

Shariah-compliant firms and earnings management: do continuation and ethnicity matter?

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Abstract

Purpose – This study aims to revisit the relationship between Shariah-compliant firms and earnings management. Specifically, the authors examine whether Shariah-certified firms have lower earnings management than non-Shariah-certified firms and how often a firm must hold its certification to observe considerably reduced earnings management. This study also explores how senior management ethnic dualism affects the association of Shariah certification and earnings management.

Design/methodology/approach – The authors analyze the hypothesized association between Shariah certification and earnings management using a panel regression model and several robustness tests, including the Heckman selection model. The sample consists of 547 nonfinancial firms listed on the Bursa Malaysia stock exchange, with 5,478 firm-year observations over the 2001–2016 sample period.

Findings – Shariah certification is found to mitigate earnings management, particularly for firms that consistently retain their Shariah status. The longer firms retain their Shariah certification continually, the lower the earnings management. Additionally, the results indicate that the negative impact of Shariah certification on earnings management is driven by ethnic duality when a specific ethnic group dominates the top management.

Research limitations/implications – Firms' commitment to religious-based screening and continuation of certification plays a significant role in improving earnings quality. Firms are committed to abiding by the Shariah code of conduct instead of using the Shariah status for reputation purposes to attract investors.

Practical implications – For investors, the continuous compliance status is a crucial indicator of a firm's commitment to comply with Shariah principles and to mitigate earnings management. Regarding policy implications, Shariah-compliance guidelines can constrain earnings manipulation, especially among firms lacking ethnic diversity.

JEL classification – G34, M14

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Originality/value – The study shows that Shariah certification must be maintained consecutively to reduce earnings management. Shariah certification's governance function is crucial in ethnically homogeneous firms, primarily when one ethnic group dominates the senior management.

Keywords Religious-based ethical screening, Shariah-compliant stock, Earnings management, Ethnic diversity, Agency theory, Stakeholder theory

Paper type Research paper

1. Introduction

Shariah compliance certification involves ethical screening and classifying *halal* [1] stocks in compliance with Islamic principles. An ethical screening narrows the number of stocks that meet investors' ethical values, including moral, religious, environmental and social principles. Shariah compliance aligns with the concept of corporate social responsibility (CSR) and environment, social and governance (ESG) compliant stocks, but the compliance guidelines used to screen the stocks are different. Supposedly, ethical screening increases firms' public disclosure and is expected to mitigate asymmetric information (Egginton and McBrayer, 2019), reduce investors' compliance concerns and research costs (Khaw *et al.*, 2019), improve profitability (Alsharari and Alhmoud, 2019; Hambali and Desi, 2023) and corporate governance (Tashkandi, 2023; Toumi and Hamrouni, 2023). However, some firms exploit these ethical compliance certifications for reputation (Alsaadi, 2021; Barnea and Rubin, 2010; Tetrault Sirsly and Lvina, 2019) and even cover up financial fraud (Li *et al.*, 2021).

This study is motivated to justify the inconsistent results of studies examining the relationship between Shariah-compliant certification and earnings management. For example, [Alsaadi *et al.* \(2017\)](#) and [Alsaadi \(2021\)](#) find that firms exploit their Shariah-compliant status to attract investors. They add that the religious-based status neither indicates good corporate governance ([Alsaadi, 2021](#)) nor mitigates corporate earnings manipulation ([Alsaadi, 2021](#); [Sabrun *et al.*, 2018](#)). To attain Shariah status, firms can revise their Shariah and non-Shariah-compliant financing and earnings to satisfy the business activities and financial ratios benchmarks [2]. Nevertheless, [Farooq and AbdelBari \(2015\)](#) and [Wan Ismail *et al.* \(2015\)](#) prove otherwise. They find that the requirement of the financial ratio benchmarks leads Shariah-certified firms to maintain low cash levels, account receivables and debt positions, restricting them from misreporting their earnings ([Farooq and AbdelBari, 2015](#)). In contrast, firms with high leverage, account receivables and cash reserves are more inclined to manage earnings ([Chung *et al.*, 2005](#); [Dechow *et al.*, 1995](#); [Lazzem and Jilani, 2018](#)). There is also a demand for high-quality financial reporting from Shariah-certified firms because these firms are subject to additional scrutiny by external institutions compared to non-Shariah firms ([Wan Ismail *et al.*, 2015](#)).

Obtaining Shariah-compliant status indicates a firm's commitment to religious-based compliance guidelines. Consistent with previous studies (e.g. [Elnahass *et al.*, 2022](#); [Farooq and AbdelBari, 2015](#); [Rahman *et al.*, 2020](#); [Wan Ismail *et al.*, 2015](#)), and drawing from the literature on religious and social norms, agency and stakeholder theories, we expect Shariah certification to mitigate earnings management. However, our study differs in two ways. First, we argue that the continuation of Shariah certification and the frequency of continuation matters in mitigating earnings management. We expect firms that retain their Shariah certification in every review round will be more committed and motivated to adhere to ethical principles. Second, we provide evidence from a sample of multicultural backgrounds. Malaysia is a multiracial country with diverse religions, cultures and customs. Islam is the official religion, but there is no restriction for non-Muslim ethnic groups (such as the Chinese, Hindus and indigenous ethnic groups) to practice their religions. This context enables us to extend our analysis to examine how ethnicity affects the significance of

Shariah certification in mitigating earnings management. Though [Wan Ismail et al. \(2015\)](#) also seek evidence from a sample of Malaysian listed firms, their study does not account for differences in ethnicity.

We find that Shariah certification is negatively related to earnings management and the continuation of Shariah certification matters. Our results indicate that Shariah-compliant firms retain their certification for at least four years consecutively to mitigate earnings management significantly. Otherwise, the Shariah certification is insignificant. We show that the governance function of Shariah certification is significant among firms that lack ethnic diversity, particularly when a specific ethnic group dominates the top management. Overall, our results are robust to various specifications. Referring to [Alsaadi \(2021\)](#), we also control for sample selection bias using the Heckman two-step sample selection model.

We contribute to the literature in the following ways. Our study adds to the earnings management literature from the Shariah certification perspective ([Alsaadi, 2021](#); [Alsaadi et al., 2017](#); [Farooq and AbdelBari, 2015](#); [Wan Ismail et al., 2015](#)). We show that religious-based screening can mitigate conflicting goals between shareholders and managers, which may pressure the latter to manipulate earnings to achieve their goals. Second, we use the broad disclosure frequency literature to explain the impact of the continuation of Shariah certification on earnings management. The longer (in terms of the number of times) firms can retain their Shariah certification consecutively, the lower the earnings manipulation because the continuation reduces information asymmetry between managers and investors. Third, we contribute to the corporate governance literature, where Shariah certification significantly mitigates earnings manipulation, especially among boardrooms that lack ethnic diversity.

The paper is organized as follows. Section 2 reviews the literature and develops the hypotheses, followed by the data and methodology in Section 3. Section 4 discusses the results, and Section 5 concludes.

2. Literature and hypotheses development

Ethical screening is a mechanism used to review and classify stocks according to moral, religious or social values, such as CSR, ESG and Shariah-complaint stocks. There is a growing interest in studies examining the impacts of ethical stocks on individual behaviors, business ethics and corporate decisions. Shariah certification is a religious-based screening mechanism guided by Islamic principles, so first, we build our hypotheses using the literature on *religious and social norms*. As an influential social norm, religion affects individual behaviors in promoting social solidarity, norms and ethical decisions to reduce conflict ([Kennedy and Lawton, 1998](#)). Studies have shown that religion significantly influences corporate behaviors and corporate governance ([Du et al., 2015](#); [Gupta et al., 2022](#); [Kim and Daniel, 2016](#); [Murphy and Smolarski, 2020](#); [Nakpodia et al., 2020](#)).

Not only that, religion has also been found to influence corporate decisions ([Anwer et al., 2021](#); [Elnahas et al., 2017](#); [Hilary and Hui, 2009](#); [Xiong et al., 2022](#); [Pahlevi, 2023](#)), including cash holdings ([Alnori and Bugshan, 2023](#)), dividend payouts and share repurchases ([Anwer et al., 2021](#)). For example, [Anwer et al. \(2021\)](#) find that Shariah-compliant firms tend to have higher distributions to shareholders and stock repurchases due to greater profitability and internal funding, as indicated by retained earnings, but lower growth opportunities. Shariah-compliant firms rely less on external funding ([Alnori and Bugshan, 2023](#)) to avoid costly and restricted financing. Instead, these firms maintain higher cash holdings than their counterparts, which positively contributes to their performance ([Alnori and Bugshan, 2023](#)). In terms of product market competition, Shariah-compliant firms are less exposed to product market threats compared to non-Shariah-compliant firms ([Anwer et al., 2022](#)).

In addition, [McGuire et al. \(2012\)](#) find that firms in religious areas exhibit higher-quality financial reporting compared to nonreligious ones. [Chen et al. \(2022\)](#) further assert that CEOs' religiosity significantly enhances the quality of financial reporting. This effect becomes more pronounced when the firm is situated in an area with higher geographical religiosity or greater social capital, suggesting that a supportive environment reinforces the positive impact of CEO religiosity. [Du et al. \(2015\)](#) document that religion establishes significant social norms that help mitigate unethical corporate behavior, such as earnings management, although this relationship weakens with law enforcement. [Elnahass et al. \(2022\)](#) discover that the Shariah supervisory board can effectively mitigate earnings management in Islamic banks. [Rahman et al. \(2020\)](#) add that adherence to Shariah principles promotes ethical practices and reduces managerial opportunism among bank managers, thereby strengthening the negative relationship between CSR and earnings management. Based on previous studies, religion emerges as a significant driver in mitigating earnings management, particularly in weaker corporate governance environments.

