.4886	0.5435	0.8165
	Median	0.4484	0.2396	0.2405	0.2828	0.2877	0.3084	0.3534
	S.D.	0.0337	0.6144	0.9262	0.7363	0.6716	0.8951	1.8085
	Minimum	0.0536	0.0020	0.0041	0.0041	0.0223	0.0228	0.0142
	Maximum	2.7207	5.1655	11.4048	8.7181	7.0038	8.9208	17.5952
	Sum	154.4342	108.1592	120.6146	119.5962	121.1612	134.7812	202.4842
	Count	288	288	288	288	288	288	288
Deletion								
	Mean	0.8937	1.0520	0.9857	1.0744	1.1444	1.2839	1.6377
	Median	0.6331	0.5547	0.5698	0.5464	0.5458	0.7618	0.9350
	S.D.	0.0494	1.7307	1.4053	1.9281	2.1607	1.7217	2.8877
	Minimum	0.0633	0.0235	0.0206	0.0449	0.0627	0.0890	0.0574
	Maximum	5.4966	17.3851	12.0168	20.0313	25.0088	16.8246	37.7870
	Sum	252.0344	296.6582	277.9588	302.9857	322.7284	362.0630	461.8295
	Count	284	284	284	284	284	284	284

5.1.3 Empirical Results

5.1.3.1 Return

Table 9 shows the empirical results of the cumulative average abnormal return (CAAR) of added Non-IPO, added IPO, and deleted stocks by using the market model based on OLS model for 14 event windows.

Both added Non-IPO and deleted stocks had negative performance in the pre-announcement period while the CAARs of added Non-IPO and deleted stocks are respectively -1.56% and -1.6% at 0.01 significance level in the event window (-5, -1). On the other hand, added IPO stocks exhibited a positive performance during the pre-announcement period. The CAAR of the added IPO stocks is 3.41% and significant at 0.05 level in the event window (-5, -1).

During the post-announcement period, the CAARs of added Non-IPO stocks fluctuated at around 0 and were not significant at 0.01, 0.05, and 0.1 level in the short term. In other words, the market was not sensitive to the announcement of LSCS. However, the CAARs of Non-IPO stocks has been increased rapidly one month after the announcement. The CAARs of Non-IPO stocks are 1.78% and 3.76% for one-month (0, +20), and three-month (0, +60) event windows respectively, and all values are significant at the 0.01 level.

During the post-change period, deletions from LSCS had significantly negative impact on stocks' return in the short term, particularly -1.29% in one-day (0, +1), -1.41% in three-day (0, +3) and -1.19% in four-day (0, +4) event windows. However, we observed a price reversal for removed stocks from 20 trading days to 60 trading days after

the announcement (+20, +60) (See Appendix B, Appendix C and Appendix D). Thus, the CAAR increased from -3.40% in one-month (0, +20) to 2.97% in three-month (0, +60) event windows, but the result is not significant at the 0.01 level.

The empirical result on the announcement day (0, 0) exhibits that the CAAR of added stocks is almost 0 while its t-test is not significant. However, the CAARs of added IPO stocks reached to 4.16% and 7.67% in one-week (0, +5) and two-weeks (0, +10) event windows respectively. After two weeks, added IPO stocks had exponential growth where their CAARs increased to 15.56% and 53.74% in one-month (0, +20) and three-month (0, +60) event windows.

Table 9: Cumulative Average Abnormal Return (CAAR) for added Non-IPO, Added IPO, and Deleted Stocks, Consolidated (2000-2015)

		Addition, Non-IPO			Addition, IPO			Deletion		
		CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic
Pre-AD	(-5, -1)	-0.0153***	151: 219	-3.59	0.0341**	154: 134	2.07	-0.0160***	122: 165	-2.70
	(-4, -1)	-0.0139***	150: 220	-3.66	0.0295**	134: 154	2.00	-0.0164***	121: 166	-3.10
	(-3, -1)	-0.0079**	156: 214	-2.40	0.0341***	146: 142	2.67	-0.0173***	124: 163	-3.77
	(-2, -1)	-0.0053**	178: 192	-1.98	0.0352***	156: 132	3.38	-0.0119***	137: 150	-3.17
	(-1, -1)	-0.0028	182: 188	-1.45	-0.0034	161: 127	-0.46	-0.0063**	145: 142	-2.36
AD	(0, 0)	0.0006	200: 170	0.34	0.0064	168: 120	0.86	-0.0074***	124: 163	-2.80
Short-Term	(0, +1)	0.0026	192: 178	0.96	0.0443***	160: 128	4.25	-0.0129***	122: 165	-3.45
	(0, +2)	0.0064	190: 180	1.95	0.0488***	161: 127	3.82	-0.0117**	125: 162	-2.54
	(0, +3)	0.0010	186: 184	0.2645	0.0472***	165: 123	3.20	-0.0141***	115: 172	-2.66
	(0, +4)	0.0052	191: 179	1.22	0.0452***	168: 120	2.74	-0.0119**	126: 161	-2.00
	(0, +5)	0.0044	193: 177	0.94	0.0416***	157: 131	2.30	-0.0095	121: 166	-1.46
Long-Term	(0, +10)	0.001	192: 178	0.1549	0.0767***	159: 129	3.14	-0.0237***	114: 173	-2.69
	(0, +20)	0.0178**	191: 179	2.04	0.1556***	167: 121	4.61	-0.0340***	103: 184	-2.79
	(0, +60)	0.0376***	193: 177	2.53	0.5374***	179: 109	9.34	0.0297	136: 151	1.43

Notes: p:n denotes the number of positive and negative Averaged Abnormal Return (AAR) for stocks respectively while *, **, and *** denote the statistical significance at the 0.1, 0.05 and 0.01 levels, respectively.

5.1.3.2 Trading Volume

Table 10 exhibits the empirical results of the Mean Volume Ratios (MVRs) for stocks added Non-IPO, added IPO, and deleted stocks during pre-announcement and post-announcement periods. The MVRs of added Non-IPO and deleted stocks are below the normal level (1) respectively 15% and 11.6% for five days period prior to the event and significantly different from 1 at the 0.01 level.

During the post-announcement period, trading volume of added Non-IPO stocks gradually increased, but MVRs fluctuated at around 1 and are not significant at the 0.1 level in short-term event windows (0, +1), (0, +2), (0, +3), (0, +4), and (0, +5). However, the trading volume of added Non-IPO stocks is above the average in the long-term event windows and significantly different from 1 at the 0.01 level. For example, MVRs of added Non-IPO stocks is 36.9% and 79.9% higher than the normal level in one-month (0, +20) and three-months (0, +60) event windows.

Trading volume of deleted stocks increased 11% on the announcement day, but it is not significant at the 0.1 significance level. Trading volume of deleted stocks rose moderately during the post-change period. Even though the MVR fluctuated in one-week (0, +5) event window, the MVRs of deleted stocks are 1.24 and 1.63 at the 0.01 significance level in one-month (0, +20) and three-month (0, +60) event windows respectively. In other words, the trading volume of deleted stocks is 24.1% and 62.8% higher than the normal level and significantly different from 1 at the 0.01 level.

During the pre-announcement period, added IPO stocks had a lower trading volume than the normal level. The MVRs of added IPO stocks were 37.7% and 33.1% lower than the normal level for five days prior to the event and on the event day, respectively. Even though the MVRs of added IPO stocks moderately increased, it was still 28.4% and 17.2% lower than the normal level for two-weeks (0, +10) and one-month (0, +20) post-change periods, respectively. Later, the MVRs of added IPO stocks gradually reached to the normal level in two-month (0, +40) event window, yet it has been significantly less than the normal level before.



Table 10: Mean Volume Ratios (MVRs) for added Non-IPO, Added IPO, and Deleted Stocks, Consolidated (2000-2015)

		Addition, Non-IPO		Addition, IPO		Deletion	
		MVR	t-statistic	MVR	t-statistic	MVR	t-statistic
Pre-AD	(-5, -1)	0.8500***	-4.25	0.6227***	-11.20	0.8937**	-2.15
	(-4, -1)	0.8414***	-4.37	0.6136***	-11.05	0.8463***	-3.16
	(-3, -1)	0.8313***	-4.36	0.6212***	-9.63	0.8271***	-3.42
	(-2, -1)	0.8233***	-3.38	0.6231***	-8.61	0.8992	-1.64
	(-1, -1)	0.8741**	-1.99	0.6374***	-6.711	0.9962	-0.04
AD	(0, 0)	0.9164	-1.22	0.6690***	-4.84	1.1166	0.89
Short-Term	(0, +1)	0.9382	-1.04	0.6281***	-6.53	1.0253	-0.78
	(0, +2)	0.9830	-0.21	0.6819***	-3.97	0.9695	0.69
	(0, +3)	0.9693	-0.38	0.6926***	-3.93	0.9562	-0.57
	(0, +4)	0.9942	-0.07	0.6941***	-4.23	0.9878	-0.14
	(0, +5)	1.0079	-0.09	0.6891***	-4.68	1.0589	0.56
Long-Term	(0, +10)	1.0595	0.70	0.7256***	-3.76	1.1134	1.11
	(0, +20)	1.3691***	3.54	0.8283*	-1.74	1.2415***	2.94
	(0, +60)	1.7990***	3.71	1.4043	1.50	1.6282***	4.36

Notes: MVR stands for the volume ratios where t values measure whether the mean of volume ratios are different from one, respectively. *, **, and *** denote the statistical significance at 0.1, 0.05 and 0.01 levels, respectively. The t-statistics value corresponds to result of null hypothesis testing for $H_0: \mu_1 = 1$

5.1.3.3 Robustness Tests

The study conducted the Scholes/Williams estimation method proposed to handle with the non-synchronous trading problem by using various combinations of lead and lagged estimation. Table 11 presents the empirical results of the cumulative average abnormal return (CAAR) of added Non-IPO, added IPO, and deleted stocks by using the market model based on Scholes/Williams estimation model for 14 event windows.

During the pre-announcement period, the CAAR of added Non-IPO stocks is -1.67% at 0.01 significance level based on Scholes/Williams estimation while it is -1.56% at the 0.01 significance level based on OLS estimation for the event window (-5, -1). During the post-announcement period, the CAARs of added Non-IPO stocks are not significant at 0.01, 0.05, and 0.1 level in short term event windows based on both OLS and Scholes/Williams estimation. However, the CAARs of added Non-IPO stocks are 2.11% and 3.97% based on Scholes/Williams estimation while they are 1.78% and 3.76% based on OLS estimation in one-month (0, +20), and three-month (0, +60) event windows respectively.

During the pre-announcement period, the CAAR of added IPO stocks is 2.86% at 0.1 significance level based on Scholes/Williams estimation whereas it is 3.41% at the 0.01 significance level based on OLS estimation for the event window (-5, -1). The CAARs of added IPO stocks increased to 4.35% and 6.75% based on Scholes/Williams estimation while they are 4.16% and 7.67% based on OLS estimation in one-week (0, +5) and two-weeks (0, +10) event windows respectively. The CAARs of Added IPO stocks has strong momentum by reaching to 13.22% and 46.09% based on

Scholes/Williams estimation while they are 15.56% and 53.74% based on OLS estimation in one-month (0, +20) and three-month (0, +60) event windows.

During the pre-change period, the CAAR of deleted stocks is 0.02% and not significant at the 0.1 level based on Scholes/Williams estimation while it is -1.6% at 0.01 significance level based on OLS estimation for the event window (-5, -1). During the post-change period, the CAARs of deleted stocks are around 0 and not significant based on Scholes/Williams estimation while they are -1.29% and -1.41% at the 0.01 significance level based on OLS estimation in one trading day (0, +1) in three-day (0, +3) event windows. In long-term event windows, the CAARs of deleted stocks are not significant based on both OLS and Scholes/Williams estimation.

Overall, the sign, value and significance of results for added Non-IPO and IPO stocks are robust in pre-announcement and post-announcement event-windows. The sign, value and significance of results for deleted stocks are also robust in pre-change event windows. Although the results based on Scholes/Williams estimation are not significant and around 0 in short-term event and long-term window, the results based on OLS estimation is negative and significant in the most short-term and long-term event windows.

Table 11: Econometric Model Robustness Test: Cumulative average abnormal return (CAAR) (based on Scholes/Williams model) for added Non-IPO, added IPO, and deleted stocks between 2000 and 2015.

		Addition, Non-IPO			Addition, IPO			Deletion		
		CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic
Pre-Announcement	(-5, -1)	-0.0167***	145: 225	-3.76	0.0286*	149: 139	1.69	0.0020	117: 170	0.09
	(-4, -1)	-0.0149***	141: 229	-3.75	0.0254*	136: 152	1.68	0.0023	117: 170	0.12
	(-3, -1)	-0.0083**	156: 214	-2.41	0.0347***	137: 151	2.64	0.0018	119: 168	0.11
	(-2, -1)	-0.0059**	170: 200	-2.10	0.0354***	146: 142	3.30	0.0072	141: 146	0.55
	(-1, -1)	-0.0026	179: 191	-1.31	-0.0032	162: 126	-0.42	0.0129	153: 134	1.39
AD	(0, 0)	0.0004	197: 173	0.20	0.0057	167: 121	0.75	0.0039	121: 166	0.41
Short-Term	(0, 1)	0.0017	186: 184	0.58	0.0432***	159: 129	4.04	-0.0018	119: 168	-0.13
	(0, 2)	0.0060	195: 175	1.74	0.0481***	155: 133	3.67	-0.0009	116: 171	-0.05
	(0, 3)	0.0005	188: 182	0.12	0.0470***	164: 124	3.10	-0.0036	113: 174	-0.19
	(0, 4)	0.0035	199: 171	0.78	0.0462***	166: 122	2.73	-0.0013	127: 160	-0.06
	(0, 5)	0.0019	197: 173	0.38	0.0435**	162: 126	2.35	0.0073	120: 167	0.32
Long-Term	(0, 10)	-0.0010	179: 191	-0.15	0.0675***	158: 130	2.69	-0.0060	118: 169	-0.19
	(0, 20)	0.0211**	180: 190	2.32	0.1322***	159: 129	3.81	-0.0219	106: 181	-0.51
	(0, 60)	0.0397***	187: 183	2.55	0.4609***	172: 116	7.80	0.0130	129: 158	0.17

Note: p:n denotes the number of positive and negative Cumulative Averaged Abnormal Return (CAAR) for stocks respectively while *, **, *** denote the statistical significance at ten, five and one per cent levels, respectively.

5.1.4 Discussion of Results

5.1.4.1 Return

As exhibited in Table 9, stocks that are excluded from LSCS generate significantly negative CAARs in the pre-announcement period. It demonstrates that investors had predicted or had insider information of stock exclusions from LSCS. The SAC of SCM rules that Shari'ah sensitive investors and Islamic financial institutions must dispose of newly classified Shari'ah non-compliant securities in their portfolio within one month. Therefore, the finding is consistent with the Price Pressure Hypothesis (PPH) because the stock price is expected to fall with increased selling of stock after the announcement day. The CAARs of added Non-IPO stocks are also negative in the pre-announcement event windows. This shows that the investors do not have significant predication on the added Non-IPO stocks.

On the announcement day (AD), while the CAARs of added Non-IPO and added IPO stocks are positive, the CAAR of deleted stocks is negative. These findings are consistent with the hypothesis that even if the release of LSCS does not convey do not convey any information about financial statements or cash flow of listed securities, Shari'ah sensitive investors and managers of Shari'ah compliant portfolios create a substantial pressure to buy (sell) Shari'ah compliant (Shari'ah non-compliant) stocks for rebalancing their holdings to ensure that they do not earn any profit from a prohibited element in their investment (Harris & Gurel, 1986; Bacha & Abdullah, 2001; Yazi, Morni, & Imm, 2015; Ng & Zhu, 2016). Therefore, these results suggest that non-financial aspect of Shari'ah compliant investment influences investors to buy (sell) Shari'ah compliant (Shari'ah non-compliant) stocks. In other words, capital markets in Malaysia are sensitive to the announcement of information on changes in LSCS.

The empirical results provide evidence on short-term and long-term impact of additions into and deletions from LSCS on stock prices. As shown by a linear upward trend line in Appendix B, the CAAR of Non-IPO stocks added in LSCS began to increase 20 days after the announcement. The studies of Bacha & Abdullah (2001), Yazi, Morni, & Imm (2015) and Ng & Zhu (2016) also offer supportive findings to our empirical results. We find that the demand curve of added Non-IPO stocks is downward sloping in the long-run and thus, the excess returns are permanent. There are several theoretical explanations for having long-term downward sloping demand curve for newly classified Shari'ah compliant firms.

The single objective of generating financial returns cannot explain the decision-making process of Islamic Institutional and Muslim retail investors because Shari'ah conscious investors can have a trade-off between financial returns and heavenly rewards (Mcgowan & Muhammad, 2010). Therefore, Shari'ah non-compliant stocks are not close substitutes of newly classified Shari'ah compliant securities. In other words, the long-run demand curve slopes downward and is not perfectly elastic for added Non-IPO stocks. Our finding is consistent with Imperfect Substitutes Hypothesis (ISH) and studies of Shleifer (1986), Beneish & Whaley (1996), Lynch & Mendenhall (1997), Blume & Edelen (2001), and Wurgler & Zhuravskaya (2002). Liquidity Cost Hypothesis (LCH) provides another explanation for a long-term increase in the price of added Non-IPO stocks. A sustained increase in the liquidity of newly classified Shari'ah compliant stocks associated with higher trading volume will decrease the transaction cost and induce to a permanent increase in stock price (Amihud & Mendelson 1986; Hegde & McDermott, 2003)

The empirical results document that the CAARs of excluded stocks from LSCS are significant and negative in the short-term event windows. It is important to note that Islamic institutional investors are advised to follow SCM's guidance for disposal of their Shari'ah non-compliant stocks from their portfolio after the end of the one-month grace period. Moreover, Islamic institutional investors have to donate any capital gain or dividend they received from newly classified Shari'ah non-compliant companies after the disposal of the securities after the announcement day. Therefore, stocks removed from LSCS face a negative price change in short term event windows, but not significant in the long-term event windows which is consistent with findings of Bacha & Abdullah (2001), Yazi, Morni, & Imm (2015) and Ng & Zhu (2016). Thus, there is empirical evidence of return reversal following one-month period. Islamic institutional and Muslim retail investors generate excess pressure to sell securities of newly classified Shari'ah non-compliant companies during rebalancing their Shari'ah compliant portfolios. Such temporary imbalances in the supply and demand of deleted stocks cause negative abnormal returns in the short-term, but that effect dissipates once the excess demand is satisfied. Therefore, our finding is theoretically consistent with PPH and studies of Harris & Gurel (1986), Beneish & Whaley (1997) and Lynch & Mendenhall (1997).

Similar to the empirical results of added Non-IPO stocks, the study demonstrates that the CAARs of added IPO stocks are positive and significant in short-term and long-term event windows. However, the CAARs of added IPO stocks are much higher than those of added Non-IPO stocks. This result is consistent with the findings of Ahmad-Zaluki & Kect (2012), Sundarasan & Leong (2012), Sopian, Rahim & Yong (2013) and Yaakub & Sherif (2019). Along the same line, Therefore, high abnormal returns of added

IPO stocks may not be only explained by ISH and PPH alone because the CAARs of added IPO and added Non-IPO stocks are significantly different from each other. Jenkinson & Ljungqvist (2001) found that stocks in emerging markets in Asia often have a high initial return. According to Ownership Dispersion Hypothesis (ODH), companies in Bursa Malaysia might tend to underprice their stock prices as a strategy for more dispersed ownership. Consequently, ownership dispersion can improve the liquidity, increase analyst coverage and decrease the required rate of return for the listed companies (Bouzouita et al., 2017). Therefore, it is more difficult to understand how the non-financial aspect of Shari'ah compliant investment affects the price of IPO stocks added in LSCS.

5.1.4.2 Trading Volume

In the pre-announcement period, Table 10 reported that trading activity of added Non-IPO and deleted stocks are lower than the normal level during the pre-announcement period. The lower trading activity indicates that investors did not anticipate such inclusions and exclusions in LSCS. Trading activity of added IPO stocks is almost 40% less than the normal level on the announcement day, and it converges into the normal level in the long term. Therefore, lower trading activity of added IPO stocks can be associated with ODH and initial underpricing of companies in Bursa Malaysia

In the post-announcement period, the MVRs are analysed to determine how long trading volume remained above the normal level. Empirical results in

Table 10 show that the MVRs of added Non-IPO and deleted stocks are not significantly different from 1 both in the short term. In other words, the market is not

sensitive to the announcement of Non-IPO stock additions into LSCS in the short term. However, findings indicate that trading volumes of added Non-IPO and deleted stocks are higher than the normal level and statistically significant in one-month (0, +20) and three-month (0, +60) event windows. In other words, the rise in trading volume is permanent over time. There are several theoretical explanations for a permanent increase in the trading volume of added Non-IPO and deleted stocks.

