Absolute Forecast Errors of Earnings in Malaysian IPO Prospectuses: The Impact of Ethnic Diversity

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Abstract

The main focus of this paper is the earnings forecast, a vital information included in IPO prospectus. Specifically, our paper examined the impact of ethnic diversity groups on the boards of directors and audit committees in terms of earnings forecast accuracy. We are motivated by the lack of prior studies related to investigating IPO earnings forecast. Cross-sectional Ordinary Least Squares (OLS) modeling was conducted on 190 Malaysian IPOs from 2002 to 2012. For the evaluation of earnings forecast accuracy, we mathematically used the metric of Absolute Forecast Error (AFER). Moreover, for the test of robustness, we used the metric of Squared Forecast Error (SQFER) as error measurement, as it mostly deals with large errors. The empirical results indicate that the ethnic diversity groups on boards and audit committees have an impact on the accuracy of earnings forecasts. However, the evidence is significant for Chinese and Malay serving on boards but insignificant in terms of Chinese and Malay serving on audit committee. The findings indicate that multi-ethnic groups in Malaysian IPO companies could hinder the capability of IPO companies to achieve accurate earnings forecasts in their prospectuses.

Keywords: Earnings forecast error; ethnic diversity; IPO; Malaysia

■1.0 INTRODUCTION

This paper investigates whether ethnic diversity on the boards and audit committees in Malaysia influence the accuracy of earnings forecast of IPOs. In Malaysia, when the company goes public it is required by Securities Commission (SC) to issue prospectus, which includes many information about the past and future prospects of the company. The focus of our paper is the management earnings forecasts included in this IPO prospectus. Information concerning the forecasted earnings is deemed to be highly relevant to inform investors about investments in new share issues. However, for the earnings forecasts to be valuable and considered as a reliable signal, it has to be accurate (i.e., free of errors and bias) [1]. The credibility of such information is regarded as an ongoing concern of regulators, whether in Malaysia or elsewhere. Companies that are raising capital externally for the first time, in public markets, face large information asymmetry between the existing shareholders and potential investors [2, 3]. This may be due to the fact that there is a dire lack of financial information on IPOs.

Forecasting, which is prepared by newly established companies, normally includes forecast errors, because these new companies lack prior experience and do not have adequate

historical data [4]. Hence, consistent with other countries, Malaysian regulators encourage companies that want to go public, to follow the best practices of corporate governance. Under the Malaysian Code on Corporate Governance (MCCG), two important governance mechanisms are boards of directors and audit committees. These two mechanisms play a significant role in overseeing the financial reporting process [5]. The diversity (i.e., ethnicity, gender, and education) of these two mechanisms is a very important issue.

Our study investigates the main two ethnic groups in Malaysia, namely Chinese and Malay (also known as Bumiputeras), the two ethnicities that dominate the IPO companies' board of directors and audit committees[1]. Ethnicity is one of the noticeable issues in Malaysia, a country that is considered to be a developing one with multi-ethnic communities of different backgrounds [6]. In this respect, [7] showed that different cultural aspects like ethnicity have an impact on the disclosure practices of business and accounting (i.e., earnings forecasts) in addition to audit services. [8] and [9] claimed that diverse ethnic groups like to preserve and perform their own ethnic identity principles and religious beliefs. Thus, [9] indicated that it is of significance to consider the effect of ethnicity in multi-ethnic

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[1] Bumiputera is an official description broadly recognized in Malaysia, representing ethnic Malays in addition to other indigenous racial groups

societies such as Malaysia. Directors managing IPO companies are accountable for the presentation of the forward looking information, in which their level of judgment could be influenced by their ethnic values. Therefore, and in view of the prior arguments, it is believed that ethnicity of boards of directors and audit committee directors may influence their monitoring role in disclosing accurate earnings forecasts of Malaysian IPO companies.

This study claims four contributions to the existing literature of IPOs and management earnings forecasts. First, in general it adds value to the literature by providing further evidence on the issue of earnings forecast accuracy since there is a paucity of research concerning this issue. We have extended both the period and sample size used in most of previous studies on Malaysian IPO market. Second, our study is one of four studies that specifically relate the mechanisms of corporate governance with the earnings forecasts of IPOs. These studies include [10], [3], [11], and [12]. Third, this paper is the first, to our knowledge, to empirically provide the direct investigation between the ethnic diversity of directors who sit on the boards and audit committees and the accuracy of IPO earnings forecasts. Even with the existence of some studies that investigate the issue of ethnic diversity and other issues in Malaysia such as audit fees [5], disclosure [7], financial performance [13], and accounting conservatism [14], the issue of earnings forecasts accuracy of IPOs has not receive any attention despite its importance for investors. Four, the majority of prior conducted research in Malaysia only investigate one group of ethnicity. Our study presents comprehensive investigation for Chinese and Malay groups on both boards of director and audit committee, which will help in identifying the level of consistency of our results over the two ethnic groups.

Cross-sectional ordinary least squares (OLS) modeling was conducted on 190 Malaysian IPOs. For the assessment of earnings forecasts accuracy, we mathematically used the metric of Absolute Forecast Error (AFER), defined as the actual earnings minus the forecast earnings, scaled by absolute forecast earnings. Moreover, to test robustness, we used the metric of Squared Forecast Error (SQFER), which often deals with large errors. It is argued that, when large forecasts errors may lead to additional serious results than small or reasonable errors, then the quadratic loss function is likely to be used as forecast error measurements. The empirical results indicate that the ethnic diversity groups on boards and audit committees have an impact on the accuracy of earnings forecasts. However, the evidence is significant for Chinese and Malay serving on boards but insignificant in terms of Chinese and Malay directors working on the audit committee. The findings indicate that multi-ethnic groups in Malaysian IPO companies could hinder the capability of IPOs to accomplish accurate earnings forecasts in their prospectuses.

