Shariah Compliance Status and Value of Analysts' Recommendation Revisions: Evidence from Malaysia

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Abstract

This study examines the effect of 1096 analyst recommendation revisions on prices of Shariah-compliant and Shariah non-compliant listed securities in Bursa Malaysia 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. We find that performance differences of Shariah-compliant and Shariah non-compliant stocks in response to analysts' recommendation revisions are often negligible. Overall, this study provides empirical evidence that analysts' recommendation revisions for Shariah-compliant companies often do not own any additional investment value than those for Shariah non-compliant stocks.

Keywords: Analysts, Forecasts, Revisions, Earnings, Islamic finance, Shariah-compliant stocks, Malaysia

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Introduction

For decades researchers have investigated price reactions 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 the role of analysts to facilitate market efficiency and price formation while a long-term abnormal return which is known as post-revision return drift (PRD) is related to slow adjustment of price and neglected public information in the inefficient market (Givoly & Lakonishok, 1979; Gleason & Lee, 2003; Hong, Lim, & Stein, 2000; Jegadeesh, Kim, Krische, & Lee, 2004; Womack, 1996).

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 the number of analyst coverage for listed companies and facilitate price formation and improve market efficiency 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 (see Figure 1).

Figure 1: The Number of Analysts' Recommendation Revisions in the CBRS
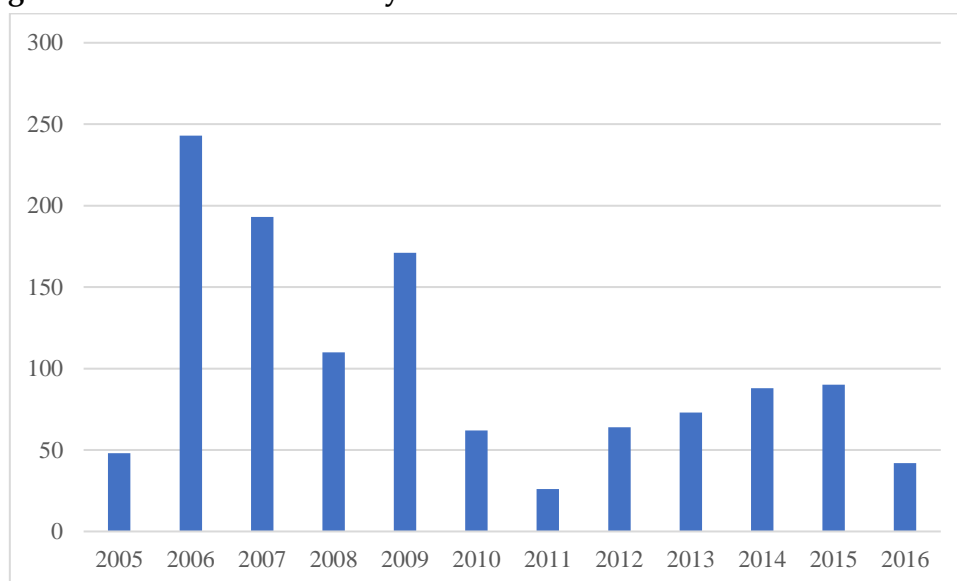
Source: Bursa Malaysia

Recently, investors and analysts went beyond traditional valuation tools by integrating extra-financial information into investment strategy and financial analysis (Bennani et al., 2018). Initially, researchers analyzed how corporate social responsibility affects analysts' assessments of firms' future financial performance (Ioannou & Serafeim, 2010). Later, integrating environmental, social and governance (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 the 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 Corporate social performance (CSR) and corporate financial performance (CFP) and the correlation of CSR and CFP was often non-negative (Barnett & Salomon, 2006; Clark, Feiner, & Viehs, 2014; Friede, Busch, & Bassen, 2015; Hillman & Keim, 2001; Margolis & Walsh, 2003; McWilliams & Siegel, 1997; Orlitzky, Schmidt, & Rynes, 2003). Along the same line, few studies demonstrated that there is a positive relation between analysts' recommendations and the ESG factor (Ioannou & Serafeim, 2010; Mimouni, Smaoui, Temimi, & Al-Azzam, 2019). Although few prior works (Farooq, 2014; Sabrun, Muhamad, Yusoff, & Darus, 2018) attempted to uncover the link between Shariah compliance and financial performance, there is still a significant need for efforts to understand such intricate relation and its implications by conducting further studies. Thus, this study aims to analyze whether investors react to analysts' recommendation revisions for Shariah-compliant stocks differently from Shariah non-compliant stocks.