According to Liquidity Cost Hypothesis (LCH), newly classified Shari'ah compliant securities will have higher analyst coverage, liquidity and a lower required rate of return. Thus, more investors will trade added stocks since Islamic institutional and Muslim retail investors will be able to invest in newly classified Shari'ah compliant stocks after the announcement. Higher trading volume and analyst coverage will improve liquidity and decrease the transaction cost. This will create a further demand for added stocks. Thus, our finding of the permanent increase in added Non-IPO stocks' trading volume is consistent with attention, information cost and liquidity explanations (Amihud & Mendelson 1986; Hegde & McDermot, 2003).

Imperfect Substitutes Hypothesis (ISH) argues that Shari'ah compliant stocks are no close substitutes of Shari'ah non-compliant stocks, so the long-run demand curve slopes downward. Therefore, excess demand by Islamic institutional and Muslim retail investors would create a permanent increase in trading volume of added stocks in long run (Shleifer, 1986; Liu, 2006; Bildik & Gülay, 2008).

According to LCH, excluded stocks will have lower liquidity, accessible information and higher cost of a transaction. Thus, investors would have lower tendency

to trade excluded stocks. Moreover, ISH argues that excluded stocks would have lower demand permanently since Islamic institutional and Muslim retail investors would not hold Shari'ah non-compliant stocks in their portfolios. Therefore, ISH and LCH cannot explain trading volume effect for excluded stocks in the long-term. After there are a sell-pressure and lack of liquidity for removed stocks, they might be undervalued temporarily. Thus, conventional investors might have purchased those undervalued securities gradually and increased the trading volume above the normal level in the long run.

Overall, our results indicate that the effects on trading volumes are found to be consistent with the ODH, ISH and LCH theories which assert that trading volumes tend to rise in long-term following stock additions. Therefore, our findings on the long-term effects are also in line with findings in previous findings in Amihud & Mendelson (1986), Beneish & Gardner (1995), Booth & Chua (1996), Liu (2006), and Bildik & Gülay, (2008).

5.1.4.3 Return and Trading Volume Relationship

The relationship between abnormal returns and abnormal volumes can shed some additional light on the theoretical explanations for trading volume and price effects for added and deleted stocks in the short term and long term.

The empirical results yield interesting findings for added IPO stocks since they had significant excess returns and very low trading volume during pre-announcement and post-announcement periods. Although observing abnormal return for added stocks are consistent with PPH and ISH, abnormal return for added IPO stocks are much higher than the abnormal return of added Non-IPO stocks. Very high CAARs of added IPO stocks

might be more related to ODH rather than their additions to LSCS. However, it is also important to note that listed companies which are included in THE LSCS receive more attention and recognition among the retail and institutional investors. Consequently, many investors may prefer to add those stocks in their portfolios. Therefore, it can substantially enhance the liquidity of the stocks, whereby it results in an exponential increase in stock prices in the long term (Abu Bakar and Rosbi, 2016).

Increases in prices and trading volume of added Non-IPO stocks in the short-term are consistent with PPH since the PPH posits a downward sloping demand curve in the short term. However, price and trading volume effect for added Non-IPO stocks in the long-term can be explained by ISH and LCH. While ISH predicts a permanent price by assuming a downward-sloping demand curve in the long term, LCH assumes that additions into LSCS lead to a long-lasting stock liquidity enhancement, whereby both the stock price and trading volume would increase permanently

The price falls of deleted stocks in short-term is consistent with PPH, but the MVR of deleted stocks is 62.8% higher than the normal level in the three-month period, which cannot be understood by PPH and ISH. Conventional investors' rush to purchase undervalued removed stocks can explain the high rise in trading volume and abnormal return of deleted stocks in long-term.

5.1.5 Summary of Findings and Hypothesis

A summary of the findings based on empirical findings and discussions is shown in Table 12 below followed by the summary of the outcomes of our hypotheses and the theories supporting them in Table 13. Outcomes of the hypotheses in Table 13 are supported by findings with the statistical significance level in Table 12.



Table 12: Summary of Findings for Shari'ah Compliance Announcement and Anomalies

Time Period	Abnormal Return			Abnormal Trading Volume		
	Additions, Non-IPO	Additions, IPO	Deletion	Additions, Non-IPO	Additions, IPO	Deletion
Pre-AD	—***	+**	—***	↓***	↓***	↓**
AD	+	+	—***	↓	↓***	↓
Post-Change Short Term	+**	+***	—***	↑***	↓***	↑***
Post-Change Long Term	+***	+***	+	↑***	↑	↑***

Notes: *, **, and *** denote the statistical significance at 0.1, 0.05 and 0.01 levels, respectively.

Table 13: Summary of Hypotheses

NO	Hypothesis	Hypothesis Supported	Theory Support
H1a.	Non-IPO additions to LSCS will lead to an increase in stock prices while deletions from LSCS will lead to a decline in stock prices in the short term and the long term.	YES	PPH, ISH, LCH
H1b.	IPO additions to LSCS will not lead to an increase or a decline in stock prices in either short term or long term	YES	ODH
H1c.	Non-IPO additions to and deletions from LSCS will lead to an increase in stock trading volume in the short term and the long term.	NO/YES	LCH, ISH
H1d.	IPO additions to LSCS will not lead to an increase or decrease in stock trading volume.	YES	ODH

5.2 The Relationship Between the Fund Flows and Past Performance

5.2.1 Introduction

The section 5.2 attempts to achieve the second research objective of the thesis and investigates how Shari'ah compliance as a non-financial attribute of Islamic funds influence investor behaviour and affect flow-performance relation of Islamic and conventional funds in Malaysia. Secondly, the research aims to examine the impact of a higher degree of religiosity on investor behaviour by investigating the relationship between performance and flows of Islamic and conventional funds during Ramadhan month. Finally, the study analyses the sensitivity of fund flows-return relation for poor and strong performers in Islamic and conventional funds.

This study conducts separate empirical analyses to address each research objectives in this section. Finally, we discuss the results by considering findings and theoretical arguments in past studies.

5.2.2 Descriptive Statistics

The descriptive sample statistics in Table 14 report the number of funds, the number of fund families, the average fund age, the median fund age, the average assets under management (AUM), median AUM, and total AUM. We use sample from various fund management companies to prevent potential biased results. The largest number of conventional funds in our sample comes from Public Mutual Fund Bhd. (21 funds), followed by CIMB Principal Asset Management Bhd. (17 funds), and Affin Hwang Asset Management Bhd. The highest number of Islamic funds in our sample comes from Public Mutual Fund Bhd. as well (19 funds), followed by CIMB Principal Asset Management Bhd. (14 funds) and AmInvest Management Bhd. (10 funds).

The highest average AUM in conventional funds comes from Public Mutual Fund Bhd. (RM548.09 Million), followed by Maybank Asset Management Bhd. (RM166.34 Million) and CIMB Principal Asset Management Bhd. (RM115.24 Million). Public Mutual Fund Bhd. has the highest average AUM in Islamic funds (RM673.63 Million), followed by CIMB Principal Asset Management Bhd. (RM341.54 Million) and Affin Hwang Asset Management Bhd. (RM118.10 Million).



Table 14: Descriptive Sample Statistics of Conventional Funds and Islamic Funds

Fund Manager	No. Funds	Average Age	Median Age	Average AUM	Median AUM	Total AUM (M. RM)
Conventional Funds						
Affin Hwang Asset Management Bhd.	8	7.01	5.5	105.31	100.65	842.44
Maybank Asset Management Bhd.	3	9.90	10	166.34	103.31	499.01
AmInvest Management Bhd.	5	7.97	7	26.08	23.42	130.41
Hong Leong Asset Management Bhd.	4	6.33	6.5	69.78	64.19	279.12
KAF Investment Fund Bhd.	4	5.92	5	32.71	35.04	130.83
Kenanga Investors Bhd.	2	6.34	6	45.48	41.99	90.97
RHB Asset Management Bhd.	1	5.75	6	24.04	18.73	24.04
CIMB Principal Asset Management Bhd.	17	8.35	8	115.24	88.37	1959.00
Eastspring Investments Bhd.	8	7.53	7	73.40	63.75	587.19
Prudential Assurance Malaysia Bhd.	3	3.75	4	59.01	33.00	177.02
Public Mutual Fund Bhd.	21	9.00	9.5	548.09	384.67	11509.95
RHB Asset Management Bhd.	2	3.99	4	37.07	36.38	74.13
Islamic Funds						
AmInvest Management Bhd.	10	7.81	6	61.20	32.37	611.96
BIMB Investment Management Bhd.	3	9.93	12	74.72	44.62	224.17
Kenanga Investors Bhd.	2	6.99	7	10.57	9.04	21.14
Libra Invest Bhd.	1	13.38	13	57.13	56.20	57.13
Manulife Asset Management Services Bhd.	6	7.44	7	118.03	82.31	708.20
MIDF Amanah Investment Bank Bhd.	1	15.35	16	11.13	8.31	11.13
Pacific Mutual Fund Bhd.	3	9.22	7	103.27	47.28	309.82
Public Mutual Fund Bhd.	19	5.60	5	673.63	265.03	12798.93
PMB Investment Bhd.	8	11.86	12	22.92	14.22	183.35
KAF Investment Fund Bhd.	2	8.43	8.5	31.29	30.93	62.57
Hong Leong Asset Management Bhd.	2	12.30	12	13.92	13.33	27.84
RHB Asset Management Bhd.	4	7.69	6	12.63	10.11	50.53
TA Investment Management Bhd.	5	7.40	7	33.12	29.74	165.58
Eastspring Investments Bhd.	5	7.23	8	41.64	38.33	208.20
Affin Hwang Asset Management Bhd.	3	8.37	10	118.10	123.00	354.29
Apex Investment Services Bhd.	3	10.42	10	46.50	52.12	139.49
CIMB Principal Asset Management Bhd.	14	6.87	6	341.54	38.39	4781.60

Summary statistics of Islamic and conventional funds are presented and used for motivating some of the characteristics of the empirical methodology. Table 15 reports the statistics for fund size, age, fund flow rate, return rate, percentage of management fees, load fees and trustee fees. Table 15 shows that Islamic funds in our sample have a slightly higher average age than conventional funds. What is more, the average size of Islamic funds is 10% higher than the average size of conventional funds. While the average return of Islamic funds in our sample is 0.3% per month, conventional funds had better performance with a return of 0.43% per month. Moreover, Islamic funds charged higher management, load and trustee fees than conventional funds. However, it is crucial to note that both Islamic and conventional funds attracted the almost the same rate of fund flows, particularly 0.36% per month despite higher total fees and lower monthly return of Islamic funds. Therefore, the summary of statistics motivates the study for employing more advanced empirical analysis to investigate the relationship between fund flows and performance of Islamic and conventional funds in Malaysia.

Table 15: Summary Sample Statistics of Islamic Funds and Conventional Funds in Malaysia

Variable	IF	CV
Flow (%)	0.36	0.36
Return (%)	0.3	0.43
Size	227.66	209.03
Age	7.93	7.74
Management Fees (%)	1.56	1.54
Load Fees (%)	5.46	5.40
Trustee Fee (%)	0.07	0.06
Obs.	4368	3744

5.2.3 Empirical Results

5.2.3.1 Flows and Past Performance

Table 16 shows the estimation results of equation (16) for the Islamic funds in Panel A while it presents the empirical results for the conventional funds in Panel B. Our Panel Data Model aims to discover the relationship between money-flows and past performance for Islamic and conventional funds in Malaysia. The study also uses control variables of fund age, fund size, and fund fees for examining their effect over money-flows into Islamic and conventional funds.

In the case of positive average returns, the fund flows ($Fund\ Flow_t$) of Islamic funds increase 0.98% per month for a 1% rise in the semi-annual returns ($Average\ Return_{(t-1,t-6)}$). The corresponding fund flows increase by 0.75% for a 1% decrease in return, provided that the return is negative. On the other hand, conventional funds had money inflows of 0.56% per month for a 1% increase in the semi-annual returns, provided that the return is positive. In the case of negative performance, money-flow of conventional funds decrease by a modest 0.03% for a 1% decrease in return. Although empirical results show that semi-annual returns have a significant and positive relationship with money-flows, coefficients of seven months lagged semi-annual returns ($Average\ Return_{(t-7,t-12)}$) are positive but not statistically significant at 0.1 level for both Islamic and conventional funds

Even if the performance of funds is considered as the primary determinant to understand the direction of money-flows, the relationship between fund flow and non-performance control variables, such as asset size, fund age and fees offer valuable insights into the inner workings of the industry. Table 16 shows that there is a negative

relationship between fund age (Age_{t-1}) and money-flows at 0.1 significance level for Islamic funds while the relationship between fund age and money-flows is not statistically significant at 0.1 level for the conventional fund. If an Islamic fund gets one year older, money-flows into the fund decrease almost 0.1% per month.

As shown in Panel A of Table 16, the dummy variable for young funds interacting with fund age ($Age_{t-1} \times D Young_{t-1}$) is significant at the 0.1 level, and there is a negative relationship between the dummy variable for young funds interacting with fund age and fund flows with a significant level as identified by the coefficient of -0.00116. In other words, if a young Islamic fund gets one year older, money-flows into the fund falls almost 0.2% per month.

Other than fund age, fund size ($Size_{t-1}$) is another attribute that affects the fund flows of Islamic and conventional funds in Malaysia. We found that fund size and fund flows have a positive relationship at 0.01 significance level for both Islamic and conventional funds. The empirical results suggest that if a fund's size increases RM1 Million, an Islamic fund will attract 0.13% higher fund flows per month while a conventional fund will experience 0.14% higher inflows of fund per month.

A striking finding is that while increases in management fees to investors significantly reduce the money-flows, trustee and load do not significantly affect money-flows into both Islamic and conventional funds. While the fund flows of Islamic funds decrease 1.74%, fund flows of conventional funds decrease 1.82% for a 1% increase in the management fee.

Table 16: Fund Flows and Past Performance

		Panel A: IF		Panel B: CF	
Dependent Variable		$Fund\ Flow_t$		$Fund\ Flow_t$	
Past Performance	<i>Constant</i>	0.038**	1.73	0.025	1.34
	<i>Average Return</i> _(t-1,t-6)	0.987***	6.95	0.566***	7.00
	<i>Average Return</i> _(t-7,t-12)	0.045	0.36	0.035	0.69
	<i>D Negative</i> × <i>Average Return</i> _(t-1,t-6)	-1.744***	-7.28	-0.532***	-4.06
	<i>D Negative</i> × <i>Average Return</i> _(t-7,t-12)	0.145	0.72	-0.008	-0.08
Fund Characteristics	<i>Age</i> _{t-1}	-0.00097*	-1.76	0.000118	0.24
	<i>Age</i> _{t-1} × <i>D Young</i> _{t-1}	-0.00116*	-1.82	-0.000269	-0.69
	<i>Size</i> _{t-1}	0.000013***	3.69	0.000014***	2.99
	<i>Management Fee</i>	-1.744*	-1.82	-1.829*	-1.68
	<i>Trustee Fee</i>	3.09	0.20	10.645	0.78
	<i>Load Fee</i>	-0.201	-1.32	-0.135	-0.82
	R2-Within	0.014		0.016	
	R2-Between	0.175		0.124	
	R2-Overall	0.026		0.028	
	Sigma u	0.016		0.015	
	Sigma e	0.072		0.049	
	Rho	0.049		0.089	
	Theta	0.465		0.581	
	Hausmann	0.103		0.815	
	Breusch and Pagan LM	0.000		0.000	

Note: *, **, and *** denote the statistical significance at 0.1, 0.05 and 0.01 levels, respectively.

5.2.3.2 *Flows, Past Performance and Ramadhan Effect*

In this section, the study aims to examine whether Ramadhan days affects the money-flows to Islamic and conventional funds in Malaysia. The study uses Panel Data random effects model to estimate results of equation (17). The study uses past returns variables, Ramadhan variable as focus variable, control variables of fund age, fund size, and fund fees for examining their effect on money-flows into Islamic and conventional funds. Table 17 shows the empirical results of equation (17) for the Islamic funds in Panel A, whereas it presents the estimation results for the conventional funds in Panel B.

We firstly focus on the key variable of interest, Ramadhan variable, to investigate whether there is a Ramadhan month effect for Islamic and conventional funds in Malaysia. Panel B of Table 17 shows that conventional funds experience 0.007% fund outflow at 0.05 significance level during Ramadhan month. In other words, investors withdraw their capital from conventional months during Ramadhan month. On the other hand, insignificant coefficient of Ramadhan variable in Panel A of Table 17 shows that Ramadhan month does not affect money-flows of Islamic funds.

Table 17 documents that the relations between fund characteristics, past performance and the money-flows into and out of Islamic and conventional funds are in line with those presented in Table 16. Therefore, we will not elaborate and discuss signs, values and significance of those variables and their coefficients again.

Table 17: Ramadhan Effect, Money-Flows and Past Performance Relationship

Dependent Variable		Panel A: IF		Panel B: CF	
		$Fund\ Flow_t$		$Fund\ Flow_t$	
Past Performance	<i>Constant</i>	0.039**	2.13	0.026	1.38
	<i>Average Return</i> _(t-1,t-6)	0.987***	6.81	0.573***	7.08
	<i>Average Return</i> _(t-7,t-12)	0.013	0.11	0.031	0.62
	<i>D Negative</i> × <i>Average Return</i> _(t-1,t-6)	-1.763***	-7.07	-0.530***	-4.04
	<i>D Negative</i> × <i>Average Return</i> _(t-7,t-12)	0.185	0.92	-0.007	-0.12
Fund Characteristics	<i>Ramadhan</i>	-0.007	-1.38	-0.007**	-2.17
	<i>Age</i> _{t-1}	-0.00098*	-1.80	0.00010	0.21
	<i>Age</i> _{t-1} × <i>D Young</i> _{t-1}	-0.00116*	-1.82	-0.00027	-0.71
	<i>Size</i> _{t-1}	0.000013***	3.89	0.000014***	2.96
	<i>Management Fee</i>	-1.751*	-1.82	-1.829*	-1.68
	<i>Trustee Fee</i>	3.21	0.21	10.175	0.73
	<i>Load Fee</i>	-0.201	-1.31	-0.129	-0.78
	R2-Within	0.014		0.018	
	R2-Between	0.172		0.120	
	R2-Overall	0.026		0.029	
	Sigma u	0.016		0.015	
	Sigma e	0.071		0.049	
	Rho	0.049		0.090	
	Theta	0.466		0.584	
	Hausmann	0.21		0.89	
	Breusch and Pagan LM	0		0	

Note: *, **, and *** denote the statistical significance at 0.1, 0.05 and 0.01 levels, respectively.

5.2.3.3 Flows and Relative Past Performance

In this section, the study aims to explore whether relative past performance and money-flows relationship for Islamic and conventional funds in Malaysia. The study uses Panel Data and random effects model to estimate the results of equation (18). The study uses past returns variables with relative past performance dummy variables, namely dummy variables for top performers (*D Top*) and bottom performers (*D Bottom*) as focus variables, and control variables of fund age, fund size, and fund fees to investigate their effect on money-flows into Islamic and conventional funds. Table 18 shows the empirical results of equation (18) for the Islamic funds in Panel A, whereas it presents the estimation results for the conventional funds in Panel B.

In case of positive average returns, if an Islamic fund is ranked as one of the bottom performers among its peers, the fund can expect about 0.86% fewer flows per month than middle and top performers for 1% rise in the semi-annual returns. Bottom performers of conventional funds have 0.39% per month fewer money-flows than middle and top performers for a 1% increase in return, provided that the return is positive. In the case of positive average returns of both Islamic and conventional funds, top performers did not significantly attract more or less fund than middle performers.

In the case of negative average returns, top performers of Islamic funds attract 2.65% more fund flows per month than middle and bottom performers for 1% fall in the semi-annual returns while top performers of conventional funds had 1.49% more money inflows per month than middle and bottom performers. On the other hand, semi-annual returns of bottom performers do not influence movements of fund flows for both Islamic and conventional funds, given that average return of funds is negative.