The overall implication of our study stems from the expectation that the results will assist investors with their future evaluation regarding accuracy of earnings forecasts, which will in turn further improve their perception of equity valuation [15]. Results from this study could also be valuable input for the authorities to plan and design policies most suited for Malaysian IPOs. Furthermore, the results present valuable implications in understanding the harmonisation on the boards and audit committees as a crucial structure of corporate governance as well as understanding its impact on the quality of financial disclosure.

The remainder of our study is organized as follows. Section 2 discusses the relevant literature and hypotheses development. Section 3 presents the employed research method together with the sample selection, and research design. Section 4 discusses the descriptive and multivariate analysis. Finally, Section 5 presents the conclusion of this study.

■2.0 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

An earnings forecast is the process of using specific data to predict the future earnings of an IPO company. Although there are significant effects of earnings forecasts made by management on the investors' decisions, the empirical literature on this issue in IPO prospectuses are considered very limited. This is partly due to the strict laws and rules in some countries such as the US that render disclosure of management earnings forecasts in prospectuses rare [16]. In addition, [17] indicated that, in some countries, the management may entail costly risks, including legal costs as a result of inaccurate forecasts, and 'reputation' costs if management is viewed as unreliable. Further, management earnings forecasts are not mandatory in the UK, Australia, Canada, and Hong Kong and no longer mandatory in China, Greece, and Malaysia. Most previous studies on IPO earnings forecasts quality employ data from countries such as the UK, Hong Kong, Australia, Malaysia, Singapore, New Zealand and China, all of which are Commonwealth countries.

The Malays, Chinese and Indians are considered the main ethnic groups in Malaysia, with the existence of a variety of ethnic groups in the state of Sabah and Sarawak, in addition to a few other groups, such as the Thais, Pakistanis and Europeans [6]. However, Malays and Chinese are the two major groups who play a role in most of the Malaysian socio-economic and political environment. It is noticeable that the Malays control the political environment in the country, while the Chinese heavily dominate the economic environment.

If a board comprises diverse members of different ethnicities, it may be in a position to better avoid the practices of earnings smoothing and management, which will in turn provide shareholders with more reliable figures for corporate performance [18]. Greater diversity such as ethnic backgrounds can boost the board of directors' impact on a company's performance and strategies [19]. This may result in better overseeing for earnings disclosure. The difficulties of an uncertain and dynamic business environment can be addressed with boards having greater diversity [20]. Further, if all the board members are in congruence in terms of their perceptions, views and backgrounds, it is likely that the strategies of decision-making undertaken by board of directors will be single-minded, predictable and inflexible [21,22]. [23] indicated that different types of directors will bring more beneficial resources to the company, which will improve the company performance. [24] proposed that a diverse board of directors will be in a good position to oversee the management since diversity increases board independence.

[25] examined 94 IPOs. She intended to study the impact of unique Malaysian culture (Malays, Chinese, and foreign female ethnic groups) on IPO underperformance. She found similar results for all the female ethnic groups, whereby the level of underperformance is lower compared to companies whose Malay, Chinese, and foreign female directors is less than 50%. Finally, [14] investigated whether accounting conservatism is related to ethnic diversity. They found mixed evidence, where the diversity of Bumiputera and Chinese directors on the board is related to greater conservatism and Bumiputera and Chinese directors on the audit committee is related to lower conservatism. Besides that, other previous empirical studies show that ethnicity leads to better disclosure [7, 26], affects auditors' choice [6, 9], affects audit fees [5], leads to better financial performance [13, 27], and positively affects the company value [24]. Thus, if ethnicity supports the board's abilities in strategic development and decision-making, it is likely that such advantages will spillover to key sub-committees,

such as audit committee [19]. Therefore, in line with the above arguments and previous studies, it is reasonable for the current study to come out with the following hypotheses:

Hypothesis 1: The percentage of Chinese directors on the board is negatively associated with absolute forecasts errors of earnings.

Hypothesis 2: The percentage of Malay (Bumiputera) directors on the board is negatively associated with absolute forecasts errors of earnings.

Hypothesis 3: Chinese directors on the audit committee are negatively associated with absolute forecasts errors of earnings.

Hypothesis 4: Malay (Bumiputera) directors on the audit committee are negatively associated with absolute forecasts errors of earnings.

■3.0 DATA AND METHODOLOGY

3.1 Sample Selection

The utilized data in this study includes the publicly available information, which is essentially obtained from the IPO prospectuses and annual reports of the companies listed on the main market of Bursa Malaysia. The initial sample of this study covers the companies that went public from 2002 to 2012. Till the 29th of February 2012, there were 265 financial and non-financial IPOs listed on the main market. Following [28], and [12], companies in finance, close-end fund and real estate investment trust are excluded. Therefore, three companies from the finance sector, fourteen real estate investment trusts and one closed-end funds are excluded from the sample. Furthermore, following [29], two infrastructure project companies were also excluded. These types of industries are excluded from the sample because they have different regulatory requirements. Also the IPO that failed to issue earnings forecasts in the prospectus are omitted from the sample. For the above mentioned reasons, 54 IPO companies without earnings forecasts and 21 IPO with different regulatory regimes are removed from the sample. After taking into account these criteria, the final sample included in this study comprised of 190 IPO companies.

3.2 Forecast Error Metrics

A number of mathematics error metrics are utilized in our study. Forecast error metrics that measures bias is the basic forecast accuracy measure we used to find (AFER), and it is calculated as:

$$FER_{it} = \frac{(AE_{it} - FE_{it})}{|FE_{it}|} \qquad \text{Equation 1}$$

Where:

FER_{it} = Forecast error;
AE_{it} = Actual earnings of company i for the period t;
FE_{it} = Forecast earnings as given in the IPO prospectus of company i for the period t.

