Auditor Tenure, Non-Audit Services and Earnings Conservatism: Evidence from Malaysia

Abstract

This paper examines the effect of auditor tenure and provision of non-audit services on earnings conservatism. Following Basu (1997), we measure earnings conservatism by using the asymmetric timeliness of earnings model and the time-series test of timeliness in loss recognition model. Using a sample of 2,235 company-year observations from the period 2005-2008, we present evidence that auditor tenure and non-audit services are positively associated with earnings conservatism. These results are robust even after controlling for company size, leverage and growth. We further examine the influence of government-linked companies on the relationship between (1) auditor tenure, (2) provision of non-audit services, and earnings conservatism. We find that our main results hold for non-government linked companies. For government linked companies, we find no association between auditor tenure and earnings conservatism, while the provision of non-audit services is negatively associated with earnings conservatism. This result implies that high provision of non-audit services to government-linked companies lead to impairment of auditor independence. Our additional analysis also shows that auditor tenure and provision of non-audit services are associated with higher earnings conservatism, regardless of whether the companies are audited by industry specialist or non-industry specialist.

Keywords: Auditor Tenure, Non-audit services, Earnings Conservatism.

1. Introduction

This study examines the effect of auditor tenure (Tenure) and the provision of non-audit services (NAS) on earnings conservatism. The impact of these variables (Tenure and NAS) on auditor independence (and thus audit quality) is an issue of interest to many parties including regulators, users of financial statements, and researchers. For Tenure, many studies (for e.g. Geiger and Raghunandan 2002; Ghosh and Moon 2005; Johnson et al. 2002; Stanley and DeZoort 2007) suggest that short Tenure is associated with poor quality earnings because of lack of client-specific knowledge. In addition, DeAngelo (1981) concludes that poor quality of audit during short Tenure is because of lowballing. Frankel, Johnson, and Nelson (2002), concluded that auditor independence is compromised where the auditor provides a high level of NAS. Other studies conclude that the provision of NAS creates incentives and advantages for auditors to perform a higher quality audit (Ashbaugh et al. 2003; Craswell 1999). However, in general, studies on the effect of NAS on auditor independence have produced mixed results (Shockley 1981; Knapp 1985; Gul 1991; Barkess and Simnett 1994; Gul et al. 2007).

In this study, we extend this research by assessing earnings conservatism for companies with different levels of Tenure and NAS. Following Basu (1997), we interpret earnings conservatism as the asymmetric timeliness of reporting bad news relative to good news. We use earnings conservatism, a proxy for earnings quality, because of its importance in increasing contracting efficiency by making bad news available quickly to all parties and by reducing shareholder litigation (Watts 2003; Ball and Shivakumar 2005). Supporting these propositions, empirical studies have documented the benefits of conservative reporting by showing that conservatism is associated with relatively lower cost of equity (Francis et al. 2004) and lower cost of debt (Ahmed et al. 2002). Given that longer Tenure and high NAS

lead to accumulation of client-specific knowledge and thus cost savings for audit firms, we predict that long Tenure and high NAS are associated with higher earnings conservatism.

Our study measures earnings conservatism by using the asymmetric timeliness of earnings model and the time-series test of timeliness in loss recognition model introduced by Basu (1997). Using a sample of 2,235 company-year observations from 2005-2008, we find that long Tenure and high NAS companies have higher earnings conservatism. These results are consistent across the two models and are robust to control for company size, leverage and growth.

We further examine whether our findings are influenced by ownership structure, i.e. government linked companies. We partition the sample into Government Linked Companies (GLCs) and Non-Government Linked Companies (Non-GLCs), and find that our main results are qualitative unaltered for the Non-GLCs sample. However, for the GLCs sample, we find no association between Tenure and earnings conservatism, while NAS is negatively associated with earnings conservatism. We also control for the influence of auditor industry specialization (EXPERT), and find that the relationship between NAS, Tenure and earnings conservatism remain unchanged.

As most of the empirical evidence on earnings conservatism comes mainly from studies on the US and other developed countries, this study makes a significant contribution to the literature by providing evidence on the relationship between auditing and earnings conservatism in a developing market. Our Malaysian sample offers a unique test domain for two reasons. Firstly, audit firms in Malaysia are subject to only limited scrutiny by regulators and the audit environment has very low litigation risk (Johl et al. 2007). Big 4 audit firms hold 75% of the market (Che-Ahmad et al. 1996). They are perceived to be of high quality but in fact there are many reservations on their quality. For example, the World Bank has

raised concerns on the audit quality of the Big 4 firms in Asian countries, including Malaysia, especially during the Asian Economic Crisis. There were many cases of East Asian corporations receiving clean audit reports from Big 5 audit firms where subsequently it was apparent that the opinions were in fact inappropriate (Accountancy 1998a, 1998b). In addition, Favere-Marchesi (2000) document evidence of differential audit quality among the ASEAN countries, with auditor independence seriously compromised in some countries. Secondly, as a developing country, Malaysia differs from developed countries in respect of institutional characteristics such as more concentrated ownership (Shleifer and Vishny 1997; Claessens et al. 2000), stronger political connections (Johnson and Mitton 2003; Gul 2006), and significant government and family ownership (Lemmon and Lins 2003; Dogan and Smyth 2002).

The rest of the paper proceeds as follows: Section 2 we discuss the Malaysian auditing and regulatory background, in Section 3 we develop the hypotheses; in Section 4 we outline the research design; in Section 5 we present the empirical results and analysis; and in Section 6 we present our conclusions.

2. Malaysian Auditing and Regulatory Background

The early auditing profession in Malaysia is largely influenced by those from the United Kingdom (UK). The need for auditing in Malaysia emerges in the late 18th and 19th century as British commercial businesses spread into the country. The growth of these businesses demands the professional expertise of accountants and auditors. Thus, a number of accountants and auditors from the UK were recruited to fulfil the need. In the early 20th century, majority of the auditing professionals in Malaysia were those trained in the United Kingdom or received British education in Malaysia. The influence of the UK in the

profession is also evident by the establishment of two accounting professional bodies, the English Institute of Chartered Accountants and the Association of Chartered Certified Accountants in 1936.

In 1940s, Malaysia financial reporting practice is regulated under the Companies Ordinance 1946, which originates from the Straits Settlement Companies Ordinance 1940. The Companies Ordinance 1946 was later supersedes by the Malaysia Companies Act 1965. The introduction of Companies Act 1965 marked a significant improvement in the country's auditing practice as it covers the financial reporting requirement of a company incorporated under the Act and includes the need for the accounts to be audited. In Section 174, the Act specifies the powers and duties of an auditor, which includes to (1) report the accounts of the company to its members, (2) submit the audit report to the company in time, (2) provide an opinion of whether the financial statements represent the true and fair view of the company's affair, and (4) ensure compliance with other provision in the Companies Act 1965.

In 1967, the Malaysian Institute of Accountants (MIA) is formed under Accountants Act 1967. The institute is responsible to register and regulate the accounting and auditing profession in the country. MIA requires auditors to comply with the Companies Act 1965 and follow provisions in the International Standards of Auditing (ISA), pertaining to audit principles and framework, auditor's responsibilities, audit procedures and quality control (Fadzly and Ahmad 2004). A change in the auditing standards in Malaysia was made in July 1, 1998. A set of approved auditing standards, known as the Malaysian Standards on Auditing (MSA) was introduced to replace the ISA. However, the provisions in MSA are substantially similar to ISA.