The main objective of this study is to understand the impact of analyst recommendations participating in the financial analysts' coverage incentive scheme over the listed firms in Malaysia. More particularly, the study aims to compare the price reactions of Shariah non-compliant and Shariah-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 Shariah non-compliant and Shariah-compliant firms in Malaysia react to analysts' recommendation revisions. Based on the research objectives mentioned above the following four research hypotheses to are going to be addressed in this study:

H1. Analysts' recommendation revisions lead to price reactions in short-term horizons and long-term horizons.

H2. Price reactions for Shariah-compliant stocks subsequent to analysts' recommendation revisions are stronger than Shariah non-compliant stocks in short-term horizons and long-term horizons.

H3. 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.

H4. Price reactions for Shariah-compliant stocks subsequent to analysts' recommendation revisions which are issued contemporaneously with and without earnings announcements are stronger than Shariah non-compliant stocks in short-term horizons and long-term horizons.

This study contributes to the extant literature by attempting to fill several important gaps in the literature. To our knowledge, there is very limited research that 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 a large dataset. Secondly, we analyze how analyst recommendation revisions related to earnings announcements affect stock price reactions in Bursa Malaysia 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 behavior and financial performance of Shariah-compliant firms.

The rest of this paper is set out as follows. Section 2 provides a review of analyst recommendation studies. Section 3 sets out model estimations and methodology. Section 4 is dedicated to a discussion of empirical results. Section 5 presents conclusions whereas the paper concludes with Section 6 where we present policy recommendations.

1. Literature Review

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 to 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 and 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 the announcement. The 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 the role of analysts to facilitate market efficiency and price formation while a long-term abnormal return which is known as post-revision return drift (PRD) is related to slow adjustment of price and neglected public information in the inefficient market (Givoly & Lakonishok, 1979; Gleason & Lee, 2003; Hong et al., 2000; Jegadeesh et al., 2004; Womack, 1996).

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 have any information value for investors. Ivkovic and Jegadeesh (2004) suggest that the timing of recommendation revisions related to earnings announcements has a significant effect on the abnormal return of stocks. Menéndez-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. Altınkılıç and Hansen (2009) documents that the analyst recommendation revisions by downgrading or upgrading stocks are 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 Euronext (2003), 79% of fund managers and analysts 388 fund managers and financial analyst responded that social management creates positive value for a 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, and 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, and Bassen (2015) reviewed more than 2000 empirical studies which investigated the relationship between ESG issues and CFP. Roughly 90% of studies showed that ESG–CFP relation is non-negative. More importantly, most studies documented positive ESG–CFP relations and the positive impact of ESG is more stable over time.

Considering the growing number of studies on ESG-CFP relation, many studies attempted to understand how the relation between CSP (or ESG) and CFP can influence analyst recommendations (Hinze & Sump, 2019; Liang & Renneboog, 2020). 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 buying or selling stocks for general investors. On the other hand, Ioannou and Serafeim (2010) show that analysts tend to downgrade their recommendations for firms with higher ESG scores, yet this pessimism gradually vanished. Alazzani, Wan-Hussin, Jones, and Al-hadi (2021) also conclude that there is a positive link between analysts' recommendations and ESG

disclosure in the middle east. Similarly, Yuan Chang, Chen, Chou, and Shen (2014) show that superior CSR performance is associated with a higher percentage of hold recommendations.

Although there is an increasing number of studies on the relation between analysts' recommendations and ESG issues, there are limited studies that focus on the link between Shariah criteria as extra-financial information and CFP, and how investors react to analysts' recommendation revisions for Shariah-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 and 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 Shariah-compliant firms which have low leverage, low account receivables, and low cash and interest-bearing securities, should have better performance than Shariah non-compliant firms. Therefore, a better disclosure environment of Shariah-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 Shariah-compliant firms. Sabrun et al. (2018) found that although Islamic principles and values encourage ethical behavior in business management, the empirical analysis showed that Shariah-compliant firms in Malaysia did not deter earnings management behavior. Thus, satisfying Shariah screening criteria determined by financial regulatory bodies or ETF fund managers does not guarantee that a company and its management follow Islamic principles and values in all aspects of its business management and practices. In other words, a Shariah-compliant firm may create unfavorable environmental and social impacts and have poor corporate governance while it is still able to meet Shariah screening criteria based on its financial ratios and business activities.

Fatema et al. (2013) suggest that Shariah compliance helps the Islamic Brands identifiable and increases the 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 recommendations for buying or selling Shariah 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 Shariah-compliant stocks in line with the Price Pressure Hypothesis (PPH) of Harris and Gurel (1986) and the Imperfect Substitutes Hypothesis (ISH) of Shleifer (1986).