Thus, forecast error (FER) is the difference between the actual earnings and the forecasted earnings issued in IPO prospectus divided by the forecasted earnings. One alternative is to use the actual earnings as a denominator. A dilemma in employing actual earnings in this study is that only a few companies in our sample have earnings that are very close to zero and consequently the

(FER) is very large and the mean absolute forecast error similarly becomes extremely high. Therefore, adopting forecast earnings as the denominator prevents high measures of forecast error. The mean of (FER) for all IPOs provides a signal of the biasedness of earnings forecast errors, which indicates whether managers have been optimistic (over-forecasting) or pessimistic (under-forecasting) in their forecasts.

Taking the absolute value of the forecast errors (FER) provides the absolute forecast error (AFER) for each IPO. Absolute forecast error (AFER) is the major metric employed to assess the accuracy of earnings forecasts. Therefore, (AFER) is employed to run our tested variables and is represented by:

$$AFER_{it} = \frac{|(AE_{it} - FE_{it})|}{|FE_{it}|} \qquad \text{Equation 2}$$

Or $AFER_{it} = |FER_{it}|$

Where:
$AFER_{it}$ = Absolute forecast error.

The mean of (AFER) represents the overall level of accuracy among IPOs. AFER differs quite considerably across IPO companies. [30] attributed these differences to the inherent difficulty in forecasting specific earnings of company. Nonetheless, this inherent difficulty is not directly computable. The change in annual earnings, before and after going public, can be considered as a proxy for such inherent difficulty. [30] argued that the greater the change in earnings, the more complicated will be the forecasting of these earnings.

3.3 Cross-sectional Explanatory Model of the Accuracy of Earnings Forecasts

The relationship between the forecast accuracy and ethnic diversity is examined by conducting a multiple regression test on the absolute forecast error (AFER) as the dependent variable, four ethnic diversity groups as independent variables (Chinese directors on the board (CHBORD), Malay directors on the board (MABORD), Chinese directors on the audit committee (CHACOM), and Malay directors on the audit committee (MAACOM), and seven mechanisms of governance structure as control variables as well as five company characteristics variables. The model for explaining the (AFER) of Malaysian IPOs is as follows:

$$AFER_{it} = \beta_0 + \beta_1\,CHBORD + \beta_2\,MABORD + \beta_3\,CHACOM + \beta_4\,MAACOM + \beta_5\,BOSIZE_{it} + \beta_6\,BOIND_{it} + \beta_7\,FOWN + \beta_8\,MOWN + \beta_9\,ACIND_{it} + \beta_{10}\,ACSIZE_{it} + \beta_{11}\,ACFEXP_{it} + \beta_{12}\,AUD_{it} + \beta_{13}\,COSIZE_{it} + \beta_{14}\,COAGE_{it} + \beta_{15}\,FHORIZO_{it} + \beta_{16}\,LEV_{it} + \varepsilon$$

The control variable employed in this study is based on prior literature. For the board size (BOSIZE), [28] indicated that companies, which have smaller boards, disclose more conservative earnings forecasts. [11] reported that IPO companies with large board size disclose more optimistic earnings forecasts that are less accurate. With regards to (BOIND), [28] and [31] reported a positive association between the independence of the board and the quality of earnings forecasts. [11] found that IPO companies are greatly expected to disclose significant conservative and accurate earnings forecasts when they have a higher percentage of independent directors on their boards. The ownership of family (FOWN) may prevent disclosing high quality information as a company that includes a controlling family member on its board may be inclined to have less transparent disclosures [32].

Managerial ownership (MOWN) reconciles the agency conflict between managers and shareholders and accordingly, decreases agency costs [33]. The study of [34] provides evidence that management ownership is significantly associated with the forecast errors in Malaysian IPO companies.

Independent audit committees (ACIND) have the ability to potentially develop the quality and reliability of financial reporting [35] since they are more likely to be free from the pressure of management effect [36, 37, 38]. [12] showed that independence of directors on audit committees is associated with more accurate earnings forecasts. For the (ACSIZE), [39] suggested that the size of audit committee is one of the major attributes that enhances its effectiveness and can have a meaningful impact on the quality of financial reporting. In addition, [40] indicated that a larger audit committee has the ability to uncover and solve the expected problems related to the process of financial reporting. In terms of (ACFEXP), [40] showed that audit committee directors should have the needed expertise to discharge their functions of overseeing internal control and financial reporting. Moreover, previous evidence shows that financial expertise on the audit committee can reduce earnings management [36, 41] and increase earnings quality [42, 35].

In terms of IPO company characteristics control variables, [3] showed that the responsibility of the auditor (AUD) associated with an IPO is to improve the reliability of the financial disclosure included in the prospectus. Similarly, [43] and [44] reported a positive relationship between auditor quality and earnings forecast accuracy. For the (COSIZE), [45] and [46] reported that larger companies disclose more accurate earnings forecasts than smaller ones. Larger IPO companies are expected to have more control of their market settings and as a result, they may make forecasts easily [46]. With respect to (COAGE), [47] and [48] indicated that older IPO companies are more likely to be in a better situation to provide forecasts about their future performance, since they are expected to get a higher appreciation of market environment as well as relatively higher control over their operations. Meanwhile, [49] found that companies without operating history face difficulties to forecast earnings. As for (FHORIZO), it was reported that less accurate earnings forecasts are associated with longer time period from the forecast date to the end for which the forecast is made [28, 50]. Finally, under specific conditions, the financial leverage (LEV) of a company may turn out to be an important factor that affects forecast accuracy [16]. The higher debt level could make the forecasting of earnings more difficult since greater financial leverage results in greater variability in earnings [47].

