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Article

Audit Committee Diversity, Analysts' Forecast Accuracy and Earnings Management: Evidence from Malaysia

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Abstract: This paper aims to investigate the effect of audit committee ethnicity, as part of the diverse cultures in Malaysia, on analysts' forecast accuracy. In addition, this study investigates further the interactions between the unique cultures in Malaysia and earnings management to determine whether audit committee ethnicity still plays a role in earnings management. Based on 391 observations of firms followed by analysts from the year 2012 to 2014, our result indicates that firms dominated by Bumiputera audit committees have a higher analyst forecast error. In addition, we found that firms manage earnings to meet analysts' forecasts, which is significant for firms dominated by Bumiputera audit committees. The results add new evidence on the effect of audit committee ethnicity on financial reporting quality in the multiracial country of Malaysia.

Keywords: audit committee; diversity; analyst forecast; earnings management



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1. Introduction

The audit committee's role has become the focus of public attention as they are the core decision-making body responsible for monitoring financial reporting practices (Karamanou and Vafeas 2005). Effective audit committees are more sensitive to litigation risks stemming from failures to disclose unfavorable information to the stakeholders (Karamanou and Vafeas 2005). Therefore, the monitoring role played by the audit committee can diminish agency problems by bridging the information asymmetry gap between managers and shareholders and alleviating conflicts of interest between managers and shareholders.

Our study focuses on Malaysia for several reasons. First, Malaysia presents a unique institutional setting as a multiracial country, which has different ethnicities comprising of the Malays, Chinese and Indians, who are expected to provide an impact on accounting and auditing practices and, hence, influence the country's financial reporting quality. Second, the recent development of corporate governance in Malaysia that emphasizes diversity is expected to enhance the monitoring role of audit committees and, thus, enhances firms' financial reporting quality. Recently, diversity has become a Malaysian agenda to ensure better representation in terms of gender, ethnicity and age, mainly in leadership and management, which eventually is expected to support better corporate performance. In Malaysia, the government announced several regulation reformations between 2011 and 2014 to support diversity among the corporate sector, and several studies have been conducted to validate the effectiveness of these reformations. Nevertheless, most of the studies have focused on the effect of board diversity (Labelle et al. 2010; Srinidhi et al. 2011; Hoang et al. 2017; Pucheta-Martínez et al. 2018) and audit committee characteristics per se such as audit committee independence and audit committee expertise (Pomeroy and Thornton 2008; Kusnadi et al. 2016; Al-Shaer and Zaman 2018). There are limited studies on the effect of audit committee diversity on financial reporting quality. A few studies have been conducted on audit committee diversity (Oradi and Izadi 2019; Velte 2018; Bravo and Reguera-Alvarado 2019). However, most of these studies focused

on developed countries. Therefore, we provide evidence on the effect of audit committee diversity in one of the developing countries, which is Malaysia. By focusing on one country, we can control specific variables that directly relate to that country, which may not be convincingly controlled using cross country data.

Therefore, this study investigates the effect of audit committee diversity, focusing particularly on ethnicity in financial reporting quality proxied by analysts' forecast accuracy. We used analysts' forecast accuracy as the proxy since evidence on the effect of audit committee diversity on analysts' forecasts is rather scarce (Abernathy et al. 2013; Liu and Zhuang 2011). Liu and Zhuang (2011) investigated whether effective audit committees, measured by their size, independence, expertise and the number of meetings, influence the association between management earnings forecasts and the properties of analysts' forecasts. Their result indicates that management forecasts issued by firms with effective audit committees are more positively related to accuracy, and are negatively related to the dispersion of analysts' forecasts. Adut et al. (2011) investigated the relationship between strong corporate governance measured by the board characteristics composite index and meeting or exceeding analyst expectations. They added one point to the index for a given firm-year if it fulfilled certain characteristics. One of these was high audit committee independence. Their result indicates that corporate governance attributes are related to the likelihood of consistently meeting or exceeding consensus forecasts. Several papers were also conducted on the effect of the audit committee on analysts' forecast accuracy, but most of them focused on specific audit committee characteristics such as audit committee expertise (Abernathy et al. 2013) and audit committee gender (Gul et al. 2013).

Many studies have highlighted the effect of corporate governance and analysts. For example, Boubaker and Labégorre (2008) showed the effect of ownership structure and analyst following in France. Their result found that in a setting where there is high expropriation likelihood, minority shareholders will put more value on private information and, hence, rely more on analyst following. In China, Jiang (2020) found that analyst following results in the high quality of financial statements, especially in terms of fair value recognition, as analyst following reduces abnormal impairment loss and this effect prevails for firms with lower information disclosure quality. Wang and Yu (2021) found that the effect of analysts' forecast accuracy is influenced by whether the country is a code or common law country. They provide evidence that common law countries have a greater reduction in cash flow forecast usefulness as compared to code law countries, indicating that analysts' forecasts highly influence the institutional setting of the country. The rich findings regarding analysts' forecasts or analyst following from these previous studies have indicated that analysts play an important role in determining financial reporting quality, but yet there have been fewer studies conducted on audit committee diversity.

Given the evidence on the effect of audit committees and earnings management on analysts' forecast accuracy, there is less evidence on whether corporate governance still plays a role when managers manage their earnings. A previous study has indicated that different corporate governance mechanisms can provide incremental control effects on earnings management, especially in firms with weak corporate governance (Man and Wong 2013). Corporate governance mechanisms are expected to act as a tool to constrain opportunistic financial reporting because they can influence outcomes when parties are faced with conflicting goals such as information asymmetry between managers and shareholders. Nevertheless, whether corporate governance mechanisms still prevail when there is earnings management is an empirical question. Therefore, our study will investigate the effect of analysts' forecast accuracy when there is an interaction between audit committee diversity and earnings management in a firm.

Several studies have been conducted to relate earnings management with financial reporting quality and corporate governance. Most of these studies support that earnings management is mainly influenced by the institutional environment. [Grabiński and Wójtowicz \(2022\)](#) found that the institutional environment proxied by religiosity influences earnings management through the values shared by the national community. In contrast to previous studies, their result indicates that Catholicism positively (negatively) influences the level of accrual (real) earnings management. [Saona et al. \(2020\)](#) provided evidence that accounting discretion is influenced by the efficiency of the corporate governance system such as the ownership structure and board of directors' features. Their study concludes that increases in the voting rights of the controlling shareholders, independent female directors and outsiders audit committee in Spain reduce earnings management. They conclude that the institutional environment plays an important role in mitigating opportunistic behavior in Spain.

[Enomoto et al. \(2018\)](#) investigated the effect of financial development on both types of earnings management, which are accrual-based and real earnings management, in thirty-seven countries. Measuring financial development based on the seven pillars of financial development issued by the World Economic Forum, such as the institutional environment and business environment, [Enomoto et al. \(2018\)](#) found that earnings management is restrained by high levels of financial development, which is partly represented by good financial reporting quality and corporate governance. Based on these previous studies, it is believed that earnings management is highly influenced by institutional factors such as efficiency of the corporate governance mechanism and financial reporting quality. Thus, it is very important to relate earnings management with analysts' forecast accuracy and audit committee diversity in our study. In addition, none of these studies have related earnings management with audit committee diversity and analysts' forecast accuracy.

Our study contributes in the following ways. First, we extend the literature on the effect of audit committee diversity and earnings management on analysts' forecast accuracy in developing countries such as Malaysia, as the evidence is relatively scarce. Several studies have been conducted in Malaysia, such as that by [Ahmad-Zaluki and Wan-Hussin \(2010\)](#), which investigated the effect of audit committee characteristics such as audit committee size, independence and expertise. Nevertheless, this study investigated their effect on the management earnings forecast. [Ammer and Ahmad-Zaluki \(2014\)](#) investigated the effect of audit committee ethnicity but focused on Malaysian initial public offerings (IPOs). [Abdul Wahab et al. \(2015\)](#) investigated the effect on analysts' forecast accuracy in Malaysia, but their study highlighted board governance such as board size, duality and independence.

Second, this study elucidates the effect of earnings management on analysts' forecast accuracy and how this interacts with audit committee diversity to investigate whether audit committee diversity plays a role in earnings management. Previous studies have indicated that analysts' forecast accuracy can be undermined if there is earnings management by managers. [Hong et al. \(2019\)](#) investigated the role of abnormal loan loss provisions (ALLP) in analysts' decisions to follow banks and found that a greater magnitude of ALLPs decrease forecast accuracy and leads to an increase in the dispersion of analysts' forecasts. [Kim and Lin \(2019\)](#) found that German firms with more significant improvements in forecast accuracy and forecast dispersion following the mandatory adoption of IFRS in 2005 have a greater decline in the accrual anomaly between 2006 and 2008. Meanwhile, [Katmon and Al-Farooque \(2019\)](#) reported a negative reciprocal relationship between disclosure quality, measured by analysts' forecast accuracy, and earnings management. In contrast, [Milian et al. \(2017\)](#) found that the accuracy of an analyst's next quarterly earnings forecast for a firm increases when there is a positive analyst tone or when analysts praise a firm's management during a firm's call. Despite the evidence, few studies have been conducted in developing countries such as Malaysia. Thus, our study will fill the gap.