2. Data and Methodology

2.1. Data and Sample Selection

We use 1096 analyst recommendation revisions to understand whether they cause price reactions for listed securities between 1 May 2005 and 31 November 2016. In our sample, 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 of 1096 recommendation revisions,

there are revised recommendations for 979 Shariah-compliant stocks and 117 Shariah non-compliant stocks.

Additionally, we want to analyze the impact of analyst recommendations related to and outside the earnings announcements. Therefore, the research also uses two sub-sample categories which are suggested by many previous empirical studies (Ivkovic & Jegadeesh, 2004; Loh & Stulz, 2009; Menéndez-Requejo, 2005), namely the result reports and update reports for each list changes category. Thus, 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. In our sample, 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 1: 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

The dataset consists of information on the submission dates of analyst recommendation reports, types of reports, 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 of Bursa Malaysia and Thomson Reuters Eikon financial database to conduct our empirical analysis.

2.2. Methodology

2.2.1. Univariate Analysis

For testing research hypotheses H1 and H3, we use a standard event study methodology and market model to investigate the impact of analyst recommendation revision on prices of upgraded and downgraded stocks (Brown & Warner, 1985). Event Study Metrics estimates the model parameters by ordinary least squares (OLS) regressions based on estimation-window observations as follow;

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

wherein the case of the first day after the event, $R_{i,t}$ is the 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 the 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 $(R_{m,t})$.

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

After calculating the expected returns for each security i at the time t $(\widehat{R_{i,t}})$ from 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)).

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

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

$$AAR_t = \frac{1}{N} \sum_{j=1}^{N} AR_{j,t} \qquad (4)$$

The average abnormal returns are summed over the event window to obtain a cumulative average abnormal return $CAAR_{i,t}$ for each time horizon from the day 'i' to 'T'(Equation (5)).

$$CAAR_{i,t} = \sum_{t=i}^{T} AAR_t \tag{5}$$

Most studies suggest between 30 days and 100 days as the length of the estimation window (Bildik & Gülay, 2008; Cox & Peterson, 1994; Yazi, Morni, & Saw, 2015). 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 the event window of (-60, -6) in both studies.

The study conducts an estimation window for calculating abnormal returns for the following event windows;

Announcement day (AD): If there is no anticipation for analyst recommendation revision, it is expected that investors cause abnormal returns for listed securities on the announcement day as a result of the 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 the market to incorporate new information into stock prices as shown by studies of Altınkılıç and 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.

2.2.2. Multivariate Analysis

For testing research hypotheses H2, the study used the following econometric model to capture the impact of analyst recommendation revisions on four different categories of revisions and to test whether it has a significant effect on Shariah non-compliant stocks.

$$CAR_{j,i,t} = \beta_1 AB_{j,t} + \beta_2 RB + \beta_3 AS_{j,t} + \beta_4 RS_{j,t} + (\beta_5 AB_{j,t} + \beta_6 RB_{j,t} + \beta_7 AS_{j,t} + \beta_8 RS_{j,t}) \times SN_{j,t} + \varepsilon_{i,t} \tag{6}$$

where Individual Cumulative Abnormal Return variable is denoted as $CAR_{j,i,t}$. We have four dummy variables for analysts' recommendation revisions, namely Added-to-Buy recommendation (AB_j), Removed-from-Buy recommendations (RB_j), Added-to-Sell

recommendations (AS_j), Removed-from-Sell recommendations (RS_j). Plus, we use one dummy variable for Shariah non-compliant stocks (SN_j).

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; Altınkılıç & Hansen, 2009; Yezegel, 2015). Therefore, investigating analyst recommendation revisions related to and beyond 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 Shariah non-compliant stocks.

For testing research hypotheses H4, 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 a significantly different effect for Shariah non-compliant stocks.

$$CAR_{j,i,t} = \beta_1 ABe_{j,t} + \beta_2 ABw_{j,t} + \beta_3 RBe_{j,t} + \beta_4 ARBw_{j,t} + \beta_5 ASe_{j,t} + \beta_6 ASw_{j,t} + \beta_7 RSe_{j,t} + \beta_8 RSw_{j,t} + \qquad (7)$$

$$(\beta_9 ABe_{j,t} + \beta_{10} ABw_{j,t} + \beta_{11} RBe_{j,t} + \beta_{12} RBw_{j,t} + \beta_{13} ASe_{j,t} + \beta_{14} ASw_{j,t} + \beta_{15} RSe_{j,t} + \beta_{16} RSw_{j,t}) \times SN_{j,t} + \varepsilon_{i,t}$$

We have eight dummy variables for analysts' recommendation revisions, namely Added-to-Buy recommendation with earnings announcement (ABe_j), Added-to-Buy recommendation without earnings announcement (ABw_j), Removed-from-Buy recommendations with earnings announcement (RBe_j), Removed-from-Buy recommendations without earnings announcement (RBw_j), Added-to-Sell recommendations with earnings announcement (ASe_j), Added-to-Sell recommendations without earnings announcement (ASw_j), Removed-from-Sell recommendations with earnings announcement (RSe_j), Removed-from-Sell recommendations without earnings announcement (RSw_j).