■4.0 RESULTS AND DISCUSSION

4.1 Descriptive statistics

Table 1 presents the descriptive statistics for the 190 IPOs in terms of absolute forecast error and forecasts errors as the basis for (AFER) for the time frame 2002 to 2012. It is clear from the table that the mean (FER) is 3.36%, which means the Malaysian IPO earnings forecasts were pessimistic (under-forecasting the earnings). Our result for (FER) is less than what has been reported in prior studies in Malaysia (e.g., 33.37% in [17]), but similar to 2.10% indicated in the study of [51]. The absolute forecast error (AFER) has a mean of 24.94% and a median of 9.37%. The results from one sample t-test and Mann-Whitney test indicate that the mean and median of (AFER) are significant at the level of 1%. Compared to previous studies conducted in Malaysia, the mean

(AFER) of our study is found to be less (e.g., 28.00 % in [52]; 54.91% in [17]), but is comparable to 23.76% in [12].

Table 1 Summary statistics of IPO earnings forecast accuracy

.	*FER* (%)	*AFER* (%)
Mean	3.36	24.94
p-value	0.396	0.000
Median	1.12	9.37
p-value	0.896	0.000
Std	54.50	48.54
Minimum	-176.04	0.13
Maximum	525.45	525.45

Notes: Forecast Error (FER) = $(AE_{it} - FE_{it}) / |FE_{it}|$. Absolute Forecast Error (AFE) = $| (AE_{it} - FE_{it})| / |FE_{it}|$. AE is the actual earnings in annual report by the IPO company; and EF, is the disclosed forecasted earnings in the IPO prospectus. P-values indicate the level of significance different from zero using t-test and Mann-Whitney test. Results are significant at the *0.05, **0.01 and ***0.001 levels, respectively, using two-tailed tests.

In Table 2 and 3 we describe the statistics of the experimental and control variables used in our study. While the mean percentage of Chinese (CHBORD) who sits on the boards of IPO companies is 61.03%, the Bumiputera members on boards (MABORD) are only 31.88%. These proportions indicate that the boards of directors of Malaysian IPO companies are more represented by Chinese than Malay. The mean proportion of Chinese on the board is higher than the 53% reported in the study of [14] on listed companies, but our percentage of (MABORD) is lower than 37% in [14]. In terms of audit committees, it is clear from Table 3 that the Chinese directors are represented on 90% (171 IPO) of IPO companies included in this study. The Bumiputera directors are available on 56.84% (108 IPO) of our sample companies. Similarly as boards, the Chinese dominate on audit committees of IPO companies.

Table 2 Descriptive statistics of independent and control continuous variables

	Mean	**Med**	**Std.D**	**Min**	**Max**
CHBORD	61.03	66.67	27.24	0.00	133.33
MABORD	31.88	25.00	24.40	0.00	100.00
BOSIZE	7.37	7.00	1.76	4.00	16.00
BOIND	37.57	33.33	8.38	22.22	75.00
FOWN	15.68	5.52	19.37	.00	66.13
MOWN	11.76	4.15	15.58	.00	66.94
ACSIZE	3.12	3.00	0.39	3.00	5.00
ACIND	69.51	66.67	9.33	33.33	100.00
ACFIX	48.06	33.33	20.43	20.00	100.00
CSIZE	350.11	101.2	1402.6	35.12	17073.9
AGE (years)	5.53	2.25	6.95	0.17	32.67
FHORIZO	7.71	7.00	3.01	3.00	14.00
LEV	51	48	24	4	150

Notes: For the description of variables see Appendix 1. CSIZE is in (RM million)

Table 3 Distribution of dummy variables

Variables	Yes		No	
	Frequency	Mean	Frequency	Mean
CHACOM	171	90	19	10
MAACOM	108	56.84	82	43.16
AUD	104	54.74	86	45.26

The summary statistics of control variables reveal that, the mean board size (BOSIZE) is seven members for the entire IPO sample. This result is consistent with the studies of [12] and [14]. The average independent directors (BOIND) sitting on the board is 37.57%, which is in line with the recommendation of the Malaysian (MCCG), that the minimum representation of independent directors on the board has to be one-third. The ratios of family ownership (FOWN) and management ownership (MOWN) range from 0% to 66.13% and 0% to 66.94%, respectively. The audit committee size (ACSIZE) ranges between three members to five with average of 3 (mean=3.12). This result is consistent with [12]. The ratio of independent director on the audit committee (ACIND) is 69.51%, indicating that the majority of directors are independent. For the (ACFIX), the reported mean is 48.06%, which means that 48.06% of the IPO companies have as a minimum one financial expert. For the company characteristics, Table 2 shows that 54.74% of the sample is audited by Big4 auditors. The average size (CSIZE) is 350.11 million. It varies significantly from 35.12 million to 17073.9 million. The operating history (AGE) ranges between 32.67 years and couple of months. The means of (FHORIZO) and LEV are 7.71 months and 51%, respectively.

4.2 Multivariate Analysis

In this study, results of Table 4 indicate that multicollinearity was not a serious concern for the analysis since the tolerance values are greater than 0.10 and VIFs are below 10 for all variables as suggested by [53]. To check the heteroscedasticity issue, we employed the White's test [54] and it showed the assumption of heteroscedasticity is not violated. For the autocorrelation, we performed Durbin-Watson test and found it to be equal to 1.84, which is consistent with the rule of thumb (1.50 to 2.50).

