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Auditor Economic Dependence and Accounting Conservatism: Evidence from a Low Litigation Risk Setting

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This study finds a negative relationship between an auditor's high degree of economic dependence on a client and the degree of accounting conservatism of the audited client in an environment with a low risk of litigation. We measure the economic dependence of auditors on their clients primarily through fees for non-audit services. Our evidence suggests, however, that the negative effect on conservatism can be mitigated in firms that have higher board independence. The evidence from this study is highly relevant to the circumstances of East Asian economies, as well as to those of emerging countries in general.

Key words: Economic dependence, accounting conservatism, non-audit services, board independence

1. INTRODUCTION

This study examines how the simultaneous provision of audit and non-audit services (NAS) affects accounting conservatism, and further analyzes the influence of board independence on the relationship between fee dependence[1] and accounting conservatism. Following Khan and Watts (2009), we measure accounting conservatism at the firm-year level, and find a negative relationship between fee dependence and accounting conservatism.[2] However, such a negative relation is weaker when a firm's level of board independence is higher.

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In general, the joint provision of audit and NAS strengthens the economic bond between the auditor and the firm, but seems to weaken investors' perceptions of auditor independence (Beck, Frecka & Solomon, 1988; Krishnan, Sami & Zhang, 2005; Francis, 2006; Francis & Ke, 2006; Quick & Warming-Rasmussen, 2009) and undermine audit quality (Ferguson, Seow & Young, 2004; Paterson & Valencia, 2011). Most prior studies conducted in common-law countries find no evidence that NAS impairs auditor independence (UK: Lennox, 1999; Antle *et al*., 2006; Australia: Craswell, Stokes & Laughton, 2002; Ruddock *et al*., 2006; Callaghan, Parkash & Singhal, 2009; US: DeFond, Raghunandan & Subramanyam, 2002; Chung & Kallapur, 2003; Reynolds *et al*., 2004; Koh, Rajgopal & Srinivasan, 2012). These studies attribute their findings of no impairment of auditor

independence to auditors' concern for their reputation and to the risk of litigation. They do not, however, directly examine the suggested litigation risk and auditors' perception of their reputation. Another possible reason for their findings can be the location of their data: common-law countries. This lack of convincing evidence for a theory based on a widely held economic truth provides motivation to examine the influence of economic bonds on audit quality in code-law countries.

To capture the effect of the provision of NAS on audit quality, conditional conservatism (i.e., the asymmetry between gain and loss recognition) can be used as an empirical proxy for the effect of a reduction in auditor independence (Ruddock *et al*., 2006). Focusing on an emerging market – Taiwan – with a lower risk of litigation for auditors than in common-law countries (Francis & Wang, 2008), we test to see whether there are differences between our results and those of prior studies. In such a setting, the effects of litigation that could mitigate the influence of economic bonds between auditors and their clients are minimized.

Due to the prominent impact of a board mechanism on audit quality and auditor remuneration (Abbott *et al*., 2003; Carcello & Neal, 2003; Zaman, Hudaib & Haniffa, 2011), we further examine whether the economic dependence of auditors is mitigated by the level of board independence. Prior studies indicate that the level of board independence is negatively related to earnings management (e.g., Beasley, 1996; Dechow, Sloan & Sweeney, 1996; Klein, 2002; Marra, Mazzola & Prencipe, 2011), and that the higher this level, the more likely firms will recognize bad news in earnings on a timely basis (Beekes, Pope & Young, 2004). Therefore, we expect that the negative effect of fee dependence on accounting conservatism, if there is any, will be weaker when the level of board independence of the firms is higher.

In this paper, we utilize various fee measures to investigate the possible impairment of independence caused by the provision of NAS. Collectively, these measures offer consistent evidence that the degree of conservative reporting is negatively related to the level of fees received by auditors for NAS. In addition, board independence may effectively mitigate the economic consequences of an auditor's fee dependence. As a further check, the sample is divided by the median of fee dependence; we find that the impairment of independence occurs only when the level of NAS lies above the median of the ratio of non-audit fees to total fees.