3. Development of the Hypotheses

Audit quality is not directly observable by external users of audited financial statements. Thus, many studies use audit by a Big 4 firm as a proxy for high audit quality as these firms have more brand name capital to protect (Clarkson and Simunic 1994; Craswell et al. 1995; Mansi et al. 2004). Recent studies have extended this approach by using industry specialization of audit firms as a proxy for audit quality (Balsam et al. 2003; Krishnan 2003). Despite there being a large number of studies using audit by a Big 4 firm and auditors' industry specialization as proxies for audit quality, the question of whether auditor tenure or provision of NAS impair auditor independence is a contentious issue that remains unresolved. Thus, we next discuss the previous studies and arguments pertaining to Tenure and NAS and then develop our prediction on the effect of both factors on earnings conservatism.

Auditor Tenure

A large number of studies on Tenure examine audit and financial reporting failures. Shorter Tenure is found to be associated with higher frequency of audit failure (St. Pierre and Anderson 1984). Geiger and Raghunandan (2002) find a lower likelihood of companies receiving a going concern opinion from short Tenure auditors prior to bankruptcy. Carcello and Nagy (2004) investigate companies identified in SEC Accounting and Auditing Enforcement Releases (AAERs) as having engaged in fraudulent financial reporting and find a higher likelihood of fraudulent reporting in the initial three years of audit tenure. Stanley and DeZoort (2007) find a negative relation between Tenure and the likelihood of financial restatement occurring.

Another group of studies used have used earnings quality (assessed via abnormal accruals) as a proxy for audit quality to examine the effect of Tenure. Johnson et al. (2002) and Myers et al. (2003) find an inverse relationship between Tenure and abnormal accruals, suggesting long tenure auditors are more effective in restricting earnings management practices. Yet other studies have focussed on conservatism and the earnings response coefficient. Jenkins and Velury (2008) use several measures of earnings conservatism, and find a significant and a positive relationship between Tenure and earnings conservatism. Using earnings response coefficient as a proxy for earnings quality, Ghosh and Moon (2005) find that the earnings quality of companies with longer Tenure is higher than for short Tenure companies.

There are a number of explanations for the positive relationship between Tenure and audit quality (earnings quality). Gul et al. (2009) summarise three explanations for the relationship. Firstly, short-tenured auditors lack client-specific knowledge which is vital to conducting a high-quality audit. According to PricewaterhouseCoopers (2002) and Gul et. al (2007), shorter Tenure is associated with higher risk of audit failure, as an incoming short tenured audit firm is likely to place higher reliance on the estimates and representations made by the client company. Secondly, a number of studies (e.g. Simon and Francis 1988; Ettredge and Greenberg 1990; Deis and Giroux 1996) find that auditors frequently engage in low balling - offering audit services at prices substantially below market value or, even, cost. According to DeAngelo (1981) audit firms charge lower audit fees to obtain and retain a new client in the expectation that they will recoup the losses of profit in later years of the audit engagement. In early years of such engagements, auditors may thus be more lax to in order retain the clients and thus recoup the initial losses of profit (Gul et al. 2007). Thirdly, companies with high quality earnings are more likely to retain high-quality auditors. The auditor-switching and opinion-shopping literature (DeFond and Subramanyam 1998; Krishnan 1994; Lennox 2000) suggests that companies that have received a qualified audit report are more likely to switch

their audit firm. Furthermore, a high-quality audit firm would be more likely to drop riskier clients with low quality earnings.

Following Jenkins and Velury (2008), we use earnings conservatism as a proxy for earnings quality and we expect that Tenure is positively associated with earnings conservatism. Thus our null hypothesis is:

$H_0$1: Audit tenure is not associated with earnings conservatism

Non-Audit Services

The provision of NAS has attracted close attention of regulators in recent years. For example, the US Security Exchange Commission raised concern about the growth of fees from non-audit services during the 1990s (see Levitt 1998). Francis (2004) argued that the provision of NAS changes the auditor's role from that of an outside sceptical reviewer to inside adviser and decision maker and might thus affect the auditor's ability to be independent. Auditor independence may be affected by fee reliance on non-audit services, which creates an economic bond of auditors to the clients (Simunic 1984; Beck et al. 1988). Frankel, Johnson, and Nelson (2002) find that companies paying high NAS fees relative to total fees have larger abnormal accruals and are more likely to meet or beat analysts' earnings forecasts, suggesting that auditor independence is compromised. Gul et al. (2006) find an inverse relationship between non-audit services and value relevance of earnings.

Other studies argue that non-audit services create incentives and advantages for audit firms to perform a high quality audit. Simunic (1984) finds that companies with non-audit services

have higher audit fees, and hence higher audit quality. According to Craswell, Francis and Taylor (1995), audit firms that enjoy a substantial amount of income from NAS have strong incentives to maintain high quality services. Poor audit quality would cause the a firm to lose the audit job as well as the non-audit services. In addition, the provision of NAS leads to accumulation of company-specific knowledge, which increases audit quality (Arrunada 1999). The provision of NAS may also strengthen audit quality because of the increase in the reputational capital of the audit firm. These arguments are supported in a 1997 White Paper submitted to the Independence Standards Board by Pitt and Birenbaum (1997) states that:

> …the overwhelming economic interest of accounting firms in their reputational capital provides a powerful incentive to safeguard independence. Non-audit services increase the firm's investment in reputational capital, contribute importantly to the quality of audit services and provide other benefits to clients and the public.

Ashbaugh, LaFond, and Mayhew (2003) find no evidence that high NAS reduces independence 'in fact' and challenge Frankel et al.'s (2002) results as being sensitive to research design choices. Ruddock, Taylor and Taylor (2006) examine the effect of non-audit services on earnings conservatism, where they find no adverse effect of non-audit services on earnings conservatism.

Based on the above arguments, we expect that non-audit services are positively associated with earnings conservatism and our null hypothesis is:

$H_0$2: Provision of non-audit services is not associated with earnings conservatism.

4. Research design

4.1 Sample and data collection

The sample consists of companies listed on Main Market of Bursa Malaysia, Kuala Lumpur, from the period 2003–2008.[1] As the analysis requires a two-year lag of audit tenure information, our findings only cover the period 2005-2008. We collected financial and market data from the Worldscope database, while data on the audit variables was hand-collected from annual reports, available from the website of the exchange (http://announcements.bursamalaysia.com).

Using the two data sources, we identified 884 companies listed on the Main Market. We excluded 168 companies that were listed after the year 2003 and 72 companies which were delisted or suspended from trading.[2] We also excluded 41 finance companies, due to their unique economic characteristics and the different compliance and regulatory environment they are subject to under the Banking and Financial Institutions Act of 1989. Finally, we also excluded eleven Energy companies (GICS code 1010) and nine Utility companies (GICS code=5510) because of the different conditions they operate under. Our final sample thus consisted of consists of 590 companies, which came from the following industries: Construction (36 companies), Consumer Product (102 companies), IPC (5 companies), Hotel (4 companies), Industrial Product (198 companies), Plantation (34 companies), Property (69 companies), Technology (26 companies) and Trading/Services (116 companies).

From the final sample, we excluded any missing values that restricted testing of the hypotheses. To eliminate the effect of extreme observations, we exclude observations falling

[1]Starting from August 3, 2009, the Main and Second Board were merged and known as the Main Market, while the Mesdaq (Malaysia Exchange of Securities Dealing and Automated Quotations Berhad) Market were known as the ACE Market.