In the context of Shariah certification, the mechanism embeds the religious values and Shariah regulations administered by external institutions. Expressly, Islamic principles prohibit firms from involvement in controversial business activities and uncertainties, such as selling or producing alcoholic drinks, operating casinos, pork-related or unlawful businesses and excessive risk-taking activities. Firms are also screened for their qualitative aspects, such as the public's perception of their Islamic principles and the Shariah-compliant business activities and financial ratio benchmarks. The prohibitions promote ethical activities that enhance human well-being ([Alsaadi, 2021](#)). Guided by religiosity, managers should be self-monitored, justly, fairly and honestly conducting business activities to safeguard stakeholders' interests. However, if firms engage in prohibited activities, they may lose stakeholder support, mainly among those concerned with religious-based ethical values ([Beekun and Badawi, 2005](#)). If firms fail to meet the Shariah-compliance screening guidelines, they will not attain or retain their Shariah certification.

Our study is also related to *agency theory*. From the context of earnings management, agency theory explains that a conflict between managers and shareholders occurs because managers tend to focus on earnings, sacrificing long-term shareholders' value-maximizing objectives to meet market expectations ([Alves, 2023](#); [Graham et al., 2005](#); [Kliestik et al., 2021](#)). Compared to healthy firms, financially distressed firms tend to undertake earnings management, which can be mitigated with internal control ([Li et al., 2020](#)). [Kliestik et al. \(2021\)](#) find that income-increasing manipulation is more significant than downward manipulation. Managers engage in income-increasing activities when they fear missing earnings targets to maintain or increase their firm's stock price. Otherwise, the market would perceive the managers as poor performers ([Graham et al., 2005](#)).

Conversely, managers are willing to sacrifice economic value to smooth earnings ([Graham et al., 2005](#); [Han and Wang, 1998](#); [Yoon and Miller, 2002](#)) because earnings volatility is riskier than earnings smoothing ([Graham et al., 2005](#)). Studies show that ethical screening can mitigate earnings manipulation ([Almahrog et al., 2018](#); [Alsaadi et al., 2017](#); [Brahem et al., 2022](#); [Farooq and AbdelBari, 2015](#); [Gaio et al., 2022](#); [Hong and Andersen, 2011](#); [Wan Ismail et al., 2015](#)) because the screening mechanism requires firms to disclose reliable and relevant information to external compliance institution periodically. From an ethical perspective, more socially responsible firms present more trustworthy financial information and sustainable economic performance, mitigating investment risk ([Gaio et al., 2022](#)).

Agency conflicts are lower among firms with good corporate governance. Shariah-compliant firms are subject to periodic review, where firms risk losing their status if they fail to meet the guidelines in a subsequent review. This process indicates that Shariah-compliant firms are subject to greater scrutiny from external institutions and investors, thus mitigating agency conflict

between managers and shareholders. In addition, Shariah-compliance guidelines require firms to abide by financial ratio benchmarks that detect non-Shariah-compliant financing and earnings (Alsaadi, 2021). Shariah-certified firms must maintain low cash levels, low account receivables and low debt positions, restricting them from misreporting their earnings (Farooq and AbdelBari, 2015). In contrast, firms with high leverage, account receivables and cash reserves are more inclined to manage earnings (Chung *et al.*, 2005; Dechow *et al.*, 1995; Lazzem and Jilani, 2018).

Another relevant theory is the *stakeholder theory*. Stakeholder theory addresses a firm's management, business ethics and impact on external stakeholders (Freeman, 2010). Managers are responsible for maximizing shareholders' wealth and considering various stakeholders' interests in their decision-making process. Ethics is vital in creating a bridge between firms and stakeholders to build positive firm reputations. Studies on socially responsible firms use stakeholder theory to examine the relationship between CSR and earnings management (Almahrog *et al.*, 2018; Hong and Andersen, 2011). Firms with a strong commitment to CSR are more responsible, transparent and reliable financial statements than non-CSR firms; hence, they are less likely to manipulate earnings (Choi *et al.*, 2013; Kim *et al.*, 2012). Reliable financial reporting is also essential to the communication process between firms and stakeholders. So, for committed firms, the managers must disclose accountability-related financial information to the relevant stakeholders. Drawing on these insights, Shariah-compliance screening is expected to mitigate opportunistic managerial behavior like earnings misreporting, so we posit that:

H1. Shariah-certified firms have lower earnings management than non-Shariah-certified firms.

To develop *H2*, we refer to *periodic auditing and financial disclosure frequency* literature. Prior studies argue that public disclosures are negatively related to information asymmetry because the disclosures provide investors with better access to information about a firm (Botosan and Harris, 2000; Fu *et al.*, 2012; Jo and Kim, 2007). As firms increase their disclosure frequency, the information content and timeliness are enhanced (Botosan and Harris, 2000; Butler *et al.*, 2007), mainly for voluntary disclosures (Butler *et al.*, 2007) that decrease information acquisition costs (Lang and Lundholm, 1993) and firms' cost of equity (Abu Alia *et al.*, 2022). Botosan and Harris (2000) add that when firms decide to increase their financial reporting frequency, managers implicitly signal their confidence in a firm's long-term performance. Moreover, Jo and Kim (2007) show that disclosure helps mitigate corporate earnings management practices because the persistent disclosure indicates a firm's commitment to increased transparency and monitoring.

Though the Shariah compliance mechanism does not involve public disclosure like financial reporting, firms that would like to be considered for Shariah certification must submit a report by a specific deadline to the Shariah Advisory Council (SAC). SAC is responsible for periodically reviewing and updating the Shariah and non-Shariah-compliant stocks list. The list is published and publicly accessible through the Security Commission Malaysia website. The external institution SAC acts as a gatekeeper, ensuring that only firms that abide by Islamic principles obtain the certification. Therefore, only firms meeting compliance guidelines in every review round can repeatedly retain their Shariah status. These firms are perceived to have high-quality reporting, are more transparent and have lower information asymmetry because they are subject to greater scrutiny by external institutions. Furthermore, they voluntarily disclose their business activities and financial information to abide by ethical Shariah principles. Hence, we hypothesize that:

H2. The more frequently firms can retain their Shariah compliance status consecutively, the lower the earnings management.

Malaysia is a multiracial country with diverse religions, cultures and customs, consisting of Malay, Chinese, Indian and indigenous ethnic groups. Islam is the official religion, but there is no restriction for non-Malay ethnic groups to practice their religions. Shariah-compliance guidelines are based on Islamic principles, a compulsory practice for the Malay ethnic group but not for the non-Malay ethnic groups. This background allows us to examine whether Shariah certification mitigates earnings management or acts as a label to attract investors, especially for firms dominated by a specific ethnic group. The Malays comprise the largest ethnic group in Malaysia, accounting for 69.8% of the total population, followed by the Chinese ethnic group, with 22.4% of the total population (Department of Statistics Malaysia, 2021).

Though Wan Ismail *et al.* (2015) also seek evidence from a sample of Malaysian listed firms, their study does not account for differences in ethnicity. Existing studies that build on agency cost and resource dependence theories find that board ethnic diversity leads to better governance (Labelle *et al.*, 2010; Richard, 2000; Tee and Rassiah, 2020; Upadhyay and Zeng, 2014). When there is diversity, there is a pool of human capital from different cultural backgrounds, talents and knowledge (Richard, 2000). These differences are found to improve firm monitoring (Upadhyay and Zeng, 2014), disclosure of information, degree of ethics (Labelle *et al.*, 2010) and earnings quality (Tee and Rassiah, 2020). Hence, Shariah certification is expected to mitigate the earnings management of firms with ethnic duality. Our third hypothesis posits that:

H3. Shariah status negatively affects earnings management, specifically among firms with ethnic duality.

3. Data and methodology

3.1 Sample description

Our sample comprises 547 nonfinancial firms on the Bursa Malaysia stock exchange, with 5,478 firm-year observations from 2001 to 2016. Financial firms are excluded because their accruals differ from those of nonfinancial firms (Jo and Kim, 2007). Financial firms also have different risk characteristics, financial structures and regulations. The sample firms and the required firm-specific data are collected from the Refinitiv Datastream database. The SAC screens and updates the list of Shariah-compliant stocks twice a year (in May and November). Because our data set consists of annual observations, we identify a firm as Shariah-compliant only if it meets the Shariah compliance guidelines in both rounds of review. Firm observations where the Shariah status of the first half differs from the second half are excluded to avoid potential identification bias. The list of Shariah-compliant firms is hand-collected from the Securities Commission website, which includes

- newly classified Shariah-compliant firms;
- firms that retain their Shariah-compliant status; and
- firms that have recently been removed from the Shariah list.

We can identify the number of times a firm retains its Shariah certification from the periodic reported status.

Table 1 tabulates the sample firm-year observations by nine industry groups classified based on the Global Industry Classification Standard (GISC): 39.36% of the sample observations are industrial firms, followed by 25.99% in consumer goods, 10.24% in basic materials and 10.20% in consumer services industries. Comparing the subsamples, most Shariah-compliant firms are industrial firms that take up 40.86% of the observations, followed by 27.17% in the consumer goods industry. For the non-Shariah subsample, the

Industry group	Full sample		Shariah-compliant firms		Non-Shariah-compliant firms	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Basic materials	561	10.24	517	11.25	44	4.98
Consumer goods	1,424	25.99	1,248	27.17	176	19.91
Consumer services	559	10.20	253	5.51	306	34.62
Health care	158	2.88	149	3.24	9	1.02
Industrial	2,156	39.36	1,877	40.86	279	31.56
Oil and gas	179	3.27	157	3.42	22	2.49
Technology	240	4.38	205	4.46	35	3.96
Telecommunications	49	0.89	49	1.07	13	1.47
Utilities	152	2.77	139	3.03	44	4.98
Total	5,478	100.00	4,594	100.00	884	100.00

Notes: This table shows the industry distribution of the sample of Shariah and non-Shariah firms from 2001 to 2016. Nine industry groups are classified based on the Global Industry Classification Standard (GISC). *n* is the number of firm-year observations, and % is the percentage of observations

Source: Table by authors

Table 1.
Sample distribution

observations are concentrated in the consumer services industry group (34.62%) and industrial firms (31.56%). In contrast, only 5.51% of the Shariah firms operate in the consumer services industry. We review the core businesses of these firms and note that the non-Shariah-compliant firms in the consumer services industry are mainly involved in non-*halal* food and beverage-related services and Shariah noncompliant entertainment, hotel and resort operations.