Third, we explored the legal and enforcement systems of diversity in Malaysia using the audit committee as the main monitoring system of firms' governance. This study highlights the effect of regulation enforcement on diversity on firms' financial reporting quality using analysts' forecast accuracy as a proxy. Previous researches have indicated that diverse boards and audit committees can enhance financial reporting quality (Dobija et al. 2022; Fernández-Méndez and Pathan 2022; Felix et al. 2021). Nevertheless, most of these studies focused on developed countries such as the United States and Australia. Thus, our study contributes to the policy implications for diversity reform in developing countries such as Malaysia, which has a different institutional setting compared to developed countries.

Based on 391 observations of Malaysian-listed firms that were followed by analysts during the period of 2012–2014, this study finds that firms with a higher percentage of Bumiputra audit committees have higher analyst forecast errors and, thus, lower analyst forecast accuracy. The result provides support that a Bumiputra audit committee, which consists of more Malay, are more secretive and thus have higher conservatism. In addition, the result of the interaction between Bumiputra audit committees and earnings management on analysts' forecast accuracy indicates that earnings management significantly reduces forecast errors for firms dominated by Bumiputera audit committees. This result highlights that Bumiputra audit committees mitigate earnings management not because of being conservative, but instead because they use earnings management to meet analysts' forecasts.

The paper is organized as follows. In Section 2, we present the development of diversity enforcement in Malaysia. In Section 3, we discuss our hypotheses development, and in Section 4, we discuss research methodology. In Section 5, we present the empirical findings and we conclude with the implications of our research in Section 6.

2. Diversity in Malaysia

Recently, the Malaysian government has emphasized Malaysia's diversity by ensuring better representation in terms of gender, ethnicity and age, mainly in leadership and management, to support better corporate performance and the nation's economic transformation. One of the proposed mechanisms for sustaining corporate organization is through encouraging diversity and inclusiveness by appointing directors from non-accounting backgrounds and supporting women at work, including female directors. On 27 June 2011, the Prime Minister of Malaysia, Dato' Seri Najib Tun Razak, announced that the Malaysian cabinet had approved legislation where corporate companies must achieve at least 30 percent female representation on their board of directors. The new policy was seen as a significant change among the private companies in this country as women's representation on the board of directors was only at 6 percent. The percentage increased to 10 percent after more than a year, indicating a welcome move by the corporate sector. The Gender Diversity Benchmark for Asia 2014 ranked Malaysia second for having the highest percentage of companies attaining gender parity, which is 35.3 percent. The policy introduced also superseded some developed countries such as Australia, New Zealand, the United States and the United Kingdom, which currently have no quota for women on the board of directors or in senior management positions (Deloitte 2013).

Calling for changes, regulators such as the Securities Commission and Bursa Malaysia have taken the initiative to promote diversity and inclusiveness. For example, Guidance 5.2 of the Malaysian Code for Institutional Investors 2014 suggests that institutional investors should assess the quality of disclosure made by investee companies on diversity targets and policies, including gender, age and ethnicity. Companies that promote diversity in the workplace are also given recognition to encourage participation from others in diversity and inclusiveness. The ACCA Malaysia Sustainability Reporting Awards (MaSRA) 2014, for example, provides awards for "Sustainability at the Workplace" using the theme "Sustainability and Inclusiveness". The Prime Minister himself also announced in *Invest Malaysia 2012* that a double tax deduction incentive would be given for training expenditures incurred by companies in re-employing women professional on career breaks.

In terms of ethnicity, the environment of the Malaysian market is somewhat unique as the economic segment is divided along ethnic lines (Jesudason 1989). Malaysia is a multiracial country with three different ethnicities, which are the Malays, Chinese and Indians. Under British colonial rule, these three ethnicities were channeled towards different economic specializations; the Malays in agriculture and farming, the Chinese in trade and commerce and the Indians in government services. Therefore, although the Malays account for some 60% of the population, businesses in Malaysia have been historically dominated by the Chinese. One of the unique features of the Chinese that may affect transparency is that they are more optimistic and are risk takers (Weber et al. 1998), while the Malays are portrayed as less exploitive and more caring (Navaratnam 1997). The Chinese are heterogeneous with many different dialect groups such as Cantonese, Hokkien, Hakka, Teochew and Hainanese. The fragmentation of the Chinese ethnic groups has led them to compete fiercely for economic opportunities (Studwell 2008).

3. Hypothesis Development

3.1. Ethnicity Diversity on Audit Committees and Analysts' Forecast Accuracy

Ethnicity is closely related to cultural values. Different ethnicities lead to different cultures, beliefs and values (Iskandar and Pourjalali 2000). Therefore, the differences in these cultures, beliefs and values have brought upon diverse approaches in structuring firms, motivating individuals and dealing with issues in a firm (Hofstede 1983). In terms of accounting practices, the Hofstede–Gray framework stresses that cultural values could affect accounting choices and, thus, are expected to influence financial reporting quality. The Hofstede–Gray theoretical framework contends that the Malays may be expected to be relatively more secretive compared to their Chinese counterparts due to their societal values, which have high uncertainty avoidance. The high secrecy of the Malays implies lower disclosure and, thus, many studies have been conducted to test the effects of ethnicity on accounting practices and governance quality.

Berglund and Eshleman (2019) investigated whether ethnic diversity or ethnic similarity are important determinants in auditor–client engagement. Their studies found that clients are more likely to select and retain an audit partner who is ethnically similar to the client manager or described as having co-ethnicity. Their result is consistent with the view that many owners and managers hold preferences for conducting business with individuals from the same ethnicity and who share the same values. In addition, conducting businesses within a close ethnic network can improve information flow and lowers the risk of opportunism and misconduct (Hegde and Tumlinson 2014). The literature in psychology and sociology also indicates that people prefer to interact with others similar to themselves (McPherson et al. 2001). This preference for interacting with others from the same ethnic background has extended to business relationships. Bengtsson and Hsu (2015) and Hegde and Tumlinson (2014) provided evidence that venture capitalists prefer to fund start-ups when the founder is ethnically similar to themselves. Gompers et al. (2016) found that venture capitalists tend to syndicate with other venture capitalists who share the same ethnicity, educational background or career background.

Despite the preferences, Berglund and Eshleman (2019) highlighted that this co-ethnicity is associated with a lowered propensity to issue an opinion about a going concern to a financially distressed client and an increased occurrence of the underreporting of fundraising and administrative expenses. Therefore, they suggest that ethnic diversity, instead of co-ethnicity in auditor–client relationships, is associated with higher audit quality. This diversity can only be achieved when professionals in both management and auditor roles are diverse. Watson et al. (1993) stressed that diversity in either nationality or ethnicity can reinforce the cognitive consequences of cooperation in complex duties and quality of ideas. In addition, diversity can lead to significantly more accurate and realistic ways of thinking about the issues on the table and, therefore, can produce high-quality decisions. El-Bassiouny and El-Bassiouny (2019) emphasized that for a successful boardroom, a mixture of different nationalities of directors creates a creative environment as they can share

cross-country knowledge and experience and this stimulates boards to make high-quality decisions. Their view is consistent with [Tee and Rassiah \(2020\)](#) who found that boards with higher ethnic diversity are associated with higher earnings quality. In addition, their finding suggests that even institutional investors prefer boards to be ethnically diverse. Nevertheless, further analysis of their study finds that political connections might weaken the association between ethnic board diversity and higher earnings quality.

As Malaysia presents a unique multiethnic and multicultural society, many studies have operationalized diversity as one of the variables to be studied. Previous studies have examined the relationship between ethnic diversity, internal diversity within Islam and firm financial performance in Malaysia and have documented a positive relationship ([Hassan and Marimuthu 2018](#); [Cheong and Sinnakkannu 2014](#); [Abdullah and Ismail 2013](#)). [Nasir et al. \(2019\)](#) examined the relationship between the presence of a Malay director on the board and financial statement fraud in Malaysia and found a significant positive relationship between the proportion of Malay directors on the board and financial statement fraud. Their result is consistent with the Hofstede–Gray framework, which states that the Malays are more secretive than the Chinese, which has resulted in lower disclosure ([Gray 1988](#)). [Abdullah et al. \(2006\)](#) also provide evidence that the Malays have lower individualism characteristics compared to the Chinese. [Ismail et al. \(2021\)](#) provide evidence that Malay CFOs are significantly positively related to accounting conservatism, indicating that Malay CFPs are more sensitive to bad news than good news and, thus, are more conservative. In contrast, [Ghazali et al. \(2019\)](#) found that ethnicity and nationality diversity among Malaysian firms adds value to the board in terms of financial reporting decisions as it reduce real earnings management.

[Yatim et al. \(2006\)](#) state that even though there are other ethnic groups such as Indians in Malaysia, the two main ethnic groups, which are the Malays (also known as the Bumiputeras) and the Chinese, dominate the majority of socio-economic activities and political policy-making decisions. The study documents a strong negative association between external audit fees and Bumiputera-owned firms. Their result highlights that Bumiputera-controlled firms pay lower external audit fees because their internal governance structures are stronger than their non-Bumiputera counterparts. In contrast, [Johnson and Mitton \(2003\)](#) and [Gomez and Jomo \(1999\)](#) argue that Bumiputera-controlled firms and politically-connected firms are perceived to have poor corporate governance practices and greater agency problems. In addition, using a sample of Malaysian-listed firms, [Gul et al. \(2003\)](#) documented a positive association between the audit fees and agency costs of political affiliations. They argue that auditors perceive politically affiliated firms as having greater audit risks, thus charging them higher fees. [Che Ahmad and Houghton \(2001\)](#) suggest that Chinese business practices may influence differences in the levels of agency conflicts and risks associated with Chinese-controlled companies (i.e., non-Bumiputera companies), leading to lower external audit fees being charged to these firms.