[2] This includes companies that were classified under PN4, PN17 and GN3, which fail to meet the requirements of the Exchange.

in the top or bottom 1% of the dependent and independent variables. As a result, our tests were conducted on 2,235 company-year observations.[3]

4.2 Measurement of Earnings Conservatism

4.2.1 Asymmetric timeliness of earnings model

Our first measure of earning conservatism is based on the earnings-return reverse regression model introduced by Basu (1997) and used in several studies including Ball et al. (2000), Holthausen and Watts (2001), and Ball et al. (2003). The model is based on the premise that share prices reflect all information from various sources other than financial statements and that share prices lead earnings information (Ball and Brown 1968; Beaver et al. 1980; Kothari and Sloan 1992). On the other hand, accounting earnings impose different verification standards in recognition of difference types of economics news. For bad news, the computation of accounting earnings uses lower verification standards and immediately recognises losses. However, for good news higher verification standards are imposed for gains to be recognised in accounting earnings. This approach results in a positive association between negative market returns (bad news) and earnings, which suggests more timely reporting of bad news relative to that of good news. The model is as follows:

$$E/P = \beta_0 + \beta_1 Ret + \beta_2 RD + \beta_3 Ret*RD + \varepsilon \qquad (1)$$

where E is annual earnings, P is market capitalisation at beginning of the year, Ret is contemporaneous annual returns and RD is a dummy variable that is set equal to 1 if Ret is negative and is set equal to zero otherwise. In this model, β_1 measures the response of

[3] The number of sample reduces to 2,216 company-year observations for time-series test of timeliness in loss recognition due to missing value of previous year data.

earnings to returns when returns are positive, and $\beta_1 + \beta_3$ measures the response of earnings to negative returns. If $\beta_1+\beta_3 > \beta_1$ or $\beta_3>0$ then earnings are conservative. A positive β_3 shows that earnings reflect bad news more quickly than good news. In the above model, β_3 measures the asymmetric timeliness of earnings.

4.2.2 Time-series test of timeliness in loss recognition

Our second measure of earnings conservatism is based on a time series test of timelines in loss recognition, used by Basu (1997) and Ball and Shivakumar (2005). This measure is based on a concept of transitory nature of economic income (Samuelson 1965; Fama 1970). This model measures timely gain and loss incorporation as the tendency for increases and decreases in accounting income to reverse, which is an indicator of transitory gain and loss components. The model is as follows:

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_{\backslash 3} D\Delta NI_{t-1} * \Delta NI_{t-1} + \varepsilon \qquad (2)$$

where ΔNI_t is a change in net income from fiscal year t-1 to t, scaled by beginning book value of total assets. $D\Delta NI_{t-1}$ is a dummy variable taking the value 1 if the prior-year change ΔNI_{t-1} is negative, otherwise 0.

According to Basu (1997), bad news affects earnings immediately but the effect does not persist, while good news takes longer time to be reflected in earnings and is more likely to persist in future periods. A decrease in current earnings during a bad news period is likely to reverse in the next period (Fama and French 2000). Thus, ceteris paribus, we predict the reporting of bad news to be associated with increased negative autocorrelation between current and future reported earnings. For good news, an increase in current earnings during

the good news period is less likely to result in a reversal of the earnings change in the following period.

5. Empirical results and analysis

5.1 Descriptive Statistics

The descriptive statistics of the continuous variables for the sample are shown in Panel A Table 1. The mean value for E/P of the companies in the sample is 0.068, while the average return is 0.012. The mean of natural log of non-audit fees (LNAF) is 3.111 which is smaller than the median (4.033), indicating that the distribution LNAF is left-skewed. This is caused by many observations with zero value for LNAF.

[TABLE 1 IS HERE]

Panel B of Table 1 shows descriptive statistics for the dummy variables. As our data on auditor tenure is limited from year 2003 to 2008, we are not able to identify the exact length of tenure for every observation. From 2235 observations, 89% of the sample observations have auditor tenure of more than two years. Big 4 firms audited 65% of the companies in the sample and 150 of the observations, around 7%, relate to government linked companies.

[TABLE 2 IS HERE]

Table 2 presents the correlation matrix for the independent and dependent variables. Both Spearman and Pearson correlations are moderate and thus suggest the absence of multicollinearity problems.

5.2 Empirical Results

5.2.1 Asymmetric Timelines of Earnings

Table 3 presents the results from estimating the following versions of model (1), modified to allow for differences in Tenure and provision of NAS:

$$E/P = \beta_0 + \beta_1 Ret + \beta_2 RD + \beta_3 Ret*RD + \gamma_1 Tenure + \gamma_2 Tenure*Ret + \gamma_3 Tenure*RD + \gamma_4 Tenure*Ret*RD + \varepsilon \quad (1a)$$

$$E/P = \beta_0 + \beta_1 Ret + \beta_2 RD + \beta_3 Ret*RD + \eta_1 DNAS + \eta_2 DNAS*Ret + \eta_3 DNAS*RD + \eta_4 DNAS*Ret*RD + \varepsilon \quad (1b)$$

$$E/P = \beta_0 + \beta_1 Ret + \beta_2 RD + \beta_3 Ret*RD + \gamma_1 Tenure + \gamma_2 Tenure*Ret + \gamma_3 Tenure*RD + \gamma_4 Tenure*Ret*RD + \eta_1 DNAS + \eta_2 DNAS*Ret + \eta_3 DNAS*RD + \eta_4 DNAS*Ret*RD + \varepsilon \quad (1c)$$

where Tenure is a dummy variable that takes value 1 if the auditor tenure is three years or more, otherwise 0; DNAS is a dummy variable that take value 1 if the value of NAS is higher than the median value of NAS, otherwise 0. The other variables are as defined above.

The coefficient β_3 measures the incremental response of earnings to bad news relative to good news and is predicted to be positive. As we hypothesized that companies with longer Tenure and higher NAS have higher earnings conservatism, we expect that $\gamma_4>0$ and $\eta_4>0$. Positive values for the coefficients γ_4 and η_4 indicate that companies with longer Tenure and higher NAS are more likely to recognize economic losses in a timely fashion than other companies.

[TABLE 3 IS HERE]

The results for model (1) show that the coefficient β_3 is positive (0.197) and significant (t-value = 2.440), indicating more timely recognition of bad news than good news. The measure $(\beta_3 + \beta_1)/\beta_1$, which assesses the sensitivity of earnings to bad news relative to good news, shows that earnings are about 2.89 times more sensitive to bad news than good news.

For model (1a), model (1b), and model (1c), the results show that the coefficients γ_4 and η_4 are positive and significant suggesting that longer Tenure companies have higher asymmetric timeliness of earnings. Bad news is recognised more promptly than good news in companies with longer Tenure and higher NAS. We thus reject both of the null hypotheses.

5.2.2 Time Series Test of Timeliness in Loss Recognition

As an alternative measure of earnings conservatism, we estimate model (2a), model (2b), and model (2c) to examine the transitory nature of income. The results are presented in table 4.