3.2 Model specification

We use panel data regression models to investigate our hypotheses, primarily to address the potential influence of unobserved or omitted variables. These models are well-suited for capturing the dynamics of change over time and accounting for the heterogeneity of individual units within our data set. Equation (1) is used to examine *H1*. *Shariah* equals one if a firm is included in the list of Shariah-compliant securities and zero otherwise. We control for industry fixed effects because the Shariah guidelines first screen firms based on the nature of their business activities. We also include year fixed effects to control the temporal impact, if any. The regression model is adjusted for robust standard errors clustered at the firm level to mitigate potential cross-sectional dependence issues (Petersen, 2009). We expect β_1 to be significantly negative:

$$\begin{aligned}
 |EM_{j,t}| = & \beta_0 + \beta_1 \text{Shariah}_{j,t} + \beta_2 \text{Board size}_{j,t} + \beta_3 \text{Board independence}_{j,t} \\
 & + \beta_4 \text{Female ratio}_{j,t} + \beta_5 \text{CEO duality}_{j,t} + \beta_6 \text{Firm size}_{j,t} + \beta_7 \text{Firm age}_{j,t} \\
 & + \beta_8 \text{Profitability}_{j,t} + \beta_9 \text{MTB}_{j,t} + \beta_{10} \text{Capex}_{j,t} + \beta_{11} \text{Leverage}_{j,t} \\
 & + \sum_{i=1}^n \delta_i \text{Industry}_i + \sum_{\tau=1}^n \theta_\tau \text{Year}_\tau + \varepsilon_{j,t}.
 \end{aligned} \tag{1}$$

For *H2*, we revise equation (1) replacing *Shariah* with *Ln_Cont*. Our key variable is continuation measured as the number of times a firm retains its Shariah-compliant status consecutively. The variable is measured in a natural logarithm form, *Ln_Cont*. Likewise, we expect β_1 to be significantly negative:

$$\begin{aligned}
 |EM_{j,t}| = & \beta_0 + \beta_1 Ln_Cont_{j,t} + \beta_2 Board\ size_{j,t} + \beta_3 Board\ independence_{j,t} \\
 & + \beta_4 Female\ ratio_{j,t} + \beta_5 CEO\ duality_{j,t} + \beta_6 Firm\ size_{j,t} + \beta_7 Firm\ age_{j,t} \\
 & + \beta_8 Profitability_{j,t} + \beta_9 MTB_{j,t} + \beta_{10} Capex_{j,t} + \beta_{11} Leverage_{j,t} + \sum_{i=1}^n \delta_i Industry_i \\
 & + \sum_{\tau=1}^n \theta_t Year_{\tau} + \varepsilon_{j,t}
 \end{aligned}
 \tag{2}$$

For *H3*, we re-estimate [equation \(1\)](#) by the ethnicity subsamples. We identify the ethnic groups of the chairpersons and CEOs. We only focus on the ethnicities of these two individuals instead of the entire board of directors for two reasons. First, both individuals have substantial power and are the key decision-makers. A chairperson leads the boardroom in protecting the well-being of a firm and shareholders' interests through sound corporate governance. This way, they can mitigate the agency conflict between shareholders and managers. A CEO is the highest-ranking executive who makes major corporate decisions and directs a firm's growth. If the CEO does not act in the best interest of the shareholders, the agency cost of equity arises. The second reason is the Malaysia Code of Corporate Governance (MCCG)'s call for a gender-diverse and ethnic-diverse boardroom. The boardrooms of publicly-listed Malaysian firms consist of directors from at least two ethnic groups, mainly the Malay and the Chinese. So, if we focus on the board members' ethnicity, we may be unable to identify a distinctive effect of ethnic diversity on earnings management. For example, [Mohammad and Wasiuzzaman \(2019\)](#) and [Rahman and Ali \(2006\)](#) report an insignificant relationship between ethnic diversity and earnings management among firms in Malaysia when discussing board members' ethnicity.

Earnings management can be estimated using the discretionary accruals model ([Dechow et al., 1995](#); [Jones, 1991](#); [Kasznik, 1999](#)) and the real activities model ([Eldenburg et al., 2011](#); [Roychowdhury, 2006](#)). In this study, we decide to use discretionary accruals for the following reasons:

- they capture managers' discretionary accounting decisions ([Martinez-Ferrero et al., 2016](#));
- they are widely used in the earnings management literature ([Alsaadi, 2021](#)); and
- in some cases, real activities manipulation also affects a firm's accruals ([Roychowdhury, 2006](#)).

Discretionary accruals are equal to the difference between actual and fitted accruals, which are the residual values derived from an accruals model to proxy earnings management. For robustness purposes, we use the standard Jones model, *EMI* ([Jones, 1991](#)), the modified Jones model, *EM2* ([Dechow et al., 1995](#)) and the modified Jones model with operating cash flow, *EM3* ([Kasznik, 1999](#)) to estimate the discretionary accruals. These models are estimated using the cross-sectional regression model sorted by industry group and year.

[Equation \(3\)](#) is the specification of the Jones model (1991), where the discretionary accruals are assumed to be opportunistically decided by firm managers:

$$\frac{TA_{j,t}}{A_{j,t-1}} = \beta_1 \frac{1}{A_{j,t-1}} + \beta_2 \frac{\Delta REV_{j,t}}{A_{j,t-1}} + \beta_3 \frac{PPE_{j,t}}{A_{j,t-1}} + \varepsilon_{j,t},
 \tag{3}$$

where $TA_{j,t} = (\Delta CA_{j,t} - \Delta Cash_{j,t}) - (\Delta CL_{j,t} - \Delta STD_{j,t}) - DEP_{j,t}$ is the total accruals for firm j in year t . $\Delta CA_{j,t}$ is the annual change in current assets; $\Delta Cash_{j,t}$ is the annual change in cash and cash equivalents; $\Delta CL_{j,t}$ is the annual change in current liabilities; $\Delta STD_{j,t}$ is the annual change in short-term debt; and $DEP_{j,t}$ is the total depreciation and amortization. $A_{j,t-1}$ is the lagged total assets; $\Delta REV_{j,t}$ is the annual change in sales; $PPE_{j,t}$ is the total property, plant and equipment; and $\varepsilon_{j,t}$ denotes the residual term.

Dechow *et al.* (1995) estimate normal accruals as follows:

$$\frac{TA_{j,t}}{A_{j,t-1}} = \hat{\beta}_1 \frac{1}{A_{j,t-1}} + \frac{\hat{\beta}_2 (\Delta REV_{j,t} - \Delta REC_{j,t})}{A_{j,t-1}} + \hat{\beta}_3 + \varepsilon_{j,t}, \quad (4)$$

where the $\hat{\beta}_n$ indicates the estimated values from equation (2). Note that equation (4) is practically the same as equation (3), except for the variable $\Delta REC_{j,t}$, which indicates the annual change in account receivables. Dechow *et al.* (1995) argue that credit sales could also be a potential channel for firms to manage their earnings. Hence, the modified model subtracts the net change in receivables from the change in total sales. The residual values, $\varepsilon_{j,t}$, of discretionary accruals are our second measure of earnings management, *EM2*.

The third measure of earnings management (*EM3*) is estimated using Kasznik's (1999) model, which is adapted from Jones (1991) as follows:

$$\frac{TA_{j,t}}{A_{j,t-1}} = \beta_1 \frac{1}{A_{j,t-1}} + \beta_2 \frac{\Delta REV_{j,t}}{A_{j,t-1}} + \beta_3 \frac{PPE_{j,t}}{A_{j,t-1}} + \beta_4 \frac{\Delta CFO_{j,t}}{A_{j,t-1}} + \varepsilon_{j,t}, \quad (5)$$

where the change of cash flows from operation in year t scaled by lag total assets, $\frac{\Delta CFO_{j,t}}{A_{j,t-1}}$, is added to the regression model. The additional variables are similar to those in the Jones (1991) model specified in equation (3). Because discretionary accruals' positive and negative values represent earnings management (Bergstresser and Philippon, 2006; Klein, 2002), we use the absolute value of discretionary accruals to capture the magnitude of earnings management.

In terms of the control variables, we control for board characteristics and other firm-specific variables that are commonly found to significantly impact earnings management, such as firm size, firm age, profitability, growth opportunities, capital expenditures and leverage (Alsaadi, 2021). Studies find that boards of directors have a significant monitoring role in maintaining the information quality of financial reports (Alves, 2011; Arun *et al.*, 2015; Harakeh *et al.*, 2019; Klein, 2002; Xie *et al.*, 2003). For example, Klein (2002) argues that board independence is negatively related to earnings manipulation, and boards that are more independent from CEO control are more effective in mitigating corporate financial accounting reporting manipulation. On the other hand, Arun *et al.* (2015) and Harakeh *et al.* (2019) provide significant evidence in support of the negative association between board gender diversity and earnings management. In line with the MCCG, we control for board size, board independence, board gender diversity and CEO duality. We hand-collect the required data from the firms' annual reports. The continuous variables are winsorized at 1% in each tail to control for potential outliers. The descriptions of the variables are summarized in Table A1 in the Appendix.