Despite the mixed arguments on the effect of diverse ethnicity, we believe that the characteristics of Malay auditors, having high uncertainty ([Abdullah 1992](#)), and being secretive [Gray \(1988\)](#) and risk averse ([Weber et al. 1998](#)), will impede the quality of financial reporting. Therefore, we hypothesize that:

Hypothesis 1 (H1). *There is a negative relationship between Bumiputera audit committees and analysts' forecast accuracy.*

3.2. Gender Diversity on Audit Committees and Analysts' Forecast Accuracy

In addition to ethnicity as one of the cultural diversities in Malaysia, this study also investigates the impact of other culture diversities, which are audit committee gender and expertise. [Adams et al. \(2010\)](#) suggest that gender diversity influences board monitoring improvement. [Adams and Ferreira \(2009\)](#) argue that women directors are more likely to align with the independence characteristic recommended by corporate governance

codes. They suggest that women bring different perspectives, experiences and networks to the board, and are ready to discuss difficult issues, engage in independent thinking and enhance board communication. Huse (2018) affirms that women on boards provide critical attitudes and cognitive conflicts that influence the efficient control and monitoring of the board. In contrast, Pierce and Sweeney (2010) state that male trainee accountants have greater pressure to engage in unethical behaviors in order to achieve success and profitability for the firm. This is because men's identities are naturally more connected with their employment and more susceptible to such influences, even when they disapprove of them (Gerson 1993). Therefore, most male auditors capitulate to the commercial values (e.g., to maximize profitability) celebrated by their audit firms.

Adams and Ferreira (2009) found that female directors are more likely to join monitoring committees such as the audit committee and have better attendance records. They are not afraid to ask tough questions on something that the management team has not fully explained. Meanwhile, men feel a gender obligation to behave as though they understand everything (Konrad et al. 2008). Hence, female directors may be more able to find clues of potential problems. Women are generally more risk averse than men and, in certain situations, are more likely to behave more ethically than men. Female auditors are more diligent (Thiruvadi 2012), more independent and issue an objective audit opinion (Gold et al. 2009) compared to male auditors. Although female directors may play an insignificant role in environmental matters due to sex-based biases (Galbreath 2011), women auditors may play a greater role, as several prior studies have suggested that women are expected to set a lower materiality level and select larger samples than male auditors (Barber and Odean 2001; Rudyanto and Handojo 2013). Chen et al. (2016) found that firms with greater female board representation are less likely to have internal control weaknesses. They suggest that female directors are more concerned with financial reporting quality in order to avoid the impairment of personal reputation.

Previous studies have shown that women directors bring positive impact to financial reporting quality. For example, greater female board participation is associated with higher earnings quality (Krishnan and Parsons 2008; Srinidhi et al. 2011), greater strength of corporate social responsibility disclosures (Bear et al. 2010), higher quality sustainability reports (Al-Shaer and Zaman 2016) and reduced tax aggressiveness (Lanis et al. 2017), and Barua et al. (2010) found that companies with a female chief financial officer (CFO) have better accruals quality. Fewer studies have been conducted on the effect of female auditors and most of the studies performed were in developed countries. Huang et al. (2011) examined market reactions to the appointment of a female director on audit committees for American firms. They found support for the hypothesis that the conservative and ethical qualities of female audit committee members lead to positive market signals. In addition, they also found greater positive abnormal market returns for female compared with male audit committee appointments from 2002 to 2009. Thiruvadi and Huang (2011) showed that a female director on the audit committee can constrain earnings management by increasing negative (income decreasing) discretionary accruals. Wilbanks et al. (2017) showed that female audit committee members are reported to be more likely to engage in actions to assess management integrity as compared to male auditors. Velte (2015) showed that firms with a higher percentage of women directors on the audit committee have higher readability of key audit matters disclosures as measured by the Flesch Reading Ease index. Dobija et al. (2022) found that in Poland, having women on boards increased timeliness by decreasing the time between the financial year-end and publication of the report, and by reducing earnings management, and increased the likelihood of choosing for a qualified auditor opinion. Interestingly, they found that even if the firm has a minimum of 10% or less women on the board, it is still possible to improve financial reporting quality by having a women as the Chair on the board.

In weak institutional settings such as Africa, [Chijoke-Mgbame et al. \(2020\)](#) found that the inclusion of females on audit committees enhances a firm's financial performance. In contrast, [Deslandes et al. \(2020\)](#) found that a gender-diverse audit committee does not seem to lead to less tax aggressiveness. The result may be explained by the small number of women on audit committees, which make their effects difficult to establish. [Harjoto et al. \(2015\)](#) and [Miglani and Ahmed \(2019\)](#) found an insignificant relationship between women directors in audit committees and audit fees. Evidence on the relationship between female auditors and analyst forecasts are also scarce. The only study that relates female auditors with analyst forecasts is a study by [Gul et al. \(2013\)](#) who found that gender-diverse boards represented by female directors and female audit committees improve analyst forecast earning properties and reduce forecast dispersion. Despite the mixed results of the effect of women auditors, we believe that female auditors are more aligned with the quality-orientated aspect of the audit profession and, thus, assist analyst forecast activities. Therefore, we formulated the following hypothesis:

Hypothesis 2 (H2). *There is a positive relationship between female audit committee members and analyst forecast accuracy.*

3.3. Expertise Diversity on Audit Committees and Analysts' Forecast Accuracy

The rulings on the appointment of financial expertise among the board of directors and audit committees have stimulated research on the effect of "financial experts" and financial reporting quality. "Financial experts" can enhance the primary responsibility of audit committees in assessing accounting policies and evaluating accounting judgments and, thus, can appraise the quality of a firm's financial reports. Nevertheless, according to [Abdullah et al. \(2006\)](#), the majority of these designated financial experts hired by the firms do not have a strong accounting background. Thus, whether these financial experts differ in accounting and non-accounting backgrounds and whether this truly brings benefits to the financial reporting quality is still questionable.

Despite these arguments, previous research has indicated that audit committees with an accounting background are associated with higher levels of accounting conservatism ([Krishnan and Visvanathan 2008](#)), higher accruals quality ([Dhaliwal et al. 2010](#)), lower probability of material internal control weaknesses ([Hoitash et al. 2009](#)) and lower earnings management ([Bédard et al. 2004](#); [Carcello et al. 2006](#); [Dhaliwal et al. 2010](#)) and changes in the auditor on financial restatements ([Salehi et al. 2021](#)). These findings lead to a conclusion that even though the Securities Exchange Commission (SEC) definition of financial expertise is broad, covering accounting, finance and supervisory experiences, specifically, it is the accounting financial expertise that yields monitoring benefits to the firms. This is also consistent with the recent studies that found accounting financial experts that serve on the audit committee do not accept tax non-audit services as required by the Sarbanes–Oxley Act to preapprove all non-prohibited non-audit services ([Bédard and Paquette 2021](#)). In contrast, some of the studies found no evidence that audit committee financial expertise leads to better financial reporting quality and performance ([Raimo et al. 2021](#); [Syofyan et al. 2021](#)).

Consequently, a broad definition of "financial experts" has provided mixed evidence on the effects of these financial experts on financial reporting quality. For example, the use of a broad definition of financial experts by previous research shows that the financial expertise of audit committees is negatively related to the occurrence of restatement ([Abbott et al. 2004](#); [Agrawal and Chadha 2005](#)) and lower occurrence of financial fraud ([Farber 2005](#)). In contrast, [Karamanou and Vafeas \(2005\)](#) found a negative relation between analysts' forecast accuracy and the fraction of directors on audit committees that are independent from the management and have financial expertise.

Thus, later studies adopted a narrower definition of financial expertise by differentiating between accounting and non-accounting financial expertise and this provided more consistent associations between financial accounting expertise on audit committees and financial reporting quality. For example, [Krishnan and Visvanathan \(2008\)](#) found that firms with financial accounting experts in their audit committees are associated with more conservative financial reporting. [Dhaliwal et al. \(2010\)](#) found a significant positive relation between accounting expertise in audit committees and accruals quality. [Davidson et al. \(2004\)](#) and [DeFond et al. \(2005\)](#) found that the market rewards companies for the appointment of accounting financial experts as compared to corporate financial management expertise.