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 D\Delta NI_{t-1} * \Delta NI_{t-1} + \gamma_1 Tenure + \gamma_2 Tenure * D\Delta NI_{t-1} + \gamma_3 Tenure * \Delta NI_{t-1} + \gamma_4 Tenure * D\Delta NI_{t-1} * \Delta NI_{t-} + \varepsilon_t \quad (2a)$$

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 D\Delta NI_{t-1} * \Delta NI_{t-1} + \eta_1 DNAS + \eta_2 DNAS * D\Delta NI_{t-1} + \eta_3 DNAS * \Delta NI_{t-1} + \eta_4 DNAS * D\Delta NI_{t-1} * \Delta NI_{t-} + \varepsilon_t \quad (2b)$$

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 D\Delta NI_{t-1} * \Delta NI_{t-1} + \gamma_1 Tenure + \gamma_2 Tenure * D\Delta NI_{t-1} + \gamma_3 Tenure * \Delta NI_{t-1} + \gamma_4 Tenure * D\Delta NI_{t-1} * \Delta NI_{t-} + \eta_1 DNAS + \eta_2 DNAS * D\Delta NI_{t-1} + \eta_3 DNAS * \Delta NI_{t-1} + \eta_4 DNAS * D\Delta NI_{t-1} * \Delta NI_{t-} + \varepsilon_t \quad (2c)$$

where ΔNI_t is a change in net income from fiscal year t-1to t, scaled by beginning book value of total assets. $D\Delta NI_{t-1}$ is a dummy variable taking the value 1 if the prior-year change ΔNI_{t-1} is negative, otherwise 0. Other variables are as defined above.

Under our hypotheses we expect we expect $\alpha_3<0$, $\gamma_4<0$ and $\eta_4<0$. Our results are shown in Table 4 and overall confirm the earlier findings.

[TABLE 4 IS HERE]

5.3 Controls for Size, Leverage, and Growth

Table 5 presents the results from estimating equation (1d) and (2d), modified to control for firm size, growth and leverage.

$$E/P = \beta_0 + \beta_1 Ret + \beta_2 RD + \beta_3 Ret*RD + \gamma_1 Tenure + \gamma_2 Tenure*Ret \quad (1d)$$

$$+ \gamma_3 Tenure*RD + \gamma_4 Tenure*Ret*RD + \eta_1 DNAS + \eta_2 DNAS*Ret$$

$$+ \eta_3 DNAS*RD + \eta_4 DNAS*Ret*RD + \theta_1 DSize + \theta_2 DSize*Ret$$

$$+ \theta_3 DSize*RD + \theta_4 DSize*Ret*RD + \theta_5 \alpha_4 DLev + \theta_6 DLev*Ret + \theta_7 DLev*RD$$

$$+ \theta_8 DLev*Ret*RD + \theta_9 DGrowth + \theta_{10} DGrowth*Ret + \theta_{11} DGrowth*RD$$

$$+ \theta_{12} DGrowth*Ret*RD + \varepsilon_t$$

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 D\Delta NI_{t-1}*\Delta NI_{t-1} + \gamma_1 Tenure \quad (2d)$$

$$+ \gamma_2 Tenure*D\Delta NI_{t-1} + \gamma_3 Tenure*\Delta NI_{t-1} + \gamma_4 Tenure*D\Delta NI_{t-1}*\Delta NI_{t-1}$$

$$+ \eta_1 DNAS + \eta_2 DNAS*D\Delta NI_{t-1} + \eta_3 DNAS*\Delta NI_{t-1} + \eta_4 DNAS*D\Delta NI_{t-1}*\Delta NI_{t-1}$$

$$+ \theta_1 DSize + \theta_2 DSize*D\Delta NI_{t-1} + \theta_3 DSize*\Delta NI_{t-1} + \theta_4 DSize*D\Delta NI_{t-1}*\Delta NI_{t-1}$$

$$+ \theta_5 \alpha_4 DLev + \theta_6 DLev*D\Delta NI_{t-1} + \theta_7 DLev*\Delta NI_{t-1} + \theta_8 DLev*D\Delta NI_{t-1}*\Delta NI_{t-1}$$

$$+ \theta_9 DGrowth + \theta_{10} DGrowth*D\Delta NI_{t-1} + \theta_{11} DGrowth*\Delta NI_{t-1}$$

$$+ \theta_{12} DGrowth*D\Delta NI_{t-1}*\Delta NI_{t-1} + \varepsilon_t$$

where DSize is a dummy variable that takes the value 1 where the natural logarithm of total assets (logTA) is higher than the median of LogTA for the sample, otherwise 0; DLev is a dummy variable that takes value 1 where total debt to total assets (TDTA) is higher than the median of TDTA for the sample, otherwise 0; and DGrowth is a dummy variable that take value 1 where the market to book ratio (MTB) is higher than the median of MTB for the sample, otherwise 0. Other variables are as defined above.

We control for company size, leverage and growth as they affect the demand for conservatism (Khan and Watts, (2009). For size, Khan and Watts (2009) argue that larger companies have lower contracting demands for conservatism due to lower information asymmetry for larger companies. However, the litigation demand for conservatism is expected to be higher because larger companies attract more litigation due to high expected recovery costs. For leverage, Khan and Watts (2009) suggest that higher levered companies have higher contracting, litigation, and taxation demands for conservatism. The higher contracting demand arises from the need to constrain opportunistic diversion of resources and trigger debt covenant violations in a timely fashion. The litigation demand for conservatism is expected to be higher as higher levered companies have higher likelihood of financial distress and to be sued. A higher taxation demand for conservatism is expected because higher levered companies are more likely to be mature companies with higher taxable earnings. In addition, Khan and Watts (2009) argue that high growth companies have more volatile stock

returns, which are more likely to have very large losses that trigger lawsuits, suggesting a higher litigation demand for conservatism. The agency cost for high growth companies is high (Smith and Watts 1992), thereby triggering higher earnings conservatism, as it is an efficient corporate governance mechanism in response to the high agency costs.

[TABLE 5 IS HERE]

The results are shown in Table 5. For both the asymmetric timeliness of earnings model and the earnings reversal model, the results show that even after controlling for size, leverage, and growth, Tenure and NAS are positively associated with higher earning conservatism.

5.4 Additional Analyses

To obtain a better understanding of the relationship between NAS, Tenure and earnings conservatism, we performed two additional analyses. First, we examine the effect of government-linked companies on the relationship of Tenure and NAS to earnings conservatism. Second, we examine the effect of auditors' industry specialization the relationship of Tenure and NAS to earnings conservatism.

5.4.1 Government Linked Companies

Although GLCs are relatively few in number (6.71% of listed companies), it is important to examine their effect as they do constitute 36 percent of the total market capitalisation of companies listed on Bursa Malaysia.[4] In a GLC, there is a clear distinction between the roles of managers and shareholders. Therefore, we expect the agency cost for GLCs to be higher

[4] Statistics is as at July 26, 2005. For more detail information, refer to Putrajaya Committee on GLC High Performance at http://www.pcg.gov.my/PDF/4.%20Section%20IV.pdf

due to the high information asymmetry between managers and shareholders. In addition, the board of directors of GLCs companies are appointed by the government, who is the agent to the real shareholders (the public). The complex 'agent watching agent' situation create higher demand for managers to report less conservative earnings to maintain their position as they are scrutinized by the public. Contrary to Non-GLCs who are dominated by family controlled companies, with more concentrated ownership (Shleifer and Vishny 1997; Claessens et al. 2000), the board of directors and top management are dominated by members of the controlling family. Thus, we expect lower agency cost for Non-GLC companies.

To examine how different ownership structure influences the association of Tenure, NAS and earnings conservatism, we partition the sample into GLCs and non-government linked companies (non GLCs). In this study, we defined a GLC according to the definition issued by the Putrajaya Committee on GLC High Performance, which is as follow:

> ... companies that have a primary commercial objective and in which the Malaysian Government has a direct controlling stake. Apart from percentage ownership, controlling stake also refers to the Government's ability to appoint Board members, senior management and make major decisions (e.g. contract awards, strategy, restructuring and financing, acquisitions and divestments etc.) for GLCs either directly or through Government-Linked Investment Companies (GLICs).