4. Results and discussion

4.1 Descriptive statistics and univariate analysis

Panel A of Table 2 presents the descriptive statistics of the full sample. The mean value of the absolute discretionary accruals falls between 0.0516 (*EM3*) and 0.0650 (*EM1*) with a

Panel A: Summary statistics

Variable	Obs.	Mean	Median	SD	Min.	Max.
EM1	5,478	0.0650	0.0424	0.0690	0.0000	0.3415
EM2	5,478	0.0621	0.0433	0.0603	0.0000	0.2784
EM3	5,478	0.0516	0.0341	0.0529	0.0000	0.2555
EM1	5,478	-0.0011	-0.0002	0.0948	-0.3296	0.3415
EM2	5,478	-0.0012	-0.0012	0.0866	-0.2632	0.2784
EM3	5,478	-0.0046	-0.0022	0.0738	-0.2555	0.2256
Shariah	5,478	0.8386	1.0000	0.3679	0.0000	1.0000
Continuation	5,478	6.4166	6.0000	4.6301	0.0000	17.0000
Ln_Cont	5,478	1.7062	1.9459	0.8882	0.0000	2.8904
Ethnic duality	5,478	0.5772	0.0000	0.4940	0.0000	1.0000
Malay duality	5,478	0.1776	0.0000	0.3822	0.0000	1.0000
Chinese duality	5,478	0.3872	0.0000	0.4872	0.0000	1.0000
Board size	5,478	2.0126	1.9459	0.2562	1.0986	2.8904
Board independence	5,478	0.4329	0.4286	0.1192	0.0000	0.8750
Female ratio	5,478	0.0859	0.0000	0.1092	0.0000	0.6250
CEO duality	5,478	0.1491	0.0000	0.3563	0.0000	1.0000
Firm size	5,478	13.0252	12.7914	1.5140	9.4817	18.7049
Firm age	5,478	2.3715	2.4849	0.6645	0.6931	3.7612
Profitability	5,478	0.0570	0.0571	0.0805	-0.2226	0.3269
MTB	5,478	1.1890	0.8100	1.3510	0.0900	10.0700
Capex	5,478	0.0433	0.0278	0.0463	0.0001	0.2316
Leverage	5,478	0.2340	0.2185	0.1644	0.0006	0.7066

Panel B: Mean and median difference tests

Variable	Shariah	Non-Shariah	Mean difference	Shariah	Non-Shariah	Median difference
EM1	0.0635	0.0728	-0.0093***	0.0415	0.0462	-0.0047***
EM2	0.0609	0.0685	-0.0076***	0.0428	0.0468	-0.0040***
EM3	0.0500	0.0601	-0.0101***	0.0333	0.0386	-0.0053***
EM1	0.0001	-0.0077	0.0078**	0.0003	-0.0042	0.0045**
EM2	-0.0001	-0.0068	0.0067**	-0.0007	-0.0060	0.0053**
EM3	-0.0029	-0.0135	0.0106***	-0.0009	-0.0067	0.0058***
Board size	2.0133	2.0089	0.0044	1.9459	1.9459	0.0000
Board independence	0.4330	0.4323	0.0007	0.4286	0.4286	0.0000
Female ratio	0.0862	0.0841	0.0022	0.0000	0.0000	0.0000
CEO duality	0.1452	0.1697	-0.0245*	0.0000	0.0000	0.0000
Firm size	12.9260	13.5407	-0.6147***	12.6992	13.4524	-0.7532***
Firm age	2.3350	2.5609	-0.2259***	2.4849	2.7081	-0.2232***
Profitability	0.0589	0.0473	0.0116***	0.0597	0.0443	0.0154***
MTB	1.1450	1.4174	-0.2724***	0.8100	0.8000	0.0100
Capex	0.0454	0.0325	0.0129***	0.0299	0.0183	0.0116***
Leverage	0.2265	0.2728	-0.0463***	0.2102	0.2657	-0.0555***
Observations	4,594	884		4,594	884	

Table 2. Summary statistics and mean and median difference tests

Notes: Panel A presents the summary statistics of the sample, consisting of 5,478 firm-year observations over the 2001–2016 sample period. Panel B reports the mean and median differences between the Shariah and non-Shariah subsamples. The definition of each variable is provided in [Table A1](#) in the [Appendix](#). The superscripts *, ** and *** represent significance at the 90%, 95% and 99% confidence levels, respectively. SD = standard deviation

Source: Table by authors

standard deviation of 0.0529 and 0.0690, respectively. A nonzero mean value implies the existence of earnings management practices, whereas the lower standard deviation indicates a lower variation of earnings management practices among the sample firms. Moving to the discretionary accruals, the mean value of EM ranges from -0.0011 (EMI) to -0.0046 ($EM3$), while the median value ranges from -0.0002 (EMI) to -0.0022 ($EM3$).

Shariah is a dummy variable, so the mean value indicates that 83.86% of the sample firms are Shariah-compliant. The high percentage signifies a solid commitment to maintaining Shariah certification. The continuation variable suggests that, on average, the sample firms retain their Shariah status for 6.42 consecutive years, with a maximum of 17 consecutive years. In total, 57.72% of the firm's chairman and CEO are of the same ethnicity, of which 17.76% are Malay duality and 38.72% are Chinese duality firms [3]. In terms of the control variables, the mean value of board size is 7.72 directors, with a minimum of three directors and a maximum of 18 directors in a boardroom. On average, 43.29% of the board members are nonexecutive directors and 8.59% are female directors. In total, 14.91% of the sample firms have CEO duality, where the CEO also leads the boardroom. The mean value of firm size in currency terms is approximately MYR 220m (\approx US\$50.4m). The mean firm age is 12.94 years, with the oldest firm at 43 years from incorporation. Overall, the sample firms are profitable, with a mean profitability ratio of 5.70%. The mean value of the market-to-book ratio is 1.19, but the median value is only 0.81.

Panel B presents the mean and median differences of the subsamples. The univariate analysis shows that Shariah- and non-Shariah-compliant firms engage in earnings management, evidenced by the nonzero mean and median values of the absolute discretionary accruals, $|EM|$. However, the mean and median values are significantly lower for the Shariah subsample than for the non-Shariah subsample. Even the size of EM 's mean and median values in the Shariah subsample are smaller and nearer to zero than its counterpart. See $EM2$ (modified Jones model), for example. The mean (median) value is -0.0001 (-0.0007) for the Shariah subsample versus -0.0068 (-0.0060) for the non-Shariah subsample. These results suggest that Shariah-compliant firms are less likely to manage earnings through accruals than non-Shariah-compliant firms, supporting our argument. Comparing the control variables, Shariah-compliant firms are significantly smaller, younger, more profitable and have higher capital expenditures and lower leverage but lower market-to-book ratios than non-Shariah-compliant firms. The Shariah- and non-Shariah-compliant firms do not differ in terms of the observed board characteristics, except for CEO duality, which is only significant at the 10% level. The pairwise correlation coefficient in Table 3 shows that Shariah-compliant firms (*Shariah*) and the continuation of Shariah certification (*Ln_Cont*) are significantly and negatively correlated to earnings management, but *Ethnic duality* is positively related. Overall, the correlation matrix does not suggest any multicollinearity concerns. The variance inflation factor test also suggests the same, with a mean value of 2.33.

4.2 H1: Shariah status and earnings management

Table 4 presents the results of baseline analyses that examine the impact of Shariah certification on corporate earnings management. The coefficients of the *Shariah* variable (Models 1 to 3) are negative across the three different measures of earnings management. The coefficients are statistically significant at the 5% ($|EM2|$) and 1% ($|EMI|$ and $|EM3|$) levels, respectively. Referring to Model 1, the *Shariah* coefficient value of -0.0091 indicates that average earnings management is 0.91% lower for Shariah-compliant firms than non-Shariah-compliant firms. The coefficient value is the highest (lowest) in Model 3 (2), where earnings management is 1.02% (0.76%) lower for Shariah-compliant firms than their counterparts.

Table 3.
Correlation

Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
[1] EMI1	1.0000															
[2] EMI2	0.8867	1.0000														
[3] EMI3	0.6743	0.6711	1.0000													
[4] Shariah	-0.0492	-0.0466	-0.0703	1.0000												
[5] Ln_Cont	-0.0930	-0.0705	-0.0862	0.8428	1.0000											
[6] Ethnic duality	-0.0104	-0.0138	-0.0280	0.0173	0.0057	1.0000										
[7] Board size	-0.0624	-0.0652	-0.1073	0.0063	-0.0184	-0.0227	1.0000									
[8] Board independence	0.0237	0.0290	0.0642	0.0023	0.0865	0.0244	-0.3622	1.0000								
[9] Female ratio	-0.0378	-0.0263	-0.0469	0.0073	0.0344	0.0700	0.0570	-0.0346	1.0000							
[10] CEO duality	-0.0054	-0.0164	-0.0050	-0.0253	-0.0366	0.3552	-0.1097	0.0302	0.0495	1.0000						
[11] Firm size	-0.1511	-0.1358	-0.1838	-0.1494	-0.0797	0.0563	0.3536	0.0069	0.0446	-0.0489	1.0000					
[12] Firm age	-0.0773	-0.0522	-0.0598	-0.1287	0.1148	-0.0160	0.0138	0.1799	-0.0441	-0.0378	0.4047	1.0000				
[13] Profitability	-0.1261	-0.1221	-0.2172	0.0528	0.0531	0.0151	0.1358	-0.0579	0.0677	0.0087	0.1786	-0.0067	1.0000			
[14] MTB	0.0313	0.0441	0.1011	-0.0742	-0.0558	-0.0713	0.0701	0.0271	0.0218	-0.0569	0.1755	0.0196	0.3806	1.0000		
[15] Capex	-0.0535	-0.0558	-0.0683	0.1023	0.0537	0.0172	0.0837	-0.0475	0.0401	0.0271	0.0797	-0.1730	0.1802	0.1598	1.0000	
[16] Leverage	0.0413	0.0460	0.0439	-0.1039	-0.1286	-0.0199	0.0699	-0.0435	-0.0677	0.0013	0.2160	0.0417	-0.2108	-0.0052	0.0127	1.0000

Notes: This table reports the pairwise correlation for the variables in the full sample, with 5,478 firm-year observations from 2001 to 2016. The definition of each variable is provided in [Table A1](#) in the [Appendix](#)