In sum, this study provides two observations that prior studies in common-law environments do not: higher NAS fees will reduce auditors' conservatism, but lower NAS fees will not. In addition, it also shows that a strong board mechanism can mitigate such a negative effect on reporting conservatism. Finally, this study is based on Taiwanese data, which is more closely suited to the circumstances of East Asian countries and emerging countries in general, and avoids the possible distorting influence of a high risk of litigation.

The remainder of the paper is organized as follows. Section 2 discusses the institutional background and develops the hypotheses. Section 3 describes the research design and our approach to testing our hypotheses. Section 4 presents the sample selection and basic statistics. Section 5 provides the empirical findings, and Section 6 concludes the paper.

2. INSTITUTIONAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

2.1 Non-audit service in a low litigation risk setting

During the 1990s, the competitive climate of the accounting profession and burgeoning consulting services reshaped audit firms' growth and profitability (Zeff, 2003).[3] According to a survey published by Taiwan's Financial Supervisory Commission (FSC) (2009), the top five challenges faced by audit firms in Taiwan are fierce competition, decreasing demand for audit services, high turnover of audit staff, a shortage of experienced auditors, and high personnel costs. Koh *et al*. (2012) document evidence that audit quality is improved when auditors provide NAS. This contrasts with the common belief that NAS creates inappropriate client–auditor bonding and results in diminished auditor independence (Dopuch, King & Schwartz, 2003; Francis, 2006). In response to such concerns, fee disclosure rules[4] can provide means for regulators and investors to monitor the registrants' relationships with independent accountants (Schmidt, 2011; Koh *et al*., 2012).

Risk of litigation is one of the factors that constrain auditors from compromising their

independence (Krishnan & Krishnan, 1997; Shu, 2000). Auditors facing higher litigation risks learn to adopt conservative evidence-gathering approaches to deal with the enhanced risk (Basu, 1997). Employing a number of measures for audit quality, including non-clean opinion issuance (Lennox, 1999; Craswell *et al*., 2002; DeFond *et al*., 2002; Hope & Langli, 2010),[5] accruals quality (Chung & Kallapur, 2003; Reynolds *et al*., 2004; Antle *et al*., 2006; Koh *et al*., 2012) and restatement (Schmidt, 2011), the majority of studies provide no significant evidence that the level of NAS fees affects auditor independence.[6]

However, a negligence regime with lower legal exposure offers more incentives for auditors to compromise their independence than a strict regime (Zhang, 1999). With a low litigation risk, increased fee dependence and fierce competition motivate auditors to attend more to retaining clients than to reporting clients' business risk (Zhang, 1999; Myers, Myers & Omer, 2003; Hwang & Chang, 2010). Hwang and Chang (2010) report that client retention pressure is a major factor affecting Hong Kong auditors' decisions. Therefore, how NAS affects audit quality in a country with a low risk of litigation is an important issue.

An analysis of accounting conservatism can address this question. Auditors lend credibility to accounting information through independent verification of manager-prepared financial statements. Since the incentive for management to disclose gain and loss information is not symmetric, auditors are trained to be sensitive to evidence that reduces the risk of failing to detect material errors in the financial reports (DeAngelo, 1981; Becker *et al*., 1998; Francis & Krishnan, 1999; Francis, Maydew & Sparks, 1999; Ball, Robin & Wu, 2003; Francis, 2006). Prior studies have found that the incentives for conservatism for managers and auditors vary according to institutional settings, which tend to differ between common-law and code-law based countries (Ball, Kothari & Robin, 2000; Lara & Mora, 2004; Ball & Shivakumar, 2005; Bushman & Piotroski, 2006). Under common law, the legal system can be invoked to impose an *ex-post* legal liability on an auditor who causes harm through a failure to perform his duty (Latham & Linville, 1998). Auditors with greater reputation therefore have an incentive to report more conservatively, in order to avoid adverse reputation effects from regulatory scrutiny (e.g., the US Securities and Exchange Commission (SEC) and the Public Company Accounting Oversight Board (PCAOB)) or to reduce their own potential litigation costs (Becker *et al*., 1998; Francis & Krishnan, 1999; Francis *et al*., 1999; Francis, 2006; Koh *et al*., 2012). In Taiwan, although listed firms must follow reporting guidelines enumerated in the Securities and Exchange Act under the FSC, which is Taiwan's counterpart to the US's SEC, for investor protection purposes, neither enforcement by the FSC nor the potential litigation risks for auditors in Taiwan match corresponding efforts in the US.