The empirical results document that while semi-annual returns significantly influence money-flow of bottom, middle and top performers of Islamic and conventional funds, seven months lagged semi-annual returns do not affect money-flows of the bottom, middle and top performers of Islamic and conventional funds during their positive and negative performance. Additionally, the relationship between control variables and the fund flows of Islamic and conventional funds are in line with those presented in Panel A and Panel B of Table 16.



Table 18: Money-Flows and Past Relative Performance

Dependent Variable		Panel A: IF		Panel B: CF	
		$Fund\ Flow_t$		$Fund\ Flow_t$	
Past Performance	<i>Constant</i>	0.039*	2.17	0.025	1.45
	<i>Average Return</i> _(t-1,t-6)	1.057***	-6.30	0.661***	6.38
	<i>D Bottom</i> × <i>Average Return</i> _(t-1,t-6)	-0.867**	-2.02	-0.390**	-2.05
	<i>D Top</i> × <i>Average Return</i> _(t-1,t-6)	0.081	0.03	0.046	0.28
	<i>Average Return</i> _(t-7,t-12)	-0.115	-0.65	-0.043	-0.52
	<i>D Bottom</i> × <i>Average Return</i> _(t-7,t-12)	0.253	0.84	0.065	0.35
	<i>D Top</i> × <i>Average Return</i> _(t-7,t-12)	0.171	0.71	0.106	1.02
	<i>D Negative</i> × <i>Average Return</i> _(t-1,t-6)	-1.439***	-5.02	-0.576***	-3.35
	<i>D Bottom</i> × <i>D Negative</i> × <i>Average Return</i> _(t-1,t-6)	-0.383	-0.63	0.392	1.39
	<i>D Top</i> × <i>D Negative</i> × <i>Average Return</i> _(t-1,t-6)	-2.655***	-2.82	-1.491***	-2.57
	<i>D Negative</i> × <i>Average Return</i> _(t-7,t-12)	0.265	0.94	0.082	0.49
	<i>D Bottom</i> × <i>D Negative</i> × <i>Average Return</i> _(t-7,t-12)	-0.242	-0.58	-0.140	-0.49
	<i>D Top</i> × <i>D Negative</i> × <i>Average Return</i> _(t-7,t-12)	0.026	0.06	1.389***	3.07
Fund Characteristics	<i>Age</i> _{t-1}	-0.00106*	-1.93	0.00005	0.11
	<i>Age</i> _{t-1} × <i>D Young</i> _{t-1}	-0.00110*	-1.72	-0.00023	-0.59
	<i>Size</i> _{t-1}	0.000013***	3.61	0.000014***	3.15
	<i>Management Fee</i>	-1.849*	1.85	-1.905*	-1.77
	<i>Trustee Fee</i>	4.116	0.26	8.581	0.68
	<i>Load Fee</i>	-0.208	-1.38	-0.092	-0.60
	R2-Within	0.022		0.024	
	R2-Between	0.154		0.114	
	R2-Overall	0.032		0.033	
	Sigma u	0.016		0.014	
	Sigma e	0.071		0.048	
	Rho	0.048		0.079	
	Theta	0.459		0.559	
	Hausmann	0.004		0.99	
	Breusch and Pagan LM	0		0	

Note: This table presents the Panel Data, the random effects model estimates of the relation between money-flows and relative past performance, namely top and bottom performers (Equation (18)) for Islamic funds and Conventional funds in the Malaysia. *D Bottom* is a dummy variable that is equal to 1 if a fund is in bottom 20% among all funds in terms of performance, and 0 otherwise. *D Top* is a dummy variable that is equal to 1 if a fund is in the top 10% among all funds in terms of performance, and 0 otherwise. *, **, and *** denote the statistical significance at 0.1, 0.05 and 0.01 levels, respectively.

5.2.3.4 Robustness Tests

We discuss results from further robustness tests of the study. We conducted robustness tests by estimating Panel Data models using different estimators for fees and by regression of different estimation models for equation (16).

We use Panel Data estimation models with different estimators, namely pooled OLS, Between, fixed effects (FE), first differences and random effects (RE) to check the robustness of econometric models as shown in Appendix I and Appendix J.

According to Panel A of Appendix I and Appendix J, the empirical results of pooled OLS regression show that the impact of past returns and control variables on money-flows of Islamic and conventional funds in Malaysia is very similar to results of the random effects model shown in Panel E of Appendix I and Appendix J. This finding affirms robustness of our econometric model.

Panel B of Appendix I shows results of Panel Data estimation model with between estimators. Independent variables have same signs with similar values to results of the random effects model shown in Panel E of Appendix I. Panel B of Appendix J indicates that the value of adjusted R-squared Overall is almost 0 and the probability of F-test suggest that the overall coefficients of independent variables are not significant.

Fixed effects (FE) model allow observing individual-specific effect on the dependent variable with the assumption that each fund can have unobserved ability to affect its money-flows. Panel C of Appendix I and Appendix J documents that same variables are significant and have similar coefficients with the independent variables of

Panel E of Appendix I and Appendix J. However, we need to analyse the results of Breusch-Pagan Lagrange Multiplier test and Hausman test to decide which Panel Data model is more appropriate to use for regression. Panel E of Appendix I and Appendix J shows that Breusch-Pagan LM tests are both significant, and we should use the random effects (RE) model instead of pooled OLS model. Secondly, the results of Hausman test in Panel E of Appendix I and Appendix J are not significant, and it suggests again that we must use the RE model.

The first-difference estimator uses the one-period changes for each variable by using first-differenced variables, yet it has an important limitation of dropping the time-invariant variables from the regression. However, coefficients of time-variant variables have consistent results with FE and RE in terms of values and significance of results. Therefore, overall, the results are robust across different Static Panel Data Models.

In the second set of robustness test, we address the concern that using different fee variables at the same time may affect their coefficients and significance. Therefore, we used different estimators for fee ratios charged by fund managers as additional specification for the robustness test. We found that Panel C of Appendix K and Appendix L indicates that management fee is significant, and the value of the coefficient is similar to the results of Panel A of Appendix K and Appendix L. We also found that empirical results of Panel B and Panel D of Appendix K and Appendix L show that load fee and trustee fees are not significant. Thus, robustness check for fee estimators shows that our results are statistically and economically robust.

5.2.4 Discussion of Results

5.2.4.1 *Flows and Performance Relationship*

We find that the fund flows of both conventional and Islamic funds are more sensitive to past returns when funds had positive performance than when returns of funds are negative. In other words, the relationship between the fund flows and performance is weaker if Islamic and conventional funds had performed poorly in the past. This finding is consistent with studies of Bollen (2007) and Renneboog et al. (2011) that suggest an asymmetric money-flows and performance relation in the fund industry. More importantly, Islamic fund investors seem to care less about past returns than conventional investors. The studies of Bollen (2007), Benson & Humphrey (2008), and Marzuki & Worthington (2015) had consistent findings of weaker sensitivity for negative past performance of SRI and Islamic funds. We conclude that Shari'ah sensitive investors are more loyal compared to conventional investors. Moreover, investors of Islamic funds may derive additional non-financial utility from making an investment which is consistent with Islamic values and principles. Although our study documents that while semi-annual returns affect money-flows of Islamic and conventional funds, seven months lagged semi-annual returns do not affect money-flow of Islamic and conventional funds during their positive and negative performance.

Young Islamic funds attract more fund flows than old Islamic funds. Besides, we find a convex relationship between fund age and money-flow that fund age-flow relation is more sensitive for younger Islamic funds. The studies of Othman et al. (2018), Barber et al. (2014) and Sirri & Tufano (1998) also offer supportive findings to our empirical results. Young Islamic funds can be more innovative and put more marketing efforts than old funds to attract more money-flows. On the other hand, we found that fund age

explains a negligible amount of the variation in fund flows since the coefficient of fund age is not significant for conventional funds. Similarly, Baoling (2008) found that old and young funds are not significantly different in terms of fund flow-return relationship.

As shown in Table 16, empirical results document that money-flows and fund size have a positive relationship. This result is consistent with Rakowski & Wang (2009) Zeckhauser et al. (1991), and Fant & O'Neal (2000) who also documented significant and positive relation bet fund size and money-flows. Sirri & Tufano (1998) asserts that large funds can attract more media attention and more ability to advertise themselves, which leads to higher fund inflow.

While management fees have negative effect on flows of funds towards Islamic and conventional funds in Malaysia, load and trustee fees to investors do not affect money-flows. In other words, funds charging higher management fees have more money outflow, while funds which reduce management fee tends to be associated with higher fund growth. This result is consistent with findings of Sirri & Tufano (1998), Barber et al., 2005, Baoling (2008), and Marzuki & Worthington (2015). It is important to highlight that investors of Islamic funds pay less attention to fund fees than conventional investors, which implies that Shari'ah sensitive investors are willing to pay more for holding assets consistent with Islamic values and principles.

A striking finding is that that unlike money-flows of Islamic funds are less sensitive to fund size and management fees compared to conventional funds. It shows that investors in Islamic funds may derive utility from investing in Shari'ah compliant financial assets which are consistent with a set of Islamic values and principles.

5.2.4.2 Flows, Past Performance and Ramadhan Month Effect

During Ramadhan, the holy month of fasting, Muslims become more socially and spiritually oriented (McCullough & Willoughby, 2009; Sonjaya & Wahyudi, 2016). Moreover, the Holy month of Ramadhan is also a time for smart marketing for Islamic financial institutions to promote their products and services (Keenan & Yeni, 2003; Odabasi & Argan, 2009). Therefore, Ramadhan month might affect investor behaviour through increasing preference for investing into Shari'ah compliant products and services and encouraging Muslim investors to withdraw their investment from prohibited financial products and conventional Institutions (Alam et al., 2012; Barom, 2013; Khayruzzaman, 2016). In line with those studies, Panel B in Table 17 documents that conventional funds suffer from capital outflow during Ramadhan.

Although many Muslim investors are expected to move their investment from conventional to Islamic financial institutions during Ramadhan month, Panel A in Table 17 displays that Ramadhan month does not affect money-flows to Islamic funds significantly. However, it is essential to highlight that many Muslim investors require significant funds especially toward the end of Ramadan not only for paying their *Zakat*, *Infaq* and *Sadaqah* but also for buying clothes and banquet foods to celebrate *Hari Raya Aildul Fitri*. Therefore, it is plausible to observe that Ramadhan month do not cause any significant change for fund flow of Islamic funds because Muslim investors can shift their money from conventional to Islamic funds at the beginning of Ramadan month and withdraw them at the end of the month (Abadir & Spierdijk, 2005; Bialkowski et al., 2012; Al-Khazali et al., 2014).

5.2.4.3 *Flows and Relative Past Performance*

The studies of Barberis & Shleifer (2003) and Kempf & Ruenzi (2008) discuss that investors prefer to categorise assets into various classes and allocate their investment to these asset classes instead of individual securities. Moreover, Barom (2013) documents that 72.1% of Muslim investors prefer to invest in only Islamic funds as part of an investment strategy consistent with their Islamic beliefs, values and principals. Therefore, most investors of Islamic funds would consider their investment as a separate category of equity funds and evaluate the performance of Islamic funds relative to that of other Islamic funds in Malaysia.

We find that Islamic funds that rank highest within their respective market segment attract larger money inflows than poor performers. Similarly, top performers of conventional funds have larger capital inflows than bottom performers. The estimation results in Table 18 shows the non-linearity of the relationship between money-flows and performance of conventional and Islamic funds in Malaysia. Thus, it presents consistent findings with studies of Renneboog et al. (2008), Sirri & Tufano (1998), and Kempf & Ruenzi (2008). While investors pronounced penalty for poor relative performance, top-performing funds attracted had higher asset growth than the middle and bottom performer.

The most striking finding is that top and bottom performers of Islamic funds attract larger money-flows than their conventional counterparts. This result is consistent with our previous findings that investors of Islamic funds derive additional utility from investing in Shari'ah compliant financial assets. Moreover, investors of Islamic funds in Malaysia are more loyal compared to investors of conventional funds.

5.2.5 Summary of Findings and Hypotheses

We succinctly summarise the main findings based on empirical findings and discussions is shown in Table 19 below followed by the summary of the outcomes of our hypotheses in Table 20. Outcomes of the hypotheses in Table 20 are supported by findings with the statistical significance level in Table 19.



Table 19: Summary of Findings for the Relationship Between Fund Flows and Past Performance

	Panel A: IF		Panel B: CF	
Dependent variable	$Fund\ Flow_t$	Comparative Sensitivity	$Fund\ Flow_t$	Comparative Sensitivity
Past Performance	+***	More	+***	Less
Ramadhan	0	Less	—**	More
Top Performers	+**	More	+**	Less
Bottom Performers	+***	More	+***	Less
Age	—*	More	0	Less
Size	+***	Less	+***	More
Fee	—*	Less	—*	More

Notes: *, **, and *** denote the statistical significance at 0.1, 0.05 and 0.01 levels, respectively.

Table 20: Summary of Hypotheses for the Relationship Between Fund Flows and Past Performance

NO	Hypothesis	Hypothesis Supported
H2a.	The flow-return relation of Islamic funds is stronger than that of conventional funds for positive performers while it is weaker than that of conventional funds for negative performers.	YES/YES
H2b.	The Ramadhan month causes fund outflows from conventional mutual funds while it causes fund inflows into Islamic mutual funds.	YES/YES
H2c.	The fund flow-return relation of Islamic funds is weaker than that of conventional funds for bottom performers while it is stronger than that of conventional funds for top performers.	YES/YES
H2d.	Fund flows-fee relation of Islamic funds is negative and weaker than that conventional funds.	YES/YES
H2e.	Fund flows-size relation of Islamic funds is positive and weaker than that conventional funds.	YES/YES
H2f.	Young Islamic funds attract more fund flows than conventional funds.	YES

5.3 Analyst Recommendation Revisions and Anomalies

5.3.1 Introduction

In section 5.3, the study focuses on the third research objective of the thesis and examines whether the relation between analyst recommendation revisions and stock price reactions may vary for Shari'ah compliant and Shari'ah non-compliant stocks in Malaysia because non-financial utility derived by Shari'ah compliant investment may affect their decision-making processes. The study also investigates the impact of analyst recommendation revisions beyond and related to earnings announcements on prices of Shari'ah compliant stocks to understand whether analyst recommendations carry different financial value for Shari'ah compliant and Shari'ah non-compliant stocks or not.

5.3.2 Descriptive Statistics

The descriptive statistics in Table 6 presents analyst recommendation revisions, result and update reports. The table shows the total number of result and update reports for Added-to-Buy, Removed-from-Buy, Added-to-Sell and Removed-from-Sell List Changes between 1 May 2005 and 31 November 2016. While the number of Added-to-Buy List Changes are 320, the number of Removed-from-Buy List Changes are 348. On the other hand, the number of Added-to-Sell List Changes are 254, and Removed-from-Sell List Changes are 174. It is important to note that the number of favourable analyst recommendations is more than unfavourable recommendations. The ratio of buy to sell recommendations in this sample is about 2 to 1. Additionally, the number of result reports are almost three times more than update reports, and it shows that new financial results and earnings announcements about the listed companies affect analysts a lot to revise their recommendations to buy, hold or sell particular stocks.

Table 21: Descriptive Statistics of Analyst Recommendation Revisions, Shari'ah compliant and Shari'ah non-compliant Stocks

Sample Category	Sample Sub-Category	Number of Obs in	
		Final Sample	Date Range of Sample
Added-to-Buy List Changes	Total	320	Jun. 2005 - Aug. 2016
	Shari'ah compliant	293	Jun. 2005 - Aug. 2016
	Shari'ah non-compliant	27	Jun. 2005 - Aug. 2016
Removed-from-Buy List Changes	Total	348	May. 2005 - Nov. 2016
	Shari'ah compliant	316	May. 2005 - Nov. 2016
	Shari'ah non-compliant	32	May. 2005 - Nov. 2016
Added-to-Sell List Changes	Total	254	Sep. 2005 - Nov. 2016
	Shari'ah compliant	224	Sep. 2005 - Nov. 2016
	Shari'ah non-compliant	30	Jan. 2006 - Sep. 2016
Removed-from-Sell List Changes	Total	174	May. 2005 - Aug. 2016
	Shari'ah compliant	148	May. 2005 - Aug. 2016
	Shari'ah non-compliant	36	Feb. 2006 - Mar. 2016

Table 21 documents the number of Shari'ah compliant and the number of Shari'ah non-compliant listed securities in our sample that analysts revised their recommendations. The updated lists of Shari'ah compliant securities by Shari'ah Advisory Council of the Securities Commission Malaysia is used to categorise listed securities in Bursa Malaysia based on their Shari'ah compliance status. While analysts revised their 981 recommendations for Shari'ah compliant listed securities between 1 May 2005 and 31 November 2016, the number of recommendation revisions for Shari'ah non-compliant stocks are only 115. In other words, analyst recommendation revisions for Shari'ah non-compliant stocks composed of 10.5% among all recommendation revisions. The sample statistics shows that analysts are less likely to upgrade Shari'ah non-compliant stocks to "buy". Moreover, analysts are more likely to downgrade Shari'ah non-compliant stocks from "buy" to "hold". It is also important to note that analysts tend to downgrade Shari'ah non-compliant stocks from "hold" to "sell". Although the number of analyst recommendations which are upgraded from "sell" to "buy" is the lowest, Shari'ah non-compliant stocks have a higher tendency to upgrade than Shari'ah compliant stocks.

Table 22: Descriptive Statistics of Cumulative Average Abnormal Returns (CAARs) for Stocks Added-to-Buy, Removed-from-Buy, Added-to-Sell, and Removed-from-Sell, Consolidated (2000-2015)

	Pre-Announcement	Short-Term			Long-Term		
	(-5, -1)	(0, +1)	(0, +2)	(0, +5)	(0, +10)	(0, +20)	(0, +60)
Added-to-Buy							
Mean	0.0020	0.0150	0.0163	0.0165	0.0176	0.0160	0.0379
Median	0.0015	0.0089	0.0077	0.0034	0.0076	0.0177	0.0518
S.D.	0.0723	0.0515	0.0585	0.0791	0.0943	0.1197	0.2872
Minimum	-0.2459	-0.0915	-0.1173	-0.1772	-0.2620	-0.2884	-0.8125
Maximum	0.2747	0.1911	0.22072	0.3316	0.3308	0.4142	1.4482
Sum	0.3756	2.7754	3.03128	3.0583	3.2597	2.9646	7.0228
Count	320	320	320	320	320	320	320
Added-to-Sell							
Mean	-0.0150	-0.0216	-0.0266	-0.0382	-0.0353	-0.0455	-0.1141
Median	-0.0118	-0.0109	-0.0169	-0.0281	-0.0327	-0.0361	-0.0747
S.D.	0.0754	0.0541	0.0572	0.0849	0.1081	0.1849	0.3950
Minimum	-0.2499	-0.2242	-0.2469	-0.4618	-0.4073	-0.9638	-1.7084
Maximum	0.2954	0.1424	0.1548	0.2803	0.3181	0.6321	1.4450
Sum	-1.9082	-2.7499	-3.3807	-4.8611	-4.4884	-5.7876	-14.497
Count	254	254	254	254	254	254	254
Removed-from-Buy							
Mean	-0.0076	-0.0118	-0.0161	-0.0255	-0.0248	-0.0361	-0.0838
Median	-0.0107	-0.0056	-0.0105	-0.0135	-0.0147	-0.0247	-0.0620
S.D.	0.0712	0.0470	0.0516	0.0766	0.1049	0.1515	0.3070
Minimum	-0.2574	-0.2715	-0.1881	-0.3039	-0.3608	-0.6404	-0.9720
Maximum	0.5199	0.1989	0.2103	0.3146	0.3028	0.6006	0.7335
Sum	-1.4537	-2.2494	-3.0627	-4.8614	-4.7142	-6.8648	-15.937
Count	348	348	348	348	348	348	348
Removed-from-Sell							
Mean	0.0022	0.0021	-0.0020	0.0026	0.0113	0.0235	0.0057
Median	-0.0005	-0.0018	-0.0022	-0.0054	0.0018	0.0216	0.0117
S.D.	0.0533	0.0475	0.0508	0.0829	0.1018	0.1524	0.2966
Minimum	-0.0916	-0.1344	-0.1389	-0.1846	-0.1998	-0.3641	-0.7216
Maximum	0.1948	0.2089	0.2369	0.3720	0.3864	0.5318	1.1037
Sum	0.1725	0.1646	-0.1527	0.2003	0.8635	1.7872	0.4353
Count	174	174	174	174	174	174	174

Table 22 shows the mean, minimum, maximum, and standard deviation of cumulative average abnormal returns of stocks after analysts' recommendation revisions, namely Added-to-Buy, Removed-from-Buy, Added-to-Sell, and Removed-from-Sell added in pre-announcement period of (-5, -1) and in post-announcement periods of (0, +1), (0, +2), (0, +5), (0, +10), (0, +20), and (0, +60).