3. Results

3.1. Abnormal Return

The empirical results exhibit that the CAARs of stocks removed-from-buy and stocks added-to-sell are -0.53% and -1.35% respectively on the announcement day (0, 0). 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%. 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 2 documents that the CAARs of stocks removed-from-buy and added-to-sell are -3.51% and -3.90% 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 in the short term and the long term.

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 the 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 and Chan (2008). According to Grossman (1976) and Grossman and Stiglitz (1980), information is rarely perfect, and thus, economic agents can improve information efficiency through making profiting 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 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 the 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.

We used the Scholes/Williams to estimate cumulative abnormal returns from non-synchronous trading of securities based on the study of (Scholes & Williams, 1977). Appendix A 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 2: 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
	(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
Short-Term	(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
	(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
Long-Term	(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.

3.2. Abnormal Return and Shariah-compliant Stocks

Table 3 shows the results of univariate regression of equation (6) the coefficients of both RB_j and AS_j are negative in the short-term. While the coefficients of RB_j are -0.67% and -2.14% for respectively announcement day and five trading days period, the coefficients of AS_j are -1.31% and -4.13% for respectively same time horizons. However, the coefficients of AB_j are 0.70% and 1.57% for respectively announcement day and five-trading days periods. In the long term, the coefficients of RB_j and AS_j are -3.56% and -4.16% for one-month period while their coefficients are -10.52% and -8.64% for three-months period. On the other hand, the coefficients of AB_j are 1.70% and 3.93% for respectively one-month and three-month periods.

The coefficients of RS_j are 1.65% and 2.96% at 0.10 significance level for ten trading days and one-month periods while coefficients of $RS_j \times SN_j$ are -4.47% and -6.58% at 0.10 significance for the same period. The empirical results document that analysts' recommendation revisions have a significantly different effect for Shariah non-compliant stocks removed-from-sell are significantly and their Shariah-compliant counterparts.

The interaction variables of $AB_j \times SN_j$, $AS_j \times SN_j$, and $RB_j \times SN_j$ are not statistically significant in the short term and the long term. In other words, the effect of analysts' recommendation revisions for Shariah-compliant and Shariah non-compliant stocks are not significantly different.

Table 3 documents that analysts' recommendation revisions affect Shariah non-compliant and Shariah-compliant stocks removed-from-sell differently. If an analyst upgrades the rate of a Shariah-compliant stock from 'sell' to 'hold', it is estimated to have a positive cumulative abnormal return in the long term. On the other hand, the cumulative abnormal return of a Shariah non-compliant removed-from-sell stock is estimated to be negative. Although the impact of analysts' recommendation changes for Shariah-compliant stocks is consistent with the market efficiency theory of Grossman and Stiglitz (1980), empirical results of Shariah non-compliant 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 Shariah non-compliant stocks with cumulative abnormal returns of stocks added-to-buy, removed-from-buy, and added-to-sell are not statistically significant in the short-term and long-term. In other words, the effect of analysts' recommendation revisions for Shariah-compliant and Shariah non-compliant stocks are not significantly different. There are several factors to explain why analysts' recommendation revisions do not cause higher price reactions for Shariah-compliant stocks.

According to Shariah screening methodology of SCM's SAC, the majority of the listed securities in Bursa Malaysia, more particularly almost 80% of stocks, are Shariah-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). Amanah Saham Bumiputera (ASB) shows the level of savings of most Bumiputeras. The bottom 71.4% of unitholders in 2013 have an average of RM554 (*The State of Households*, 2014). Therefore, Muslim retail investors in Malaysia are much less than Non-Muslim investors. Moreover, the share of Islamic funds among wholesale and unit trust funds is less than 26% 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 the coordinated behavior of a large number of Muslim retail and Islamic institutional investors while almost 80% of listed securities in Bursa Malaysia are Shariah-compliant. Under such circumstances, analysts' recommendation revisions may not cause significantly different effects for Shariah-compliant stocks.