[Liu and Zhuang \(2011\)](#) found that effective audit committees are characterized as having exclusively independent directors serving on the committee, including at least one director with financial expertise, and holding at least four meetings a year; they exhibit stronger associations with analysts' forecasts. Their findings indicate that, while management forecast accuracy remains positively related to the accuracy of analysts' forecasts, this association is significantly stronger with audit committees that have adequate size and accounting expertise. [Abernathy et al. \(2013\)](#) showed that there is a significant association between financial accounting expertise on the audit committee and analysts' earnings forecasts that are more accurate and less dispersed. [Dickins et al. \(2009\)](#) stated that financial analysts have more confidence in financial statements when the disclosed audit committee financial expert's source of expertise is accounting-based rather than supervisory-based. In that situation, analysts are more likely to produce more accurate forecasts. The findings of these studies clearly suggest that the market differentiates the role between accounting and non-accounting financial expertise in audit committees. Based on the expertise of "accounting" financial experts, we then hypothesize that:

Hypothesis 3 (H3). *There is a positive relationship between accounting expert audit committees and analyst forecast accuracy.*

3.4. Earnings Management, Audit Committee Diversity and Analysts' Forecast Accuracy

Previous studies highlighted that earnings management may occur less frequently when audit committees provide effective monitoring over earnings management practices by being more independent ([Bukita and Iskandar 2009](#)). This is because the audit committee's primary role is to ensure high-quality financial reporting by providing ultimate monitoring of the financial reporting process ([Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees 1999](#)). Audit committees are expected to reduce opportunistic earnings management by engaging in proactive discussions with company management and outside auditors regarding key accounting judgments, and by stimulating serious discussions on issues that need considerable attention from management and auditors. [Inaam and Khamoussi \(2016\)](#) stress that there are many studies in the previous literature that provide evidence on how audit committee characteristics affect both accrual and real earnings management (REM) ([Peasnell et al. 2003](#); [Krishnan and Visvanathan 2008](#); [Bhagat and Bolton 2008](#); [Dutillieux and Willekens 2009](#); [Sun et al. 2014](#)).

Unfortunately, based on their analysis to date, some empirical studies present inconsistent evidence on the association between audit committee effectiveness and earnings management measures. For example, while some studies showed that the extent of earnings management declines with the independence of the audit committee ([Baxter and Cotter 2009](#); [Yang and Krishnan 2005](#)), [Choi et al. \(2004\)](#) and [Visvanathan \(2008\)](#) found no relationship between these two. On the other hand, using another measurement of audit committees, [Sun et al. \(2014\)](#) suggested that audit committees are less effective in limiting REM if they have high additional directorships. [Xie et al. \(2003\)](#) showed there was no significant relationship with earnings management using audit committee size. Therefore, due to inconsistent results, it is expected that researchers use various measures

to proxy for audit quality as well as attributes associated with audit quality. Based on this motivation, we extend our study to investigate the effects of audit committee diversity on analysts' forecast accuracy and how this is affected when there is earnings management.

The investigation of earnings management on financial reporting quality is a crucial issue as managers may employ accounting procedures that increase reported earnings to hide their opportunistic behavior. Even though under certain accounting principles managers can exercise discretion over accounting-reported earnings to maximize the information value of a firm's earnings, an excessive use of this practice is detrimental. Thus, earnings management can reduce financial reporting quality as the information in financial reports does not truly reflect the underlying economic conditions of a firm. Nevertheless, how far earnings management affects financial reporting quality when there is good audit committee quality is still a question to be answered. Thus, we extend our study to investigate whether the audit committee or earnings management is more prevailing in enhancing financial reporting quality proxied by analysts' forecast accuracy. Despite the mixed findings on the effect of audit committee attributes on financial reporting quality, we believe that recent regulations by regulators to enhance diversity in the corporate world is timely as diversification of expertise, work culture and beliefs are expected to boost the quality of work. Therefore, we hypothesize that:

Hypothesis 4 (H4). *The negative relationship between earnings management and analyst forecast accuracy is weaker for firms with audit committee diversity.*

4. Research Methodology

4.1. Sample Selection

Our sample consists of 250 listed Malaysian firms that are followed by analysts. Thus, the sample consists of 750 firm-year observations over the period of 2012–2014. The sample firms from the Institutional Broker Estimate System (I/B/E/S) database were used and matched with Compustat Global for firm specific information. Firms listed on Bursa Malaysia were chosen as sample because, according to [Embong and Hosseini \(2018\)](#), analysts' forecasts are among the information that are utilized by investors as the stock market is adaptively efficient. The efficiency indicates that investors value the information provided to them. We excluded 207 observations due to missing data of share prices and other financial data required to calculate analysts' forecast accuracy. We also excluded outliers from the sample, yielding a final sample of 391 observations. The distributions of observations are presented in Table 1.

Table 1. Sample selection: the distribution of observations based on initial sample selected among listed companies in Malaysia that are followed by analysts.

Description	Number of Observations
Initial sample	750
(-) missing data of share prices and other financial data required to calculate analyst forecast accuracy	(207)
(-) Outliers	(152)
Final Sample	391

4.2. Variables' Measurements and Data Collection

The dependent variable used in this study is analysts' forecast accuracy. Accuracy of analysts' forecasts is measured by forecast error (FORECAST_ERROR), which is calculated by taking the difference between the forecast and the actual earnings published by the firms. The formula used is as below:

$$\text{Forecast Error} = \frac{\text{L.N. (A.B.S. (Actual forecast} - \text{Median forecast))}}{\text{Price}}$$

where actual forecast is the actual annual earnings as reported by I/B/E/S; median forecast is the median of analysts' forecast for a year period; price is the stock price of the last day prior to the announcement date of earning per share. The methodology used is consistent with [Abdul Wahab et al. \(2015\)](#), [Ahmad-Zaluki and Wan-Hussin \(2010\)](#) and [Ammer and Ahmad-Zaluki \(2014\)](#).

The data for the difference between the forecast and actual earnings were extracted from ORBIS, whereas data for prices were extracted from DATASTREAM. We used four independent variables in this study which, were audit committee ethnicity, audit committee gender, audit committee expertise and earnings management. Audit committee ethnicity was measured by the proportion of non-Bumiputera audit committees. It was derived by dividing the number of non-Bumiputera audit committees with the total number of audit committees. Audit committee gender was measured by a dummy variable coded as 1 if the sample had at least one female audit committee. Audit committee expertise was measured by dividing the number of audit committees that had accounting expertise with the total number of audit committees.

For earnings management, we used earnings management mode from [Kothari et al. \(2005\)](#). [Kothari et al. \(2005\)](#) modified the [Jones' \(1991\)](#) model of earnings management. According to [Jones \(1991\)](#), earnings management is estimated using discretionary accrual by defining total accruals (TA) as the change in non-cash current assets minus the change in current liabilities excluding the current portion of long-term debts, minus depreciation and amortization, scaled by lagged total assets. The model is as follows:

$$TA_{it} = \beta_0 + \beta_1(1/ASSETS_{it-1}) + \beta_2 \Delta SALES_{it} + \beta_3 PPE_{it} + \varepsilon_{it}$$

where $\Delta SALES_{it}$ is change in sales scaled by lagged total assets, $ASSETS_{it-1}$ and PPE_{it} is net property, plant and equipment scaled by $ASSETS_{it-1}$. The use of assets as the deflator is intended to mitigate heteroskedasticity in residuals.

[Kothari et al. \(2005\)](#) modified the Jones model ROA_{it} or ROA_{it-1} . According to them, this approach is formulated to provide a comparison of the effectiveness of performance matching versus including a performance measure in the accruals regression. The model is elaborated below:

$$TA_{it} = \beta_0 + \beta_1(1/ASSETS_{it-1}) + \beta_2 \Delta SALES_{it} + \beta_3 PPE_{it} + ROA_{it} \text{ (or } ROA_{it-1}) \varepsilon_{it}$$

All the data were hand-collected from firms' annual reports from the year 2012 to 2014. This study also selected forecast horizon, analyst following, market capital, forecast horizon, forecast dispersion, return on asset (ROA), leverage, earnings surprise and audit opinion as control variables, which have been tested in previous studies that affect or induce the accuracy of analysts' forecasts in the market. Table 2 provides the operational definition of variables used in this study.

Table 2. Operational Definition of Variables: List of variables used in the study and their definitions.

Variables	Symbol	Operationalization	Expected Direction	Sources
Dependent variable				
Forecast Error	FERROR	The difference between the forecast and the actual earnings published by the firm (EPS)	?	Abdul Wahab et al. (2015), Abernathy et al. (2013)
Independent variables				
Female Audit Committee	FEMALE	A dummy variable with a value of one if one of the audit committee is female	+	Thiruvadi and Huang (2011)
Audit Committee Expertise	AC_ACCTG	Percentage of audit committee with accounting financial expertise	+	Abernathy et al. (2013)
Bumiputera Audit Committee	AC BUMI	Percentage of Bumiputera Audit Committee	—	Gul (2006), Abdul Wahab et al. (2015)
Earnings management	EMNGMT	Measured using Kothari et al. (2005) model	—	Jones (1991), Kothari et al. (2005)
Control variables				
Number of Analyst Following	ANALYST	Number of analysts following a firm	+	Bhat et al. (2006), Yu (2010), Louis et al. (2014)
Firm Size	MKT_CAP	Market Capitalization	+	Bhat et al. (2006)
Forecast Horizon	HORIZON	The difference of days between the (latest) forecast date and actual earnings announcement date		Byard et al. (2006)
Forecast Dispersion	DISPERSION	Standard deviation of forecast for firms		Byard et al. (2006), Yu (2010)
Return on Asset	ROA	Earnings before tax divided by total asset		Abdul Wahab et al. (2015), Ayres et al. (2017), Muslu et al. (2019)
Leverage	LEVERAGE	Total debt divided by total equity		Hope (2003)
Earnings surprise	SURPRISE	Absolute value of the difference between the current year's earnings and last year's earnings		Hope (2003), Yu (2010)
Inverse earnings per share (EPS)	EPS	1 deflated by earnings per share (EPS)		
Audit opinion	OPINION	A dummy variable coded as 1 if the firm is issued with qualified audit opinion and 0 otherwise		Choi and Jeter (1992), Mao and Yu (2015)

?, +, — is the expected direction of relationship between dependent and independent variables defined as no expected direction, positive and negative relationship respectively.