While deleted and added Non-IPO stocks have a low standard deviation, added IPO stocks have a high standard deviation. Moreover, the mean of the CAARs of Added-to-Buy, Removed-from-Buy, Added-to-Sell, and Removed-from-Sell list changes are in the direction predicted by the analysts. The results also show there are no discernable differences in the other statistics between the different categories of analysts' recommendation revisions.

5.3.3 Empirical Results

5.3.3.1 Analyst Recommendation Revisions and Abnormal Return

The first empirical test examines stock price reactions following recommendation revisions over various horizons. We use the results from our market model, which is mentioned in section 4.1.3 to investigate stock price reactions for four categories of analysts' recommendation revisions in short-term and long-term.

Table 23 shows the empirical results of the cumulative average abnormal return (CAAR) of each of four categories of analyst recommendation revisions namely Added-to-Buy, Removed-from-Buy, Added-to-Sell and Removed-from-Sell List Changes by using the market model based on OLS model and 14 event windows.

The empirical result on the announcement day (0, 0) exhibits that the CAARs of stocks removed-from-buy and stocks added-to-sell are -0.53% and -1.35% respectively. In the short term event window of five trading days (0, +5), the CAARs of stocks removed-from-buy and stocks added-to-sell are -1.8% and -3.74% at 0.01 significance level. On the other hand, the CAARs of stocks added-to-buy increased to 0.73% and 1.85% at 0.01 significance level in the event windows of (0, 0) and (0, +5).

Table 23 documents that the CAARs of stocks removed-from-buy and added-to-sell are -3.51% and -3.90% at 0.01 significance level in one-month (0, +20) event window while the CAARs of both categories of stocks respectively decreased to -7.13% and -5.71% at 0.01 significance level in three-month (0, +60) event window. On the other hand, stocks added-to-buy increased to 2.23% and 5.81% at 0.01 significance level in

one-month (0, +20) and three-month (0, +60) event windows. However, the empirical results suggest stocks removed-from-sell are not significant at 0.10 significant level in the short term and the long term.

The study used the Scholes/Williams to estimate cumulative abnormal returns from non-synchronous trading of securities based on the study of (Scholes and Williams, 1977). Appendix U suggests that results are robust for stocks added-to-sell, removed-from-buy, and removed-from-sell, yet the CAARs of stock added-to-buy are not significant in the short term and the long term.

Table 23: Cumulative Average Abnormal Returns (CAAR) following Analyst Recommendation Revisions, Consolidated (2005-2016)

		Added-to-Buy			Removed-from-Buy			Added-to-Sell			Removed-from-Sell		
		CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic
AD	(0, 0)	0.0073***	193 : 127	3.9897	-0.0053***	171 : 178	-3.332	-0.0135***	114 : 139	-4.0654	-0.0025	95 : 79	-0.095
	(0, +1)	0.0131***	194 : 126	5.0449	-0.0083***	161 : 188	-3.6765	-0.0198***	103 : 150	-4.2308	-0.0006	101 : 73	-0.015
Short-Term	(0, +2)	0.0137***	190 : 130	4.2843	-0.012***	137 : 212	-4.3303	-0.0243***	98 : 155	-4.2403	-0.0143	89 : 85	-0.3147
	(0, +3)	0.0157***	182 : 138	4.2616	-0.0153***	136 : 213	-4.7787	-0.0295***	95 : 158	-4.4569	0.0224	99 : 75	0.426
	(0, +4)	0.0157***	182 : 138	3.8169	-0.017***	137 : 212	-4.7529	-0.0351***	100 : 153	-4.7419	0.0714	94 : 80	1.2167
	(0, +5)	0.0185***	179 : 141	4.0913	-0.0178***	145 : 204	-4.5334	-0.0374***	93 : 160	-4.6077	0.0728	96 : 78	1.132
	(0, +10)	0.0204***	178 : 142	3.3335	-0.021***	152 : 197	-3.9556	-0.0362***	91 : 162	-3.2981	0.0194	92 : 82	0.2226
Long-Term	(0, +20)	0.0223***	185 : 135	2.6375	-0.0351***	144 : 205	-4.7816	-0.039***	100 : 153	-2.5706	-0.0604	95 : 79	-0.5021
	(0, +40)	0.0445***	183 : 137	3.7736	-0.0496***	146 : 203	-4.8458	-0.0667***	97 : 156	-3.1475	0.073	90 : 84	0.434
	(0, +60)	0.0581***	188 : 132	4.0381	-0.0713***	137 : 212	-5.709	-0.0678***	87 : 166	-2.6236	0.1775	92 : 82	0.8658

Notes: p:n denotes the number of positive and negative cumulative averaged abnormal return (CAAR) for stocks respectively while *, **, and *** denote the statistical significance at 0.1, 0.05 and 0.01 levels, respectively.

5.3.3.2 Analyst Recommendation Revisions, Abnormal Return and Shari'ah Compliant Stocks

The study aims to examine price reactions for Shari'ah compliant and Shari'ah non-compliant stocks following recommendation revisions over various horizons. We use a multiple regression model with dummy variables with equation (14) in Section 4.3.2.1.

Table 24 shows the results of univariate regression of equation (14) the coefficients of both $D RB_j$ and $D AS_j$ are negative in short-term and significant at 0.01 significance level. While the coefficients of $D RB_j$ are -0.67% and -2.14% for respectively announcement day and five trading days period, the coefficients of $D AS_j$ are -1.31% and -4.13% for respectively same time horizons. However, the coefficients of $D AB_j$ are 0.70% and 1.57%, and significant at 0.01 level for respectively announcement day and five-trading days periods. In the long term, the coefficients of $D RB_j$ and $D AS_j$ are -3.56% and -4.16% at 0.01 significant level for one-month period while their coefficients are -10.52% and -8.64% for three-months period. On the other hand, the coefficients of $D AB_j$ are 1.70% and 3.93% at 0.01 significance level for respectively one-month and three-months periods.

The coefficients of $D RS_j$ are 1.65% and 2.96% at 0.10 significance level for ten trading days and one-month periods while coefficients of $D RS_j \times D \text{Shari'ah noncompliant}_j$ are -4.47% and -6.58% at 0.10 significance for the same period. The empirical results document that analyst recommendation revisions has significantly different effect for Shari'ah non-compliant stocks removed-from-sell are significantly and their Shari'ah compliant counterparts.

The interaction variables of $DAB_j \times D\text{Shari'ah noncompliant}_j$, $Das_j \times D\text{Shari'ah noncompliant}_j$ and $DRB_j \times D\text{Shari'ah noncompliant}_j$ are not statistically significant in the short term and the long term. In other words, the effect of analysts' recommendation revisions for Shari'ah compliant and Shari'ah non-compliant stocks are not significantly different.

The study used a multiple linear regression model to estimate cumulative abnormal returns for four categories of stocks and Shari'ah compliant stocks. The empirical results in Table 23 and Table 24 show that both results are quite similar in magnitude and significance of the coefficients. Therefore, our findings are robust in terms of econometric model robustness and control variable robustness check.

Table 24: Individual Cumulative Abnormal Returns (CAR) for Stocks After Analyst Recommendation Revisions for Shari'ah Compliant and Non-compliant Stocks, Consolidated (2005-2016)

	AD	Short Term					Long Term			
	CAR _{j,0,0}	CAR _{j,0,1}	CAR _{j,0,2}	CAR _{j,0,3}	CAR _{j,0,4}	CAR _{j,0,5}	CAR _{j,0,10}	CAR _{j,0,20}	CAR _{j,0,40}	CAR _{j,0,60}
D AB _j	0.0070**	0.0123***	0.0131***	0.0147***	0.0137***	0.0157***	0.0156**	0.0170*	0.0282*	0.0393*
D AS _j	-0.0131***	-0.0195***	-0.0279***	-0.0344***	-0.0390***	-0.0413***	-0.0397***	-0.0416***	-0.0845***	-0.1052***
D RB _j	-0.0067**	-0.0096***	-0.0145***	-0.0182***	-0.0199***	-0.0214***	-0.0252***	-0.0356***	-0.0575***	-0.0864***
D RS _j	-0.0029	-0.0050	-0.0018	0.0039	0.0047	0.0117	0.0165*	0.0296*	0.0336	0.0406
D AB _j × D Shari'ah noncompliant _j	0.0042	0.0046	0.0025	0.0054	0.0043	0.0126	0.0072	0.0036	-0.0204	-0.0332
D AS _j × D Shari'ah noncompliant _j	-0.0027	-0.0033	0.0041	0.0006	0.0005	-0.0053	0.0009	-0.0221	-0.0064	-0.0248
D RB _j × D Shari'ah noncompliant _j	0.0145*	0.0144	0.0142	0.0155	0.0121	0.0069	0.0036	-0.0120	0.0080	0.0149
D RS _j × D Shari'ah noncompliant _j	0.0027	0.0059	0.0302	0.0124	-0.0167	-0.0381	-0.0447*	-0.0658*	-0.1341*	-0.1684*
Obs	1096	1096	1096	1096	1096	1096	1096	1096	1096	1096
Adjusted R-square	0.029	0.041	0.062	0.076	0.070	0.077	0.056	0.042	0.039	0.043

Notes: The regression model uses individual cumulative abnormal returns as a dependent variable and using four dummy variables for different categories of analyst recommendation revisions namely Added-to-Buy denoted as D AB_j, Removed-from-Buy denoted as D RB_j, Added-to-Sell denoted as D AS_j and Removed-from-Sell denoted as D RS_j List Changes and using interaction dummy variable of Shari'ah non-compliant stocks denoted as D Shari'ah noncompliant_j with the aforementioned four variables to investigate the impact of eight categories analyst recommendation revisions as independent variable over the stock price reactions in ten different event windows.

5.3.3.3 *Analyst Recommendation Revisions, Abnormal Return and Earnings Announcements*

Our third empirical analysis focuses on price shocks following recommendation revisions issued contemporaneously with earnings announcements and without earnings announcements over various horizons. The empirical analysis examines abnormal returns of two sub-categories namely “with earnings announcements” and “without earnings announcements” for each of four categories of analysts’ recommendation changes namely Added-to-Buy, Removed-from-Buy, Added-to-Sell and Removed-from-Sell List Changes. We use the results from our market model, which is mentioned in section 5.5.3 to investigate stock price reactions to calculate cumulative averaged abnormal returns for eight types of events.

Table 25 presents regression results of cumulative abnormal returns following analysts’ recommendation revisions related to and beyond firms’ earnings announcements. Following recommendation revisions issued contemporaneously with earnings announcements, both stocks removed-from-buy and added-to-sell had abnormal loss significantly in the short term and the long term while the CAARs of stocks added-to-buy are statistically significant and positive in the short term and the long term. More specifically, the CAARs of stocks removed-from-buy are -0.54% and -1.63% at 0.01 significance level on the announcement day (0, 0) and five-day event-window (0, +5) while CAARs of stocks added-to-sell are -1.42% and -3.51%, respectively, at 0.01 significance level in the same event windows. On the other hand, the CAARs of stocks added-to-buy increased to 0.73% and 1.85% at 0.01 significance level on the announcement day (0, 0) and five-day event-window (0, +5). In the long term, the CAARs of stocks removed-from-buy and added-to-sell continue to decrease after

recommendation revisions with earnings announcements. More specifically, the CAARs of stocks removed-from-buy and added-to-sell are -3.46% and -3.17% at 0.01 significance level in one-month event-window (0, +20) while the CAARs of both categories of stocks respectively reduced to -5.80% and -6.46% at 0.01 significance level in one-month event-window (0, +20). While the CAAR of stocks added-to-buy is to 1.36% and not significant at 0.1 level in one-month event-window (0, +20), its CAAR rose to 5.05% at 0.01 significance level in three-month event-window (0, +60).

The results on Table 25 demonstrate that following recommendation revisions beyond earnings announcements, the CAARs of stocks removed-from-buy and added-to-sell are significant and negative, whereas the CAARs of stocks added-to-buy are significant and positive in the short term and the long term. On the announcement day, the CAAR of stocks removed-from-buy is -0.49% at 0.1 significance level while the CAAR of stocks added-to-sell is -0.09 but not significant. In five-day event window (0, +5), the CAARs of stocks removed-from-buy and added-to-sell are -3.08% and -5.25% respectively at 0.01 significance level. On the other hand, the CAARs of stocks added-to-buy increased to 0.34% but not significant at 0.1 level on the announcement day while it is 2.43% at 0.01 significance level in five-day event window (0, +5). In one-month event window (0, +20), the CAARs of stocks removed-from-buy and added-to-sell are -3.87% and -8.62% at 0.01 significance level. In the three-month event window (0, +60), the CAARs of both categories of stocks respectively fell to -12.61% and -18.51% at 0.01 significance level. On the other hand, stocks added-to-buy rose to 4% and 7.37% at 0.01 significance level in respectively one-month event window (0, +20) and three-month event window (0, +60).

The study employed the Scholes/Williams to estimate cumulative abnormal returns from non-synchronous trading of securities based on the study of (Scholes and Williams, 1977). Appendix V documents that results are robust for stocks added-to-buy without earnings announcements, added-to-sell with/without earnings announcements, removed-from-buy with/without earnings announcements, and removed-from-sell with/without earnings announcements, yet the CAARs of stock added-to-buy with earnings announcements are not significant in short-term and long-term.



Table 25: Cumulative Average Abnormal Return (CAAR) for Stocks After Analyst Recommendation Revisions Related to Earnings Announcements and Beyond Earnings Announcements, Consolidated (2005-2016)

		Added-to-Buy With Earnings Announcement			Added-to-Buy Without Earnings Announcement			Removed-from-Buy With Earnings Announcement			Removed-from-Buy Without Earnings Announcement		
		CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic
Short-Term	AD (0, 0)	0.0091***	136 : 86	3.9701	0.0034	57 : 41	1.1266	-0.0054***	138 : 142	-2.9331	-0.0049*	33 : 35	-1.6096
	(0, 1)	0.0121***	129 : 93	3.7445	0.0153***	65 : 33	3.5399	-0.008***	130 : 150	-3.0724	-0.0092**	31 : 37	-2.1377
	(0, 2)	0.0116***	132 : 90	2.9149	0.0181***	58 : 40	3.4264	-0.0116***	112 : 168	-3.6289	-0.0133**	25 : 43	-2.5194
	(0, 3)	0.0133***	127 : 95	2.908	0.0208***	55 : 43	3.4	-0.0138***	114 : 166	-3.7181	-0.021***	22 : 46	-3.4459
	(0, 4)	0.0132***	126 : 96	2.5705	0.0212***	56 : 42	3.1039	-0.0159***	118 : 162	-3.8371	-0.0212***	19 : 49	-3.1026
	(0, 5)	0.0157***	122 : 100	2.8016	0.0243***	57 : 41	3.2538	-0.0163***	120 : 160	-3.6052	-0.0231***	25 : 43	-3.0852
Long-Term	(0, 10)	0.017**	125 : 97	2.2371	0.0275***	53 : 45	2.7135	-0.0208***	123 : 157	-3.3851	-0.0231**	28 : 40	-2.2793
	(0, 20)	0.0136	125 : 97	1.2987	0.04***	60 : 38	2.8621	-0.0346***	118 : 162	-4.083	-0.0387***	25 : 43	-2.7675
	(0, 40)	0.0367**	123 : 99	2.506	0.0603***	60 : 38	3.0857	-0.0374***	121 : 159	-3.1584	-0.0992***	24 : 44	-5.0743
	(0, 60)	0.0505***	125 : 97	2.8274	0.0737***	63 : 35	3.0897	-0.058***	116 : 164	-4.0145	-0.1261***	20 : 48	-5.2889
		Added-to-Sell With Earnings Announcement			Added-to-Sell Without Earnings Announcement			Removed-from-Sell With Earnings Announcement			Removed-from-Sell Without Earnings Announcement		
		CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic			
Short-Term	AD (0, 0)	-0.0142***	92 : 112	-4.4424	-0.0096	25 : 25	-1.1341	-0.0033	74 : 60	-0.0964	0	21 : 19	-0.0027
	(0, 1)	-0.0211***	83 : 121	-4.6455	-0.014	20 : 30	-1.1638	-0.0063	77 : 57	-0.1306	0.0165**	24 : 16	2.1285
	(0, 2)	-0.0235***	83 : 121	-4.2312	-0.027*	13 : 37	-1.8391	-0.0245	66 : 68	-0.4159	0.0153*	23 : 17	1.6187
	(0, 3)	-0.0259***	75 : 129	-4.0409	-0.0434***	13 : 37	-2.5579	0.0193	72 : 62	0.2833	0.0317***	27 : 13	2.8956
	(0, 4)	-0.0318***	76 : 128	-4.4294	-0.0507***	14 : 36	-2.6722	0.0861	76 : 58	1.1301	0.0291**	18 : 22	2.3812
	(0, 5)	-0.0351***	75 : 129	-4.4735	-0.0525***	15 : 35	-2.5246	0.0886	75 : 59	1.0619	0.027**	21 : 19	2.0136
Long-Term	(0, 10)	-0.0338***	68 : 136	-3.181	-0.0555**	19 : 31	-1.9711	0.0238	70 : 64	0.2106	0.0077	10 : 18	0.4238
	(0, 20)	-0.0317***	79 : 125	-2.157	-0.0862**	20 : 30	-2.2162	-0.0862	72 : 62	-0.5525	0.0164	11 : 17	0.6542
	(0, 40)	-0.0571***	75 : 129	-2.7816	-0.1643***	16 : 34	-3.0227	0.092	69 : 65	0.422	0.0291	9 : 19	0.8302
	(0, 60)	-0.0646***	75 : 129	-2.5802	-0.1851***	18 : 32	-2.7912	0.2321	71 : 63	0.8726	0.0234	9 : 19	0.5478

Notes: p:n denotes the number of positive and negative Averaged Abnormal Return (AAR) for stocks respectively while *, **, and *** denote the statistical significance at 0.1, 0.05 and 0.01 levels, respectively

5.3.3.4 Analyst Recommendation Revisions, Abnormal Return, Earnings Announcements and Shari'ah Compliant Stocks

The study conducts empirical tests to examine price reactions for Shari'ah compliant and Shari'ah non-compliant stocks following recommendation revisions related to earnings announcements and beyond earnings announcements. We use the univariate regression model for equation (15) in Section 4.3.2.2

According to empirical results of Table 26, the coefficients of both $D RBe_j$ and $D ASe_j$ are negative in the short term and significant at respectively 0.05 and 0.01 significance level. The empirical results exhibit that while the cumulative abnormal return (CAR) of a stock removed-from-buy is estimated to be -0.73% and -2.21% during the announcement (0, 0) and five trading days period (0, +5), the CARs of a stock added-to-sell is -1.28% and -3.98% for respectively same periods following analyst recommendation revisions issued related to earnings news. However, we estimate that the CARs of a stock added-to-buy is 0.90% and 1.50%, and significant at 0.01 level during the announcement (0, 0) and five trading days period (0, +5) while the CAR of a stock removed-from-sell is not significant at 0.1 level for the same periods. In the long term, the CARs of a stock removed-from-buy and added-to-sell are respectively -3.67% and -3.56% at 0.01 significant level in one-month event window (0, +20) while their coefficients are -10.82% and -7.90% in three-month event window (0, +60). On the other hand, the CARs of a stock added-to-buy and added-to-sell are not significant at 0.1 level in one-month (0, +20) and three-month event window (0, +60).