This definition includes companies where GLCs themselves have a controlling stake for example subsidiaries and affiliates of GLCs. The percentage of government ownership is calculated based on total government ownership of the shares which includes shares owned by the seven GLICs (Employees Provident Fund, Khazanah Nasional Bhd, Kumpulan Wang Amanah Pencen, Lembaga Tabung Angkatan Tentera, Lembaga Tabung Haji, Menteri Kewangan Diperbadankan, and Permodalan Nasional Bhd). We extend the above definition of GLCs by including companies controlled by State Governments through the State Economic Development Corporations (SEDCs).

[TABLE 6 IS HERE]

We estimate model (1c) and (2c) for GLCs and Non-GLCs samples. The results are shown in Table 6. For the Non-GLCs sample, which comprising more than 93% of the total observations, the results are qualitatively similar to the main results. However, for the GLCs sample, we find for both models that the coefficient γ_4 is not significant, indicating that Tenure does not affect earnings conservatism. For NAS, we find that for both models the coefficient η_4 is negative and significant, suggesting that high NAS GLCs are associated with lower earnings conservatism.

In summary, these findings show that the ownership structure could affect the agency costs and the effectiveness of shareholders monitoring mechanism. For Non-GLCs companies, we find that longer auditor tenure and higher provision of NAS are associated with higher earnings conservatism which is consistent with our general findings. For GLCs companies, we find that Tenure has no impact on earnings conservatism but high NAS is associated with lower earnings conservatism. A plausible explanation is because GLCs companies are subject to higher agency cost, where managers and shareholders are two separate parties, thus creates more incentives for managers to report less conservative earnings. Given the incentives to inflate earnings is high in GLCs companies, managers are more likely to delay the recognition of bad news or less likely to defer recognition of good news. In short, this result suggests that in GLCs companies, high NAS auditors acquiesce with management decision to report less conservative earnings, thereby compromising their independence.

5.4.2 Effect of Auditors' Industry Specialization

We further examine the relationship between NAS, Tenure and earnings conservatism by incorporating the influence of auditors' industry specialization. There are many arguments that auditor industry specialization contributes to higher audit quality. First, by serving other clients in the same industry and learning and sharing best practices across the industry, audit firms gain experience which enables them to provide higher quality audits (Dunn and Mayhew 2004; Maletta and Wright 1996). Second, industry specialization involves significant investment in technologies and physical facilities, which facilitates detection of irregularities and misrepresentations (Simunic and Stein 1987). In addition, a study by Krishnan (2005) finds auditors' industry specialist associated with higher earnings conservatism.

Given the above arguments and findings, it is important to examine whether our results are driven by auditors' industry specialization. We follow Mayhew and Wilkins (2003) in defining an industry specialist as the audit firm with the largest market share in the industry. To examine whether auditors' industry specialization affect the relationship between Tenure, NAS and earnings conservatism, we include auditors' industry specialization (Expert) in model (1e) and model (2e), as follows:

$$\begin{aligned} E/P = \; & \beta_0 + \beta_1 Ret + \beta_2 RD + \beta_3 Ret*RD + \gamma_1 Tenure + \gamma_2 Tenure*Ret \\ & + \gamma_3 Tenure*RD + \gamma_4 Tenure*Ret*RD + \eta_1 DNAS + \eta_2 DNAS*Ret \\ & + \eta_3 DNAS*RD + \eta_4 DNAS*Ret*RD + \theta_1 Expert + \theta_2 Expert*Ret \\ & + \theta_3 Expert*RD + \theta_4 Expert*Ret*RD + \varepsilon_t \end{aligned} \tag{1e}$$

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 D\Delta NI_{t-1} * \Delta NI_{t-1} + \gamma_1 Tenure + \gamma_2 Tenure * D\Delta NI_{t-1} \quad (2e)$$

$$+ \gamma_3 Tenure * \Delta NI_{t-1} + \gamma_4 Tenure * D\Delta NI_{t-1} * \Delta NI_{t-1} + \eta_1 DNAS + \eta_2 DNAS * D\Delta NI_{t-1}$$

$$+ \eta_3 DNAS * \Delta NI_{t-1} + \eta_4 DNAS * D\Delta NI_{t-1} * \Delta NI_{t-1} + \theta_1 Expert + \theta_2 Expert * D\Delta NI_{t-1}$$

$$+ \theta_3 Expert * \Delta NI_{t-1} + \theta_4 Expert * D\Delta NI_{t-1} * \Delta NI_{t-1} + \varepsilon_t$$

where Expert is a dummy variable that takes value 1 if the company's auditor has the largest market share in the industry, otherwise 0. Other variables are as defined above.

[TABLE 7 IS HERE]

Table 7 show the regression results. Comparison of the results with those obtained earlier shows that auditors' industry specialization does not affect the relationship of Tenure, NAS to earnings conservatism. This result implies that Tenure and NAS are associated with higher earnings conservatism, regardless of whether the companies are audited by industry specialist or non-industry specialist.

6. Conclusion

This study examines the influence of Tenure and provision of NAS on earnings conservatism. The study deals with Malaysia which differs in a number of important respects from the environment existing in developed countries. In particular, audit firms are subject to low litigation risk and most listed companies are family or government controlled. Using the asymmetric timeliness of earnings model and the time-series test of timeliness in loss recognition model, we find that longer Tenure and higher NAS are associated with higher earnings conservatism, even after controlling for company size, leverage, and growth,

We further examine whether ownership structure, i.e. GLCs, and auditor industry specialization have any effect on our findings. Contrary to our main findings, we find that for GLCs companies, Tenure has no impact on earnings conservatism while NAS is negatively associated with earnings conservatism. For Non-GLCs companies, we find that Tenure and NAS are positively associated with earnings conservatism. Our examination on the impact of auditors' industry specialization finds Tenure and NAS are associated with higher earnings conservatism, regardless of whether the companies are audited by industry specialist or non-industry specialist.

Future studies could consider other proxies for earnings quality such as discretionary accruals and earnings persistence. This study controls for size, leverage and growth and considers the role of auditors' industry specialization. However, other factors such as corporate governance and institutional shareholding could also be considered. A limitation of our tests is that we do not control for such factors.

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Table 1: Descriptive statistics

Panel A: Continuous Variables

Variable	#	Mean	Median	Minimum	25	50	75	Maximum
E/P	2235	0.068	0.074	-4.428	0.011	0.074	0.136	10.949
Ret	2235	0.012	-0.090	-0.930	-0.301	-0.090	0.150	10.586
LNAF	2235	3.111	4.033	0.000	0.000	4.033	4.708	6.798
Size	2235	8.573	8.488	6.966	8.157	8.488	8.898	11.013
Lev	2235	0.225	0.215	0.000	0.071	0.215	0.350	0.761
Growth	2234	1.057	0.707	0.099	0.457	0.707	1.122	34.050
ΔNI_t	2235	0.006	0.005	-0.714	-0.020	0.005	0.029	1.429
ΔNI_{t-1}	2212	0.012	0.007	-0.551	-0.017	0.007	0.033	0.763

Panel B: Dummy Variables

Variable	Yes		No		Total
	n	%	n	%	
Tenure (>2 years)	1989	88.99	246	11.01	2235
Big 4 audit firms	1463	65.46	772	34.54	2235
Auditors' Industry Specialist	756	33.82	1479	66.17	2235
Government Links Companies	150	6.71	2085	93.29	2235

Significance is based on two-tailed tests. */**/*** represents significance at 1/5/10% level.
The sample consists of 2,235 firm-year observations for the period 2005-2008, corresponding to 580 firms.