Nevertheless, Francis and Wang (2008) find that accounting conservatism in audits performed by the Big Four is less in code-law countries. Ball *et al*. (2003) show that loss recognition in the East Asian region (e.g., Hong Kong, Malaysia, Singapore, and Thailand) is less timely than in Western common-law countries (e.g., Australia, Canada, the UK, and the US).

An environment characterized by a weak threat of litigation and increased competition in the audit market, such as Taiwan, may reduce auditors' efforts toward conservatism. Taiwan is a code-law country where investor protection is relatively low and investors are less able to sue auditors for negligence or misconduct (La Porta *et al*., 1998; Francis, 2004). Consequently, auditors' risk of litigation is minimized in Taiwan. Firth, Mo and Wong (2012) point out that reducing the legal liability of auditors also decreases the risk of compromised independence. The objective of our study is to examine whether an increasing reliance on NAS fees will decrease an auditor's incentives to require clients to report economic losses on a timely basis in a low litigation risk setting. This provides the basis for the first hypothesis stated in alternative form:

> **H1:** *Ceteris paribus*, the level of accounting conservatism in a firm's reporting is negatively associated with the level of an auditor's non-audit service fee dependence.

2.2 *Board independence in a low litigation risk setting*

Recent research finds that boards with a higher proportion of independent directors have more bargaining power over the Chief Executive Officer (CEO) (Ryan & Wiggins, 2004), as well as greater incentives to improve monitoring quality (Faleye, Hoitash & Hoitash, 2011) and financial reporting quality (DeFond, Hann & Hu, 2005). The evidence

shows that a more independent board will hire better quality auditors (Abbott *et al*., 2003), constrain aggressive accounting practices (Beasley, 1996; Klein, 2002; Peasnell, Pope & Young, 2005; Chen, Elder & Hsieh, 2007; Marra *et al*., 2011), allow less opinion shopping (Archambeault & DeZoort, 2001), decrease informational asymmetries with inside directors (Pincus, Rusbarsky & Wong, 1989), and impose a greater degree of conservatism (Beekes *et al*., 2004; Niu, 2006).

The Sarbanes-Oxley Act of 2002 requires prior approval by a registrant's independent audit committee of any NAS allowed by law. As part of the corporate governance system, an independent audit committee can help external auditors remain independent and enhance the probability of objective financial reporting (Johnstone, Sutton & Warfield, 2001; Magilke, Mayhew & Pike, 2009). Bédard and Paquette (2011) suggest that audit committee experts are less likely to approve the purchase of tax NAS, and approve only lower amounts of NAS.[7]

Since the 1997 Asian financial crisis, the perceived inadequacy of Asian corporate governance practices has evoked calls for the introduction of Western-style systems. Despite cultural and institutional differences, Asian countries are moving towards Western-style corporate governance codes, including proper institutional arrangements (Bushman & Piotroski, 2006; Gul, 2006). For example, in regard to the Asian financial crisis that hit Taiwan, the government introduced a new corporate governance code in 2002 to enhance the oversight mechanism of boards, especially the function of independent directors and supervisors (Chen *et al*., 2007). In addition, Taiwan's Corporate Governance Best-Practice Principles became mandatory for listed firms in 2002. However, the law's features related to board independence applied only to initial public offerings. Public companies with paid-in capital of at least NT$50 billion (US$1.7 billion) have had to appoint independent directors, not less than two in number, and not less than one-fifth of the total number of directors as required by the Securities and Exchange Act (§183 and §14-2) effective from 2007, but can choose either to establish an audit committee or maintain the existing independent supervisors.

Even with these changes, concentrated ownership and family control are both common in Taiwan. As is common in code-law countries, firms' governing boards include agents representing a diverse set of stakeholders (Pincus, Rajgopal & Venkatachalam, 2007), so a wider range of stakeholders have access to inside information (Ball & Shivakumar, 2005; Pincus *et al*., 2007). There is a striking agreement among the proponents of reforms to enhance board independence in such environments. In the face of weak governance, an active, well-informed, and independent director can reduce controlling shareholders' tunneling behavior.[8]

Using Taiwanese data, this study examines whether a greater level of board independence can mitigate the impairment of auditor independence due to fee dependence, a question that is examined in the second hypothesis:

> **H2:** *Ceteris paribus*, the negative association between accounting conservatism and an auditor's non-audit service fee dependence is moderated by higher board independence.