Table 26 shows that whereas the cumulative abnormal return (CAR) of a stock removed-from-buy is not different from 0 at 0.1 significance level on the announcement day, its CAR is estimated to be -1.89% at 0.1 significance level in five-day event window (0, +5). While the CAR of a stock added-to-sell is -1.32% at 0.1 significance level on the event day, our model estimates its CAR as -5.29% at 0.01 significance level in five-day event window (0, +5). On the other hand, the CARs of a stock added-to-buy and removed-from-sell are not significant on the announcement day while the CARs of a stock added-to-buy and removed-from-sell are respectively 1.72% and 5.67 at 0.5 significance level in five-day event window (0, +5). In one-month event window (0, +20), the CAR of a stock added-to-sell is -5.78% at 0.01 significant level while the CAR of a stock removed-from-buy is not significant. In three-month event window (0, +60), the CAR of a stock removed-from-buy is -11.33% at 0.05 significant level while the CAR of a stock added-to-sell is not significant. On the other hand, the CARs of stocks added-to-buy are not significant at 0.1 level in one-month (0, +20) and three-month event window (0, +60).

Turning to the key variable of interest, $D\text{ Shari'ah noncompliant}_j$, the findings in Table 26 indicate that the interaction variables of $D\text{ ABe}_j \times D\text{ Shari'ah noncompliant}_j$, $D\text{ ABwe}_j \times D\text{ Shari'ah noncompliant}_j$, $D\text{ ASe}_j \times D\text{ Shari'ah noncompliant}_j$, $D\text{ ASwe}_j \times D\text{ Shari'ah noncompliant}_j$, $D\text{ RBe}_j \times D\text{ Shari'ah noncompliant}_j$, $D\text{ RBwe}_j \times D\text{ Shari'ah noncompliant}_j$, $D\text{ RSe}_j \times D\text{ Shari'ah noncompliant}_j$ are not significant in 0.1 level. However, the interaction variables of $D\text{ AB}_j \times D\text{ Shari'ah noncompliant}_j$, $D\text{ AS}_j \times D\text{ Shari'ah noncompliant}_j$ and $D\text{ RB}_j \times D\text{ Shari'ah noncompliant}_j$ are not significant at 0.10 level in short-term and long-term.

The empirical findings regarding the insignificance of Shari'ah compliant status of listed securities to determine price reactions for upgraded and downgraded stocks in section 5.3.3.4 are consistent with findings in section 5.3.3.2. To add credence to our results in section 5.3.3.2, results in section 5.3.3.4 shows our results robust by using different control variables and applying different model specifications.



Table 26: Individual Cumulative Abnormal Returns (CAR) for Shari'ah Compliant and Non-compliant Stocks After Analyst Recommendation Revisions Related to Earnings Announcements and Beyond Earnings Announcements, Consolidated (2005-2016)

	AD	Short Term					Long Term			
	CAR _{j,0,0}	CAR _{j,0,1}	CAR _{j,0,2}	CAR _{j,0,3}	CAR _{j,0,4}	CAR _{j,0,5}	CAR _{j,0,10}	CAR _{j,0,20}	CAR _{j,0,40}	CAR _{j,0,60}
D ABe _j	0.0090***	0.0114***	0.0119*	0.0138***	0.0120**	0.0150**	0.0161**	0.0123	0.0280	0.0318
D ABwe _j	0.0022	0.0143**	0.0158**	0.0166**	0.0176**	0.0172**	0.0146	0.0266	0.0287	0.0560
D ASe _j	-0.0128***	-0.0200***	-0.0256***	-0.0292***	-0.0362***	-0.0398***	-0.0374***	-0.0356***	-0.0859***	-0.1082***
D ASwe _j	-0.0132*	-0.0169*	-0.0367***	-0.0537***	-0.0514***	-0.0529***	-0.0525***	-0.0578**	-0.0809	-0.0712
D RBe _j	-0.0073**	-0.0096**	-0.0147***	-0.0174***	-0.0198***	-0.0221***	-0.0280***	-0.0367***	-0.0485**	-0.0790***
D RBwe _j	-0.0044	-0.0093	-0.0136*	-0.0212**	-0.0205**	-0.0189*	-0.0154	-0.0318	-0.0891**	-0.1133**
D RSe _j	-0.0041	-0.0133**	-0.0109*	-0.0091	-0.0088	-0.0032	0.0075	0.0202	0.0046	0.0123
D RSwe _j	0.0012	0.0213*	0.0244**	0.0413***	0.0445***	0.0567***	0.0412*	0.0547*	0.1110*	0.1218
D ABe _j × D Shari'ah noncompliant _j	0.0004	-0.0005	-0.0133	-0.0112	0.0005	0.0041	-0.0113	-0.0051	0.0352	0.0338
D ABwe _j × D Shari'ah noncompliant _j	0.0116	0.0120	0.0264	0.0308	0.0094	0.0261	0.0307	0.0095	-0.0764	-0.1096
D ASe _j × D Shari'ah noncompliant _j	-0.0098	-0.0101	-0.0070	-0.0090	-0.0044	-0.0091	-0.0205	-0.0499	-0.0218	-0.0498
D ASwe _j × D Shari'ah noncompliant _j	0.0287	0.0269	0.0508*	0.0489*	0.0326	0.0237	0.0752*	0.0712	0.0246	0.0269
D RBe _j × D Shari'ah noncompliant _j	0.0225**	0.0214	0.0251	0.0269	0.0244	0.0240	0.0225	-0.0053	0.0382	0.0652
D RBwe _j × D Shari'ah noncompliant _j	-0.0035	0.0010	-0.0052	-0.0031	-0.0087	-0.0251	-0.0401	-0.0445	-0.0513	-0.1787
D RSe _j × D Shari'ah noncompliant _j	0.0060	0.0210	0.0616***	0.0339*	-0.0055	-0.0136	-0.0240	-0.0712	-0.1373	-0.2167*
D RSwe _j × D Shari'ah noncompliant _j	-0.0055	-0.0339	-0.0405*	-0.0406	-0.0523*	-0.0995***	-0.0869***	-0.0656	-0.1577	-0.1222
Obs	1096	1096	1096	1096	1096	1096	1096	1096	1096	1096
Adjusted R-square	0.035	0.053	0.062	0.101	0.089	0.098	0.071	0.050	0.048	0.053

Notes: The regression model uses individual cumulative abnormal returns as a dependent variable and using eight dummy variables for different categories of analyst recommendation revisions namely Added-to-Buy with earnings announcements denoted as D ABe_j, Added-to-Buy without earnings announcements denoted as D ABwe_j, Removed-from-Buy with earnings announcements denoted as D RBe_j, Removed-from-Buy without earnings announcements denoted as D RBwe_j, Added-to-Sell with earnings announcements denoted as D ASe_j, Added-to-Sell without earnings announcements denoted as D ASwe_j, Removed-from-Sell with earnings announcement denoted as D RSe_j, and Removed-from-Sell without earnings announcement denoted as D RSwe_j. List Changes and using interaction dummy variable of Shari'ah non-compliant stocks denoted as D Shari'ah noncompliant_j with the aforementioned eight variables to investigate the impact of sixteen (16) categories analyst recommendation revisions over the stock price reactions in ten different event windows to measure cumulative abnormal returns in short-term and long-term. D Shari'ah noncompliant_j is a dummy variable that is equal to 1 if a stock is Shari'ah non-compliant during analysts' recommendation revision.

5.3.4 Discussion of Results

5.3.4.1 *Analyst Recommendation Revisions and Abnormal Return*

Both stocks removed-from-buy and added-to-sell had abnormal loss significantly in the short-term and long term during post-recommendation revisions while the CAARs of stocks added-to-buy are significant and positive in short-term and long-term. These findings have an important implication that analysts' recommendation revision announcements are not information-free on average and our results are consistent with many previous studies such as Elton et al. (1986), Womack (1996) and Chang & Chan (2008). According to Grossman (1976, 1995) and Grossman & Stiglitz (1980), information is rarely perfect, and thus, economic agents can improve information efficiency through making profit from costly information discovery and reflecting their information into security prices. Along the same line, immediate reactions to analysts' recommendation revisions are direct evidence to support the expanded definition of market efficiency of Grossman and Stiglitz (1980).

In the long term, the cumulative average abnormal return of stocks removed-from-buy and added-to-sell have continued to fall, whereas the cumulative average abnormal return of stocks added-to-buy increased gradually. The empirical results show that analysts' recommendation revisions predict future long-term returns in the same direction as the change (i.e., upgrades of analysts' recommendations are followed by positive abnormal returns while their downgrades are followed by negative abnormal returns). Many researchers call this phenomenon as post-revision return drift (PRD). Our empirical findings support the hypothesis that PRD persists since investors often

underreact to analysts' recommendation revisions. In other words, the reaction of investors to recommendation changes is slow and takes several months.

Although we find analysts' recommendation revisions carry value for stocks removed-from-buy, added-to-sell and added to buy, our empirical results suggest that prices of stocks removed-from-sell did not react to analysts' recommendation revisions in short-term and the long-term. However, this result is also consistent with the finding of Womack (1996), and it shows that investors underreact to the recent good news about stocks that analysts recommended to sell previously. It is another potential explanation that investors still do not have a positive sentiment about stocks which are recently upgraded from sell to hold rate by analysts.

5.3.4.2 Analyst Recommendation Revisions, Abnormal Return and Shari'ah Compliant Stocks

Table 24 documents that analysts' recommendation revisions affect Shari'ah non-compliant and Shari'ah compliant stocks removed-from-sell differently. If an analyst upgrades rate of a Shari'ah compliant stock from 'sell' to 'hold', it is estimated to have a positive cumulative abnormal return in long-term. On the other hand, the cumulative abnormal return of a Shari'ah non-compliant removed-from-sell stock is estimated to be negative. Although the impact of analysts' recommendation changes for Shari'ah compliant stocks is consistent with market efficiency theory of Grossman and Stiglitz (1980), empirical results of Shari'ah non-complaint stocks are inconsistent with findings of previous studies (Lloyd Davies and Canes, 1978; Elton et al., 1986; Womack, 1996)

The interaction variables of the dummy variable for Shari'ah non-compliant stocks with cumulative abnormal returns of stocks added-to-buy, removed-from-buy and added-to-sell are not statistically significant in short-term and long-term. In other words, the effect of analysts' recommendation revisions for Shari'ah compliant and Shari'ah non-compliant stocks are not significantly different. There are several factors to explain why analysts' recommendation revisions do not cause higher price reactions for Shari'ah compliant stocks.

According to Shari'ah screening methodology of SCM's SAC, the majority of the listed securities in Bursa Malaysia, more particularly almost 80% of stocks, are Shari'ah compliant. On the other hand, an average Bumiputera owns around one month of the financial reserve to cover his monthly expenditure in case of loss of income or employment while about 93% of Bumiputera households do not have savings, and about 66% do not have financial assets (Malaysia Household Income Survey, 2007). Therefore, Muslim retail investors in Malaysia are much less than Non-Muslim investors. Moreover, share of Islamic funds among wholesale and unit trust funds is less than 26 per cent in 2019, and Islamic Institutional investors still may not be influential enough to distort price movements in the stock market. Thus, Bursa Malaysia may lack coordinated behaviour of a large number of Muslim retail and Islamic institutional investors while almost 80% of listed securities in Bursa Malaysia are Shari'ah compliant. Under such circumstances, analysts' recommendation revisions may not cause significantly different effect for Shari'ah compliant stocks.

Although a priori proposition would suggest that complying with Shari'ah rules and principles is associated with reflecting Islamic moral behaviour in all business

activities and management, contemporary Shari'ah screening process simply focuses on avoiding from prohibited business activities and satisfying particular financial ratios. Therefore, current Shari'ah screening methodologies do not provide any extra-financial information about Environmental, Social and Governance (ESG) issues such as occupational health and safety, human rights, customer satisfaction, climate change, innovation and corporate governance. In contrast, Ibrahim et al. (2006), and Farooq (2014) and Sabrun et al. (2018) demonstrate that Shari'ah compliant firms have poorer ESG performance than Shari'ah non-compliant firms. Thus, current Shari'ah screening methodologies in Bursa Malaysia do not disseminate any extra-financial information on ESG issues to persuade investors that Shari'ah compliant firms will perform better than Shari'ah non-compliant counterparts in short-term or long-term. Thus, Shari'ah compliance as a non-financial attribute does not embody valuable information that equity analysts and investors should take into account unless coordinated behaviour of a large number of Shari'ah sensitive investors changes price equilibrium of Shari'ah compliant and Shari'ah non-compliant stocks, and consequently, put severe limits to arbitrage.

5.3.4.3 Analyst Recommendation Revisions, Abnormal Return and Earnings Announcements

Almost 75% of analyst recommendation revisions take place within one week after earnings announcements and Table 25 exhibits that stock prices reactions are sound and significant to recommendation revisions issued contemporaneously with recent earnings announcements. Our findings suggest that firms' earnings announcements can trigger analyst recommendations revisions since it is one of the most critical financial data to calculate the long-term value of a firm. Similarly, studies of Ivkovic & Jegadeesh (2004), Menendez-Requejo (2005), and Altinkılıç & Hansen (2009) found that

recommendation changes following earnings-related news cause price reactions in the short-term and long term which are consistent with our empirical results.

The empirical results in Table 25 provide evidence for stronger and significant price reactions to recommendation revisions that are not issued in response to recent earnings announcements. Thus, analysts' private research has a more significant role in price discovery and facilitating market efficiency than earnings announcements. We can conclude that analyst recommendation are not information-free, and analysts in Malaysia do not necessarily piggyback on the news related to the financial results of corporations. In other words, analysts' recommendation revisions carry new information beyond corporate news. This finding undermines fundamental arguments of Ivkovic & Jegadeesh (2004), Menendez-Requejo (2005), and Altinkılıç & Hansen (2009) which claims that the analysts often piggyback on recent corporate news and analyst recommendations related to earnings announcements cause greater price reactions.

5.3.4.4 Analyst Recommendation Revisions, Abnormal Return, Earnings Announcements and Shari'ah Compliant Stocks

We examine the analysts' stock recommendation revisions issued contemporaneously with earnings announcements in terms of the magnitude and direction. Table 26 documents that upward (downward) stock recommendation revisions are often correlated with positive (negative) cumulative abnormal returns in short-term and long-term event window. Thus, analysts' recommendations play a significant role to facilitate market efficiency and help price discovery by incorporating recent financial results during preparing result reports and revise their stock price.

The CARs of a stock removed-from-buy and added-to-sell tend to be negative in short-term while a stock added-to-buy is estimated to have a positive cumulative abnormal returns in short-term after analysts' recommendation changes beyond earnings announcements. It shows that analysts' recommendations beyond earnings announcements lead to more significant price reactions. The study indicates that investors recognise the ability of analysts to predict the value of listed securities in Bursa Malaysia.

The results about the impact of analysts' recommendation revisions issued contemporaneously with and without earnings announcements over price reactions in section 5.3.3.4 are consistent with findings in section 5.3.3.3.

Analysts' recommendation revisions issued contemporaneously without corporate news rarely cause significantly different effect for Shari'ah compliant and Shari'ah non-compliant stocks. The potential explanations for an insignificant effect for Shari'ah non-complaint stocks are intensively elaborated in section 5.3.4.2 of the thesis. However, a Shari'ah non-compliant stocks removed-from-sell has negative cumulative abnormal return at 0.01 significant level in one-week (0, 5) and two-week event window (0, 10). Higher cumulative abnormal returns (loss) for upgraded (downgraded) Shari'ah compliant stocks are consistent with *Price Pressure Hypothesis* (PPH) and *Imperfect Substitutes Hypothesis* (ISH).

5.3.5 Summary of Findings and Hypothesis

Table 27 succinctly summarises the main findings of the study, while Table 28 summarises outcomes of hypotheses in our research based on empirical results and discussions in section 5.3.

Table 27: Summary of Findings for Analyst Recommendation Revisions and Anomalies

	Cumulative Abnormal Returns		
	Announcement	Post-Change Short Term	Post-Change Long Term
Added-to-Buy With Earnings Announcements	+***	+**	0
Added-to-Buy Without Earnings Announcements	0	+**	0
Added-to-Sell With Earnings Announcements	—***	—***	—***
Added-to-Sell Without Earnings Announcements	—*	—***	0
Removed-from-Buy With Earnings Announcements	—**	—***	—***
Removed-from-Buy Without Earnings Announcements	0	—*	—**
Removed-from-Sell With Earnings Announcements	0	0	0
Removed-from-Sell Without Earnings Announcements	0	+***	0
Added-to-Buy With Earnings Announcements × Shari’ah non-compliant	0	0	0
Added-to-Buy Without Earnings Announcements × Shari’ah non-compliant	0	0	0
Added-to-Sell With Earnings Announcements × Shari’ah non-compliant	0	0	0
Added-to-Sell Without Earnings Announcements × Shari’ah non-compliant	0	0	0
Removed-from-Buy With Earnings Announcements × Shari’ah non-compliant	+**	0	0
Removed-from-Buy Without Earnings Announcements × Shari’ah non-compliant	0	0	0
Removed-from-Sell With Earnings Announcements × Shari’ah non-compliant	0	0	—*
Removed-from-Sell Without Earnings Announcements × Shari’ah non-compliant	0	—***	0

Notes: *, **, and *** denote the statistical significance at 0.1, 0.05 and 0.01 levels, respectively.

Table 28: Summary of Hypotheses for Analyst Recommendation Revisions and Anomalies

No	Hypothesis	Result
H3a.	Analysts' recommendation revisions lead to price reactions in short-term horizons and long-term horizons.	YES/YES
H3b.	Price reactions for Shari'ah compliant stocks subsequent to analysts' recommendation revisions are stronger than Shari'ah non-compliant stocks in short-term horizons and long-term horizons.	NO/NO
H3c.	Analysts' recommendation revisions which are issued contemporaneously with earnings announcements lead to price reactions in short-run stock returns.	YES/NO
H3d.	Price reactions for Shari'ah compliant stocks subsequent to analysts' recommendation revisions which are issued contemporaneously with and without earnings announcements are stronger than Shari'ah non-compliant stocks in short-term horizons and long-term horizons.	NO/NO

Chapter 6: Conclusion, Policy Implications, Limitations and Recommendations

6.1 Introduction

The non-financial aspect of ethical and religious investing is said to have a significant role to explain investor behaviour and anomalies in financial markets. Even though researchers produced thousands of studies to uncover the interlinkage between ethical and religious investing and non-market behaviours in financial markets, limited studies focus on the effect of non-financial aspect of Shari'ah compliant investment as subset ethical and religious investing on financial markets. The label of 'Shari'ah compliant' for financial assets and financial institutions attract capital of Shari'ah sensitive investors to ensure full compliance of the investments and transactions with Islamic values and beliefs instead of allocating their capital to maximize the risk-adjusted return because religious consumption increases the marginal utility by providing non-pecuniary benefits from religious aspects of financial behaviour. Therefore, this study investigated behavioral anomalies associated with Shari'ah compliant investment in three major areas of capital markets in Malaysia to seek evidence for a potential behavioural difference between traditional and Shari'ah sensitive investors.

Islamic capital markets in Malaysia has recently witnessed a growing demand for Shari'ah compliant assets. An announcement of Shari'ah compliant status of listed securities in Bursa Malaysia does not convey any financial information. However, buying and selling stocks to rebalance Shari'ah compliant portfolios in response to the release of LSCS can have a significant effect on trading volume and performance of listed securities. This leads to our first research question i.e. *do announcements of LSCS affect trading volume and prices of newly classified Shari'ah compliant and Shari'ah non-*

compliant stocks in Bursa Malaysia? This research question enables us to understand whether Shari'ah compliance as non-financial disclosure affects behaviour of Shari'ah conscious investors and adds financial value to Shari'ah compliant companies.

The number and assets under management of Islamic funds in Malaysia has unprecedentedly soared up in last two decades. However, Islamic funds often do not perform significantly different from conventional funds. This gives rises to our second research question i.e. *does Shari'ah compliance as a non-financial attribute of Islamic funds in Malaysia lead to different flows-performance relation in Islamic and conventional funds?* Answering the second research question will deepen the understanding of the difference between the behavioural pattern of Shari'ah sensitive investors and traditional investors.