E/P is an earnings per share per price in the beginning of period per share.
Ret is a stock rate of return for the period.
RD is a dummy variable that takes the value of 1 if there is bad news (when the return is negative or zero); 0 if there is good news (positive return).
NASTA is total non-audit fees per total assets
LNAF is a natural logarithm of total non-audit fees.
Size is a natural logarithm of total assets.
Lev is total debts per total assets.
ΔNI_t is a change in net income from fiscal year t-1to t scaled by beginning book value of total assets.
ΔNI_{t-1} is a change in net income from fiscal year t-2to t-1, scaled by beginning book value of total assets.

Table 2: Correlation matrix

Variable	E/P	Ret	LNAF	NASTA	Size	Growth	Lev	ΔNI_t	ΔNI_{t-1}
E/P	1.000	0.113*	0.068*	-0.002	0.099*	0.047**	-0.038	0.370*	0.053*
Ret	0.386*	1.000	0.053**	0.005	0.132*	0.112*	-0.034	0.180*	-0.027
LNAF	0.127*	0.077*	1.000	0.201**	0.340*	0.100*	-0.015	0.014	0.024
NASTA	0.063*	0.012	0.865*	1.000	-0.062*	0.013	0.009	-0.012	-0.006
Size	0.238*	0.144*	0.420*	0.024	1.000	0.144*	0.202**	0.034	0.038
Growth	0.148*	0.282*	0.144*	0.065***	0.144*	1.000	0.028	0.033	0.101**
Lev	-0.119*	-0.096*	0.011	-0.079***	0.195*	-0.096*	1.000	-0.017	0.008
ΔNI_t	0.459*	0.330*	0.028	0.008	0.056*	0.131*	-0.015	1.000	-0.327*
ΔNI_{t-1}	0.172*	-0.014	0.034	0.009	0.080*	0.166*	0.004	-0.160**	1.000

Significance is based on two-tailed tests. */**/*** represents significance at 1/5/10% level.
All variables are defined in Table 1.

Table 3: Regression results of asymmetric timeliness of earnings

Model	(1)		(1a)		(1b)		(1c)	
Variable	Coeff	t-value	Coeff	t-value	Coeff	t-value	Coeff	t-value
Intercept	0.088	4.270*	-0.174*	-2.697*	-0.017	-0.537	-0.216	-3.254*
Ret	0.104	4.029*	0.688*	9.720*	0.316	7.120*	0.750	10.308*
RD	0.018	0.547	0.266*	2.626*	0.068	1.443	0.256	2.436**
*Ret*RD*	0.197	2.440**	-0.377	-1.614	-0.153	-1.343	-0.569	-2.352**
Tenure			0.294*	4.325*			0.260	3.802*
*Tenure*Ret*			-0.673*	-8.867*			-0.596	-7.546*
*Tenure*RD*			-0.279	-2.613*			-0.248	-2.322**
*Tenure*Ret*RD*			0.660	2.657*			0.573	2.304**
DNAS					0.162	3.871*	0.115	2.743*
*DNAS*Ret*					-0.319	-5.848*	-0.193	-3.429*
*DNAS*RD*					-0.052	-0.797	-0.004	-0.067
*DNAS*Ret*RD*					0.602	3.720*	0.479	2.975*
F-Stat	19.090		19.950		13.960		14.380	
Adj R^2 (%)	2.400		5.600		3.900		6.200	
No of Obs	2235		2235		2235		2235	

Significance is based on two-tailed tests. */**/*** represents significance at 1/5/10% level.
Tenure is a dummy variable that takes value 1 if the auditor tenure is three years or more, otherwise 0; DNAS is a dummy variable that take value 1 if non-audit services value is higher than the median of non-audit services, otherwise 0. Other variables are defined in Table 1.

Model

$$E/P = \beta_0 + \beta_1 Ret + \beta_2 RD + \beta_3 Ret*RD + \varepsilon \quad (1)$$

$$E/P = \beta_0 + \beta_1 Ret + \beta_2 RD + \beta_3 Ret*RD + \gamma_1 Tenure + \gamma_2 Tenure*Ret + \gamma_3 Tenure*RD + \gamma_4 Tenure*Ret*RD + \varepsilon \quad (1a)$$

$$E/P = \beta_0 + \beta_1 Ret + \beta_2 RD + \beta_3 Ret*RD + \eta_1 DNAS + \eta_2 DNAS*Ret + \eta_3 DNAS*RD + \eta_4 DNAS*Ret*RD + \varepsilon \quad (1b)$$

$$E/P = \beta_0 + \beta_1 Ret + \beta_2 RD + \beta_3 Ret*RD + \gamma_1 Tenure + \gamma_2 Tenure*Ret + \gamma_3 Tenure*RD + \gamma_4 Tenure*Ret*RD + \eta_1 DNAS + \eta_2 DNAS*Ret + \eta_3 DNAS*RD + \eta_4 DNAS*Ret*RD + \varepsilon \quad (1c)$$

Table 4: Regression results of time series test of timeliness in loss recognition

Model	(2)		(2a)		(2b)		(2c)	
Variable	Coeff	t-value	Coeff	t-value	Coeff	t-value	Coeff	t-value
(Constant)	0.007	2.329**	0.003	0.306	0.006	1.570	0.002	0.202
$D\Delta NI_{t-1}$	-0.020	-4.458*	0.011	0.858	-0.014	-2.208**	0.022	1.613
ΔNI_{t-1}	-0.220	-7.168*	-0.042	-0.594	-0.259	-6.205*	-0.070	-0.980
$D\Delta NI_{t-1}*\Delta NI_{t-1}$	-0.526	-10.352*	-0.254	-2.496**	-0.287	-3.974*	0.036	0.323
Tenure			0.005	0.541			0.007	0.735
$Tenure*D\Delta NI_{t-1}$			-0.041	-2.959*			-0.046	-3.389*
$Tenure*\Delta NI_{t-1}$			-0.224	-2.881*			-0.268	-3.366*
$Tenure*D\Delta NI_{t-1}*\Delta NI_{t-1}$			-0.416	-3.539*			-0.418	-3.530*
DNAS					0.000	0.061	-0.002	-0.296
$DNAS*D\Delta NI_{t-1}$					-0.009	-1.024	-0.009	-1.021
$DNAS*\Delta NI_{t-1}$					0.085	1.381	0.137	2.211**
$DNAS*D\Delta NI_{t-1}*\Delta NI_{t-1}$					-0.465	-4.583*	-0.574	-5.667*
F-Stat	147.349		73.855		67.790		51.308	
Adj R^2 (%)	16.600		18.700		17.500		20.000	
No of Obs	2212		2212		2212		2212	

Significance is based on two-tailed tests. */**/*** represents significance at 1/5/10% level.
Tenure is a dummy variable that takes value 1 if the auditor tenure is three years or more, otherwise 0; DNAS is a dummy variable that take value 1 if non-audit services value is higher than the median of non-audit services, otherwise 0. Other variables are defined in Table 1.