4.3. Empirical Model and Data Analysis

In order to test the relationship between analyst forecast accuracy with audit committee diversity and earnings management, we used the following model:

$$FERROR_{it} = FEMALE_{it} + AC_ACCTG_{it} + AC_BUMI_{it} + EMNGMT_{it} + Control_variables_{it} + \epsilon_{it}$$

To analyze the impact of both audit committee diversity and earnings management on analyst forecast accuracy, we interacted audit committee diversity with earnings management to investigate the joint effect of audit committees and earnings management on analyst forecast accuracy. Therefore, we used the following model:

$$FERROR_{it} = FEMALE_{it} + AC_ACCTG_{it} + AC_BUMI_{it} + EMNGMT_{it} + FEMALE_{it} \times EMNGMT_{it} \\ + AC_ACCTG_{it} \times EMNGMT_{it} + AC_BUMI_{it} \times EMNGMT_{it} + Control_variables_{it} + \epsilon_{it}$$

The data were analysed using panel data analysis as panel data is a more appropriate method than pooled ordinary least squares (OLS). Considering the cross sectional time series effects, OLS ignores the panel structure of the data and treats observations as being serially uncorrelated for a given firm, with homoscedastic errors across firms and time periods. All the tests used random effects as the p -value of Hausman test was more than 0.05. Based on the rules of Hausman statistics, when the p -value of the Hausman test is more than 0.05 and, thus, insignificant, the Hausman null is accepted, while we accept the Hausman alternate. The implication of this is that the random effect model is consistent with the data.

5. Empirical Findings

5.1. Descriptive Analysis

Table 3 presents descriptive statistics for the variables used in this study. The result of the main variables in Panel A of Table 3 shows positive mean and median values of forecast error, which are 0.045 and 0.007, respectively, indicating that the actual annual earnings as reported by I/B/E/S are basically higher than the median of analysts' forecasts for a year period indicating the practice of conservatism. The result for forecast error is not much different than the findings by Dhaliwal et al. (2012), who found that the forecast error for current-year earnings of Malaysia was 0.049. Dhaliwal et al. (2012) presented that the forecast error in Malaysia is quite high as compared to other code law countries such as Japan (0.044) and France (0.037) and developed countries such as the UK (0.037) and US (0.023). The result for audit diversity highlights that 22 percent of the sample have at least one female audit committee, 43.9 percent of audit committees have accounting expertise and 42.7 percent of audit committees are Bumiputeras. The result indicates that not many firms have appointed females to audit committees and the proportion of audit committees that have accounting expertise is below 50 percent, which is quite low. Meanwhile, the mean (median) for earnings management among the sample is -0.112 (-0.079).

Panel B of Table 3 tabulates the descriptive results for the control variables of this study. The mean for the number of analysts following a firm was 1.486 with the maximum 3.401. This indicates that, on average, one to two analysts follow the firms and the maximum number of analysts following a firm is between three and four. The mean (median) for MKT_CAP is 21.246 (20.992) with the maximum value 24.970 and minimum 17.277. This result highlights that the number of analysts following a firm is still low in this country as compared to the global setting, which has an average of six to seven analysts following a firm (Yu 2010). Most of the firms that are followed by analysts are large firms with high market capitalization. The mean (median) for the natural logarithm of HORIZON and DISPERSION is 4.724 (4.751) and 0.02 (0.01), respectively. The result for forecast horizon highlights that, on average, this sample of firms takes about 128 days to announce their forecast. Meanwhile, the result for forecast dispersion shows that the deviation in forecast from the mean is quite low, which shows that forecasts within the years are stable and predictable. In addition, other control financial variables, which are ROA and LEVERAGE, show means (medians) of 34.716 (48.611) and 2.210 (2.669), respectively. Meanwhile, the means (medians) for SURPRISE and EPS are 0.171 (0.228) and 5.772 (5.719), respectively. The result for audit opinion shows that 72.4 percent of the sample firms have a qualified audit opinion.

Table 3. Descriptive Analysis of Variables used in the Study.

	Mean	Median	Maximum	Minimum	Std. Dev.
Panel A: Main Variables					
FERROR	0.045	0.007	6.285	0.000	0.383
FEMALE	0.220	0.000	1.000	0.000	0.415
AC_ACCTG	0.439	0.440	1.000	0.000	0.183
AC BUMI	0.427	0.423	1.333	0.000	0.263
EMNGMT	−0.112	−0.079	0.225	−1.103	0.156
Panel B: Control Variables					
ANALYST	1.486	1.386	3.401	0.000	1.043
MKT_CAP	21.246	20.992	24.970	17.277	1.585
HORIZON	4.724	4.751	5.919	3.122	0.485
DISPERSION	0.020	0.010	0.361	0.000	0.035
ROA	34.716	48.611	48.611	0.000	21.959
LEVERAGE	2.210	2.669	3.670	0.022	0.847
OPINION	0.724	1.000	1.000	0.000	For
SURPRISE	0.171	0.228	1.556	−3.280	0.312
EPS	5.772	5.719	23.697	−2.674	2.664

F_ERROR is the difference between the forecast and the actual earnings published by the firm (EPS); FEMALE is a dummy variable with a value of 1 if one of the audit committees is female; AC_ACCTG is percentage of audit committees with accounting financial expertise; AC BUMI is the percentage of Bumiputera Audit Committee; EMNGMT is earnings management measured using Kothari et al. (2005) model; ANALYST is the number of analysts following a firm; MKT_CAP is market capitalization; HORIZON is the difference of days between the (latest) forecast date and actual earnings announcement date; DISPERSION is the standard deviation of forecast for firms; ROA is earning before tax divided by total asset; LEVERAGE is the total debt divided by total equity; OPINION is a dummy variable coded as 1 if the firm is issued with qualified audit opinion and 0 if otherwise; SURPRISE is absolute value of the difference between the current year's earnings and last year's earnings; EPS is 1 deflated by earnings per share.

5.2. Correlation Analysis

Table 4 tabulates the correlation analysis for the variables used in this study. The result indicates that there is a positive and significant correlation between FERROR and AC BUMI using ordinary correlation (0.16, $p < 0.01$), indicating that a higher percentage of Bumiputeras on a board leads to a higher forecast error. Aligned with the Hofstede–Gray framework on the accounting culture, the result highlights that Bumiputera directors are more conservative and secretive, which may lead to a higher forecast error. Nevertheless, the result is insignificant using Spearman correlation. Meanwhile, by using Spearman correlation, there is a significant positive correlation between EMNGMT and FERROR (0.232, $p < 0.010$), providing evidence that higher earnings management leads to higher forecast errors. The results for the other main variables, which are female audit committees and accounting expertise of audit committees are all insignificant using both ordinary and Spearman correlations.

The result for the control variables shows that all the variables are insignificant using ordinary correlations except for MKT_CAP, which has a significant negative correlation with F_ERROR using both Spearman and ordinary correlations. This highlights that a larger firm size has fewer forecast errors and, thus, higher analysts' forecast accuracy. Using Spearman correlation, the result for the control variable ANALYST indicates that a higher number of analysts following a firm leads to fewer forecast errors. The result for forecast horizon (0.100, $p < 0.05$) is significantly positive using the Spearman correlation, indicating that the longer time taken by analysts before an earnings announcement date leads to higher forecast errors. Higher qualified audit opinion has higher forecast errors and this is significantly positive (0.105, $p < 0.05$) using Spearman correlation. Other variables that are significant using Spearman correlation are LEVERAGE (0.135, $p < 0.01$), SURPRISE (0.107, $p < 0.05$) and EPS (0.196, $p < 0.01$).

Overall, the correlations between variables suggest that there was no serious multi-collinearity issue. We also ran the Variation Inflation Factor (VIF) to evaluate the problem

of multicollinearity. The result of VIF indicates that all the variable values were below 10; indicating that multicollinearity is not likely to be a serious problem in this study.

Table 4. Pearson and Spearman Correlation Analysis of the Variables used in the Study. Spearman Correlations are bold and italicized.