Source: Table by authors

Variable	EM1 (1)	EM2 (2)	EM3 (3)	EM1+ (4)	EM2+ (5)
Shariah	-0.0091*** (0.0047)	-0.0076** (0.0152)	-0.0102*** (0.0004)	-0.0061 (0.1566)	-0.0049 (0.2597)
Board size	0.0011 (0.8204)	-0.0002 (0.9631)	-0.0013 (0.7247)	0.0038 (0.5986)	0.0015 (0.8223)
Board independence	0.0231** (0.0274)	0.0152 (0.1219)	0.0197** (0.0120)	0.0407*** (0.0060)	0.0230* (0.0943)
Female ratio	-0.0064 (0.5274)	-0.0007 (0.9431)	-0.0076 (0.3541)	-0.0056 (0.6809)	0.0083 (0.5272)
CEO duality	-0.0018 (0.5387)	-0.0033 (0.2130)	-0.0006 (0.7982)	-0.0014 (0.7058)	-0.0043 (0.2220)
Firm size	-0.0052*** (0.0000)	-0.0043*** (0.0000)	-0.0049*** (0.0002)	-0.0049*** (0.0002)	-0.0034*** (0.0062)
Firm age	-0.0015 (0.4501)	-0.0008 (0.6632)	-0.0018 (0.2685)	0.0000 (0.9946)	0.0004 (0.8633)
Profitability	-0.0875*** (0.0002)	-0.0813*** (0.0001)	-0.1627*** (0.0000)	0.2505*** (0.0000)	0.2337*** (0.0000)
MTB	0.0057*** (0.0000)	0.0053*** (0.0000)	0.0095*** (0.0000)	-0.0005 (0.7987)	-0.0006 (0.7301)
Capex	-0.0336 (0.1324)	-0.0453** (0.0237)	-0.0278 (0.1465)	-0.1435*** (0.0000)	-0.1413*** (0.0000)
Leverage	0.0186** (0.0209)	0.0189*** (0.0096)	0.0100 (0.1120)	0.0535*** (0.0000)	0.0553*** (0.0000)
Constant	0.1295*** (0.0000)	0.1196*** (0.0000)	0.1183*** (0.0000)	0.0915*** (0.0000)	0.0776*** (0.0002)
Year FE	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Adj R ²	0.1377	0.0779	0.1622	0.1593	0.1166
Observations	5,478	5,478	5,478	2,727	2,686

(continued)

Note: The table reports the results of the baseline panel data regression model, which examines the relationship between Shariah certification and earnings management. The definition of each variable is provided in [Table A1](#) in the [Appendix](#). The β -values are in parentheses. The superscripts *, **, and *** represent significance at the 90%, 95% and 99% confidence levels, respectively; FE = fixed effects

Source: Table by authors

Table 4.
Shariah-compliant firms and earnings management

Table 4.

Variable	EM3+ (6)	EM1- (7)	EM2- (8)	EM3- (9)
Shariah	-0.0054 (0.1198)	0.0087** (0.0262)	0.0069* (0.0604)	0.0064** (0.0158)
Board size	0.0002 (0.9697)	-0.0000 (0.9953)	0.0019 (0.7141)	0.0014 (0.7219)
Board independence	0.0260** (0.0107)	-0.0053 (0.6530)	-0.0017 (0.8719)	-0.0025 (0.7816)
Female ratio	0.0036 (0.7018)	0.0037 (0.7458)	0.0051 (0.6288)	0.0144 (0.1126)
CEO duality	-0.0030 (0.2616)	-0.0008 (0.7994)	0.0005 (0.8613)	-0.0026 (0.2994)
Firm size	-0.0029*** (0.0024)	0.0041*** (0.0008)	0.0038*** (0.0012)	0.0024** (0.0199)
Firm age	0.0007 (0.7119)	-0.0009 (0.6933)	-0.0021 (0.2950)	-0.0001 (0.9557)
Profitability	0.3401*** (0.0000)	0.2966*** (0.0000)	0.2754*** (0.0000)	0.4638*** (0.0000)
MTB	-0.0008 (0.5327)	-0.0090*** (0.0000)	-0.0089*** (0.0000)	-0.0077*** (0.0000)
Capex	-0.0575*** (0.0097)	-0.0866*** (0.0030)	-0.0543** (0.0306)	-0.0373 (0.1024)
Leverage	0.0271*** (0.0016)	0.0199** (0.0133)	0.0204*** (0.0071)	-0.0058 (0.3430)
Constant	0.0544*** (0.0009)	-0.1211*** (0.0000)	-0.1191*** (0.0000)	-0.0889*** (0.0000)
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Adj R ²	0.2471	0.2532	0.2004	0.4593
Observations	2,640	2,751	2,792	2,838

The negative *Shariah* variable in Models 4 to 6 suggests that Shariah certification will likely to mitigate income-increasing earnings management ($EM+$), but we do not observe significant results. On the contrary, the results presented in Models 7 to 9 show that Shariah firms are likely to mitigate income-decreasing earnings management. The results are significant at the conventional levels for all three $EM-$ measures. In these models, earnings management is proxied by the negative value of discretionary accruals ($EM-$), so a positive coefficient implies a reduction in income-decreasing management. For example, in Model 7, the coefficient value, 0.0087, indicates that income-decreasing management practices of Shariah-compliant firms are 0.87% lower than non-Shariah-compliant firms. In sum, we find evidence supporting *H1* that Shariah certification mitigates earnings management, particularly the income-decreasing practices. Our results are consistent with [Farooq and AbdelBari \(2015\)](#) and [Wan Ismail et al. \(2015\)](#) that Shariah certification directs good corporate governance to mitigate earnings management. However, our findings are inconsistent with [Alsaadi et al. \(2017\)](#) and [Alsaadi \(2021\)](#), who argue that Shariah certification is used as a label to attract investment from relevant investors.

For the control variables, *Board Independence* is significant, indicating that a higher board independence ratio leads to more earnings manipulation, especially income-increasing earnings management. The positive relationship contradicts our expectations. To preserve market reputations, independent directors are expected to monitor effectively ([Raheja, 2005](#)), such as mitigating corporate earnings management practices ([Klein, 2002](#)). However, [Germain et al. \(2014\)](#) report otherwise. Higher board independence increases monitoring costs and the personal benefits available to managers among Malaysian firms. Other observed board characteristics are insignificant. The results show that large firms have lower earnings management, indicated by the significant and negative (positive) coefficients of *Firm size* with $|EM|$ and $EM+$ ($EM-$). Large firms are more established and have more publicly accessible information than small firms ([Bhattacharya, 2001](#)). Consequently, the public can easily monitor large firms and are less likely to manipulate earnings than their counterparts.

Profitability is negatively related to $|EM|$ but is positively associated with $EM+$ and $EM-$ at the 1% level. These results show that more profitable firms are less likely to manage earnings. Higher profitability mitigates income-decreasing earnings management practices, but interestingly, profitable firms engage in income-increasing earnings management practices. The managers may manipulate the earnings to smooth income and mitigate the impact of extreme earnings volatility if the current earnings are lower than in previous years. *MTB* has a significant and positive impact on $|EM|$, suggesting that firms with higher market-to-book ratios are more likely to engage in earnings manipulation. Generally, these firms manage earnings to sustain their higher-valued equity ([Badertscher, 2011](#); [Shen and Chih, 2007](#)). Our sample reveals managers are susceptible to income-decreasing earnings manipulation practices to smooth firm valuation. The results also show that firms with higher capital expenditures are less likely to engage in income-increasing manipulation. However, highly leveraged firms engage in income-increasing manipulation (Models 4 to 6). This finding is termed the leverage effect ([Shen and Chih, 2007](#)), where managers respond to debt contracting with aggressive accounting policies, particularly the highly leveraged firms or firms close to violating debt covenants ([Becker et al., 1998](#); [Richardson et al., 2002](#)). Meanwhile, *Firm age* has an insignificant effect on earnings management.

4.3 H2: Continuation of Shariah certification and earnings management

We next examine *H2*. We perform the multivariate panel data regression presented in [equation \(2\)](#), and [Table 5](#) reports the results. From Panel A, *Ln_Cont* is consistently and negatively associated with $|EM1|$, $|EM2|$ and $|EM3|$ at the 1% significance level. The