Recently, equity analysts put more attention on extra-financial disclosure to estimate the financial value of companies more precisely. Despite the growing significance of the non-financial aspect of Shari'ah compliant investment, there is limited academic literature on the value implication of Shari'ah compliance and its relation to analysts' recommendations. This leads to our third research question i.e. *do investors react analysts' recommendation revisions for Shari'ah compliant and Shari'ah non-complaint stocks differently in Malaysia?*

To address the first question, our sample consists of 942 changes in LSCS over the period 2000-2015. We categorised the sample of changes as Non-IPO additions, IPO additions or deletions. Out of 942 changes in LSCS, there are 370 Non-IPO additions, 288 IPO additions and 284 deletions. To address the second research question, our sample

includes 159 equity funds in Malaysia over the period 2007-2016. We categorised sample funds as Islamic or conventional. Out of 169 Malaysian equity funds, 91 are Islamic funds and 78 are conventional funds. To address the third research question, our sample comprises of 1096 analysts' recommendation revisions over the period 2005-2016. We categorised the sample of analysts' recommendation revisions as stocks Added-to-Buy, Removed-from-Buy, Added-to-Sell, and Removed-from-Sell. There are 320 stocks Added-to-Buy, 348 stocks Removed-from-Buy, 254 stocks Added-to-Sell, and 174 stocks Removed-from-Sell. Out 1096 analysts' recommendation revisions, analysts' changed their recommendations for 117 Shari'ah non-compliant stocks and 979 Shari'ah compliant stocks. This study employed event study methodology with the market model to examine the first question. To answer the second research question, the study conducted Panel Data analysis with random effects model. Finally, the study used a multiple regression model and event study methodology with the market model to answer the third research question.

We proceed in this chapter with a summary of our main findings by highlighting the contributions of the study to the existing literature. Then, we will discuss on policy implications of our study. Limitations on study and recommendations for further studies will follow to end chapter 6.

6.2 Summary of Empirical Findings

Our study provides further understanding of how non-financial aspect of Shari'ah compliant investment influences the behaviour of Islamic Institutional and Muslim retail investors. The thesis attempted to uncover interlinkage between behavioural anomalies and Shari'ah compliant investment in the context of Malaysia. This study adds to the

empirical evidence supporting a crucial impact of Islamic beliefs and values on investor behaviour and financial markets. We found that Muslim investors are willing to sacrifice financial benefit because they gain additional utility from religious consumption by investing in Islamic financial institutions and Shari'ah compliant financial products. Statman (1999) discussed rational people care about utilitarian characteristics but not value-expressive ones, are never confused by cognitive errors, are always averse to risk, have perfect self-control, and are never averse to regret. However, normal people do not obediently follow that pattern. Similar, in a Muslim majority country that investors have a high level of Shari'ah awareness, Shari'ah sensitive investors will be the new normal people and their trading in a coordinated manner create the new normal for price equilibrium in financial markets. Therefore, we observe the impact of religious behaviour on financial anomalies associated with Shari'ah compliant investment. However, behavioural anomalies associated with Shari'ah compliant investment is essentially different from those of conventional counterparts because theories of behavioural finance often attempt to understand financial anomalies by highlighting the important role of cognitive and emotional errors in human behaviour instead of focusing on the effect of religious values and beliefs on financial markets. Moreover, we found that when a large number of investors' behaviour is correlated, they may distort the dynamics of financial markets that traditional finance theories suggest. Therefore, the thesis provides fresh evidence for the existence of financial anomalies associated with Shari'ah compliant investment in financial markets of Malaysia.

To answer the first research question, we examined the impact of changes in LSCS, namely added IPO, added Non-IPO, deleted stocks on the stock price and trading volume over the period 2000-2015. The announcement of LSCS is publicly available

information about Shari'ah compliant status of listed securities in Bursa Malaysia. Shari'ah compliance is non-financial information about publicly traded companies in Bursa Malaysia. However, coordinated behaviour Islamic institutional and Muslim retail investors in response to announcements of LSCS can affect stock price and trading volume over various horizons.

LSCS contains around 80% of listed companies in Bursa Malaysia is included. Additions of few stocks into LSCS do not necessarily lead to significant impact on their prices and trading volume in the short term since it is not an urgency for investors to add newly classified few Shari'ah compliant stocks into their portfolios. Likewise, the CAARs of added Non-IPO stocks were almost zero and not significant during early weeks of pre-announcement period. However, Islamic institutional and Muslim retail investors can increase the demand for added Non-IPO stocks in the long-term and cause a permanent increase in abnormal returns. Along the same line, the empirical result documents that the CAARs of added Non-IPO stocks significantly rise gradually along with increasing trading volume in one-month to three-month period.

In contrast, our results reveal that magnitude of the price shock and trading volume ratio of added IPO and added Non-IPO stocks are apparently very different both in the short term and the long term. Therefore, it is not easy to understand unusual stock price and trading volume of Non-IPO stocks by hypotheses that have been proposed in previous literature on the index effect. Abnormal return of added IPO stocks were positive and excessively higher than those of added Non-IPO stocks in the short term and the long-term. Even though MVR of added IPO was less than %50 of the normal level during the pre-announcement period, it gradually converged to the normal within post-

announcement periods. These findings show that added IPO stocks might have been deliberately underpriced during public offering to enhance liquidity and decrease the cost of capital for the listed firms in Bursa Malaysia which is consistent with ODH.

In the case of removed stocks, our study provides empirical evidence for negative abnormal return for deleted stocks in the short term. Moreover, SCM strongly encourages Islamic institutional investors to dispose of their Shari'ah non-compliant stocks from their portfolio within the one month. Additionally, Islamic institutional investors are required to donate any capital gain or dividend they received from newly classified Shari'ah non-compliant companies after the disposal of the securities after the announcement day. Thus, investors would be in a hurry to sell their newly classified Shari'ah non-compliant stocks to adjust their portfolio. After there are a sell-pressure and lack of liquidity for removed stocks, newly classified Shari'ah non-compliant stocks might be undervalued temporarily. Thus, conventional investors might have purchased those undervalued stocks gradually and pushed the price to a higher equilibrium level in the long term.

In summary, empirical results suggest that added Non-IPO stocks had an abnormal return in the long-run while removed stocks had an abnormal loss in the short-run after LSCS announcement. Moreover, the changes in LSCS affected trading activity of added Non-IPO and deleted stocks positively by both in the short term and the long term. The empirical analysis provides solid evidence that the change of Shari'ah-compliance status of the listed securities as non-financial information can create a financial impact in Bursa Malaysia and suggests that the hypotheses related to the index effect such the IAH, LCH, PPH and ISH are also applicable in Bursa Malaysia. Even though it is difficult to analyse how non-financial aspect of added IPO stocks affect the

trading volume and prices without comparing Shari'ah non-compliant IPO stocks, very high abnormal return for Shari'ah compliant IPO stocks may show that there is a positive relationship between Shari'ah compliant status and oversubscription ratio in consistent with studies of Sopian, Rahim and Yong (2013) and Yaakub & Sherif (2019). Overall, the results show that Shari'ah compliant status as non-financial attribute influences prices and trading volume of listed securities.

To address the second research question, the study focuses on the flow-performance relation of Islamic and conventional funds in Malaysia. This study contributed to the literature to improve the understanding of investor behaviour in Islamic and conventional fund management industry in Malaysia by presenting several significant findings. Firstly, money-flows are performance-sensitive, but there are different flow-return sensitivities subsequent to positive or negative returns. In the case of lagged positive returns, Islamic funds had stronger money-flows and performance relationship. In other words, positive returns may attract larger money-flows to Islamic funds than conventional funds. Conventional funds had money outflows while Islamic funds continued to attract fund flows, given that the average return of funds is negative.

Investors' response to return is also asymmetric in that they respond differently to top and bottom performers. While bottom performers of conventional funds attract lower money-inflows, investors put more money into top performers. However, it is essential to note that our empirical results document that no matter they perform poorly or not, Islamic funds attract higher money flows than conventional peers.

During the holy month of Ramadhan, fund outflows of conventional funds increased while the study did not observe a significant effect of Ramadhan month on money-flows of Islamic funds. Whereas increasing religiosity and awareness about Shari'ah compliant investment during Ramadhan month was expected to increase flows of money towards Islamic funds, increasing spending for *Hari Raya Aildul Fitri* preparations would also lead to withdrawals from Islamic funds. Thus, it is reasonable to have mixed results for the direction of money-flows of Islamic funds.

Overall, the clientele of Islamic funds may behave differently from conventional investors. Taken together, our findings suggest that Islamic funds experience a smaller money outflow after negative financial returns in comparison to conventional funds that report a negative return, consistent with fund clientele having religious preferences. Preferences of Shari'ah sensitive investors can be represented by a conditional multi-attribute utility function, in the sense that they appear to derive utility from investing into Shari'ah compliant financial assets, especially when Islamic funds deliver positive returns. Therefore, investors of Islamic funds in Malaysia are more loyal compared to investors of conventional funds. Moreover, the direction of money-flows from bottom to top performers in Islamic and conventional funds show that investors consider Islamic and conventional financial assets as different asset classes. Finally, we find that investors' behaviour change during the month of Ramadhan. Therefore, we conclude that Shari'ah compliant status of financial assets matters for investors and leads to anomalies in direction of money-flows in the asset management industry in Malaysia.

We then proceed with our third research question which examines both the short and long-term performance of upgraded and downgraded stocks. The empirical results

indicate that while the CAARs of stocks added-to-buy has gradually increased, the CAARs of stocks added-to-sell and remove-from-buy have significantly decreased. In other words, the immediate reactions to recommendation revisions happened to be permanent and do not revert to its mean. It implies that analysts' recommendation revisions carry valuable information, and our study provides fresh evidence for the expanded definition of market efficiency suggested by Grossman and Stiglitz (1980). Moreover, we observed PRD (post-revision return drift) for stocks added-to-buy, stocks added-to-sell and remove-from-buy that market prices react slowly to the information contained in recommendation revisions which is consistent with findings of Barber et al. (2001), Brav & Lehavy (2003), Stickel (1995), Womack (1996), Altinkılıç & Hansen (2009), Altinkılıç, Balashov, & Hansen (2013), and Kim & Song (2015).

We secondly investigated the effect of analysts' recommendation revisions issued contemporaneously with earnings announcements and without earnings announcements on price reactions over various time horizons because the study aims to provide evidence on the information content of analysts' recommendation changes preceding earnings announcements. The study concludes that earnings announcements can trigger analysts' recommendation revisions because the investors react strongly to analysts' recommendation revisions issued contemporaneously with earnings announcements. The study's finding is consistent with studies of Ivkovic & Jegadeesh (2004), Menendez-Requejo (2005) and Altinkılıç & Hansen (2009) which argues that earnings announcements are one of the most important information to predict the value of a company and cause changes in analysts' recommendation revisions. However, the empirical results also documented that analysts' recommendation revisions beyond earnings announcements often induce stronger market reactions. Thus, the findings imply

that analysts' private research have considerable information content and more significant function to facilitate price discovery.

As the most striking result to emerge from the empirical analysis, we report that analysts' recommendations for Shari'ah compliant companies often do not own any additional investment value than those for Shari'ah non-compliant stocks. Analysts' recommendation revisions give rise to stronger market reactions for Shari'ah compliant stocks on rare occasions. This finding is consistent with PPH and ISH. However, the documented results in this study suggest that abnormal returns of upgraded and downgraded Shari'ah non-compliant firms are often not significantly different from Shari'ah compliant firms.

Among possible explanations for not having significantly different price reactions for Shari'ah non-compliant firms is the large market share of Shari'ah compliant listed firms in Bursa Malaysia. Thus, a Shari'ah compliant stock have many substitutes among Shari'ah compliant stocks in Bursa Malaysia even if Shari'ah non-compliant stocks are their imperfect substitutes. Another potential explanation is the low market share of Muslim retail investors and Islamic Institutional Investors in Bursa Malaysia. In other words, conventional financial institutions are still the majority shareholder of Shari'ah compliant listed companies in Bursa Malaysia. Therefore, non-financial preference of Shariah-sensitive investors neither put limits to arbitrage nor deteriorate market efficiency.

Overall, this study finds that investors of Shari'ah compliant funds and financial assets do use return information as an input in the choice of investment, yet they are less

concerned about returns than conventional investors. Islamic Institutional and Muslim retail investors are less likely to invest in Shari'ah non-compliant assets and conventional institution. These results reflect the limited investment choice available to investors who are keen to follow Islamic rules and principles. The irrationality of few investors alone cannot put limits to arbitrage. However, it may not be voided by rational investors if a large group of Shari'ah sensitive investors acts in a coordinated manner. Consequently, it may not be fair to treat Islamic and conventional institutions and their products as part of the same market since conventional financial institutions and their products are imperfect substitutes of their Islamic counterparts. We can also conclude that Shari'ah compliance as non-financial information can add value to financial institutions and their products.

In conclusion, this study shows that Shari'ah sensitive investors and socially responsible investors have a similar pattern of financial behaviour because investing into Islamic financial institutions and Shari'ah compliant financial products are not a purely rational decision in the theoretical framework of neoclassical finance, but both types of investors can have a trade-off between financial and psychic returns by considering investment as a tool to achieve non-financial objectives. Therefore, this study brings together a number of these scattered pieces of anomalous evidence against market efficiency, traditional asset pricing models and rationality assumption. Many previous studies already demonstrated that there is a crucial role of ethical and religious behaviour to explain anomalies in financial markets. Similarly, our results contribute to the existing literature by showing that the behaviour of Shari'ah sensitive investors can explain anomalies in financial markets in Malaysia.

6.3 Policy Implications and Highlights

6.3.1 Policy implications for Research Question 1

After examining the impact of changes in LSCS on financial markets, the findings of this study have crucial implications for listed companies, investors and regulators. Firstly, the study finds that being listed in LSCS can improve performance and liquidity of a firm. Therefore, if a listed company would like to diminish its rate of required return or increase its market value, its efforts of monitoring and managing business and financial activities effectively are essential to meet SCM's Shari'ah screening criteria.

Secondly, the study showed that included stocks had abnormal return in the long run. Thus, if fund managers buy newly listed Shari'ah compliant securities in early days of pre-announcement period, they can seek profit opportunity in the long term. Moreover, the findings suggest that the prices of excluded stocks recorded a sharp decline in the short term. Thus, if fund managers set up an internal Shari'ah screening division to predict stock removals from LSCS before the announcement, they can open a short position in potentially excluded stocks trading to make a fast profit during the post-change period. However, another arbitrage opportunity for fund managers is buying up under-priced securities from low price after one-month disposal period ends.

Thirdly, the research highlights that SCM's regulation about disposes of any Shari'ah non-compliant securities which fund managers presently keep in their portfolio within the one-month increase in selling activity which affects market liquidity adversely and thus, many Islamic fund managers poor performance during dumping excluding stocks. Thus, if SCM extends duration of disposal period, it can relax magnitude of pressure to sell excluded securities and thus, decrease liquidity risk and abnormal loss.

Moreover, significant changes in Shari'ah screening methodology can sometimes lead to additions and deletions of a large number of stocks. When many Islamic fund managers are pushed to rebalance lots of securities in their portfolio to ensure that their investment is consistent with Shari'ah rules and principles, they face liquidity risk against and are forced to sell them at a lower price. Therefore, carefully processing Shari'ah screening criteria revision is essential to prevent potential financial loss for fund managers.

Finally, empirical findings considering implications of the study for researchers shows the existence of the index effect in Malaysia. The study draws attention to the applicability of theories such as the LCH, PPH and ISH to explain how non-financial aspect of Shari'ah compliant investment affect stock markets.

6.3.2 Policy implications for Research Question 2

After investigating the flow-performance relation of Islamic and conventional funds in Malaysia, the thesis provides a further understanding of the Islamic fund management industry and behaviour of Shari'ah sensitive investors in Malaysia. We investigated Islamic and conventional investor behaviour in response to their past performance and some fund characteristics such as fund age, size and fees. The findings of the study have crucial implications for fund managers.

Shari'ah sensitive investors do use past-performance information as an input in the selection of funds, yet they are less concerned about financial returns than conventional investors. Therefore, Shari'ah compliant investors are more loyal at least in their reactions to poor fund performance, high fees and size of the fund. These results reflect the limited choice availability and significance of religion for Muslim investors.

First of all, Islamic fund managers can charge higher management fees than conventional funds, but still they can attract money-flows of investors. Secondly, Shari'ah compliant investors are less concerned about fund size so they can manage small funds but still, attract many investors. Thirdly, Islamic fund managers do not need to perform better than conventional funds to attract fund flows because we expect that Islamic funds attract larger fund flows no matter they perform negative or positive in the past.

In short, investors of Islamic funds are often willing to sacrifice financial return, and thus, Islamic fund managers increase their competitiveness despite having unfavourable management fees, fund size and past performance. Along the same line with our expectations, the number of Islamic funds in Malaysia has increased dramatically in last decade even if most Islamic funds had small fund size and charged high fees for fund management including additional fees for Shari'ah Board Members.

6.3.3 Policy implications for Research Question 3

After analysing the impact and function of analyst recommendation revisions on Shari'ah compliant and Shari'ah non-compliant firms in Bursa Malaysia, the findings of the thesis have essential implications for brokerage firms and investors.

The study found that analysts' recommendation revisions that are not directly related to earnings announcements lead to stronger price reactions. This finding implies that analysts' private research embodies more valuable information than earnings announcements. Therefore, asset management firms in Malaysia have a profit

opportunity if they set up an equity research department with employing qualified researchers and releases their equity reports to influence investors rather than following passive investment strategies. However, it is crucial to note that brokerage firms should be willing to give recommendations only if they can compensate their cost of analyst reports.

Our results show that analysts' recommendation revisions do not embody any additional information and value for Shari'ah compliant firms. Moreover, most analysts' reports show that many brokerage firms still did not integrate Shari'ah issues as extra-financial information into stock valuations. However, analysts' in Malaysia have a vital responsibility to investigate the impact of fulfilling Shari'ah screening benchmarks on corporate financial performance consider the growing importance of integrating ESG factors as extra-financial information into firm valuation models.

Investors should be willing to pay for investment advice of brokerage firms in Malaysia since they have profit opportunity by following brokers' recommendations. However, investors must ensure that their profit potential is greater than the cost of the advice. Although financial assets managed by Islamic institutional and Muslim retail investors has dramatically increased over the last few decades, price reaction towards analysts' recommendation changes for Shari'ah compliant firms is not significantly different from investors' response to Shari'ah non-compliant firms. Thus, most investors still seem to believe that fulfilling business-activity based benchmarks and financial benchmarks of Shari'ah Screening methodology do not add any financial value to a company.

6.4 Limitation of Study and Recommendations

6.4.1 Limitations of Research Objective 1

The research on the impact of changes in LSCS has some critical limitations. Firstly, size and value factors are not taken into account to investigate the effect of changes in LSCS. Thus, further studies can implement Fama and French Three-Factor Model to measure abnormal return by considering the different behaviour of small-cap and value stocks. Secondly, the study investigates Shari'ah compliant status-related anomalies in only Bursa Malaysia. Therefore, future researchers can analyse the effect of change in Shari'ah compliant status of listed securities in different stock markets. Thirdly, the study has limits to consider the impact of other financial and non-financial information over performance and trading activity of listed securities within the event window period. The future studies are recommended to consider the aspects above and thus, use more advanced models to compare results with previous studies and contribute the development of the theories on this subject.

6.4.2 Limitations of Research Objective 2

The scope of the study on flow-performance relation has mainly focused on the link between money-flows and past returns of Islamic and conventional funds in Malaysia. Hence, the sample selection for the empirical analysis has been specifically tailored towards achieving the research objectives, yet the empirical results must be approached with caution because of the study's limitations. Our data represent a large sample of Islamic and conventional funds in Malaysia, so our findings reflect a relationship between fund flows and past performance in the context of Malaysia. Hence,

the findings of the thesis may not be consistent with the experience of other countries because empirical results may change across different market conditions.

Some studies use further control variables to analyse fund flows such as variables about risk characteristics of fund, media coverage, and fund family. Moreover, few studies attempt to capture a more detailed picture of fund flows through using detailed information on fund inflows and outflows as a sample. However, sometimes detailed and frequent information on Islamic and conventional funds in Malaysia are simply unavailable as a developing market.

Although our examination of the flow-return relationship of funds could serve as a starting point for further examination of decision-making by investors in Malaysia, future researchers may conduct more detailed research on how Shari'ah compliance criteria can affect investors' behaviours in the selection of funds by using more advanced qualitative and quantitative techniques.

6.4.3 Limitations of Research Objective 3

The research about the impact of analysts' recommendation revisions attempted to obtain fresh evidence on stock price formation and on ability of analysts to predict stock prices in Malaysia by particularly investigating impact of analysts' recommendation revisions over Shari'ah compliant and Shari'ah non-compliant stocks. The research experienced a few limitations which could be addressed in further research.