Although a priori proposition would suggest that complying with Shariah rules and principles is associated with reflecting Islamic moral behavior in all business activities and management, the contemporary Shariah screening process simply focuses on avoiding prohibited business activities and satisfying particular financial ratios. Therefore, current Shariah 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 Shariah-compliant firms have poorer ESG performance than Shariah non-compliant firms. Thus, current Shariah screening methodologies in Bursa Malaysia do not disseminate any extra-financial information on ESG issues to persuade investors that Shariah-compliant firms will perform better than Shariah non-compliant counterparts in the short-term or long-term. Thus, Shariah compliance as a non-financial attribute does not embody valuable information that equity analysts and investors should take into account unless coordinated behavior of a large number of Shariah sensitive investors changes the price equilibrium of Shariah-compliant and Shariah non-compliant stocks, and consequently, put severe limits to arbitrage.

The empirical results in Table 2 and **Error! Reference source not found.** 3 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 3: Individual Cumulative Abnormal Returns (CAR) for Stocks After Analyst Recommendation Revisions for Shariah-compliant and Non-compliant Stocks, Consolidated (2005-2016)

	AD	Short Term						Long Term			
	$CAR_{j,0,0}$	$CAR_{j,0,1}$	$CAR_{j,0,2}$	$CAR_{j,0,3}$	$CAR_{j,0,4}$	$CAR_{j,0,5}$	$CAR_{j,0,10}$	$CAR_{j,0,20}$	$CAR_{j,0,40}$	$CAR_{j,0,60}$
AB_j	0.0070**	0.0123***	0.0131***	0.0147***	0.0137***	0.0157***	0.0156**	0.0170*	0.0282*	0.0393*
AS_j	-0.0131***	-0.0195***	-0.0279***	-0.0344***	-0.0390***	-0.0413***	-0.0397***	-0.0416***	-0.0845***	-0.1052***
RB_j	-0.0067**	-0.0096***	-0.0145***	-0.0182***	-0.0199***	-0.0214***	-0.0252***	-0.0356***	-0.0575***	-0.0864***
RS_j	-0.0029	-0.0050	-0.0018	0.0039	0.0047	0.0117	0.0165*	0.0296*	0.0336	0.0406
$AB_j \times SN_j$	0.0042	0.0046	0.0025	0.0054	0.0043	0.0126	0.0072	0.0036	-0.0204	-0.0332
$AS_j \times SN_j$	-0.0027	-0.0033	0.0041	0.0006	0.0005	-0.0053	0.0009	-0.0221	-0.0064	-0.0248
$RB_j \times SN_j$	0.0145*	0.0144	0.0142	0.0155	0.0121	0.0069	0.0036	-0.0120	0.0080	0.0149
$RS_j \times SN_j$	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

3.3. Abnormal Return and Earnings Announcements

Following recommendation revisions issued contemporaneously with earnings announcements, both stocks removed-from-buy and added-to-sell had an abnormal loss 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. In Table 4, empirical results show 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 0.91% and 1.57% 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, +60). 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).

Almost 75% of analyst recommendation revisions took place within one week after earnings announcements and empirical results exhibit that stock price reactions are sound and significant to recommendation revisions issued contemporaneously with recent earnings announcements. Our findings suggest that firms' earnings announcements can trigger analyst recommendation revisions since it is one of the most critical financial data to calculate the long-term value of a firm. Similarly, studies of Ivkovic and Jegadeesh (2004), Menéndez-Requejo (2005), and Altınkılıç and 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 results in Table 4 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% 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 is 2.43% in the 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%. On the other hand, stocks added-to-buy rose

to 4% and 7.37% in respectively one-month event window (0, +20) and three-month event window (0, +60).

We provide empirical 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 is 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 may carry new information beyond corporate news. This finding undermines fundamental arguments of Ivkovic and Jegadeesh (2004), Menéndez-Requejo (2005), and Altınkılıç and Hansen (2009) which claims that the analysts often piggyback on recent corporate news and analyst recommendations related to earnings announcements cause greater price reactions.

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 B 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 4: 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
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
Short	(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
Term	(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	CAAR	p: n	t-statistic
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
Short	(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
Term	(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

3.4. Abnormal Return, Earnings Announcements, and Shariah-compliant Stocks

T documents that the coefficients of both RBe_j and ASe_j are negative in the short term and significant. 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 find that the CARs of a stock added-to-buy are 0.90% and 1.50% during the announcement (0, 0) and five trading days period (0, +5) while the CAR of a stock removed-from-sell is not significant for the same periods. In the long term, the CARs of a stock removed-from-buy and added-to-sell are respectively -3.56% and -3.67% in one-month event window (0, +20) while their coefficients are -7.90% and -10.82% 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 in one-month (0, +20) and three-month event window (0, +60).