Table 5.
Continuation of
Shariah certification
and earnings
management

Variable	EM1 (1)	EM2 (2)	EM3 (3)	EM1+ (4)	EM2+ (5)	EM3+ (6)	EM1- (7)	EM2- (8)	EM3- (9)
Ln_Count	-0.0046*** (0.0016)	-0.0038*** (0.0070)	-0.0051*** (0.0000)	-0.0043** (0.0440)	-0.0027 (0.1825)	-0.0037** (0.0193)	0.0032** (0.0380)	0.0033** (0.0234)	0.0023** (0.0592)
Board size	0.0013 (0.7838)	-0.0000 (0.9946)	-0.0010 (0.7754)	0.0043 (0.5493)	0.0017 (0.7936)	0.0005 (0.9137)	0.0001 (0.9824)	0.0018 (0.7248)	0.0014 (0.7228)
Board independence	0.0228** (0.0294)	0.0149 (0.1287)	0.0193** (0.0137)	0.0398*** (0.0072)	0.0226 (0.1006)	0.0253** (0.0131)	-0.0050 (0.6733)	-0.0016 (0.8790)	-0.0022 (0.8081)
Female ratio	-0.0060 (0.5570)	-0.0003 (0.9749)	-0.0070 (0.3874)	-0.0056 (0.6797)	0.0084 (0.5180)	0.0037 (0.6945)	0.0032 (0.7752)	0.0048 (0.6521)	0.0141 (0.1191)
CEO duality	-0.0018 (0.5302)	-0.0033 (0.2084)	-0.0006 (0.7833)	-0.0015 (0.6845)	-0.0044 (0.2151)	-0.0031 (0.2472)	-0.0009 (0.7831)	0.0005 (0.8651)	-0.0027 (0.2988)
Firm size	-0.0054*** (0.0000)	-0.0045*** (0.0000)	-0.0051*** (0.0000)	-0.0051*** (0.0001)	-0.0035*** (0.0047)	-0.0031*** (0.0013)	0.0041*** (0.0007)	0.0038*** (0.0009)	0.0024** (0.0195)
Firm age	-0.0004 (0.8522)	0.0001 (0.9521)	-0.0005 (0.7575)	0.0009 (0.7550)	0.0011 (0.6934)	0.0016 (0.4252)	-0.0017 (0.4263)	-0.0030 (0.1405)	-0.0006 (0.7059)
Profitability	-0.0875*** (0.0002)	-0.0813*** (0.0001)	-0.1627*** (0.0000)	0.2498*** (0.0000)	0.2334*** (0.0000)	0.3396*** (0.0000)	0.2971*** (0.0000)	0.2752*** (0.0000)	0.4644*** (0.0000)
MTB	0.0056*** (0.0000)	0.0053*** (0.0000)	0.0095*** (0.0000)	-0.0006 (0.7614)	-0.0006 (0.7136)	-0.0009 (0.4798)	-0.0091*** (0.0000)	-0.0089*** (0.0000)	-0.0078*** (0.0000)
Capex	-0.0334 (0.1312)	-0.0452** (0.0230)	-0.0276 (0.1466)	-0.1424*** (0.0000)	-0.1414*** (0.0000)	-0.0556** (0.0122)	-0.0855*** (0.0034)	-0.0547** (0.0293)	-0.0361 (0.1145)
Leverage	0.0183** (0.0228)	0.0187** (0.0103)	0.0097 (0.1220)	0.0531*** (0.0000)	0.0552*** (0.0000)	0.0266*** (0.0019)	0.0199** (0.0139)	0.0207*** (0.0064)	-0.0059 (0.3397)
Constant	0.1261*** (0.0000)	0.1167*** (0.0000)	0.1145*** (0.0000)	0.0906*** (0.0000)	0.0759*** (0.0003)	0.0534*** (0.0010)	-0.1167*** (0.0000)	-0.1166*** (0.0000)	-0.0857*** (0.0000)
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj. R ²	0.1383	0.0784	0.1636	0.1606	0.1171	0.2491	0.2526	0.2007	0.4587
Observations	5,478	5,478	5,478	2,727	2,686	2,640	2,751	2,792	2,838

(continued)

Panel B: Number of times firms retain Shariah certification consecutively

	Two consecutive years		Three consecutive years			Four consecutive years			More than four straight years		
	EM1 (1)	EMI+ (2)	EM1 (4)	EMI+ (5)	EMI- (6)	EM1 (7)	EMI+ (8)	EMI- (9)	EM1 (10)	EMI+ (11)	EMI- (12)
Cont2	0.0006 (0.9087)	0.0084 (0.2648)	0.0087 (0.1726)								
Cont3			0.0058 (0.2032)	0.0106 (0.1255)	0.0030 (0.6319)						
Cont4						-0.0072** (0.0374)	-0.0090** (0.0490)	0.0032 (0.5260)			
Cont4abv									-0.0103*** (0.0001)	-0.0117*** (0.0024)	0.0054* (0.0622)
Board size	0.0004 (0.9274)	0.0034 (0.6407)	0.0006 (0.9173)	0.0035 (0.6292)	0.0006 (0.9149)	0.0004 (0.9345)	0.0034 (0.6381)	0.0007 (0.9051)	0.0013 (0.7948)	0.0046 (0.5260)	0.0063 (0.9581)
Board independence	0.0225** (0.0322)	0.0405*** (0.0059)	-0.0040 (0.7326)	0.0409*** (0.0066)	-0.0040 (0.7320)	0.0226** (0.0311)	0.0409*** (0.0057)	-0.0040 (0.7326)	0.0226** (0.0311)	0.0391*** (0.0085)	-0.0047 (0.6887)
Female ratio	-0.0064 (0.3333)	-0.0052 (0.7040)	0.0044 (0.6973)	-0.0062 (0.5446)	0.0041 (0.7181)	-0.0064 (0.5267)	-0.0054 (0.6949)	0.0040 (0.7207)	-0.0057 (0.5752)	-0.0063 (0.6963)	0.0033 (0.7880)
CEO duality	-0.0016 (0.5692)	-0.0015 (0.6989)	-0.0010 (0.7701)	-0.0016 (0.6710)	-0.0010 (0.7606)	-0.0016 (0.5745)	-0.0014 (0.7046)	-0.0017 (0.7467)	-0.0017 (0.5493)	-0.0017 (0.6576)	-0.0011 (0.7471)
Firm size	-0.0050*** (0.0000)	-0.0048*** (0.0003)	0.0037*** (0.0023)	-0.0051*** (0.0000)	0.0037*** (0.0022)	-0.0049*** (0.0000)	-0.0047*** (0.0004)	0.0037*** (0.0026)	-0.0054*** (0.0000)	-0.0052*** (0.0001)	0.0040*** (0.0010)
Firm age	-0.0015 (0.5168)	0.0004 (0.8945)	-0.0008 (0.7490)	0.0016 (0.6193)	-0.0005 (0.8387)	-0.0022 (0.3511)	-0.0005 (0.8766)	-0.0006 (0.8287)	-0.0006 (0.8029)	0.0011 (0.7352)	-0.0015 (0.5417)
Profitability	-0.0902*** (0.0001)	0.2500** (0.0000)	0.2994*** (0.0000)	-0.0906*** (0.0001)	0.2997*** (0.0000)	-0.0901*** (0.0001)	0.2500*** (0.0000)	0.2998*** (0.0000)	-0.0890*** (0.0001)	0.2474*** (0.0000)	0.2984*** (0.0000)
MTB	0.0059*** (0.0000)	-0.0003 (0.8616)	-0.0092*** (0.0000)	0.0059*** (0.8711)	-0.0092*** (0.0000)	0.0059*** (0.0000)	-0.0003 (0.8727)	-0.0092*** (0.0000)	0.0057*** (0.0000)	-0.0005 (0.7779)	-0.0091*** (0.0000)
Capex	-0.0396* (0.0753)	-0.1492*** (0.0000)	-0.0807*** (0.0056)	-0.0410* (0.0664)	-0.1500*** (0.0000)	-0.0395* (0.0754)	-0.1477*** (0.0000)	-0.0808*** (0.0054)	-0.0367* (0.0966)	-0.1458*** (0.0000)	-0.0827*** (0.0043)
Leverage	0.0201** (0.0135)	0.0547*** (0.0000)	0.0181** (0.0253)	0.0203** (0.0128)	0.0552*** (0.0000)	0.0199** (0.0145)	0.0542*** (0.0000)	0.0183** (0.0237)	0.0184** (0.0223)	0.0533*** (0.0000)	0.0195** (0.0161)
Constant	0.1205*** (0.0000)	0.0782*** (0.0003)	-0.1175*** (0.0000)	0.1202*** (0.0000)	-0.1128*** (0.0000)	0.1216*** (0.0000)	0.0856*** (0.0001)	-0.1127*** (0.0000)	0.1230*** (0.0000)	0.0872*** (0.0001)	-0.1137*** (0.0000)
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj R ²	0.1358	0.1590	0.2517	0.1361	0.2514	0.1363	0.1593	0.2514	0.1393	0.1628	0.2522
Observations	5478	2,727	2,751	5,478	2,727	5,478	2,727	2,751	5,478	2,727	2,751

Notes: Panel A reports the results of the panel data regression model that examines the relationship between the continuance of Shariah certification and earnings management. In Panel B, we determine the minimum number of times firms retain Shariah certification consecutively to have significant impact on earnings management. Cont2, Cont3, Cont4 and Cont4abv are dummy variables equal to 1 for firms that retain their Shariah-compliant status for two, three, four and more than four straight years, respectively. The definition of each variable is provided in Table A1 in the Appendix. The β -values are in parentheses. The superscripts *, **, and *** represent significance at the 90, 95 and 99% confidence levels, respectively. FE = fixed effects

Source: Table by authors

Table 5.

negative relationship indicates that the more frequently firms can retain their Shariah compliance status consecutively, the less likely they engage in earnings management. The finding also implies the commitment of these firms to increase transparency and improve corporate governance by continuously meeting the Shariah compliance guidelines in the subsequent rounds of reviews instead of using it superficially to attract investment. Hence, *H2* is supported. In terms of the signed discretionary accruals, there is consistent evidence that *Ln_Cont* has a positive relationship with *EM1-*, *EM2-* and *EM3-*, whereby the longer the continuation of Shariah certification, the lower the income-decreasing manipulation practices. We also observe a significant negative relationship between *Ln_Cont* and *EM+* in Models 4 and 6.

In Panel B, we examine the minimum number of times firms retain Shariah certification consecutively to impact earnings management significantly. We use dummy variables *Cont2*, *Cont3*, *Cont4* and *Cont4abv*, which equal 1 for firms that retain their Shariah-compliant status for two, three, four and more than four consecutive years, respectively, for the observed year. The results show that the Shariah-compliance status significantly and negatively affects earnings management for firms that retain their Shariah status for at least four consecutive years. The coefficient value of *Cont4*, -0.0072 , indicates that Shariah-compliant firms that retain their certification for four years engage in earnings management 0.72% less often than their counterparts. The value increases to 1.03% if firms continually retain the certification more than four times. These results support *H2*, and the findings reported in [Table 4](#) that Shariah certification can mitigate earnings management. The significant impact is evident among firms that can retain their certification consecutively because the continuing certification can mitigate information asymmetry and improve earnings quality.

4.4 H3: Shariah status and earnings management by ethnic duality

Based on the chairpersons' and CEOs' ethnicity, we identify four subsamples: (1) *Ethnic diversity*, (2) *Ethnic duality*, (3) *Malay duality* and (4) *Chinese duality*. Using these subsamples, we re-estimate the baseline regression model. Our results [Table 6](#) show that the negative relationship between *Shariah* and earnings management remains statistically significant for the ethnic duality subsample at the 5% level (refer to Model 2). This evidence implies that Shariah compliance guidelines significantly mitigate corporate earnings management, mainly when a specific ethnic group dominates the top management (chairpersons and CEOs). In other words, the governance function of Shariah certification is significant among firms that lack ethnic diversity.