Model

$$\Delta NIt = \alpha 0 + \alpha 1 D\Delta NIt\text{-}1 + \alpha 2 \Delta NIt\text{-}1 + \alpha 3 D\Delta NIt\text{-}1 * \Delta NIt\text{-}1 + \varepsilon_t \quad (2)$$

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 D\Delta NI_{t-1} * \Delta NI_{t-1} + \gamma_1 Tenure + \gamma_2 Tenure * D\Delta NI_{t-1} + \gamma_3 Tenure * \Delta NI_{t-1} + \gamma_4 Tenure * D\Delta NI_{t-1} * \Delta NI_{t-1} + \varepsilon_t \quad (2a)$$

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 D\Delta NI_{t-1} * \Delta NI_{t-1} + \eta_1 DNAS + \eta_2 DNAS * D\Delta NI_{t-1} + \eta_3 DNAS * \Delta NI_{t-1} + \eta_4 DNAS * D\Delta NI_{t-1} * \Delta NI_{t-1} + \varepsilon_t \quad (2b)$$

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 D\Delta NI_{t-1} * \Delta NI_{t-1} + \gamma_1 Tenure + \gamma_2 Tenure * D\Delta NI_{t-1} + \gamma_3 Tenure * \Delta NI_{t-1} + \gamma_4 Tenure * D\Delta NI_{t-1} * \Delta NI_{t-1} + \eta_1 DNAS + \eta_2 DNAS * D\Delta NI_{t-1} + \eta_3 DNAS * \Delta NI_{t-1} + \eta_4 DNAS * D\Delta NI_{t-1} * \Delta NI_{t-1} + \varepsilon_t \quad (2c)$$

Table 5: Regression results of asymmetric timeliness of earnings and time series test of timeliness in loss recognition controlling for Size, Leverage and Growth.

Asymmetric Timeliness of Earnings			Time Series Test of Timeliness in Loss Recognition		
Variable	Coeff	t-value	Variable	Coeff	t-value
Intercept	-0.214	-2.777*	*Intercept*	-0.012	-1.124
Ret	0.603	5.717*	$D\Delta NI_{t-1}$	0.021	1.388
RD	0.187	1.573	ΔNI_{t-1}	-0.013	-0.133
*Ret*RD*	-0.559	-1.942**	$D\Delta NI_{t-1}*\Delta NI_{t-1}$	-0.310	-2.061**
Tenure	0.249	3.648*	*Tenure*	0.006	0.653
*Tenure*Ret*	-0.577	-7.289*	$Tenure*D\Delta NI_{t-1}$	-0.046	-3.337*
*Tenure*RD*	-0.235	-2.204**	$Tenure*\Delta NI_{t-1}$	-0.281	-3.514*
*Tenure*Ret*RD*	0.586	2.360**	$Tenure*D\Delta NI_{t-1}*\Delta NI_{t-1}$	-0.349	-2.674*
DNAS	0.119	2.837*	*DNAS*	-0.001	-0.168
*DNAS*Ret*	-0.197	-3.475*	$DNAS*D\Delta NI_{t-1}$	-0.011	-1.294
*DNAS*RD*	-0.013	-0.201	$DNAS*\Delta NI_{t-1}$	0.118	1.851***
*DNAS*Ret*RD*	0.463	2.851*	$DNAS*D\Delta NI_{t-1}*\Delta NI_{t-1}$	-0.556	-5.126*
DSize	0.016	0.366	*DSize*	0.013	2.195**
*DSize*Ret*	0.129	1.966**	*DSize*DΔNIt-1*	0.001	0.140
*DSize*RD*	0.044	0.658	*DSize*ΔNIt-1*	-0.193	-2.908*
*DSize*Ret*RD*	-0.249	-1.466	*DSize*DΔNIt-1*ΔNIt-1*	0.104	0.961
DLev	0.048	1.124	*DLev*	-0.003	-0.517
*DLev*Ret*	-0.140	-2.585**	*DLev*DΔNIt-1*	-0.006	-0.652
*DLev*RD*	-0.043	-0.662	*DLev*ΔNIt-1*	0.063	0.909
*DLev*Ret*RD*	0.345	2.041**	*DLev*DΔNIt-1*ΔNIt-1*	0.023	0.195
DGrowth	-0.034	-0.831	*Dgrowth*	0.018	3.179*
*DGrowth*Ret*	0.162	2.971*	*DGrowth*DΔNIt-1*	0.009	0.963
*DGrowth*RD*	0.115	1.779***	*DGrowth*ΔNIt-1*	0.033	0.537
*DGrowth*Ret*RD*	-0.056	-0.332	*DGrowth*DΔNIt-1*ΔNIt-1*	0.381	3.550*
F-Stat	8.598		F-Stat	28.049	
Adj R^2 (%)	7.300		Adj R^2 (%)	0.220	
No of Obs	2235		No of Obs	2212	

Significance is based on two-tailed tests. */**/*** represents significance at 1/5/10% level.
DSize is a dummy variable that takes value 1 if the natural logarithm of total assets of the observation is higher than the median of natural logarithm of total assets for the sample, otherwise 0. *DLev* is a dummy variable that takes value 1 if total debt per total assets of the observation is higher than the median of total debt per total assets for the sample, otherwise 0. *DGrowth* is a dummy variable that take value 1 if the market to book ratio of the observation is higher than the median of market to book ratio for the sample, otherwise 0. Other variables are defined in Table 1.

Model

$$E/P = \beta_0 + \beta_1 Ret + \beta_2 RD + \beta_3 Ret*RD + \gamma_1 Tenure + \gamma_2 Tenure*Ret + \gamma_3 Tenure*RD + \gamma_4 Tenure*Ret*RD + \eta_1 DNAS + \eta_2 DNAS*Ret + \eta_3 DNAS*RD + \eta_4 DNAS*Ret*RD + \theta_1 DSize + \theta_2 DSize*Ret + \theta_3 DSize*RD + \theta_4 DSize*Ret*RD + \theta_5 \alpha_4 DLev + \theta_6 DLev*Ret \quad (1d)$$

$$+ \theta_7 DLev*RD + \theta_8 DLev*Ret*RD + \theta_9 DGrowth + \theta_{10} DGrowth*Ret + \theta_{11} DGrowth*RD + \theta_{12} DGrowth*Ret*RD + \varepsilon_t$$

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 D\Delta NI_{t-1}*\Delta NI_{t-1} + \gamma_1 Tenure + \gamma_2 Tenure*D\Delta NI_{t-1} + \gamma_3 Tenure*\Delta NI_{t-1} + \gamma_4 Tenure*D\Delta NI_{t-1}*\Delta NI_{t-1} + \eta_1 DNAS + \eta_2 DNAS*D\Delta NI_{t-1} + \eta_3 DNAS*\Delta NI_{t-1} + \eta_4 DNAS*D\Delta NI_{t-1}*\Delta NI_{t-1} + \theta_1 DSize + \theta_2 DSize*D\Delta NI_{t-1} + \theta_3 DSize*\Delta NI_{t-1} + \theta_4 DSize*D\Delta NI_{t-1}*\Delta NI_{t-1} + \theta_5 \alpha_4 DLev + \theta_6 DLev*D\Delta NI_{t-1} + \theta_7 DLev*\Delta NI_{t-1} + \theta_8 DLev*D\Delta NI_{t-1}*\Delta NI_{t-1} + \theta_9 DGrowth + \theta_{10} DGrowth*D\Delta NI_{t-1} + \theta_{11} DGrowth*\Delta NI_{t-1} + \theta_{12} DGrowth*D\Delta NI_{t-1}*\Delta NI_{t-1} + \varepsilon_t \quad (2d)$$

Table 6: Regression results of asymmetric timeliness of earnings and time series test of timeliness in loss recognition between Government Linked Companies (GLCs) and Non-Government Linked Companies (Non-GLCs) samples.