Table 5 reports the correlations among our tested four independent variables as well as with the other control variables under study. Table 6 shows the results of cross-sectional Ordinary Least Square (OLS), which is the method used in the analysis of the regression. The results indicate that Chinese directors (CHBORD) and Bumiputera directors (MABORD) are significantly and positively related with (AFER). This means that the Chinese and Malay on the boards of IPO companies lead to more forecasts errors (i.e., less accurate earnings forecasts). This result is inconsistent with our **Hypothesis 1** and **Hypothesis 2**. This result can be attributed to the fact that diverse groups may lead to and support the divergent thinking in the decision-making process [55]. In addition, diversity may create more conflict among the members of boards. Therefore, the diversity may lead to decreasing the quality of earnings forecasts since the members on the boards are directly involved in monitoring the management and its activities such as financial disclosure. [56] indicated that the Chinese have low uncertainty avoidance but high individualism. Further, [57] showed that the Malays are related with more individualistic behavior as compared with Chinese. This higher individualism could be the reason behind (CHBORD) association with high level of forecast errors. [8] showed an increase in

individualism as a result of the increase in Malaysians' wealth as well as the need for survival in a competitive environment. In terms of ethnic diversity on audit committees, (CHACOM) and (MAACOM) are found to be positively associated with AFER but the relationship is not significant. Thus, **Hypothesis 3** and **Hypothesis 4** are not supported as well. The results propose that earnings forecasts accuracy can be determined by ethnic diversity, since the directors' behavior concerning the earnings forecasts accuracy did not chang e based on whether they are working on the board or the audit committee.

Table 4 Multicollinearity checking

	Collinearity Statistics			
	Regression 1		Regression 2	
Variable	Tolerance	VIF	Tolerance	VIF
CHBORD	0.296	3.373	0.293	3.414
MABORD	0.245	4.082	0.236	4.228
CHACOM	0.632	1.583	0.609	1.641
MAACOM	0.656	1.524	0.646	1.549
BOSIZE	0.710	1.408	0.692	1.446
BOIND	0.669	1.496	0.661	1.513
FOWN	0.640	1.563	0.627	1.595
MOWN	0.629	1.591	0.615	1.627
ACSIZE	0.777	1.287	0.773	1.294
ACIND	0.803	1.245	0.804	1.244
ACFIX	0.877	1.141	0.872	1.147
AUD	0.839	1.192	0.841	1.190
CSIZE	0.721	1.387	0.734	1.362
AGE	0.901	1.110	0.903	1.108
FHORIZO	0.921	1.085	0.911	1.097
LEV	0.892	1.122	0.883	1.133

In terms of control variable, (BOIND) is found to be negative (-0.483) and statistically significant at the 10% level. This proposes that earnings forecast accuracy is positively related with the percentage of independent directors on the board. This result is in line with prior studies [11, 31, 28], but inconsistent with [12]. In addition, (FOWN) has a positive and significant relationship with (AFER). This result is expected and therefore IPO companies with more (FOWN) are more expected to disclose less accurate earnings forecast. The essential justification is that controlling family members will have direct access to the company's financial and non-financial information and, therefore, have less need for disclosure [58]. Consistent with [12], we find (ACSIZE) to have a negative and significant association with (AFER). This means that more members on IPO audit committee leads to more accurate earnings forecasts. Further, as expected (FHORIZO) is positively and significantly related with (AFER), which means that longer the forecasts horizon, the less will be the accuracy of earnings forecasts. This is due to the fact that higher uncertainty is related with longer time horizon.

Table 5 Pearson correlation coefficient

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	**CHBORD**	1															
2	**MABORD**	-0.812**	1														
3	**CHACOM**	0.490**	-0.555**	1													
4	**MAACOM**	-0.444**	0.527**	-0.290**	1												
5	**BOSIZE**	-0.036	0.088	-0.059	-0.136	1											
6	**BOIND**	-0.201**	0.264**	-0.128	0.125	-0.288**	1										
7	**FOWN**	0.172*	-0.148*	0.040	-0.124	-0.058	-0.009	1									
8	**MOWN**	0.113	-0.059	-0.050	-0.100	-0.060	-0.037	0.579**	1								
9	**ACSIZE**	-0.209**	0.236**	-0.080	0.148*	0.227**	0.122	0.078	0.053	1							
10	**ACIND**	-0.152*	0.203**	-0.143*	0.102	0.055	0.372**	-0.040	-0.048	0.073	1						
11	**ACFIX**	-0.091	0.005	0.044	-0.032	0.011	-0.056	-0.093	-0.010	-0.231**	-0.009	1					
12	**AUD**	-0.191**	0.073	-0.049	0.123	-0.004	0.041	-0.097	-0.132	0.100	-0.051	-0.085	1				
13	**CSIZE**	-0.319**	0.238**	-0.238**	0.221**	0.072	0.122	-0.294**	-0.300**	-0.014	0.077	0.077	0.255**	1			
14	**AGE**	-0.090	0.057	-0.136	0.028	0.171*	-0.039	-0.045	-0.086	0.124	-0.054	-0.008	0.126	0.145*	1		
15	**FHORIZO**	0.046	-0.095	0.090	-0.068	-0.047	-0.099	-0.001	0.058	-0.038	-0.058	0.010	-0.041	0.023	0.077	1	
16	**LEV**	-0.043	0.085	-0.132	0.021	0.039	0.070	-0.010	0.027	0.059	0.140	-0.088	-0.128	0.107	-0.062	-0.164*	1

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

■5.0 SENSITIVITY ANALYSIS ON EARNINGS FORECASTS ACCURACY

In the regression 1 (Table 6), earnings forecasts accuracy is proxied by (AFER), which is defined as the difference between the actual figures and forecasted earnings period scaled by the absolute value of forecasted earnings. In this part, to test robustness, we reran the results presented in Table 6 (regression 2) employing Squared Forecast Error (SQFER) as the proxy of earnings forecasts accuracy. However, when employing multiple regressions there are some theoretical arguments for preferring the (SQFER) rather than the (AFER). The mean of SQFER squared forecast error provides larger weight to great errors as well as it is more suitable for an analysis of the losses of investors because of incorrect forecasts [59]. We calculate SQFER as follows:

$$SQFER_{it} = \left[\frac{(AE_{it} - FE_{it})}{FE_{it}} \right]^2 \qquad \text{Equation 3}$$

Table 6 shows that the result of (SQFER) regression 2 is similar to our main regression 1 of (AFER) with some slight differences. The (CHBORD) and (MABORD) are significant at 1% instead of 10% and 5% in (AFER) model. Further, the (BOIND) is insignificant under (SQFER) regression.