3. RESEARCH DESIGN

This section includes three subsections that explain the disclosure requirement of audit fees in Taiwan, estimates of abnormal total fees and abnormal non-audit fees, and the calculation of the *CScore*, a firm-year specific measure of the degree of accounting conservatism, suggested by Khan and Watts (2009).

3.1 The requirement of auditors' fee disclosures in Taiwan

Firms in Taiwan are conditionally mandated to disclose audit fees and NAS fees if one of the following specific conditions applies: (1) the ratio of client NAS fees to audit fees is at or above 25%, or the amount of NAS fees is at or above NT$500,000; (2) there is an audit firm switch and the subsequent audit firm collects a lower amount in audit fees than the previous one; or (3) the amount of audit fees is at least 15% lower than in the previous year. To enhance information transparency and improve annual reports, in 2005 the Taiwanese government began urging listed companies to voluntarily disclose NAS fees that fell below the current mandatory threshold. In 2007, this disclosure threshold was dropped. Because the fee disclosure requirement came into effect in 2002 and the regulation mandating the implementation

of independent directors was enacted in 2007, we first collect data from the period 2002–2006.

Since the sample of firms with disclosures of audit fees may not be random, we carry out the Heckman (1979) procedure to account for the self-selection bias problem as several recent papers related to audit fees have done (Larcker & Richardson, 2004; Hay, Knechel & Wong, 2006; Ruddock *et al*., 2006; Sankaraguruswamy & Whisenant, 2009).[9] Specifically, we regress the dummy dependent variable (disclosure vs. non-disclosure) on the following variables. The first set, which includes all dummy variables, are initial public offering (*IPO*), merger/acquisition activity (*M&A*), capital raising activity through a stock offering or debt issuance (*Issue*), audit firm changes or not (*CPAchange*), year 2006 (*Y2006*) to control the incentive of voluntary disclosure,[10] the existence of a loss in any of the preceding three years or not (*Loss3*), and the issue of modified audit opinion or not (*Opinion*), audit quality (*Big4*), and industry dummies. The second set, all continuous variables, are firm size (*Size*), financial leverage (*LEV*), inherent risk (the ratio of inventory plus accounts receivable to total assets; *INRE*), return on assets (*ROA*) and audit complexity (the number of business segments; *SEG* and the number of foreign subsidiaries; *Fore*). Appendix A summarizes the results of probit regression, which is used to collect the inverse Mills ratio (*IMR*). The statistically significant coefficient of IMR in the next stage generally indicates that the correction for selectivity bias is significant in this model (Byrne, Capps & Saha, 1996).

3.2 The procedure to calculate abnormal total fees and abnormal non-audit fees

We use three measures to examine how fee dependence affects the degree of accounting conservatism. Similar to prior studies (Kinney & Libby, 2002; Ashbaugh, LaFond & Mayhew, 2003; Chung & Kallapur, 2003; Ferguson *et al*., 2004; Kinney, Palmrose & Scholz, 2004; Ruddock *et al*., 2006), the first measure we use is non-audit fee ratio (non-audit fees divided by the sum of audit and non-audit fees), *RNAF*. However, DeFond *et al*. (2002) argue that auditor independence may be influenced by whether the client is a source of unusually high or low fees. Thus, we also consider two additional measures of fee dependence to grasp the possible independence impairment created by NAS: abnormal total fees (*AbTF*) (Larcker & Richardson, 2004; Srinidhi & Gul, 2007) and abnormal non-audit fees (*AbNAF*) (Kinney & Libby, 2002; Srinidhi & Gul, 2007).