First of all, we used only a few control variables such as earnings announcements and Shari'ah compliance status of listed securities to understand their relationship with

price reactions. However, some variables such as analysts' experience, brokerage house, company size, book-to-market ratio, debt-to-equity (D/E) ratio or leverage and return on asset (ROA) for profitability were not taken into account. Including those control variables would enhance the univariate analysis. Therefore, our results provide a limited understanding about dynamics of price formation following analysts' recommendation revisions. Unfortunately, we had limited information on analysts' names and companies' financial ratios. Thus, we were unable to discover the relationship of those variables with cumulative abnormal returns of listed securities in Bursa Malaysia.

Secondly, theoretical assumptions to employ event-window estimation model as part of the event study methodology for estimating cumulative abnormal returns of stocks following analysts' recommendation revisions has some limitations. Firstly, it assumes that markets are efficient, yet there are different forms of market efficiency with considerable challenges of price formation. Therefore, CMDP – Bursa Research Scheme (CBRS) has vital function to facilitate market efficiency and price formation through providing public access to analyst reports about listed securities in Bursa Malaysia. Secondly, it assumes the event occurs unanticipatedly to use event-window estimation for calculating abnormal returns. However, information might have leaked before the release of analysts' equity reports. Thirdly, some important events such as announcement of mergers, dividends, or appointment of new board of director can take places few days before or after the release of analyst recommendations, and they can distort price movements and calculation of abnormal returns. Thus, it is difficult to control confounding effects for a long-term event window (McWilliams & Siegel, 1997).

Thirdly, the total assets managed by Islamic institutional and Muslim retail investors have almost doubled from December 2006 to December 2015. The study did not control the date of announcements, so further studies can use the time variable to have a better understanding of the impact of analysts' recommendation revisions over Shari'ah compliant stocks. Moreover, there is significant gap in the literature to explain the impact of each Shari'ah criteria over the financial performance of firms and whether Shari'ah-compliance as non-financial factor can be integrated into a company's valuation model that analysts can use to prepare equity reports.



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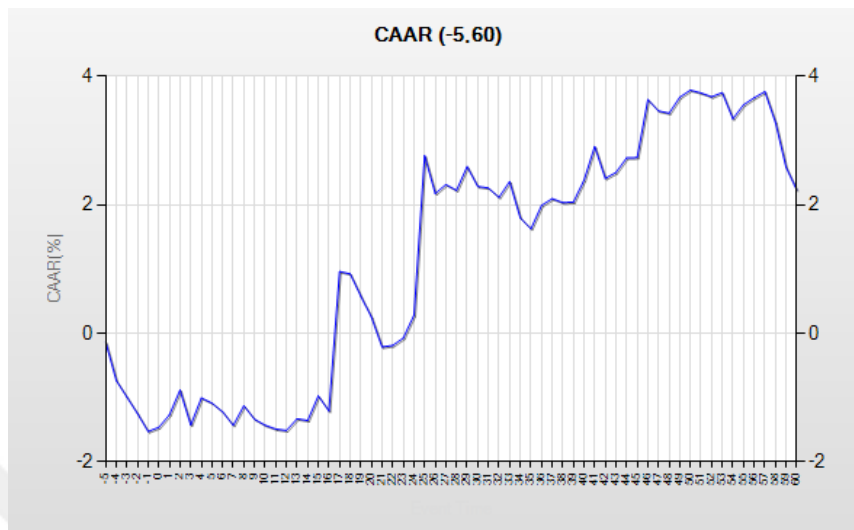
Appendix

Appendix A: Descriptive Statistics of the Number of Added and Deleted stocks from List of Shari'ah Compliant Securities (LSCS) of Security Commission Malaysia (SCM), Consolidated (2000-2015)

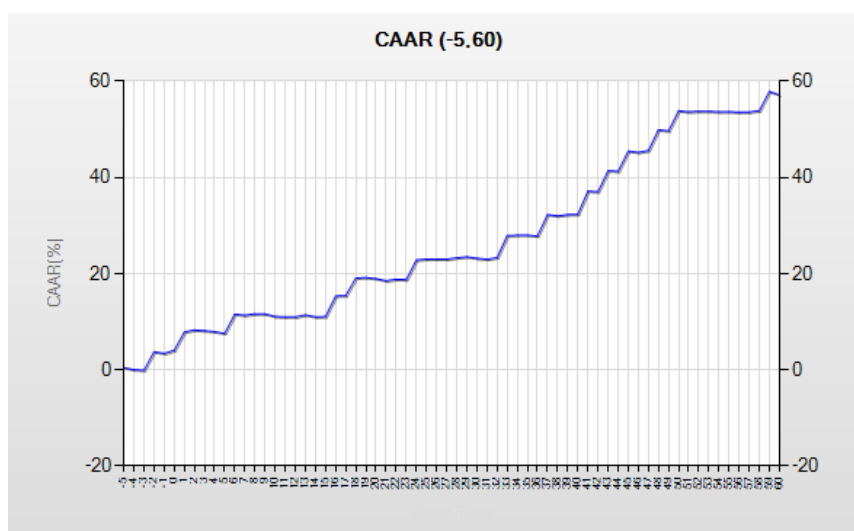
Event Date	Pre-Announcement	Added	Deleted	Post-Announcement	Percentage of Shari'ah Compliant Stocks
27/10/2000	564	55	15	604	77
27/4/2001	603	32	8	627	78
26/10/2001	625	19	6	638	79
26/4/2002	642	19	9	652	79
25/10/2002	651	44	11	684	80
25/4/2003	684	25	5	704	81
31/10/2003	686	45	9	722	81
30/4/2004	698	55	10	743	80
29/10/2004	731	65	9	787	83
29/4/2005	774	59	7	826	84
28/10/2005	818	51	12	857	85
28/4/2006	849	36	14	871	85
27/10/2006	859	33	6	886	86
25/5/2007	870	17	11	876	86
1/12/2007	845	18	10	853	86
30/5/2008	832	23	12	843	85
28/11/2008	832	25	2	855	87
29/5/2009	836	13	1	848	88
30/11/2009	837	13	4	846	88
31/5/2010	838	12	3	847	88
26/11/2010	834	17	5	846	88
27/5/2011	828	24	5	847	89
25/11/2011	827	15	3	839	89
26/5/2012	818	5	2	825	89
30/11/2012	809	13	5	817	89
31/5/2013	800	5	4	801	88
29/11/2013	793	18	158	653	71
30/5/2014	646	28	9	665	73
28/11/2014	663	40	30	673	74
29/5/2015	668	19	13	674	75

Source: Security Commission, Malaysia

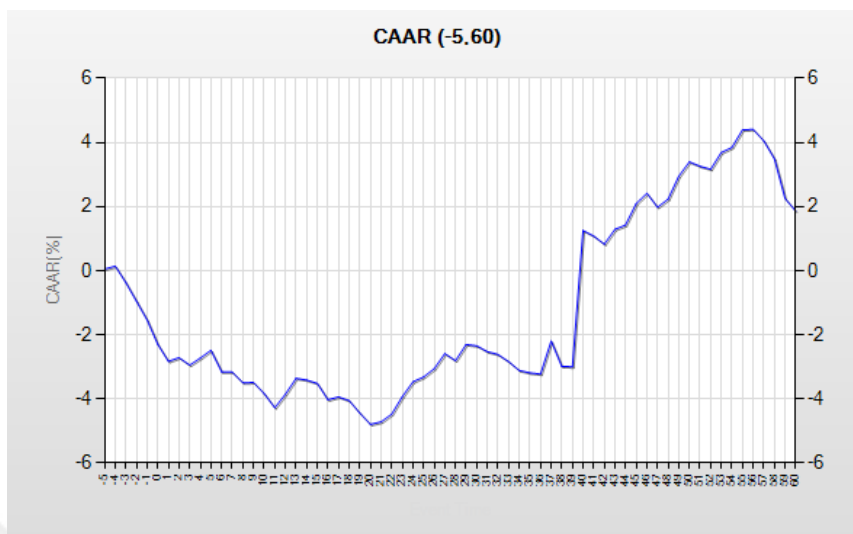
Appendix B: The Cumulative Average Abnormal Returns (CAAR) for Added Non-IPO Stocks



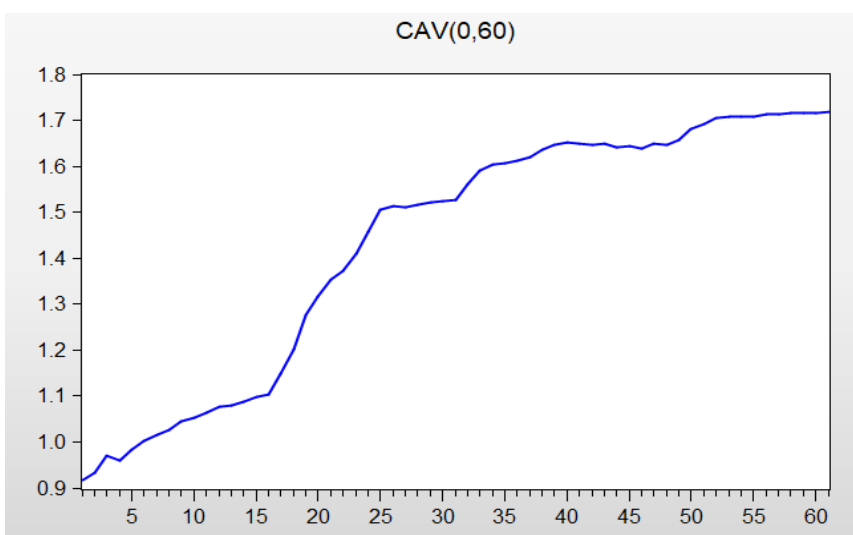
Appendix C: The Cumulative Average Abnormal Returns (CAAR) for Added IPO Stocks

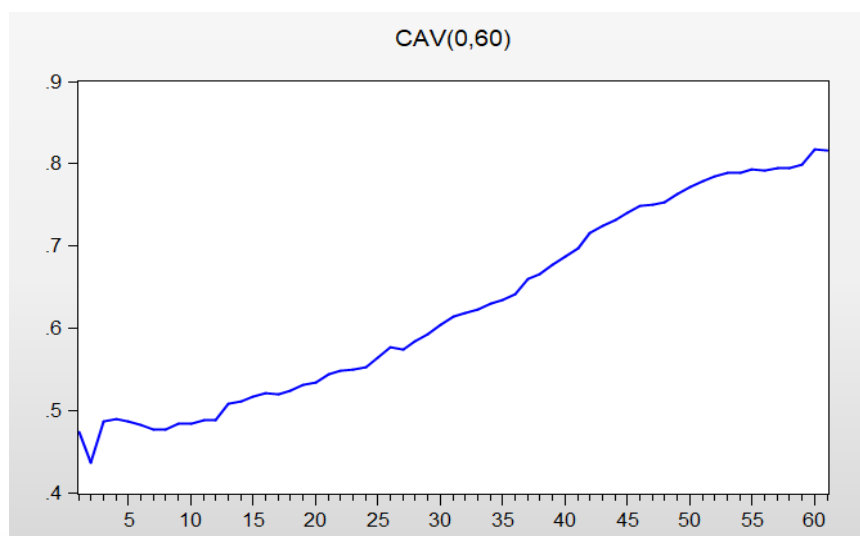
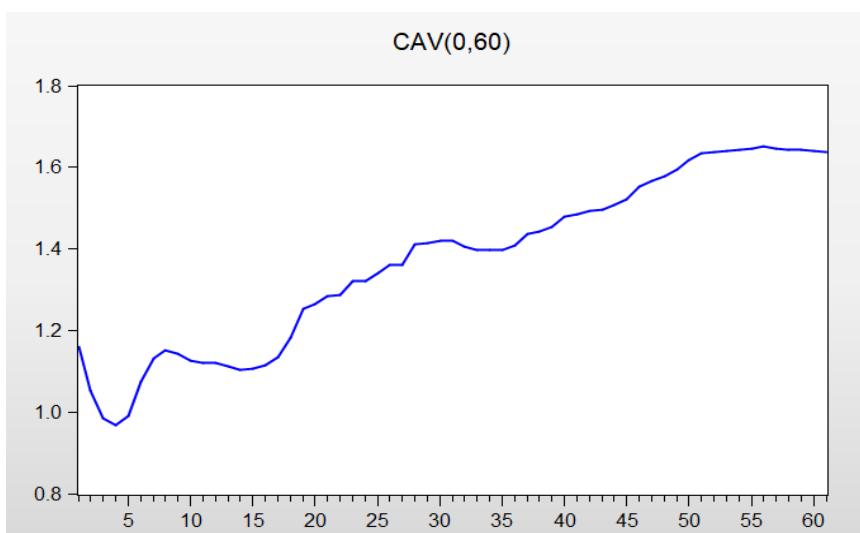


Appendix D: The Cumulative Average Abnormal Returns (CAAR) for Deleted Stocks



Appendix E: The Mean Volume Ratio (MVR) for Added Non-IPO Stocks



Appendix F: The Mean Volume Ratio (MVR) for Added IPO Stocks**Appendix G: The Mean Volume Ratio (MVR) for Deleted Stocks**

Appendix H: Descriptive Statistics of Number and Total Net Asset of Conventional and Islamic Funds in Malaysia

Year	CF N	IF N	IF %(N)	CF TNA (RM M.)	IF TNA (RM M.)	IF %(TNA)
2006	247	79	24.23%	91.948	8.542	8.50%
2007	306	94	23.50%	118.797	9.574	7.46%
2008	365	126	25.66%	152.368	16.298	9.66%
2009	389	140	26.47%	120.331	16.283	11.92%
2010	402	146	26.64%	172.721	22.008	11.30%
2011	415	152	26.81%	210.818	24.14	10.27%
2012	427	165	27.87%	229.965	28.432	11.00%
2013	417	175	29.56%	265.363	34.827	11.60%
2014	418	181	30.22%	297.541	42.302	12.45%
2015	426	187	30.51%	308.41	47.754	13.41%
2016	419	193	31.54%	294.454	52.124	15.04%

Notes: CF and IF stand for Conventional Fund and Islamic Fund respectively. N presents the number of funds while TNA refers to Total Net Asset.
Source: Security Commission, Malaysia

Appendix I: Econometric Model Robustness Test: Money-flows and past performance for Islamic Funds

	Panel A	Panel B	Panel C	Panel D	Panel E
	Pooled OLS	Between	Fixed Effects	First Differences	Random Effects
Dependent Variable	$Fund\ Flow_t$	$Fund\ Flow_t$	$Fund\ Flow_t$	$Fund\ Flow_t$	$Fund\ Flow_t$
Constant	0.046***	0.067***	0.0126	(omitted)	0.038**
$Average\ Return_{(t-1,t-6)}$	0.911***	-1.826	1.083***	1.205***	0.987***
$Average\ Return_{(t-7,t-12)}$	-0.0147	2.080	0.108	0.119	0.045
$D\ Negative \times Average\ Return_{(t-1,t-6)}$	-1.670***	1.800	-1.932***	-1.389***	-1.744***
$D\ Negative \times Average\ Return_{(t-7,t-12)}$	0.206	-2.950	0.054	-0.033	0.145
Age_{t-1}	-0.0016***	-0.0032***	0.0006	-0.006	-0.00097*
$Age_{t-1} \times D\ Young_{t-1}$	-0.0019***	-0.0049**	-0.0009	-0.0001	-0.00116*
$Size_{t-1}$	0.000014***	0.000014***	0.000013**	0.000545***	0.000013***
Management Fee	-1.907***	-1.955	(omitted)	(omitted)	-1.744*
Trustee Fee	4.557	4.636	(omitted)	(omitted)	3.09
Load Fee	-0.192**	-0.186	(omitted)	(omitted)	-0.201
R2	0.026			0.048	
Adjusted R2	0.024			0.046	
R2-Within		0.0015	0.0141		0.014
R2-Between		0.2450	0.0657		0.175
R2-Overall		0.0002	0.0168		0.026
Prob(F)	0	0.0088	0	0	0
Sigma u			0.020		0.072
Sigma e			0.071		0.049
Rho			0.072		0.465
Theta					0.103
Hausmann (p)					0.109
Breusch and Pagan LM (p)					0

Appendix J: Econometric Model Robustness Test: Money-flows and past performance for Conventional Funds

	Panel A	Panel B	Panel C	Panel D	Panel E
	Pooled OLS	Between	Fixed Effects	First Differences	Random Effects
Dependent Variable	$Fund\ Flow_t$	$Fund\ Flow_t$	$Fund\ Flow_t$	$Fund\ Flow_t$	$Fund\ Flow_t$
Constant	0.024***	0.012	-0.003	(omitted)	0.025
$Average\ Return_{(t-1,t-6)}$	0.504***	-0.340	0.598***	0.733***	0.566***
$Average\ Return_{(t-7,t-12)}$	0.034	0.672	0.036	-0.056	0.035
$D\ Negative \times Average\ Return_{(t-1,t-6)}$	-0.455***	-0.283	-0.586***	-0.156	-0.532***
$D\ Negative \times Average\ Return_{(t-7,t-12)}$	-0.027	-0.191	-0.002	0.122	-0.008
Age_{t-1}	0.00005	0.00069	0.00036	0.00065	0.00012
$Age_{t-1} \times D\ Young_{t-1}$	-0.00008	0.00106	-0.00036	-0.00334	-0.00027
$Size_{t-1}$	0.0000168***	0.0000175**	6.16E-06	0.000617***	0.000014***
<i>Management Fee</i>	-1.851***	-1.573	(omitted)	(omitted)	-1.829*
<i>Trustee Fee</i>	12.353**	16.874	(omitted)	(omitted)	10.645
<i>Load Fee</i>	-0.141*	-0.199	(omitted)	(omitted)	-0.135
R2	0.0287			0.051	
Adjusted R2	0.0261			0.050	
R2-Within		0.002	0.016		0.016
R2-Between		0.154	0.031		0.124
R2-Overall		0.001	0.018		0.028
Prob(F)	0	0.265	0	0	Prob(chi2)=0
Sigma u			0.017		0.015
Sigma e			0.049		0.049
Rho			0.107		0.089
Theta					0.581
Hausmann (p)					0.815
Breusch and Pagan LM (p)					0

Note: These tables present the Pooled OLS Model, Panel Data with Between Estimator Model, with Fixed Effects Model, First Differences Estimator Model and Random Effects Model.