It is important to discuss the impact of analysts' recommendation changes beyond earnings announcements. 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% in the five-day event window (0, +5). While the CAR of a stock added-to-sell is -1.32% on the event day, our model estimates its CAR as -5.29% in the 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 0.05 significance level in five-day event window (0, +5). In the one-month event window (0, +20), the CAR of a stock added-to-sell is -5.78% while the CAR of a stock removed-from-buy is not significant. In the three-month event window (0, +60), the CAR of a stock removed-from-buy is -11.33% 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 in one-month (0, +20) and three-month event window (0, +60).

We examine the analysts' stock recommendation revisions issued contemporaneously with earnings announcements in terms of the magnitude and direction. Empirical results document that upward (downward) stock recommendation revisions are often correlated with positive (negative) cumulative abnormal returns in the 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 the short-term while a stock added-to-buy is estimated to have positive cumulative abnormal returns in the 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 recognize the ability of analysts to predict the value of listed securities in Bursa Malaysia.

Turning to the key variable of interest, SN_j, Table 5 indicates that the interaction variables of $ABe_j \times SN_j$, $ABw_j \times SN_j$, $ASe_j \times SN_j$, $ASw_j \times SN_j$, $RBe_j \times SN_j$, $RBw_j \times SN_j$, and $RSe_j \times SN_j$ are not significant. Thus, analysts' recommendation revisions issued contemporaneously without corporate news often do not cause significantly different effects for Shariah-compliant and Shariah non-compliant stocks. However, a Shariah non-compliant stocks removed-from-sell have a significant and negative cumulative abnormal return in the short term. Higher cumulative abnormal returns (loss) for upgraded (downgraded) Shariah-compliant stocks are consistent with *Price Pressure Hypothesis* (PPH) and *Imperfect Substitutes Hypothesis* (ISH).

The empirical findings regarding the insignificance of the Shariah-compliant status of listed securities to determine price reactions for upgraded and downgraded stocks in section 4.4 are consistent with findings in section 4.2. The results about the impact of analysts' recommendation revisions issued contemporaneously with and without earnings announcements over price reactions in section 4.4 are consistent with findings in section 4.3.

Table 5: Individual Cumulative Abnormal Returns (CAR) for Shariah-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			
	$CAR_{j,0,0}$	$CAR_{j,0,1}$	$CAR_{j,0,2}$	$CAR_{j,0,3}$	$CAR_{j,0,4}$	$CAR_{j,0,5}$	$CAR_{j,0,10}$	$CAR_{j,0,20}$	$CAR_{j,0,40}$	$CAR_{j,0,60}$
ABe_j	0.0090***	0.0114***	0.0119*	0.0138***	0.0120**	0.0150**	0.0161**	0.0123	0.0280	0.0318
ABw_j	0.0022	0.0143**	0.0158**	0.0166**	0.0176**	0.0172**	0.0146	0.0266	0.0287	0.0560
ASe_j	-0.0128***	-0.0200***	-0.0256***	-0.0292***	-0.0362***	-0.0398***	-0.0374***	-0.0356***	-0.0859***	-0.1082***
ASw_j	-0.0132*	-0.0169*	-0.0367***	-0.0537***	-0.0514***	-0.0529***	-0.0525***	-0.0578**	-0.0809	-0.0712
RBe_j	-0.0073**	-0.0096**	-0.0147***	-0.0174***	-0.0198***	-0.0221***	-0.0280***	-0.0367***	-0.0485**	-0.0790***
RBw_j	-0.0044	-0.0093	-0.0136*	-0.0212**	-0.0205**	-0.0189*	-0.0154	-0.0318	-0.0891**	-0.1133**
RSe_j	-0.0041	-0.0133**	-0.0109*	-0.0091	-0.0088	-0.0032	0.0075	0.0202	0.0046	0.0123
RSw_j	0.0012	0.0213*	0.0244**	0.0413***	0.0445***	0.0567***	0.0412*	0.0547*	0.1110*	0.1218
$ABe_j \times SN_j$	0.0004	-0.0005	-0.0133	-0.0112	0.0005	0.0041	-0.0113	-0.0051	0.0352	0.0338
$ABw_j \times SN_j$	0.0116	0.0120	0.0264	0.0308	0.0094	0.0261	0.0307	0.0095	-0.0764	-0.1096
$ASe_j \times SN_j$	-0.0098	-0.0101	-0.0070	-0.0090	-0.0044	-0.0091	-0.0205	-0.0499	-0.0218	-0.0498
$ASw_j \times SN_j$	0.0287	0.0269	0.0508*	0.0489*	0.0326	0.0237	0.0752*	0.0712	0.0246	0.0269
$RBe_j \times SN_j$	0.0225**	0.0214	0.0251	0.0269	0.0244	0.0240	0.0225	-0.0053	0.0382	0.0652
$RBw_j \times SN_j$	-0.0035	0.0010	-0.0052	-0.0031	-0.0087	-0.0251	-0.0401	-0.0445	-0.0513	-0.1787
$RSe_j \times SN_j$	0.0060	0.0210	0.0616***	0.0339*	-0.0055	-0.0136	-0.0240	-0.0712	-0.1373	-0.2167*
$RSw_j \times SN_j$	-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