Model 3 shows an insignificant relationship between Shariah status and earnings management for the Chinese duality subsample. However, Model 4 shows a significant negative relationship (at the 5% level) between Shariah status and earnings management for the Chinese duality subsample, who are not Islam practitioners. We argue that Shariah certification is not used, especially among non-Islam practitioners, as a label to attract investors. Instead, the Shariah compliance guidelines significantly mitigate the behavior of top managers concerning earnings manipulation activities. This finding shows that regardless of an individual's religious beliefs, once Shariah principles are embedded as a social norm, this shift affects corporate behavior and decisions ([Du et al., 2015](#); [El Ghoul et al., 2012](#); [Hilary and Hui, 2009](#); [Kennedy and Lawton, 1998](#)).

4.5 Robustness: Heckman selection model

Though our sample Shariah-compliant firms are identified based on the official announcement made by the SAC, our results may suffer from sample selection bias. Shariah compliance review is not a mandatory requirement; it is optional. Firms that want to be considered for Shariah

Variable	Ethnic diversity	Ethnic duality	Malay duality	Chinese duality
	<i>EM1</i> (1)	<i>EM1</i> (2)	<i>EM1</i> (3)	<i>EM1</i> (4)
Shariah	-0.0074 (0.1163)	-0.0107** (0.0112)	-0.0089 (0.2767)	-0.0131** (0.0132)
Board size	0.0113 (0.1290)	-0.0053 (0.3908)	-0.0223** (0.0427)	0.0018 (0.7883)
Board independence	0.0149 (0.3011)	0.0330** (0.0200)	0.0238 (0.2721)	0.0214 (0.1718)
Female ratio	-0.0029 (0.8515)	-0.0060 (0.6332)	-0.0110 (0.7136)	0.0023 (0.8716)
CEO duality	-0.0182 (0.5490)	-0.0035 (0.2775)	-0.0222** (0.0115)	0.0020 (0.5724)
Firm size	-0.0051*** (0.0023)	-0.0051*** (0.0001)	-0.0087*** (0.0003)	-0.0053*** (0.0014)
Firm age	-0.0032 (0.2620)	-0.0007 (0.7874)	-0.0028 (0.6125)	-0.0001 (0.9807)
Profitability	-0.0551 (0.1356)	-0.1094*** (0.0004)	-0.0842* (0.0713)	-0.1144*** (0.0057)
MTB	0.0046*** (0.0011)	0.0072*** (0.0003)	0.0085** (0.0172)	0.0057*** (0.0083)
Capex	-0.0497 (0.1452)	-0.0281 (0.3472)	0.0156 (0.8009)	-0.0156 (0.6527)
Leverage	0.0339*** (0.0058)	0.0080 (0.4201)	0.0200 (0.3437)	0.0038 (0.7370)
Constant	0.0961*** (0.0000)	0.1467*** (0.0000)	0.2502*** (0.0000)	0.1304*** (0.0000)
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Adj <i>R</i> ²	0.1315	0.1479	0.1581	0.1458
Observations	2,316	3,162	973	2,121

Notes: The table reports the results of *H3*, which examines the relationship between Shariah certification and earnings management by ethnicity diversity, duality, Malay duality and Chinese duality. The definition of each variable is provided in [Table A1](#) in the [Appendix](#). The *p*-values are in parentheses. The superscripts *, ** and *** represent significance at the 90, 95 and 99% confidence levels, respectively. FE = fixed effects

Source: Table by authors

Table 6.
Shariah-compliant
firms and earnings
management by
ethnicity

certification must submit their application semi-annually for review by the SAC. Firms are assessed based on their primary business and investment activities and financial position. We argue that firms may deliberately revise their investment and financial policies to meet the Shariah compliance guidelines ([Khaw et al., 2019](#)). If this is the case, then our results may be biased. We re-estimate the analysis using the Heckman two-step sample selection model to control for the potential bias. The results are reported in [Table 7](#).

In the first stage, we use a probit model to estimate the likelihood that a firm is a Shariah-compliant firm. The explanatory variables are selected based on the Shariah compliance guidelines that screen firms based on their profitability (*Profitability*), investment activities (*MTB* and *Capex*), leverage ratio (*Leverage*) and cash flow (*OCF_TA*). Shariah-compliant firms are more likely to have higher profitability and capital expenditures but lower market-to-book and leverage ratios than non-Shariah-compliant firms ([Akguc and Al Rahahleh, 2018](#); [Farooq and AbdelBari, 2015](#)). In addition, we include cash flow as the determinant of a Shariah-compliant firm. Studies find that Shariah firms tend to hold more cash than their counterparts because they are subject to multiple restrictions that limit their external financing channels. Therefore, Shariah-compliant firms need to hold more cash for operating purposes ([Bugshan et al., 2021](#); [Guizani and Abdalkrim, 2021](#)). The model also controls for industry and year dummies, with standard errors clustered at the firm level. The first stage probit model is specified as follows:

$$\begin{aligned}
 Pr(\text{Shariah}_{j,t} = 1) = & \beta_0 + \beta_1 \text{Profitability}_{j,t} + \beta_2 \text{MTB}_{j,t} + \beta_3 \text{Capex}_{j,t} + \beta_4 \text{Leverage}_{j,t} \\
 & + \beta_5 \text{OCF_TA}_{j,t} + \sum_{i=1}^n \delta_i \text{Industry}_i + \sum_{\tau=1}^n \theta_\tau \text{Year}_\tau + \varepsilon_{j,t}. \quad (7)
 \end{aligned}$$

Variable	First stage	Second stage	
	Shariah (1)	<i>EMI</i> (2)	<i>EMI</i> (3)
Shariah		-0.0097*** (0.0025)	
Ln_Cont			-0.0048*** (0.0010)
Board size		0.0008 (0.8777)	0.0010 (0.8376)
Board independence		0.0224** (0.0346)	0.0221** (0.0370)
Female ratio		-0.0067 (0.5120)	-0.0063 (0.5372)
CEO duality		-0.0018 (0.5303)	-0.0018 (0.5220)
Firm size		-0.0053*** (0.0000)	-0.0054*** (0.0000)
Firm age		-0.0016 (0.4377)	-0.0004 (0.8406)
Profitability	1.1364** (0.0287)	-0.1081*** (0.0000)	-0.1076*** (0.0000)
MTB	-0.1101*** (0.0051)	0.0079*** (0.0000)	0.0078*** (0.0000)
Capex	3.4913*** (0.0001)	-0.0888*** (0.0079)	-0.0872*** (0.0091)
Leverage	-1.0050*** (0.0003)	0.0372*** (0.0015)	0.0364*** (0.0018)
OCF_TA	-0.2267 (0.5709)		
Inverse Mills		-0.0520** (0.0447)	-0.0504* (0.0531)
Constant	1.2671*** (0.0000)	0.1524*** (0.0000)	0.1479*** (0.0000)
Year dummies	YES		
Industry dummies	YES		
Pseudo R ²	0.1595		
Year FE		YES	YES
Industry FE		YES	YES
Adj R ²		0.1388	0.1394
Observations	5,429	5,429	5,429

Notes: This table reports the results of Heckman's two-stage sample selection model. The first stage uses a probit model to estimate the probability that a firm is a Shariah compliant firm, with results reported in Model 1. To account for sample selection bias, the inverse Mills ratio is included in the second stage as an additional explanatory variable in the baseline models. The results are presented in Models 2 to 4. The definition of each variable is provided in Table A1 in the Appendix. The *p*-values are in parentheses. The superscripts *, ** and *** represent significance at the 90, 95 and 99% confidence levels, respectively. FE = fixed effects

Table 7.
Robustness:
Heckman selection
model

Source: Table by authors

From Model 1 in Table 7, as per our expectations, Shariah-compliant firms are more likely to have higher profitability and capital expenditures but lower market-to-book and leverage ratios than non-Shariah-compliant firms (Akguc and Al Rahahleh, 2018; Farooq and AbdelBari, 2015). In the second stage, we include the inverse Mills ratio as an additional explanatory variable in the baseline regression model to account for sample selection bias (Alsaadi, 2021). The second-stage regression results provide additional evidence supporting *H1* and *H2*. *Shariah* and *Ln_Cont* remain negatively significant with *|EMI|* at the 1% level, suggesting that Shariah certification does mitigate earnings management, particularly for firms that retain the certification consecutively. Therefore, our baseline results are not driven by potential sample selection bias.

4.6 Robustness: other analysis

We examine the relationship between Shariah certification and earnings management bound by firm-specific characteristics. In subsection 4.4, five characteristics are identified: profitability, market-to-book ratio, capital expenditures, leverage ratio and operating cash flow. We divide the observations into two subsamples, *Bottom* and *Top*, by the median value of the variables. The results in Table 8 suggest that *Shariah* remains statistically and