**Appendix K: Robustness Test for Different Fees: Money-Flows and Past
Performance for Islamic Funds**

	Panel A	Panel B	Panel C	Panel D
Dependent variable	$Fund\ Flow_t$	$Fund\ Flow_t$	$Fund\ Flow_t$	$Fund\ Flow_t$
Constant	0.038**	0.007	0.033**	-0.005
$Average\ Return_{(t-1,t-6)}$	0.987***	0.983***	0.978***	0.972***
$Average\ Return_{(t-7,t-12)}$	0.045	0.021	0.015	0.010
$D\ Negative \times Average\ Return_{(t-1,t-6)}$	-1.744***	-1.763***	-1.762***	-1.744***
$D\ Negative \times Average\ Return_{(t-7,t-12)}$	0.145	0.178	0.186	0.195
Age_{t-1}	-0.00097*	-0.00069	-0.0009	-0.0006
$Age_{t-1} \times D\ Young_{t-1}$	-0.00116*	-0.0012*	-0.0011	-0.0012*
$Size_{t-1}$	0.000013***	0.000013***	0.000013***	0.0000115***
<i>Management Fee</i>	-1.744*		-1.949**	
<i>Trustee Fee</i>	3.09			-7.05
<i>Load Fee</i>	-0.201	-0.252*		
R2-Within	0.014	0.014	0.014	0.014
R2-Between	0.175	0.140	0.134	0.117
R2-Overall	0.026	0.023	0.023	0.021
Sigma u	0.016	0.015	0.016	0.016
Sigma e	0.072	0.071	0.071	0.071
Rho	0.049	0.046	0.049	0.047
Theta	0.465	0.460	0.460	0.459
Hausmann (p)	0.109	0.114	0.097	0.091
Breusch and Pagan LM (p)	0	0	0	0

**Appendix L: Robustness Test for Different Fees: Money-Flows and Past
Performance for Conventional Funds**

Dependent variable	Panel A	Panel B	Panel C	Panel D
	<i>Fund Flow_t</i>	<i>Fund Flow_t</i>	<i>Fund Flow_t</i>	<i>Fund Flow_t</i>
Constant	0.025	0.020	0.026	-0.004
<i>Average Return_(t-1,t-6)</i>	0.566***	0.569***	0.567***	0.565***
<i>Average Return_(t-7,t-12)</i>	0.035	0.036	0.033	0.033
<i>D Negative</i> × <i>Average Return_(t-1,t-6)</i>	-0.532***	-0.534***	-0.532***	-0.525***
<i>D Negative</i> × <i>Average Return_(t-7,t-12)</i>	-0.008	-0.008	-0.006	-0.0015
<i>Age_{t-1}</i>	0.0001	0.0002	0.0001	0.0001
<i>Age_{t-1}</i> × <i>D Young_{t-1}</i>	-0.0003	-0.0003*	-0.0003	-0.0003
<i>Size_{t-1}</i>	0.000014***	0.0000136***	0.0000131***	0.0000132***
<i>Management Fee</i>	-1.829*		-1.910*	
<i>Trustee Fee</i>	10.645			1.630
<i>Load Fee</i>	-0.135	-0.116		
R2-Within	0.016	0.016	0.016	0.0164
R2-Between	0.124	0.081	0.111	0.0732
R2-Overall	0.028	0.023	0.026	0.0226
Sigma u	0.015	0.015	0.015	0.015
Sigma e	0.048	0.048	0.048	0.048
Rho	0.088	0.090	0.089	0.090
Theta	0.580	0.583	0.582	0.584
Hausmann (p)	0.815	0.842	0.891	0.812
Breusch and Pagan LM (p)	0	0	0	0

**Appendix M: Descriptive Statistics of the Number of Analyst Recommendations
by Brokerage Houses in Malaysia Listed in the Database of CMDF-Bursa**

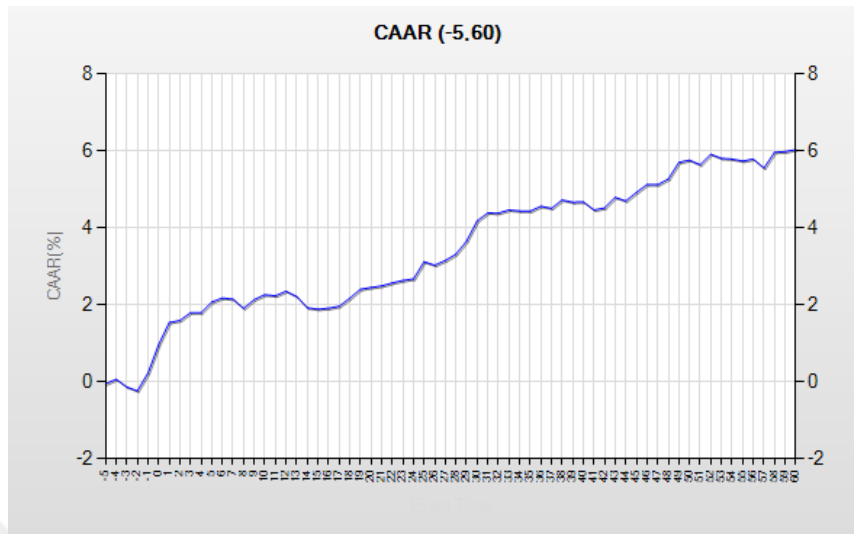
Research Scheme (CBRS)

Name of Brokerages / Year	The Number of Analyst Recommendations											
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Affin Hwang Investment Bank Bhd.	50	61	45	49	75	41	0	0	0	0	0	0
AllianceDBS Research Sdn Bhd.	0	0	0	0	0	0	18	267	544	564	625	467
AmInvestment Bank Bhd.	47	44	2	0	0	0	0	0	0	0	0	0
Asia Analytica Sdn Bhd.	25	74	57	112	111	24	50	47	20	17	10	16
BCT Asia Advisory Sdn Bhd.	112	282	234	154	131	33	80	101	67	54	27	27
BIMB Securities Sdn Bhd.	0	0	0	0	0	0	0	29	24	0	0	0
CIMB Investment Bank Bhd.	19	89	109	54	76	64	75	61	29	16	9	2
Dynaquest Sdn Bhd.	44	47	10	0	0	0	0	0	0	0	0	0
ECM Libra Securities Sdn Bhd.	39	33	0	0	0	0	0	0	0	0	0	0
Hong Leong Investment Bank Bhd.	20	57	28	0	0	0	0	0	0	0	0	0
Inter-Pacific Research Sdn Bhd.	0	0	0	35	44	16	0	0	0	0	0	0
JF Apex Securities Bhd.	13	44	37	27	0	39	6	0	26	115	108	132
K & N Kenanga Bhd.	67	170	106	71	106	66	14	0	0	0	0	0
Kim Eng Research Sdn Bhd.	18	43	34	34	35	2	0	0	0	0	0	0
Maybank Investment Bank Bhd.	34	18	0	0	0	0	0	0	0	0	0	0
Mercury Securities Sdn Bhd.	19	45	30	45	46	27	73	77	52	32	27	26
MIDF Sisma Securities Sdn Bhd.	18	27	14	0	0	0	0	0	0	0	0	0
OSK Research Sdn Bhd.	9	58	20	41	61	32	3	2	0	0	0	0
RHB Research Institute Sdn Bhd.	77	133	99	66	83	38	0	0	0	0	0	0
SBB Securities Sdn Bhd.	18	39	0	0	0	0	0	0	0	0	0	0
SJ Securities Sdn Bhd.	76	254	93	88	82	25	0	0	0	0	0	0
Standard & Poor's Malaysia Sdn Bhd.	337	1553	1479	844	922	646	13	0	0	0	0	0
TA Securities Holding Bhd.	23	48	31	59	70	16	82	366	400	434	542	498
Wilson & York Global Advisers Sdn Bhd.	0	0	0	0	0	0	46	41	10	20	14	20
ZJ Advisory Sdn Bhd.	1	37	33	38	40	9	44	54	38	31	17	9
Total	1066	3156	2461	1717	1882	1078	504	1045	1210	1283	1379	1197

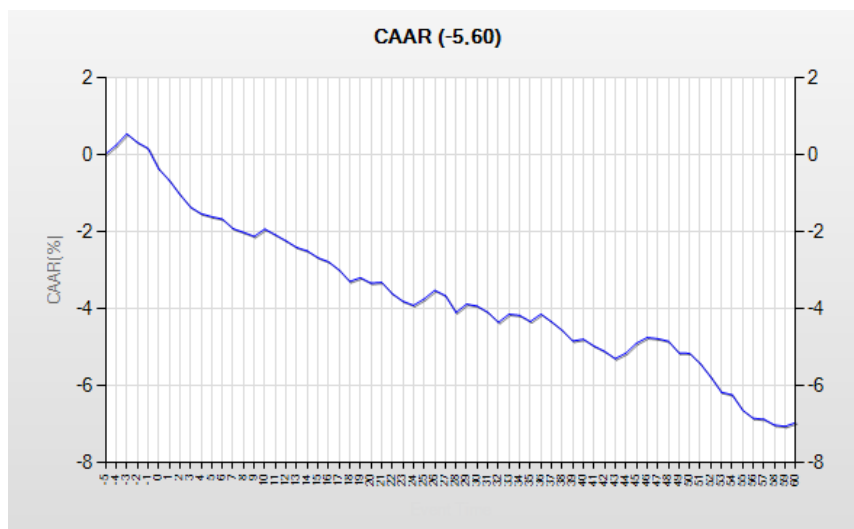
**Appendix N: Cumulative Average Abnormal return (CAAR) for Stocks After
Analyst Recommendation Revisions, Consolidated (2005-2016)**

	CAAR(0, 1)	CAAR(0,2)	CAAR(0,5)	CAAR(0,20)	CAAR(0,40)	CAAR(0,60)
D Added-to-Buy	0.0121***	0.0126***	0.0171***	0.0162**	0.0347***	0.047***
D Removed-from-Buy	-0.0075***	-0.0108***	-0.016***	-0.031***	-0.044***	-0.0626***
D Added-to-Sell	-0.0166***	-0.0207***	-0.0333***	-0.0434***	-0.0831***	-0.0946***
D Removed-from-Sell	0.002663	-0.00855	0.033743	-0.12374	0.030279	0.131835
Obs	1096	1096	1096	1094	1093	1093
Adjusted R-square	0.046	0.024	0.028	0.006	0.018	0.011

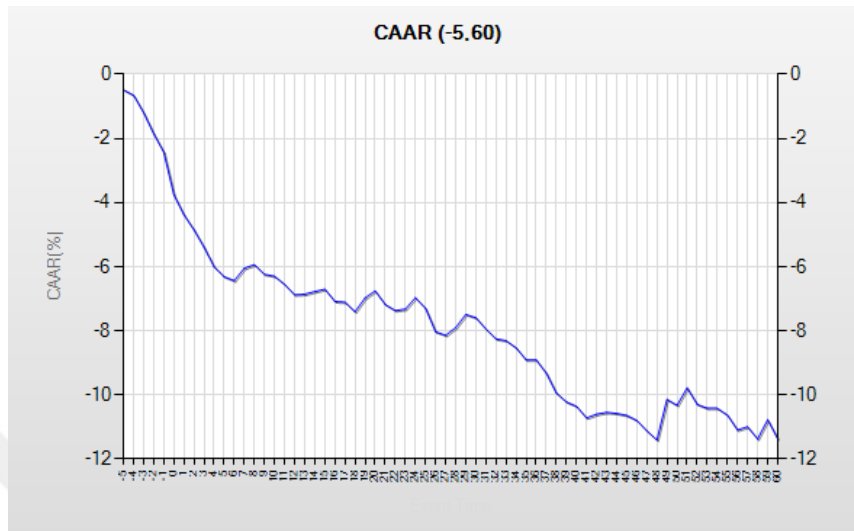
Appendix O: Cumulative Average Abnormal Return (CAAR) for Added-to-Buy Stocks After Analyst Recommendation Revisions



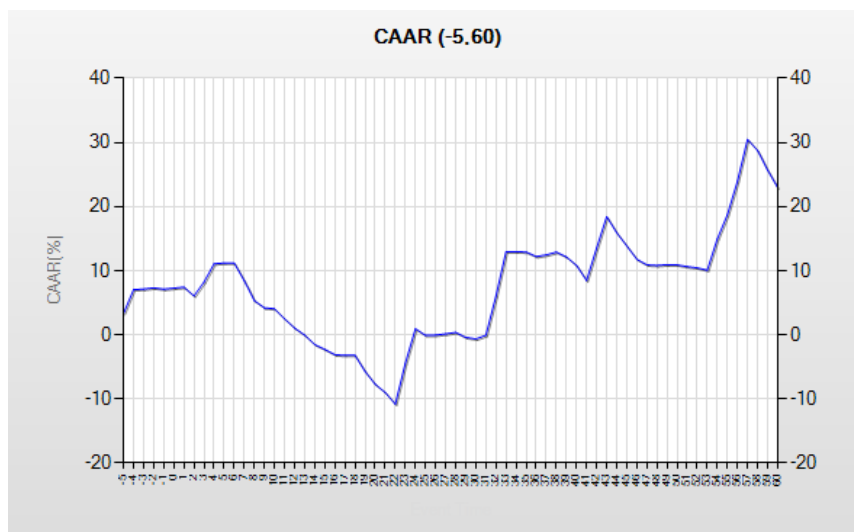
Appendix P: Cumulative Average Abnormal Return (CAAR) for Removed-from-Buy Stocks After Analyst Recommendation Revisions



**Appendix R: Cumulative Average Abnormal Return (CAAR) for Added-to-Sell
Stocks After Analyst Recommendation Revisions**



**Appendix S: Cumulative Average Abnormal Return (CAAR) for Removed-from-Sell
Stocks After Analyst Recommendation Revisions**



Appendix T: Cumulative Average Abnormal Return (CAAR) (Based on OLS Model with White Heteroscedasticity-consistent Standard Errors) for Stocks After Analyst Recommendation Revisions Related to Earnings Announcements and Beyond Earnings Announcements, Consolidated (2005-2016)

	CAAR(0, 1)	CAAR(0,2)	CAAR(0,5)	CAAR(0,20)	CAAR(0,40)	CAAR(0,60)
D Added-to-Buy × WEA	0.0111***	0.0106***	0.0143***	0.0127*	0.0332**	0.0456**
D Added-to-Buy × WOE A	0.0145***	0.0172***	0.0231***	0.0243**	0.0383*	0.0501**
D Removed-from-Buy × WEA	-0.0071***	-0.0103***	-0.0143***	-0.0298***	-0.0324***	-0.0499***
D Removed-from-Buy × WOE A	-0.0090**	-0.0130***	-0.0225***	-0.0357***	-0.0908***	-0.1139***
D Added-to-Sell × WEA	-0.0174***	-0.0195***	-0.0291***	-0.0345***	-0.0669***	-0.0769***
D Added-to-Sell × WOE A	-0.0135*	-0.0258**	-0.0509***	-0.0804**	-0.1496**	-0.1677**
D Removed-from-Sell × WEA	-0.0005	-0.0143	0.0373	-0.1673	0.0275	0.1645
D Removed-from-Sell × WOE A	0.0132	0.0108	0.0216	0.0222	0.0394	0.0224
Obs	1096	1096	1096	1094	1093	1093
Adjusted R-square	0.045	0.020	0.026	0.007	0.017	0.008

Notes: WEA is a dummy variable that is equal to 1 if an analyst revise recommendation related to earnings announcements while WOE A is a dummy variable that is equal to 1 if an analyst revise recommendation beyond earnings announcements.

Appendix U: *Econometric Model Robustness Test: Cumulative Average Abnormal Return (CAAR) (Based on Scholes/Williams model) for Stocks After Analyst Recommendation Revisions, Consolidated (2005-2016)*

		Added-to-Buy			Removed-from-Buy			Added-to-Sell			Removed-from-Sell		
		CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic
AD	(0, 0)	0.0072	193 : 127	1.2367	-0.0053**	173 : 176	-2.9465	-0.0133***	117 : 136	-4.3022	0.0015	95 : 79	0.0514
Short-Term	(0, 1)	0.0075	174 : 146	0.3894	-0.009***	158 : 191	-3.5258	-0.0195***	103 : 150	-4.4825	0.0031	98 : 76	0.0756
	(0, 2)	0.0126	195 : 125	1.5362	-0.0123***	136 : 213	-3.9547	-0.0243***	96 : 157	-4.5453	-0.0107	85 : 89	-0.21
	(0, 3)	0.014	190 : 130	1.3956	-0.0157***	135 : 214	-4.3735	-0.0297***	88 : 165	-4.816	0.0112	95 : 79	0.1907
	(0, 4)	0.0174	186 : 134	1.4982	-0.0172***	139 : 210	-4.2821	-0.0358***	90 : 163	-5.1946	0.0397	94 : 80	0.604
	(0, 5)	0.0115	179 : 141	0.8897	-0.0177***	140 : 209	-4.0179	-0.0389***	90 : 163	-5.1485	0.0407	89 : 85	0.5654
Long-Term	(0, 10)	0.0097	180 : 140	0.5041	-0.0218***	148 : 201	-3.6577	-0.0387***	86 : 167	-3.7872	-0.0305	81 : 93	-0.3133
	(0, 20)	0.0248	185 : 135	0.9325	-0.0362***	133 : 216	-4.393	-0.0433***	98 : 155	-3.066	-0.1485	92 : 82	-1.1025
	(0, 40)	0.0431	185 : 135	1.1594	-0.0557***	137 : 212	-4.8302	-0.0793***	90 : 163	-4.0205	0.0369	93 : 81	0.196
	(0, 60)	0.0567	190 : 130	1.2515	-0.0795***	141 : 208	-5.6564	-0.0895***	92 : 161	-3.7178	0.1582	91 : 83	0.6892

Notes: p:n denotes the number of positive and negative Averaged Abnormal Return (AAR) for stocks respectively while *, **, and *** denote the statistical significance at 0.1, 0.05 and 0.01 levels, respectively.

Appendix V: Econometric Model Robustness Test: Cumulative Average Abnormal Return (CAAR) (Based on Scholes/Williams Model) for Stocks After Analyst Recommendation Revisions Related to Earnings Announcements and Beyond Earnings Announcements, Consolidated (2005-2016)

		Added-to-Buy With Earnings Announcement			Added-to-Buy Without Earnings Announcement			Removed-from-Buy With Earnings Announcement			Removed-from-Buy Without Earnings Announcement		
AD	(0, 0)	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic
Short Term	(0, 1)	0.0092	135 : 87	1.1198	0.0026	58 : 40	0.7617	-0.0054**	139 : 141	-2.5369	-0.0051*	34 : 34	-1.6475
	(0, 2)	0.0121	132 : 90	1.0353	0.0137***	63 : 35	2.8655	-0.0087***	129 : 151	-2.9106	-0.01**	29 : 39	-2.2761
	(0, 3)	0.0132	133 : 89	0.9249	0.0157***	57 : 41	2.6854	-0.012***	111 : 169	-3.2801	-0.0135**	25 : 43	-2.5225
	(0, 4)	0.0171	131 : 91	1.0355	0.018***	55 : 43	2.6589	-0.0146***	112 : 168	-3.4665	-0.0201***	22 : 46	-3.2329
	(0, 5)	0.0083	123 : 99	0.4486	0.0189**	56 : 42	2.4977	-0.0166***	119 : 161	-3.5102	-0.0198***	20 : 48	-2.8577
	(0, 10)	0.0053	120 : 102	0.2624	0.0206**	55 : 43	2.488	-0.0171***	115 : 165	-3.2981	-0.0203***	25 : 43	-2.671
Long Term	(0, 20)	0.0058	122 : 100	0.2127	0.0183*	58 : 40	1.6342	-0.0227***	120 : 160	-3.2382	-0.0201**	27 : 41	-1.9532
	(0, 40)	0.025	129 : 93	0.6617	0.0247*	56 : 42	1.5925	-0.0368***	107 : 173	-3.8007	-0.0362**	25 : 43	-2.5483
	(0, 60)	0.0418	125 : 97	0.7929	0.0463**	60 : 38	2.1403	-0.0447***	116 : 164	-3.3076	-0.1004***	20 : 48	-5.0561
		0.0582	127 : 95	0.9057	0.0544**	63 : 35	2.0611	-0.0691***	120 : 160	-4.1896	-0.1227***	20 : 48	-5.0644
		Added-to-Sell With Earnings Announcement			Added-to-Sell Without Earnings Announcement			Removed-from-Sell With Earnings Announcement			Removed-from-Sell Without Earnings Announcement		
AD	(0, 0)	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic
Short Term	(0, 1)	-0.0138***	92 : 112	-3.9224	-0.0121	22 : 28	-1.3946	0.0021	72 : 62	0.0542	-0.0002	23 : 17	-0.0413
	(0, 2)	-0.0203***	86 : 118	-4.0783	-0.0179	17 : 33	-1.4649	-0.0007	75 : 59	-0.0123	0.0142*	23 : 17	1.7885
	(0, 3)	-0.0226***	86 : 118	-3.713	-0.0304**	12 : 38	-2.0282	-0.0185	62 : 72	-0.2804	0.0117	23 : 17	1.2014
	(0, 4)	-0.0246***	84 : 120	-3.495	-0.0473***	12 : 38	-2.7339	0.0058	69 : 65	0.0764	0.0267**	26 : 14	2.3686
	(0, 5)	-0.03***	86 : 118	-3.819	-0.0536***	14 : 36	-2.7712	0.0447	72 : 62	0.5244	0.0248**	22 : 18	1.9709
	(0, 10)	-0.0324***	80 : 124	-3.7596	-0.0555***	13 : 37	-2.617	0.0467	70 : 64	0.5002	0.0228*	19 : 21	1.6524
Long-Term	(0, 20)	-0.03*	73 : 131	-2.5683	-0.0581**	19 : 31	-2.0238	-0.0432	62 : 72	-0.3419	0.0076	7 : 21	0.4066
	(0, 40)	-0.0249	83 : 121	-1.546	-0.0916**	18 : 32	-2.311	-0.2069	71 : 63	-1.1841	0.0232	9 : 19	0.8998
	(0, 60)	-0.0413*	82 : 122	-1.8349	-0.1649***	16 : 34	-2.9752	0.0383	71 : 63	0.157	0.0422	11 : 17	1.169
		-0.0382	74 : 130	-1.392	-0.1843***	14 : 36	-2.7265	0.2047	69 : 65	0.6875	0.0237	11 : 17	0.5392

Notes: p:n denotes the number of positive and negative Averaged Abnormal Return (AAR) for stocks respectively while *, **, and *** denote the statistical significance at 0.1, 0.05 and 0.01 levels, respectively.