Conclusion

In this study, we examined both the short and long-term performance of upgraded and downgraded stocks in Bursa Malaysia. The empirical results indicate that while the CAARs of stocks added-to-buy have 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 their 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 and Lehavy (2003), Stickel (1995), Womack (1996), Altınkılıç and Hansen (2009), Altınkılıç, Balashov, and Hansen (2013), and Kim and 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 and Jegadeesh (2004), Menéndez-Requejo (2005), and Altınkılıç and 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 has a 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 Shariah-compliant companies often do not own any additional investment value than those for Shariah non-compliant stocks. Analysts' recommendation revisions give rise to stronger market reactions for Shariah-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 Shariah non-compliant firms are often not significantly different from Shariah-compliant firms.

Among possible explanations for not having significantly different price reactions for Shariah non-compliant firms is the large market share of Shariah-compliant listed firms in Bursa Malaysia. Thus, a Shariah-compliant stock has many substitutes among Shariah-compliant stocks in Bursa Malaysia even if Shariah 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 Shariah-compliant listed companies in Bursa Malaysia. Therefore, the non-financial preference of Shariah-sensitive investors neither put limits to arbitrage nor deteriorate market efficiency.

Policy Recommendations

After analyzing the impact and function of analyst recommendation revisions on Shariah-compliant and Shariah non-compliant firms in Bursa Malaysia, the findings of this study have essential implications for brokerage firms and investors.

We find 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 employing qualified researchers and release 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 Shariah-compliant firms. Moreover, most analysts' reports show that many brokerage firms still did not integrate Shariah issues as extra-financial information into stock valuations. However, analysts in Malaysia have a vital responsibility to investigate the impact of fulfilling Shariah 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 the investment advice of brokerage firms in Malaysia since they have a 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 have dramatically increased over the last few decades, price reaction towards analysts' recommendation changes for Shariah-compliant firms is not significantly different from investors' response to Shariah non-compliant firms. Thus, most investors still seem to believe that fulfilling business-activity-based benchmarks and financial benchmarks of the Shariah Screening methodology do not add any financial value to a company.

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Appendix

Appendix A: *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 B: *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		
		CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic	CAAR	p: n	t-statistic
AD	(0, 0)	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, 1)	0.0121	132 : 90	1.0353	0.0137***	63 : 35	2.8655	-0.0087***	129 : 151	-2.9106	-0.01**	29 : 39	-2.2761
Short - Term	(0, 2)	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, 3)	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, 4)	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, 5)	0.0053	120 : 102	0.2624	0.0206**	55 : 43	2.488	-0.0171***	115 : 165	-3.2981	-0.0203***	25 : 43	-2.671
	(0, 10)	0.0058	122 : 100	0.2127	0.0183*	58 : 40	1.6342	-0.0227***	120 : 160	-3.2382	-0.0201**	27 : 41	-1.9532
Long - Term	(0, 20)	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, 40)	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, 60)	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)	-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, 1)	-0.0203***	86 : 118	-4.0783	-0.0179	17 : 33	-1.4649	-0.0007	75 : 59	-0.0123	0.0142*	23 : 17	1.7885
Short - Term	(0, 2)	-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, 3)	-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, 4)	-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, 5)	-0.0324***	80 : 124	-3.7596	-0.0555***	13 : 37	-2.617	0.0467	70 : 64	0.5002	0.0228*	19 : 21	1.6524
	(0, 10)	-0.03*	73 : 131	-2.5683	-0.0581**	19 : 31	-2.0238	-0.0432	62 : 72	-0.3419	0.0076	7 : 21	0.4066