Table 6 Regression results

Variable	Regression 1		Regression 2	
	Coeffic.	t-stat.	Coefficient	t-stat.
CHBORD	0.269	1.99*	0.222	3.286***
MABORD	0.396	2.39**	0.291	3.467***
CHACOM	0.304	0.037	4.033	0.936
MAACOM	2.920	0.59	-0.349	-0.138
BOSIZE	0.167	0.12	0.576	0.841
BOIND	-0.483	-1.66*	-0.154	-1.059
FOWN	0.231	1.78*	0.032	0.477
MOWN	-0.250	-1.52	0.014	0.168
ACSIZE	-10.103	-1.77*	-5.163	-1.815*
ACIND	0.227	0.92	0.143	1.161
ACFIX	0.048	0.46	-0.018	-0.331
AUD	3.473	0.79	2.780	1.256
CSIZE	2.736	1.12	1.054	0.853
AGE	-0.682	-0.27	-1.887	-1.502
FHORIZO	1.733	2.51**	0.616	1.721*
LEV	7.439	0.84	6.307	1.394
Constant	-30.755	-.738	-30.855	-1.470
F		1.542*		1.807*
R²		12.6%		%15
N		188		181

Notes: The number of IPO companies in the regression 1 is 188 IPO and 181 IPO in regression 2 after deleting the extreme outliers (2 IPOs & 9 IPOs) from both models, respectively. Results are significant at the levels of *0.10, * *0.05 and * * *0.01, respectively, using two-tailed tests.

■**6.0 CONCLUSION**

The main objective of this study is to provide empirical evidence on one of the more relevant issues in Malaysia as a multi-ethnic country. Particularly, it examines the association between the ethnic diversity on the board of directors and audit committee and the accuracy of management earnings forecasts. We found that IPO companies with more Chinese and Malay director on the boards provide less accurate earnings forecasts. For the audit committee, Chinese and Malay directors impact the accuracy of forecasts but this impact is not significant. The direction of associations between the ethnic diversity groups and accuracy of earnings forecast was similar in (AFER) and (SQFER), except that (BOIND) was found to be significant in (AFER), but insignificant in (SQFER).

The findings of our study indicate that multi-ethnic groups in Malaysian IPO companies could hinder the capability of IPOs to accomplish accurate earnings in their prospectuses. In addition, the results propose that earnings forecasts accuracy can be determined by ethnic diversity, since the directors' behavior regarding the forecasts accuracy did not differ regardless of whether they are working on the board or the audit committee.

To our knowledge this is the first study to empirically investigate the influence of ethnic diversity on the accuracy of management earning forecasts of Malaysian IPOs. The results present valuable implications in understanding the harmonisation on the boards and audit committees as a crucial structure of corporate governance as well as understanding its impact on the quality of financial disclosure. For the investors, it is significant to be vigilant of the accuracy of earnings forecasts as well as to evaluate the quality of earnings forecast by utilizing factors such as the structure of corporate governance and its diversity.

Appendix 1: Key Variable Definitions

Variable	Description
CHBORD	The ratio of Chinese directors on the board of director to the total number of directors.
MABORD	The ratio of Bumiputera directors on the board of director to the total number of directors.
CHACOM	Dummy variable equal to one "1" if there is at least one Chinese on the audit committee, otherwise it equals zero "0".
MAACOM	Dummy variable equal to one "1" if there is at least one Bumiputera on the audit committee, otherwise it equals zero "0".
BOSIZE	Total number of directors.
BOIND	Proportion of independent non-executive directors to total directors on board.
FOWN	The percentage of shares retained by the family members on the board of directors.
MOWN	The percentage of shares retained by the executive directors.
ACSIZE	The number of members of the audit committee.
ACIND	Percentage of independent directors in relation to the total number of directors on the audit committee.
ACFIX	The number of audit committee directors with accounting and financial expertise divided by the total number of directors on the audit committee.
AUD	Dummy variable which equal "1" if auditor is Big4 (Deloitte, Ernst and Young, KPMG, PricewaterhouseCoopers, or their pre-merger equivalents) and "0" otherwise.
CSIZE	ln total assets, at the date of prospectus.
AGE	ln (1+ number of years between incorporation and the IPO date).

Appendix 1: Key Variable Definitions

Variable	Description
FHORIZO	Number of months from the management forecast date (prospectus date) to end of the period for which the forecast has been made.
LEV	Total liabilities over the total assets.

References

[1] Gounopoulos, D. 2011. Associations between Management Forecast Accuracy and Pricing of IPOs in Athens Stock Exchange. *Multinational Finance Journal.* 15(3–4): 235–272.

[2] Chong, B. S., & Ho, K. W. 2007. Lockup and Voluntary Earnings Forecast Disclosure in IPOs. *Financial Management.* 36(3): 63–80.

[3] Bédard, J., Coulombe, D., & Courteau, L. (2008). Audit Committee, Underpricing of IPOs, and Accuracy of Management Earnings Forecasts. *Corporate Governance: an International Review.* 16(6): 519–535.

[4] Firth, M. 1998. IPO Profit Forecasts and Their Role in Signalling Firm Value and Explaining Post-listing Returns. *Applied Financial Economics.* 8(1): 29–39.

[5] Yatim, P., Kent, P., & Clarkson, P. 2006. Governance Structures, Ethnicity, and Audit Fees of Malaysian Listed Firms. *Managerial Auditing Journal.* 21(7): 757–782.

[6] Che-Ahmad, A., Houghton, K. A., & Yusof, N. Z. M. 2006. The Malaysian Market for Audit Services: Ethnicity, Multinational Companies and Auditor Choice. *Managerial Auditing Journal.* 21(7): 702–723.