Probability		1	2	3	4	5	6	7	8
Panel A: Main Variables									
FERROR	1	1.00	−0.05	0.08	0.03	0.23 ***	−0.27 ***	−0.38 ***	0.10 **
FEMALE	2	−0.04	1.00	0.09 *	0.07	−0.08 *	0.07	0.13 **	−0.03
AC_ACCTG	3	−0.04	0.13 **	1.00	−0.02	−0.05	0.02	−0.01	0.07
AC BUMI	4	0.16 ***	0.12 **	−0.09 *	1.00	0.15 ***	0.20 ***	0.22 ***	−0.01
EMNGMT	5	−0.02	−0.17 ***	−0.03	0.13 ***	1.00	−0.01	−0.10 *	0.11 **
Panel B: Control Variables									
ANALYST	6	−0.04	0.06	−0.05	0.17 ***	−0.07	1.00	0.75 ***	−0.08
MKT_CAP	7	−0.16 ***	0.12 **	−0.08	0.16 ***	−0.15 ***	0.75 ***	1.00	−0.09 *
HORIZON	8	−0.08	−0.03	0.06	0.00	0.08	−0.09 *	−0.10 *	1.00
DISPERSION	9	0.00	0.06	−0.04	0.04	−0.02	0.24 ***	0.28 ***	0.03
ROA	10	0.06	0.02	−0.03	−0.05	0.09 *	−0.19 ***	−0.27 ***	0.05
LEVERAGE	11	0.05	0.03	−0.01	0.00	0.03	−0.13 **	−0.22 ***	0.08 *
OPINION	12	0.05	0.05	0.03	−0.06	0.08	−0.23 ***	−0.29 ***	0.04
SURPRISE	13	0.01	0.05	0.00	0.00	0.01	0.02	−0.05	−0.03
EPS	14	0.01	−0.13 **	−0.01	0.00	0.19 ***	−0.16 ***	−0.23 ***	0.02
Probability		9	10	11	12	13	14		
Panel A: Main Variables									
FERROR	1	0.05	0.05	0.13 ***	0.10 **	0.11 **	0.20 ***		
FEMALE	2	0.02	0.05	0.01	0.05	0.01	−0.13 **		
AC_ACCTG	3	−0.04	−0.06	−0.01	−0.03	0.00	0.04		
AC BUMI	4	0.18 ***	−0.09 *	−0.02	−0.10 **	−0.02	−0.01		
EMNGMT	5	0.04	0.02	0.06	0.05	0.03	0.13 ***		
Panel B: Control Variables									
ANALYST	6	0.60 ***	−0.18 ***	−0.14 ***	−0.23 ***	−0.15 ***	−0.22 ***		
MKT_CAP	7	0.50 ***	−0.23 ***	−0.19 **	−0.27 ***	−0.21 ***	−0.31 ***		
HORIZON	8	0.00	0.05	0.07	0.03	0.00	0.01		
DISPERSION	9	1.00	−0.12 **	−0.07	−0.16 ***	−0.11 **	−0.20 ***		
ROA	10	−0.04	1.00	0.83 ***	0.96 ***	0.58 ***	0.10 *		
LEVERAGE	11	−0.01	0.86 ***	1.00	0.84 ***	0.49 ***	0.28 ***		
OPINION	12	−0.06	0.98 ***	0.82 ***	1.00	0.57 ***	0.19 ***		
SURPRISE	13	−0.02	0.29 ***	0.28 ***	0.28 ***	1.00	0.15 ***		
EPS	14	−0.14 ***	−0.03	0.04	−0.03	−0.20 ***	1.00		

F_ERROR is the difference between the forecast and the actual earnings published by the firm (EPS); FEMALE is a dummy variable with a value of 1 if one of the audit committees is female; AC_ACCTG is the percentage of audit committees with accounting financial expertise; AC BUMI is the percentage of Bumiputera Audit Committee; EMNGMT is earnings management measured using Kothari et al. (2005) model; ANALYST is the number of analysts following a firm; MKT_CAP is market capitalization; HORIZON is the difference of days between the (latest) forecast date and actual earnings announcement date; DISPERSION is the standard deviation of forecast for firms; ROA is earnings before tax divided by total asset; LEVERAGE is total debt divided by total equity; OPINION is a dummy variable coded as 1 if the firm is issued with qualified audit opinion and 0 otherwise; SURPRISE is absolute value of the difference between the current year's earnings and last year's earnings; EPS is 1 deflated by earnings per share. *, **, *** Significant at the 10, 5, and 1 percent respectively.

5.3. Univariate Analysis

Table 5 presents the results of the univariate test for our dummy variable. For the purpose of our analysis, we compare the differences between female and male audit committees. The result indicates that only 86 of the observations were for females and the rest were for males. These numbers highlight that women's expertise on audit committees is still underutilized. In spite of that, there is a significant difference between female and

male audit committees in terms of analysts' forecast accuracy and earnings management. The results indicate that firms that hire female audit committees have lower discretionary accruals and, thus, lower earnings management, and the result is significant using both the paired sample *t*-test and Mann–Whitney test. The results also show significant differences in terms of analyst forecast errors. Nevertheless, it is only significant using median differences at only a 10 percent significant level. The mean difference in forecast error between female and male audit committees indicates that the mean of the forecast error of female audit committees is higher compared to male audit committees. This result might be influenced by female conservatism (Huang et al. 2011) as they are more risk averse compared to males (Thiruvadi 2012).

Table 5. Univariate Analysis between Male and Female Audit Committee.

	Female		Male		<i>t</i> -Test	Mann–Whitney Test		
	Mean	Median	Mean	Median				
	n = 86		n = 305					
<i>F_ERROR</i>	0.016	0.006	0.054	0.007	0.400		0.097	*
<i>AC_ACCTG</i>	0.482	0.500	0.426	0.440	0.007	***	0.027	**
<i>AC BUMI</i>	0.488	0.450	0.410	0.423	0.038	**	0.354	
<i>EMNGMT</i>	−0.163	−0.103	−0.098	−0.074	0.000	***	0.046	**
<i>ANALYST</i>	1.603	1.609	1.453	1.386	0.207		0.165	
<i>MKT_CAP</i>	21.605	21.484	21.145	20.941	0.016	**	0.011	**
<i>HORIZON</i>	4.696	4.754	4.732	4.740	0.960		0.935	
<i>DISPERSION</i>	0.024	0.010	0.019	0.010	0.132		0.321	
<i>ROA</i>	35.668	48.611	34.448	48.611	0.919		0.689	
<i>LEVERAGE</i>	2.250	2.669	2.198	2.669	0.932		0.783	
<i>OPINION</i>	0.767	1.000	0.711	1.000	0.729		0.729	
<i>SURPRISE</i>	0.202	0.228	0.162	0.228	0.336		0.859	
<i>EPS</i>	5.144	5.719	5.949	5.719	0.007	***	0.002	***

F_ERROR is the difference between the forecast and the actual earnings published by the firm (EPS); *FEMALE* is a dummy variable with a value of 1 if one of the audit committees is female; *AC_ACCTG* is the percentage of audit committee with accounting financial expertise; *AC BUMI* is the percentage of Bumiputera Audit Committee; *EMNGMT* is earnings management measured using Kothari et al. (2005) model; *ANALYST* is the number of analysts following a firm; *MKT_CAP* is market capitalization; *HORIZON* is the difference of days between the (latest) forecast date and actual earnings announcement date; *DISPERSION* is the standard deviation of forecast for firms; *ROA* is earnings before tax divided by total asset; *LEVERAGE* is total debt divided by total equity; *OPINION* is a dummy variable coded as 1 if the firm is issued with qualified audit opinion and 0 otherwise; *SURPRISE* is absolute value of the difference between the current year's earnings and last year's earnings; *EPS* is 1 deflated by earnings per share. *, **, *** Significant at the 10, 5, and 1 percent respectively.

5.4. Multivariate Analysis

We performed a multivariate analysis to extend the test on significant relationships between the variables. Table 6 tabulates the main regression results. Column 1 presents the main regression without control variables and column 2 presents the results with control variables. We found a positive and significant relationship between *AC BUMI_{it}* and *FERROR_{it}* (0.310, *t* = 4.058, *p* < 0.01). This finding supports that having a higher percentage of Bumiputera audit committees leads to higher analyst forecast errors, which means a lower analyst forecast accuracy. Thus, our hypothesis H1 is supported. Our findings support the argument made by the previous literature, which states that the Malays are more secretive compared to other ethnicities and this behaviour has resulted in higher conservatism (Madah Marzuki and Wahab 2016; Gray 1988) and lower disclosure quality (Abdul Wahab et al. 2015), resulting, thus, in lower analyst forecast accuracy. The results for gender (*FEMALE*) and expertise (*AC_ACCTG*) are insignificant and, thus, H2 and H3 are rejected. In addition, our findings show negative and significant relationships between *E_MNGMT_{it}* and *FERROR_{it}* (0.226, *t* = 1.727, *p* < 0.10), which indicate that firms manage earnings to meet analyst forecasts. The result supports the view by Matsumoto (2002) that firms with higher transient institutional ownership have a tendency to meet or exceed expectations of earnings announcements by managing their earnings upward or guide

analyst forecasts downward. This is true as Malaysia is characterized as having higher institutional ownership (Abdul Jalil and Rahman 2010; Abdul Wahab and Rahman 2009).

Table 6. Test Results of H1–H3: Regression Analysis of Analyst Forecast Accuracy and Audit Committee Diversity.