Variable	Profitability		Market-to-book		Capital expenditure		Leverage		Operating cash flow	
	Bottom (1)	Top (2)	Bottom (3)	Top (4)	Bottom (5)	Top (6)	Bottom (7)	Top (8)	Bottom (9)	Top (10)
Shariah	-0.0080** (0.0420)	-0.0043 (0.3996)	-0.0095** (0.0335)	-0.0083* (0.0672)	-0.0100** (0.0201)	-0.0054 (0.2383)	-0.0040 (0.3924)	-0.0137*** (0.0021)	-0.0102** (0.0257)	-0.0093** (0.0450)
Board size	-0.0015 (0.8034)	0.0087 (0.2057)	-0.0061 (0.3450)	0.0048 (0.5022)	-0.0010 (0.8809)	0.0059 (0.3254)	-0.0091 (0.2189)	0.0092 (0.1306)	0.0020 (0.7537)	-0.0029 (0.6326)
Board independence	0.0084 (0.4545)	0.0334** (0.0323)	0.0044 (0.7220)	0.0302** (0.0417)	0.0213 (0.1471)	0.0282** (0.0452)	0.0140 (0.3900)	0.0371*** (0.0031)	0.0235 (0.1241)	0.0204* (0.0957)
Female ratio	-0.0147 (0.2624)	0.0061 (0.6447)	-0.0075 (0.5786)	0.0002 (0.9905)	-0.0117 (0.4008)	0.0009 (0.9430)	-0.0235* (0.0875)	0.0076 (0.5507)	-0.0085 (0.5501)	0.0112 (0.3937)
CEO duality	-0.0029 (0.4205)	-0.0010 (0.7896)	0.0036 (0.1446)	0.0036 (0.3779)	-0.0031 (0.4617)	0.0031 (0.9555)	-0.0031 (0.8215)	-0.0032 (0.4190)	-0.0042 (0.3422)	0.0009 (0.7753)
Firm size	-0.0010 (0.4378)	-0.0059*** (0.0000)	-0.0031 (0.1151)	-0.0072*** (0.0000)	-0.0033** (0.0327)	-0.0064*** (0.0000)	-0.0056*** (0.0002)	-0.0041*** (0.0017)	-0.0048*** (0.0011)	-0.0060*** (0.0000)
Firm age	-0.0021 (0.4595)	0.0022 (0.4570)	0.0001 (0.9867)	-0.0015 (0.6186)	-0.0044 (0.1731)	-0.0006 (0.8244)	-0.0003 (0.9251)	-0.0035 (0.2465)	-0.0048 (0.1418)	0.0014 (0.5861)
Profitability	-0.4260*** (0.0000)	0.2822*** (0.0000)	-0.1044*** (0.0051)	-0.0866*** (0.0025)	-0.0802** (0.0135)	-0.0824** (0.0186)	-0.0667** (0.0397)	-0.1098*** (0.0008)	0.0617* (0.0815)	-0.2577*** (0.0000)
MTB	0.0039** (0.0165)	-0.0030* (0.0695)	0.0200** (0.0411)	0.0042*** (0.0004)	0.0063*** (0.0011)	0.0055*** (0.0000)	0.0062*** (0.0003)	0.0047*** (0.0007)	0.0101*** (0.0000)	0.0086*** (0.0000)
Capex	0.0464 (0.1334)	-0.0968*** (0.0007)	-0.0531* (0.0782)	-0.0330 (0.3080)	-0.3785** (0.0427)	0.0198 (0.5059)	-0.0363 (0.2986)	-0.0247 (0.4172)	-0.0116 (0.7455)	-0.0359 (0.1955)
Leverage	0.0041 (0.6411)	0.0619*** (0.0000)	0.0282*** (0.0093)	0.0148 (0.1875)	0.0076 (0.4686)	0.0283*** (0.0079)	-0.0060 (0.7801)	0.0444*** (0.0048)	0.0124 (0.2652)	0.0005 (0.9565)
Constant	0.0918*** (0.0000)	0.0745*** (0.0003)	0.1073*** (0.0000)	0.1504*** (0.0000)	0.1336*** (0.0000)	0.1103*** (0.0000)	0.1533*** (0.0000)	0.0917*** (0.0000)	0.1310*** (0.0000)	0.1490*** (0.0000)
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj R ²	0.2631	0.1517	0.1426	0.1412	0.1310	0.1379	0.1270	0.1521	0.1226	0.2125
Observations	2,738	2,740	2,770	2,708	2,743	2,735	2,737	2,741	2,743	2,735

Notes: This table reports the results of other analyses based on five firm-specific characteristics, i.e. profitability, market-to-book ratio, capital expenditures, leverage and operating cash flow. The sample is divided into two subsamples (Bottom and Top) by the median value of the observed firm characteristics. The definition of each variable is provided in Table A1 in the Appendix. The p -values are in parentheses. The superscripts *, **, and *** represent significance at the 90, 95 and 99% confidence levels, respectively. FE = fixed effects

Source: Table by authors

Table 8.
Robustness: other analyses

negatively significant in both the *Bottom* and *Top* subsamples for the *Market-to-book* and *Operating cash flow* models. For the other models, Shariah certification significantly mitigates earnings management only for firms with low profitability (Model 1), low capital expenditures (Model 5) and highly-leveraged firms (Model 8). These firms are more likely to use earnings management to conceal their weaker firm performance, investment in maintaining or growing their businesses and higher financial risk. These results imply that Shariah-compliance guidelines can be an effective external monitoring tool to mitigate managers' discretionary accounting decisions to manipulate earnings, supporting the hypotheses of this study.

5. Conclusion

Studies on the impact of ethical stocks on individual behaviors, business ethics and corporate decisions are gaining considerable attention. The Shariah compliance guidelines embed religious values and periodic screening by external institutions. This study contributes additional evidence justifying the relationship between Shariah-compliant stocks and earnings management. We recognize the importance of continuation in retaining Shariah certification. Our results suggest that Shariah-compliant firms have lower earnings management than non-Shariah-compliant firms, particularly those that consistently retain their Shariah status. The longer firms can maintain their Shariah certification, the lower the earnings manipulation because the continuation indicates a firm's persistent commitment to meet and retain its Shariah certification. If firms fail to meet the Shariah compliance guidelines, they will be excluded from the list of Shariah-compliant securities. Hence Shariah certification can mitigate unethical corporate behavior like earnings management. We also examine the impact of ethnicity on the significance of Shariah certification in mitigating earnings management. The findings show that Shariah certification mitigates earnings management practices among firms that lack ethnic diversity.

Regarding the implication, our results suggest that firms' commitment to religious-based screening and continuation of certification matters in improving corporate earnings quality. The periodic screening can be used as an effective external monitoring tool to mitigate ethical conflicts among stakeholders and improve corporate governance to safeguard shareholders' interests. Committed firms will retain their Shariah certification continually instead of exploiting the status to boost firms' reputations or attract investors. From the practical perspective, for investors, the repeated Shariah-compliance status not only narrows the number of stocks that meet investors' religious principles but also signals the commitment and continuation of firms to retain the status and mitigate earning management. Our study also has significant policy implications. Policymakers can use Shariah-compliance guidelines to constrain earnings manipulation, especially among firms that lack ethnic diversity.

Notes

1. *Halal* stocks are those that do not primarily involve business activities marked by elements of usury (*riba*), gambling (*maisir*), or uncertainty (*gharar*), which are prohibited in Islamic principles
2. The Shariah Advisory Council (SAC) of Securities Commission Malaysia screens and certifies Shariah-compliant stocks based on the business activities and financial ratios benchmarks. The business activities benchmarks limit the contribution of non-*halal* business activities to firms' revenue and profit before taxes, whereas the financial ratios benchmarks limit cash and debt ratios to 33%. SAC also screens firms for qualitative aspects, including the public perception

based on Islamic principles. Refer to www.sc.com.my/development/icm/shariah-compliant-securities/shariah-compliant-securities-screening-methodology for more information.

3. To be specific, 55.77% of the chairpersons are from the Malay ethnic group, 41.06% are Chinese and 3.17% are from other ethnic groups, including foreigners. While 75.12% of the CEOs are from the Chinese ethnic group, only 19.02% are Malays. This statistic indicates that the Chinese ethnic group makes most of the firms' critical managerial and executive decisions. The increasing appointment of Malay ethnic groups to the boardrooms is driven by the National Economic Policy reform designed to reduce economic imbalances and improve the Malay community's economic position in Malaysia (Mohammad *et al.*, 2016).

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Variable	Definition
EM	Absolute value of earnings management that is estimated using the following
EM1	discretionary accruals models:
EM2	standard Jones model (Jones, 1991)
EM3	modified Jones model (Dechow <i>et al.</i> , 1995)
EM+	modified Jones model with operating cash flow (Kasznik, 1999)
EM1+	Positive value of discretionary accruals estimated from the following models to measure
EM2+	income-increasing earnings management:
EM3+	standard Jones model (Jones, 1991)
	modified Jones model (Dechow <i>et al.</i> , 1995)
	modified Jones model with operating cash flow (Kasznik, 1999)
EM–	Positive value of discretionary accruals estimated from the following models to measure
EM1–	income-decreasing earnings management:
EM2–	standard Jones model (Jones, 1991)
EM3–	modified Jones model (Dechow <i>et al.</i> , 1995)
	modified Jones model with operating cash flow (Kasznik, 1999)
Shariah	A dummy variable that equals 1 if a firm is included in the list of Shariah-compliant securities and zero otherwise
Retain	A dummy variable that equals 1 if a firm retains its Shariah-compliant status for the observation year and zero otherwise
Continuation	The number of consecutive times a firm retains its Shariah-compliant status
Ln_Cont	Natural logarithm of the number of consecutive times a firm retains its Shariah-compliant status
Cont2	A dummy variable that equals 1 if a firm retains its Shariah-compliant status for two consecutive years
Cont3	A dummy variable that equals 1 if a firm retains its Shariah-compliant status for three consecutive years
Cont4	A dummy variable that equals 1 if a firm retains its Shariah-compliant status for four consecutive years
Cont4abv	A dummy variable that equals 1 if a firm retains its Shariah-compliant status for more than four consecutive years
Ethnic duality	A dummy variable that equals 1 if the chairman and CEO are of the same ethnicity
Malay duality	A dummy variable that equals 1 if the chairman and CEO are of the same Malay ethnicity
Chinese duality	A dummy variable that equals 1 if the chairman and CEO are of the same Chinese ethnicity
Board size	Natural logarithm of the number of directors in a boardroom
Board independence	The number of independent directors out of the total number of directors
Female ratio	The number of female directors out of the total number of directors
CEO duality	A dummy variable that equals 1 if the CEO is also the board chair and zero otherwise
Firm size	Natural logarithm of total assets
Firm age	Natural logarithm of the number of years because the firm's year of incorporation to the year of observation
Profitability	Earnings before interest and taxes over total assets
MTB	Market-to-book ratio
Capex	Capital expenditures over total assets
Leverage	Total debt over total assets
OCF_TA	Operating cash flows over total assets

Table A1.
Definition of variables