Long-Term	(0, 20)	-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, 40)	-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, 60)	-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.
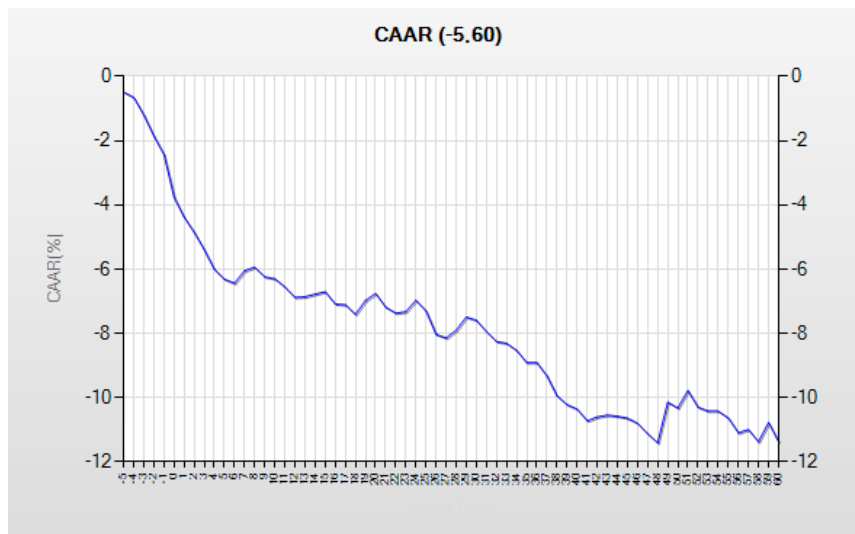
Appendix C: Cumulative Average Abnormal Return (CAAR) for Added-to-Buy Stocks After Analyst Recommendation Revisions
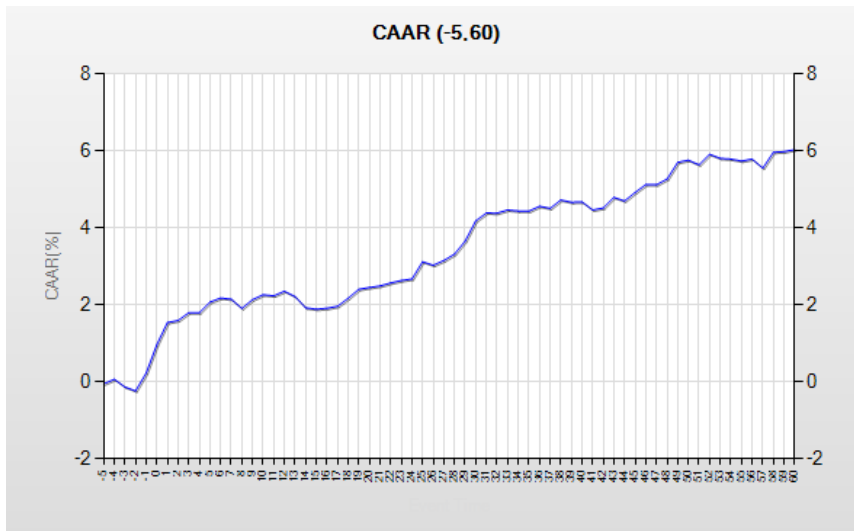
Appendix D: Cumulative Average Abnormal Return (CAAR) for Removed-from-Buy Stocks After Analyst Recommendation Revisions
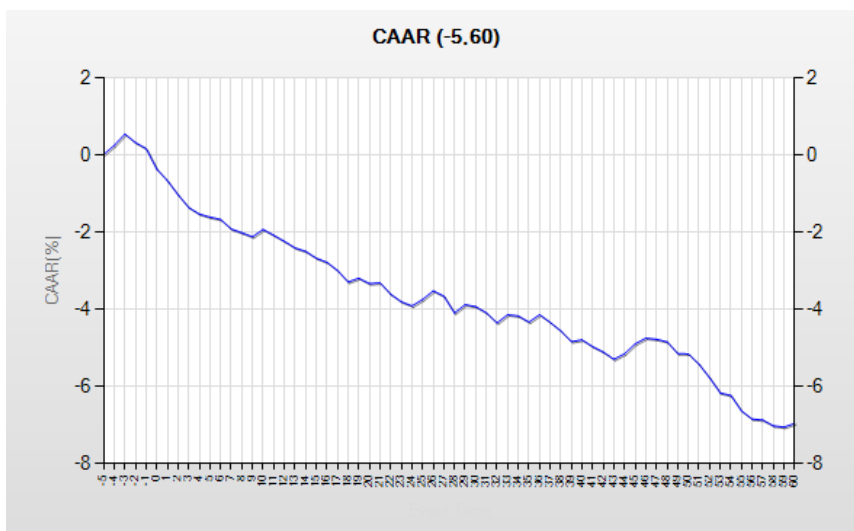
Appendix E: Cumulative Average Abnormal Return (CAAR) for Added-to-Sell Stocks After Analyst Recommendation Revisions

Appendix F: Cumulative Average Abnormal Return (CAAR) for Removed-from-Sell Stocks After Analyst Recommendation Revisions