Variable	Coefficient		Coefficient	
<i>Intercept</i>	−0.044		2.103	***
	−0.800		4.610	
<i>FEMALE_{it}</i>	−0.054		−0.050	
	−1.296		−1.025	
<i>AC_ACCTG_{it}</i>	−0.027		−0.056	
	−0.298		−0.511	
<i>AC BUMI_{it}</i>	0.237	***	0.310	***
	3.558		4.058	
<i>EMNGMT_{it}</i>	−0.109		−0.226	*
	−1.002		−1.727	
<i>ANALYST_{it}</i>			0.064	**
			2.273	
<i>MKT_CAP_{it}</i>			−0.090	***
			−4.606	
<i>HORIZON_{it}</i>			−0.077	*
			−1.924	
<i>DISPERSION_{it}</i>			0.637	
			1.088	
<i>ROA_{it}</i>			0.000	
			0.098	
<i>LEVERAGE_{it}</i>			−0.016	
			−0.339	
<i>OPINION_{it}</i>			0.028	
			0.135	
<i>SURPRISE_{it}</i>			−0.016	
			−0.242	
<i>EPS_{it}</i>			−0.003	
			−0.412	
<i>Industries</i>	Yes		Yes	
<i>Adjusted R-Squared</i>	0.021		0.054	
<i>Prob(F-statistic)</i>	0.008	***	0.004	***

F_ERROR is the difference between the forecast and the actual earnings published by a firm (EPS); FEMALE is a dummy variable with a value of 1 if one of the audit committees is female; AC_ACCTG is the percentage of audit committee with accounting financial expertise; AC BUMI is the percentage of Bumiputera Audit Committee; EMNGMT is earnings management measured using Kothari et al. (2005)'s model; ANALYST is the number of analysts following a firm; MKT_CAP is market capitalization; HORIZON is the difference of days between the (latest) forecast date and actual earnings announcement date; DISPERSION is the standard deviation of forecast for firms; ROA is earnings before tax divided by total asset; LEVERAGE is total debt divided by total equity; OPINION is a dummy variable coded as 1 if the firm is issued with qualified audit opinion and 0 otherwise; SURPRISE is absolute value of the difference between the current year's earnings and last year's earnings; EPS is 1 deflated by earnings per share. *, **, *** Significant at the 10, 5, and 1 percent respectively.

Our results suggest that the institutional setting of Malaysia, which is dominated by Malays, has influenced the accounting practices of their audit committees. The result is consistent with the argument by Ball et al. (2003) who contend that the setting of Malaysia's government policy is protecting one ethnicity against other ethnicities in business. This setting has impacted the quality of financial statements (Herath and Albarqi 2017). In addition, the result supports the findings from Ismail et al. (2021), which highlighted that Malays are more conservative due to high uncertainty avoidance. This characteristic is due to their religion that prohibits them from uncertainty and gambling, which consequently encourages them to be more risk averse and thus affects the analysts' forecast accuracy.

We provide several reasons for the insignificant findings of audit committee gender and expertise. In terms of gender, only 22 percent of audit committees from this sample have at least one female audit committee and, thus, they might not have a critical voice

on the board. [Fernández-Méndez and Pathan \(2022\)](#) found that long tenured, busy female directors and women chairing the board or the audit committee have more influence on improving audit efforts and outcomes. For accounting expertise, the result is consistent with previous researches that found insignificant results between audit committee expertise and timeliness ([Syofyan et al. 2021](#)) and real earnings management ([Sun et al. 2014](#)). They argue that audit committee expertise is concerned with detecting material misstatements adequately. Thus, it may not have an effect on the other proxy of financial reporting quality.

For control variables, we find positive and significant relationships between $FERROR_{it}$ and $ANALYST_{it}$ ($0.064, t = 2.273, p < 0.05$), highlighting that a higher number of analysts cause higher forecast errors. This result may be due to the lower number of analysts on average among the firms, which may affect the ability of analysts to do their forecasts. This is consistent with the result of descriptive analysis, which found that the mean for the number of analysts following a firm is between one to two with the maximum of three. [Louis et al. \(2014\)](#) state that analyst forecast error may be partly driven by the failure of some incompetent analysts to fully account for the available information about certain information such as accounting conservatism. Other control variables that are significant are MKT_CAP_{it} and $HORIZON_{it}$, which suggest that smaller firms have lower forecast errors and shortened forecast horizon results with fewer errors. The result is consistent with previous studies that found negative relationships of the firm's size with forecast error ([Abdul Wahab et al. 2015](#)) and forecast horizon ([Capstaff et al. 1995](#)).

Next, we run the interaction of the audit committee diversity variables with earnings management to investigate the joint effect of audit committee diversity and earnings management on analysts' forecast accuracy. Consistent with the main regression in Table 6, we found positive and significant relationships between AC_BUMI_{it} and $FERROR_{it}$ ($0.148, t = 1.764, p < 0.10$). The results for the other main variables including earnings management are insignificant. Nevertheless, our result of interaction suggests that earnings management significantly reduces forecast errors for firms dominated by Bumiputera audit committees. This result provides the view that firms dominated by Bumiputera audit committees allow the use of earnings management practices to meet analyst forecasts, lessen errors and to increase analyst forecast accuracy. Therefore, H1 is rejected. It is highlighted that Bumiputera audit committees do not mitigate earnings management due to the culture of being conservative. Instead, Bumiputera audit committees use earnings management to meet analyst forecasts. This result supports the argument by [Abdul Wahab et al. \(2015\)](#) who stated that Bumiputera directors are characterized as being politically-connected in firms that are inefficient and have weak corporate governance. [Embong and Hosseini \(2018\)](#) found that meeting analyst forecasts is one of the earnings management incentives in Malaysia. We could not find evidence that other audit diversity variables affect analyst forecast errors. The results for control variables are consistent with the main regression in Table 6.

The result of interaction between audit committee, earnings management and analysts' forecast accuracy is consistent with the findings of [Mohammad et al. \(2016\)](#) who also found that the ethnicity of the audit committee in Malaysia is positively associated with earnings management even after the revision of the Malaysian Code on Corporate Governance in the year 2007. Their result provides a warning that corporate governance mechanisms in Malaysian firms are inadequate for preventing earnings management and, thus, extra effort is needed to improve firms' governance. The result may highlight that as Malays are being too conservative, this may lead them to earnings management and provide opportunities for them to meet or beat the analyst's forecast.

5.5. Robustness Test

To provide the robustness of our result, we reran the result using [Jones' \(1991\)](#) measurement of earnings management (EM_JONES_{it}). The result indicates that there is a significant positive relationship between AC_BUMI_{it} and $FERROR_{it}$ ($0.302, t = 3.167, p < 0.01$), supporting the view that having a higher percentage of Bumiputera audit committees leads

to higher analyst forecast errors and, thus, lowers the analysts' forecast accuracy. Our robustness also shows a negative and significant relationship between EM_JONES and $FERROR_{it}$ (-0.424 , $t = -1.826$, $p < 0.10$). The results for the control variables are significant for $ANALYST_{it}$, MKT_CAP_{it} and $HORIZON_{it}$ and consistent with the result in Table 7. The result in Table 8 provides a consistent result with the main result in Table 7.

Table 7. Test Results of H4: Regression Analysis on the Interaction between Audit Committee Diversity and Earnings Management with Analyst Forecast Accuracy.

Variable	Coefficient		Coefficient	
<i>Intercept</i>	−0.016		1.829	***
	−0.235		4.155	
<i>FEMALE_{it}</i>	−0.028		−0.022	
	−0.537		−0.386	
<i>AC_ACCTG_{it}</i>	0.004		0.002	
	0.029		0.017	
<i>AC BUMI_{it}</i>	0.108		0.148	*
	1.393		1.764	
<i>EMNGMT_{it}</i>	0.121		0.083	
	0.355		0.221	
<i>FEMALE_{it} × EMNGMT_{it}</i>	0.160		0.204	
	0.745		0.872	
<i>AC_ACCTG_{it} × EMNGMT_{it}</i>	0.215		0.316	
	0.374		0.506	
<i>AC BUMI_{it} × EMNGMT_{it}</i>	−1.022	**	−1.404	***
	−2.200		−2.770	
<i>ANALYST_{it}</i>			0.057	**
			2.050	
<i>MKT_CAP_{it}</i>			−0.078	***
			−4.116	
<i>HORIZON_{it}</i>			−0.065	*
			−1.885	
<i>DISPERSION_{it}</i>			0.575	
			1.313	
<i>ROA_{it}</i>			0.000	
			0.019	
<i>LEVERAGE_{it}</i>			−0.019	
			−0.384	
<i>OPINION_{it}</i>			0.058	
			0.294	
<i>SURPRISE_{it}</i>			−0.010	
			−0.209	
<i>EPS_{it}</i>			−0.003	
			−0.321	
<i>Industries</i>	Yes		Yes	
<i>Adjusted R-Squared</i>	0.036		0.087	
<i>Prob(F-statistic)</i>	0.002	***	0.000	***

F_ERROR is the difference between the forecast and the actual earnings published by a firm (EPS); FEMALE is a dummy variable with a value of 1 if one of the audit committees is female; AC_ACCTG is the percentage of audit committees with accounting financial expertise; AC BUMI is the percentage of Bumiputera Audit Committee; EMNGMT is earnings management measured using Kothari et al. (2005) model; ANALYST is the number of analysts following a firm; MKT_CAP is market capitalization; HORIZON is the difference of days between the (latest) forecast date and actual earnings announcement date; DISPERSION is the standard deviation of forecast for firms; ROA is earnings before tax divided by total asset; LEVERAGE is total debt divided by total equity; OPINION is a dummy variable coded as 1 if the firm is issued with qualified audit opinion and 0 if otherwise; SURPRISE is absolute value of the difference between the current year's earnings and last year's earnings; EPS is 1 deflated by earnings per share. *, **, *** Significant at the 10, 5, and 1 percent respectively.