Sample	**GLCs**		**Non-GLCs**			**GLCs**		**Non-GLCs**	
Variable	Coeff	t-value	Coeff	t-value	Variable	Coeff	t-value	Coeff	t-value
Intercept	0.121	1.850***	-0.360	-4.965*	*Intercept*	0.010	0.299	0.002	0.169
Ret	-0.028	-0.558	1.156	12.644*	$D\Delta NI_{t-1}$	-0.041	-1.026	0.024	1.705***
RD	0.013	0.109	0.406	3.608*	ΔNI_{t-1}	-0.512	-0.306	-0.070	-0.960
*Ret*RD*	1.018	2.678*	-0.982	-3.821*	$D\Delta NI_{t-1}*\Delta NI_{t-1}$	-0.760	-0.446	0.088	0.750
Tenure	-0.056	-0.844	0.416	5.538*	*Tenure*	-0.021	-0.666	0.008	0.765
*Tenure*Ret*	0.195	2.443**	-1.050	-10.369*	$Tenure*D\Delta NI_{t-1}$	0.027	0.662	-0.049	-3.368*
*Tenure*RD*	0.094	0.808	-0.416	-3.618*	$Tenure*\Delta NI_{t-1}$	0.919	0.554	-0.280	-3.415*
*Tenure*Ret*RD*	-0.386	-1.043	1.011	3.795*	$Tenure*D\Delta NI_{t-1}*\Delta NI_{t-1}$	-0.628	-0.361	-0.445	-3.649*
DNAS	-0.024	-0.510	0.106	2.388**	*DNAS*	0.002	0.151	-0.001	-0.230
*DNAS*Ret*	0.030	0.494	-0.130	-2.140**	$DNAS*D\Delta NI_{t-1}$	0.029	1.001	-0.010	-1.127
*DNAS*RD*	-0.037	-0.518	0.014	0.212	$DNAS*\Delta NI_{t-1}$	-0.393	-1.382	0.143	2.225**
*DNAS*Ret*RD*	-0.625	-2.916*	0.455	2.685*	$DNAS*D\Delta NI_{t-1}*\Delta NI_{t-1}$	1.152	1.912***	-0.613	-5.879*
F-Stat	5.049		18.978		F-Stat	2.969		49.743	
Adj R^2 (%)	23.000		8.700		Adj R^2 (%)	13.200		20.600	
No of Obs	150		2085		No of Obs	144		2068	

Significance is based on two-tailed tests. */**/*** represents significance at 1/5/10% level.
Tenure is a dummy variable that takes value 1 if the auditor tenure is three years or more, otherwise 0; *DNAS* is a dummy variable that take value 1 if non-audit services value is higher than the median of non-audit services, otherwise 0. Other variables are defined in Table 1

Model

$$E/P = \beta_0 + \beta_1 Ret + \beta_2 RD + \beta_3 Ret*RD + \gamma_1 Tenure + \gamma_2 Tenure*Ret + \gamma_3 Tenure*RD + \gamma_4 Tenure*Ret*RD + \eta_1 DNAS + \eta_2 DNAS*Ret + \eta_3 DNAS*RD + \eta_4 DNAS*Ret*RD + \varepsilon_t \quad (1c)$$

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 D\Delta NI_{t-1}*\Delta NI_{t-1} + \gamma_1 Tenure + \gamma_2 Tenure*D\Delta NI_{t-1} + \gamma_3 Tenure*\Delta NI_{t-1} + \gamma_4 Tenure*D\Delta NI_{t-1}*\Delta NI_{t-1} + \eta_1 DNAS + \eta_2 DNAS*D\Delta NI_{t-1} + \eta_3 DNAS*\Delta NI_{t-1} + \eta_4 DNAS*D\Delta NI_{t-1}*\Delta NI_{t-1} + \varepsilon_t \quad (2c)$$

Table 7: Regression results of asymmetric timeliness of earnings and time series test of timeliness in loss recognition controlling for Auditors' Industry Specialization

Asymmetric Timeliness of Earnings			**Time Series Test of Timeliness in Loss Recognition**		
Variable	Coeff	t-value	Variable	Coeff	t-value
Intercept	-0.186	-2.767*	*Intercept*	-0.002	-0.214
Ret	0.659	8.410*	$D\Delta NI_{t-1}$	0.024	1.795***
RD	0.210	1.975**	ΔNI_{t-1}	0.022	0.296
*Ret*RD*	-0.499	-2.037**	$D\Delta NI_{t-1}*\Delta NI_{t-1}$	-0.044	-0.377
Tenure	0.249	3.616*	*Tenure*	0.008	0.869
*Tenure*Ret*	-0.573	-7.225*	$Tenure*D\Delta NI_{t-1}$	-0.049	-3.570*
*Tenure*RD*	-0.244	-2.272**	$Tenure*\Delta NI_{t-1}$	-0.260	-3.269*
*Tenure*Ret*RD*	0.555	2.214**	$Tenure*D\Delta NI_{t-1}*\Delta NI_{t-1}$	-0.427	-3.617*
DNAS	0.123	2.938*	*DNAS*	0.000	0.072
*DNAS*Ret*	-0.216	-3.809*	$DNAS*D\Delta NI_{t-1}$	-0.010	-1.094
*DNAS*RD*	-0.013	-0.198	$DNAS*\Delta NI_{t-1}$	0.101	1.609
*DNAS*Ret*RD*	0.506	3.145*	$DNAS*D\Delta NI_{t-1}*\Delta NI_{t-1}$	-0.497	-4.455*
Expert	-0.041	-0.963	*Expert*	0.003	0.566
*Expert*Ret*	0.154	2.991*	*Expert*DΔNIt-1*	0.002	0.224
*Expert*RD*	0.108	1.619	*Expert*ΔNIt-1*	-0.209	-3.331*
*Expert*Ret*RD*	-0.114	-0.672	*Expert*DΔNIt-1*ΔNIt-1*	0.144	1.301
F-Stat	11.497		F-Stat	38.882	
Adj R^2 (%)	6.600		Adj R^2 (%)	20.400	
No of Obs	2235		No of Obs	2212	

Significance is based on two-tailed tests. */**/*** represents significance at 1/5/10% level.
Expert is a a dummy variable that takes value 1 if the firms auditor has the largest market share in the industry, otherwise 0. Other variables are defined in Table 1.

Model

$$E/P = \beta_0 + \beta_1 Ret + \beta_2 RD + \beta_3 Ret*RD + \gamma_1 Tenure + \gamma_2 Tenure*Ret + \gamma_3 Tenure*RD + \gamma_4 Tenure*Ret*RD + \eta_1 DNAS + \eta_2 DNAS*Ret + \eta_3 DNAS*RD + \eta_4 DNAS*Ret*RD + \theta_1 DSize + \theta_2 DSize*Ret + \theta_3 DSize*RD + \theta_4 DSize*Ret*RD + \varepsilon_t \quad (1e)$$

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 D\Delta NI_{t-1}*\Delta NI_{t-1} + \gamma_1 Tenure + \gamma_2 Tenure*D\Delta NI_{t-1} + \gamma_3 Tenure*\Delta NI_{t-1} + \gamma_4 Tenure*D\Delta NI_{t-1}*\Delta NI_{t-1} + \eta_1 DNAS + \eta_2 DNAS*D\Delta NI_{t-1} + \eta_3 DNAS*\Delta NI_{t-1} + \eta_4 DNAS*D\Delta NI_{t-1}*\Delta NI_{t-1} + \theta_1 DSize + \theta_2 DSize*D\Delta NI_{t-1} + \theta_3 DSize*\Delta NI_{t-1} + \theta_4 DSize*D\Delta NI_{t-1}*\Delta NI_{t-1} + \varepsilon_t \quad (2e)$$