[7] Haniffa, R. M., & Cooke, T. E. (2002). Culture, corporate governance and disclosure in Malaysian corporations. *Abacus, 38*(3), 317-349.

[8] Iskandar, T. M., & Pourjalali, H. 2000. Cultural Influences on the Development of Accounting Practices in Malaysia. *Asian Review of Accounting.* 8(2): 126–147.

[9] Nazri, S. N., Smith, M., & Ismail, Z. 2012. The Impact of Ethnicity on Auditor Choice: Malaysian Evidence. *Asian Review of Accounting.* 20(3): 1–25.

[10] Yang, C.-H., & Kao, H.-S. 2007. The Association Between Management Earnings Forecast Errors and Corporate Governance Structure in IPO firms. Retrieved from http://www.ntpu.edu.tw/ads/doc/96/9-1.pdf.pdf.

[11] Mnif, A. 2010. Corporate Governance and Management Earnings Forecast Quality: Evidence from French IPOs. Retrieved from http://halshs.archives-ouvertes.fr/halshs-00459171/en/.

[12] Ahmad-Zaluki, N. A., & Wan-Hussin, W. N. 2010. Corporate Governance and Earnings Forecasts Accuracy. *Asian Review of Accounting.* 18(1): 50–67.

[13] Marimuthu, M. 2008. Ethnic Diversity on Boards of Directors and Its Implications on Firm Financial Performance. *The Journal of International Social Research.* 1(4): 431–445.

[14] Yunos, R. M., Ismail, Z., & Smith, M. 2012. Ethnicity and Accounting Conservatism: Malaysian Evidence. *Asian Review of Accounting.* 20(1): 34–57.

[15] Ammer, M. A., & Ahmad-Zaluki, N. A. 2014. *Underwriter's Attributes, Management Earnings Forecasts, and IPO Underpricing.* Paper presented at 12th Eurasia Business and Economics Society EBES, 9-11 January 2014, Nanyang Technological University, Singapore.

[16] Jaggi, B. 1997. Accuracy of Forecast Information Disclosed in the IPO Prospectuses of Hong Kong Companies. *International Journal of Accounting.* 32(3): 301–319.

[17] Jelic, R., Saadouni, B., & Briston, R. 1998. The Accuracy of Earnings Forecasts in IPO Prospectuses on the Kuala Lumpur Stock Exchange. *Accounting and Business Research.* 29(1): 57–72.

[18] Gallego-Álvarez, I., García-Sánchez, I. M., & Rodríguez-Dominguez, L. 2010. The Influence of Gender Diversity on Corporate Performance. *Revista De Contabilidad.* 13(1): 53–88.

[19] Van der Zahn, J. L. W. M., Singh, H., & Singh, I. 2008. Association between Independent Audit Committee Members' Human-Resource Features and Underpricing: The Case of Singapore IPOs from 1997-2006. *Journal of Human Resource Costing & Accounting.* 12(3): 179–212.

[20] Daily, C., Certo, S., & Dalton, D. 1999. A Decade of Corporate Women: Some Progress in the Boardroom, None in the Executive Suite. *Strategic Management Journal.* 20(1): 93–99.

[21] Westphal, J. D., & Zajac, E. J. 1998. The Symbolic Management of Stockholders: Corporate Governance Reforms and Shareholder Reactions. *Administrative Science Quarterly.* 43(1): 127–153.

[22] Dalton, D. R., Daily, C. M., Johnson, J. L., & Ellstrand, A. E. 1999. Number of Directors and Financial Performance: A Meta-analysis. *Academy of Management Journal.* 42(6): 674–686.

[23] Hillman, A. J., Cannella, A. A., & Paetzold, R. L. 2000. The Resource Dependence Role of Corporate Directors: Strategic Adaptation of Board Composition in Response to Environmental Change. *Journal of Management studies.* 37(2): 235–256.

[24] Carter, D. A., Simkins, B. J., & Simpson, W. G. 2003. Corporate Governance, Board Diversity, and Firm Value. *Financial Review.* 38(1): 33–53.

[25] Ahmad-Zaluki, N. A. 2012. The Pre-and Post-Ipos Gender Composition of Board of Directors in Malaysia. *Gender in Management: An International Journal.* 27(7): 449–462.

[26] Hamzah, N., Saleh, N. M., & Mohamed, S. 2012. *The Influence Of Ethnicity on IC Reporting.* Paper presented at the Cambridge Business & Economics Conference, Cambridge, UK. Retrieved from http://www.gcbe.us/2012_CBEC/data/confcd.htm.

[27] Marimuthu, M., & Kolandaisamy, I. 2009. Ethnic and Gender Diversity in Boards of Directors and Their Relevance to Financial Performance of Malaysian Companies. *Journal of Sustainable Development.* 2(3): 139–148.

[28] Karamanou, I., & Vafeas, N. 2005. The Association Between Corporate Boards, Audit Committees, and Management Earnings Forecasts: An Empirical Analysis. *Journal of Accounting Research.* 43(3): 453–486.

[29] Ahmad-Zaluki, N., Campbell, K., & Goodacre, A. 2007. The Long Run Share Price Performance of Malaysian Initial Public Offerings (IPOs). *Journal of Business Finance & Accounting.* 34(1–2): 78–110.

[30] Chen, G., Firth, M., & Krishnan, G. V. 2001. Earnings Forecast Errors in IPO Prospectuses and Their Associations with Initial Stock Returns. *Journal of Multinational Financial Management.* 11(2): 225–240.

[31] Ajinkya, B., Bhojraj, S., & Sengupta, P. 2005. The Association Between Outside Directors, Institutional Investors and the Properties of Management Earnings Forecasts. *Journal of Accounting Research.* 43(3): 343–376.