Table 8. Robustness Test: Regression Analysis of Analyst Forecast Accuracy and Audit Committee Diversity using Jones' (1991) measurement of earnings management.

Variable	Coefficient		Coefficient	
Intercept	−0.037		2.289	***
	−0.551		4.034	
FEMALE _{it}	−0.051		−0.043	
	−0.958		−0.720	
AC_ACCTG _{it}	−0.031		−0.057	
	−0.266		−0.418	
AC BUMI _{it}	0.233	***	0.302	***
	2.743		3.167	
EM_JONES _{it}	−0.252		−0.424	*
	−1.179		−1.826	
ANALYST _{it}			0.069	*
			1.937	
MKT_CAP _{it}			−0.094	***
			−3.886	
HORIZON _{it}			−0.093	**
			−2.021	
DISPERSION _{it}			0.664	
			1.100	
ROA _{it}			0.001	
			0.183	
LEVERAGE _{it}			−0.019	
			−0.306	
OPINION _{it}			0.009	
			0.039	
SURPRISE _{it}			−0.024	
			−0.413	
EPS _{it}			−0.006	
			−0.552	
Industries	Yes		Yes	
Adjusted R-Squared	0.020		0.056	
Prob(F-statistic)	0.021	**	0.004	***

F_ERROR is the difference between the forecast and the actual earnings published by the firm (EPS); FEMALE is a dummy variable with a value of 1 if one of the audit committees is female; AC_ACCTG is the percentage of audit committees with accounting financial expertise; AC BUMI is the percentage of Bumiputera Audit Committee; EM_JONES is earnings management measured using Jones (1991) model; ANALYST is the number of analysts following a firm; MKT_CAP is market capitalization; HORIZON is the difference of days between the (latest) forecast date and actual earnings announcement date; DISPERSION is the standard deviation of forecast for firms; ROA is earnings before tax divided by total asset; LEVERAGE is total debt divided by total equity; OPINION is a dummy variable coded as 1 if the firm is issued with qualified audit opinion and 0 if otherwise; SURPRISE is absolute value of the difference between the current year's earnings and last year's earnings; EPS is 1 deflated by earnings per share. *, **, *** Significant at the 10, 5, and 1 percent respectively.

We also provided the interaction result using Jones' (1991) model in Table 9 and the result is consistent with the result in Table 7. The result indicates that there is a positive and strong significant relationship between AC BUMI_{it} and FERROR_{it} (0.265, $t = 2.873$, $p < 0.01$). Our result of interaction also suggests that earnings management reduces forecast error for firms dominated by Bumiputera audit committees (−3.914, $t = -3.610$, $p < 0.01$), providing strong evidence that firms dominated by Bumiputera audit committees have less monitoring and, thus, allow the use of earnings management to meet analysts' forecasts. The result for control variables is also consistent with Table 7.

In addition, to cater for the concern that our results might be driven by omitted variables, we exclude firm random effects and include only industry effects in a separate test. The results remain unchanged. The relationship between AC BUMI_{it} and FERROR_{it} remains significant (0.248, $t = 2.297$, $p < 0.05$). The other variables for audit committee diversity (FEMALE and AC_ACCTG) also remain insignificant.

Table 9. Regression Analysis of Interaction between Audit Committee Diversity and Earnings Management with Analyst Forecast Accuracy Using Jones' (1991) Model of Earnings Management.

Variable	Coefficient		Coefficient	
Intercept	−0.031		2.362	***
	−0.444		4.305	
FEMALE _{it}	−0.038		−0.029	
	−0.697		−0.477	
AC_ACCTG _{it}	−0.003		−0.011	
	−0.024		−0.075	
AC BUMI _{it}	0.191	**	0.265	***
	2.295		2.873	
EM_JONES _{it}	0.820		0.707	
	0.949		0.741	
FEMALE _{it} × EM_JONES _{it}	0.189		0.142	
	0.437		0.315	
AC_ACCTG _{it} EM_JONES _{it}	0.734		1.031	
	0.500		0.644	
AC BUMI _{it} × EM_JONES _{it}	−3.465	***	−3.914	***
	−3.440		−3.610	
ANALYST _{it}			0.067	*
			1.942	
MKT_CAP _{it}			−0.095	***
			−4.070	
HORIZON _{it}			−0.100	**
			−2.224	
DISPERSION _{it}			0.668	
			1.130	
ROA _{it}			0.001	
			0.249	
LEVERAGE _{it}			−0.029	
			−0.497	
OPINION _{it}			0.006	
			0.024	
SURPRISE _{it}			−0.021	
			−0.372	
EPS _{it}			−0.005	
			−0.543	
Industries	Yes		Yes	
Adjusted R-Squared	0.044		0.088	
Prob(F-statistic)	0.001	***	0.000	***

F_ERROR is the difference between the forecast and the actual earnings published by a firm (EPS); FEMALE is a dummy variable with a value of 1s if one of the audit committees is female; AC_ACCTG is the percentage of audit committees with accounting financial expertise; AC BUMI is the percentage of Bumiputera Audit Committee; EM_JONES is the earnings management measured using Jones (1991) model; ANALYST is the number of analysts following a firm; MKT_CAP is market capitalization; HORIZON is the difference of days between the (latest) forecast date and actual earnings announcement date; DISPERSION is the standard deviation of forecast for firms; ROA is earnings before tax divided by total asset; LEVERAGE is total debt divided by total equity; OPINION is a dummy variable coded as 1 if the firm is issued with qualified audit opinion and 0 if otherwise; SURPRISE is the absolute value of the difference between the current year's earnings and last year's earnings; EPS is 1 deflated by earnings per share. *, **, *** Significant at the 10, 5, and 1 percent respectively.

5.6. Endogeneity Test

Liu et al. (2014) highlighted that firms that are less likely to engage based on management expectations or forecasts have the tendency to select audit committees that have accounting expertise. Therefore, instead of audit committee diversity determining forecasts, their paper emphasized that it is a firm's forecast that determines the selection of audit committees. The statement provides warnings that there is a probability of an endogeneity problem. Thus, we ran a systematic generalized method of moments (GMM) to explain the cause and effect of these two variables. The use of GMM is to overcome the disadvantages of traditional panel data techniques, which add deeper lags of the dependent variable to

solve the problem of endogeneity. This technique reduces the number of observations available. Therefore, following [Arellano and Bond \(1991\)](#), we used GMM to eliminate the weaknesses. The result of GMM indicates that the relationship between AC_BUMI_{it} and $FERROR_{it}$ was significantly positive (0.205 , $t = 6.497$, $p < 0.01$), which supports the fact that there was no endogeneity problem and, thus, our result is robust.

6. Conclusions

In this study, we investigated the effect of audit committee diversity and earnings management on financial reporting quality proxied by analysts' forecast accuracy. In addition, we interacted earnings management with audit committee diversity to investigate whether audit committee diversity plays a role when there is earnings management. For the purpose of this study, we collected data from the annual reports of firms followed by analysts, which consisted of 750 firm-year observations over the period of 2012–2014. Audit committee diversity is represented by audit committee ethnicity, audit committee gender and audit committee expertise. For earnings management, we used the earnings management mode from [Kothari et al. \(2005\)](#). The accuracy of analysts' forecasts was measured by forecast errors, which was calculated by taking the difference between the forecasts and the actual earnings published by the firms.

We found positive and significant relationships between Bumiputera audit committees and analyst forecast errors supporting the belief that a higher percentage of Bumiputera audit committees leads to higher analyst forecast errors, which means a lower analyst forecast accuracy. The finding suggests that the Bumiputeras, which are dominated by the Malay ethnicity, are more secretive, resulting in higher conservatism and lower disclosure, and, thus, higher forecast errors. The interaction between earnings management and audit committee diversity shows that earnings management reduces forecast errors and is significant for firms dominated by Bumiputera audit committees. The result shows that Bumiputera audit committees have less monitoring and allow the use of earnings management practice to meet analyst forecasts, lessen errors, and increase analysts' forecast accuracy. The finding provides evidence that the Bumiputeras or the Malays are related closely to the government and, thus, tend to be more politically connected ([Abdul Wahab et al. 2007](#)). These politically-connected firms are often cited as having poor performance due to their poor corporate governance practice ([Gul 2006](#); [Yatim et al. 2006](#)).

The findings of this study provide implications for the regulators and firms in that ethnicity diversity among audit committees plays an important role in determining analysts' forecast accuracy. It provides caution to regulators and firms that culture plays a role when hiring the board of directors, particularly for Bumiputeras. In addition, this study provides an insight for the regulators on the influence of culture in earnings management. Although the audit committee is expected to be independent and play an oversight role, the culture of the Bumiputera ethnicity increases the prevalence of earnings management. Therefore, it is suggested that the composition of the audit committee should also take into account the diversity of ethnicity. This study also assists foreign market participants to understand the role of ethnicity among audit committees in analyst forecasts in Malaysia.

This study only focused on Malaysia as one of the developing countries in Asia. Thus, the result may not be generalized to other emerging countries outside Asia. In addition, this study focused on the specific effect of regulations enforcement on diversity in Malaysia. Therefore, the period covered is only between 2012 and 2014 to avoid the influence of other future regulations. Future research could investigate the effect of audit committee diversity on other emerging countries and compare the results between them to provide more appealing results. Future research may also extend the period covered by this study but need to take into account other factors that might influence diversity during the extension period.

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