[32] Ho, S. S. & K. Shun Wong. 2001. A study of the Relationship Between Corporate Governance Structures and the Extent of Voluntary Disclosure. *Journal of International Accounting, Auditing and Taxation.* 10(2): 139–156.

[33] Jensen, M. C., & Meckling, W. H. 1976. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics.* 3(4): 305–360.

[34] Ibrahim, N. A. & N. Ismail. 2012. The Association of Ownership Structure and the Management Earnings Forecast: The Case of Malaysian Initial Public Offerings (IPOs). Business, Engineering and Industrial Applications (ISBEIA), 2012 IEEE Symposium.

[35] Baxter, P., & Cotter, J. 2009. Audit Committees and Earnings Quality. *Accounting & Finance.* 49(2): 267–290.

[36] Klein, A. 2002. Audit Committee, Board of Director Characteristics, and Earnings Management. *Journal of Accounting and Economics.* 33(3): 375–400.

[37] Mangena, M., & Pike, R. 2005. The effect of audit committee shareholding, financial expertise and size on interim financial disclosures. *Accounting & Business Research.* 35(4): 327–349.

[38] Siagian, F., & Tresnaningsih, E. 2011. The Impact of Independent Directors and Independent Audit Committees on Earnings Quality Reported by Indonesian Firms. *Asian Review of Accounting.* 19(3): 192–207.

[39] Li, J., Mangena, M., & Pike, R. 2012. The Effect of Audit Committee Characteristics on Intellectual Capital Disclosure. *British Accounting Review.* 44: 98–110.

[40] Bédard, J., Chtourou, S. M., & Courteau, L. (2004). The Effect of Audit Committee Expertise, Independence, and Activity on Aggressive Earnings Management. *Auditing: A Journal of Practice & Theory.* 23(2): 13–35.

[41] Carcello, J. V., Hollingsworth, C. W., Klein, A., & Neal, T. L. 2008. Audit Committee Financial Expertise, Competing Corporate Governance Mechanisms, and Earnings Management in a Post-sox World. Retrieved from http://www.business.illinois.edu/accountancy/events/symposium/audit/proceedings/proceedings_2008/Papers/Carcello. pdf.

[42] Dhaliwal, D. S., Naiker, V., & Navissi, F. 2006. Audit Committee Financial Expertise, Corporate Governance and Accruals Quality: An Empirical Analysis. Working paper. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=906690.

[43] Cheng, T., & Firth, M. 2000. An Empirical Analysis of the Bias and Rationality of Profit Forecasts Published in New Issue Prospectuses. *Journal of Business Finance & Accounting.* 27(3–4): 423–446.

[44] Cormier, D., & Martinez, I. 2006. The Association Between Management Earnings Forecasts, Earnings Management, and Stock Market Valuation: Evidence from French IPOs. *International Journal of Accounting.* 41(3): 209–236.

[45] Clarkson, P. 2000. Auditor Quality and the Accuracy of Management Earnings Forecasts. *Contemporary Accounting Research.* 17(4): 595–622.

[46] Firth, M., Kwok, C., & Keng, L. T. C. 1995. Accuracy of Profit Forecasts Contained in IPO Prospectuses. *Accounting and Business Review.* 2(1): 55–83.

[47] Firth, M., & Smith, A. 1992. The Accuracy of Profits Forecasts in Initial Public Offering Prospectuses. *Accounting and Business Research.* 22(87): 239–247.

[48] Lee, P., Taylor, S., Yee, C., & Yee, M. 1993. Prospectus Earnings Forecasts: Evidence and Explanations. *Australian Accounting Review.* 3(5): 21–32.

[49] Jog, V., & McConomy, B. J. 2003. Voluntary Disclosure of Management Earnings Forecasts in IPO Prospectuses. *Journal of Business Finance & Accounting.* 30(1–2): 125–168.

[50] Chin, C. L., Kleinman, G., Lee, P., & Lin, M. F. 2006. Corporate Ownership Structure and Accuracy and Bias of Mandatory Earnings Forecast: Evidence from Taiwan. *Journal of International Accounting Research.* 5(2): 41–62.

[51] Hussin, B. M., Sulong, F., & Osman, S. 2004. *The Effect of Forecast Earnings Errors in IPO Prospectus on Shareholders Return.* Paper presented at the International Business Management conference, Malaysia.

[52] Mohamad, S., Nassir, A., Kuing, T., & Ariff, M. 1994. The Accuracy of Profit Forecasts of Malaysian IPOs. *Capital Markets Review.* 2(2): 46–69.

[53] Hair, J., Black, W. C., Babin, B. J., & Anderson, R. E. 2010. *Multivariate Data Analysis.* 7th ed. Upper saddle River, New Jersey: Pearson Education International.

[54] White, H. 1980. A Heteroskedasticity-consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity. *Econometrica.* 48(4): 817–838.

[55] Westphal, J. D. & Milton, L. P. 2000. How Experience and Network Ties Affect the Influence of Demographic Minorities on Corporate Boards. *Administrative Science Quarterly.* 45: 366–398.

[56] Salleh, Z., Stewart, J., & Manson, S. 2006. The Impact of Board Composition and Ethnicity on Audit Quality: Evidence from Malaysian companies. *Malaysian Accounting Review.* 5(2): 61–83.

[57] Abdul Rahman, R., & Ali, F. H. M. 2006. Board, Audit Committee, Culture and Earnings Management: Malaysian Evidence. *Managerial Auditing Journal.* 21(7): 783–804.

[58] Chau, G. K. and S. J. Gray. 2002. Ownership Structure and Corporate Voluntary Disclosure in Hong Kong and Singapore. *The International Journal of Accounting.* 37(2): 247–265.

[59] Bhaskar, K. & R. Morris. 1984. The Accuracy of Brokers' Profit Forecasts in the UK. *Accounting and Business Research.* 14(54): 113–124.