We use the following procedures to calculate *AbTF* and *AbNAF*. First, we draw on Larcker and Richardson (2004) and Ruddock *et al*. (2006) to identify variables explaining audit and NAS fees. We collect the natural logarithm of total fees (*TF*), the natural logarithm of NAS fees (*NAF*), and natural logarithm of audit fees (*AF*) separately. The estimates of the abnormal total fees (*AbTF*) and abnormal NAS fees (*AbNAF*) are generated from the residual terms of Eqs (1) and (2), respectively. According to Whisenant, Sankaraguruswamy and Raghunandan (2003), audit and NAS fees are endogenously determined due to knowledge spillovers[11] or economies of scope. To control for the joint determination of audit and NAS fees, we adopt a two-stage least squares procedure as shown in Whisenant *et al*. (2003) to calculate the expected part of the NAS fees.

In the first stage, *NAF* and *AF* are regressed separately on their instruments and exogenous variables. The instruments are reporting lag (*Lag*), segment number (*SEG*), the net loss suffered over the past three years (*Loss*3) and a modified audit opinion (*Opinion*) for audit fees, and new financing activity (*Issue*) for NAS fees, respectively.[12] We summarize the results of the first stage in Appendix B. In the second stage, the predicted values of *AF* and *NAF* from the first stage are used in Eqs (2) and (3), respectively.

$$TF_{it} = a_0 + a_1 SEG_{it} + a_2 Loss3_{i,(t-1-t-3)} + a_3 Opinion_{it} + a_4 Size_{it} + a_5 REC_{it} + a_6 INV_{it} + a_7 LEV_{it} + a_8 ROA_{it} + \Sigma Industry + e \quad (1)$$

$$NAF_{it} = b_0 + b_1 AF\hat{}_{it} + b_2 Issue_{it} + b_3 Size_{it} + b_4 INRE_{it} + b_5 LEV_{it} + b_6 ROA_{it} + b_7 Loss_{it} + b_8 Return_{it} + b_9 CFO_{it} + b_{10} BTM_{it} + b_{11} M\&A_{it} + b_{12} Big4_{it} + \Sigma Industry + e \quad (2)$$

$$AF_{it} = c_0 + c_1 NAF\hat{}_{it} + c_2 Lag_{it} + c_3 SEG_{it} + c_4 Loss3_{i,(t-1-t-3)} + c_5 Opinion_{it} + c_6 Size_{it} + c_7 INRE_{it} + c_8 LEV_{it} + c_9 ROA_{it} + c_{10} Loss_{it} + c_{11} Return_{it} + c_{12} CFO_{it} + c_{13} BTM_{it} + c_{14} M\&A_{it} + c_{15} Big4_{it} + \Sigma Industry + e \quad (3)$$

where the variables are as defined in Box 1.

Box 1: Definitions of variables included in fee regression analysis

Variable	*Definitions*
Dependent variables	
TF	The natural logarithm of total fees ($ actual in thousand)
NAF	The natural logarithm of non-audit fees ($ actual in thousand)
AF	The natural logarithm of audit fees ($ actual in thousand)
Explanatory variables	
SEG	The natural logarithm of the number of business segments
Loss3	1 if the firm reported a net loss in any of the previous three years, and 0 otherwise
Opinion	1 if the firm received a modified audit opinion, and 0 otherwise
Size	The natural logarithm of total assets
REC	Accounts receivable deflated by beginning-of-year total assets
INV	Inventory deflated by beginning-of-year total assets
LEV	Ratio of total liabilities to total assets
ROA	Operating income deflated by beginning-of-year total assets
AF∧	The fitted value of the audit fee model (see Appendix B)
Issue	1 if the firm issues long-term debt or equity in the current year, and 0 otherwise
INRE	Inventory plus accounts receivable, deflated by beginning-of-year total assets
Loss	1 if the firm reported a net loss in the current fiscal year, and 0 otherwise
Return	The buy-and-hold 12-month return starting five months after the end of the fiscal year $t-1$ and ending four months after the end of the year t
CFO	Cash flows from operations deflated by beginning-of-year total assets
BTM	Book-to-market ratio
M&A	1 if the firm was engaged in a merger/acquisition activity, and 0 otherwise
Big4	1 if the firm's auditor is a Big 4 firm, and 0 otherwise
NAF∧	The fitted value of the non-audit fee model (see Appendix B)
Lag	Number of days between current fiscal year-end and earnings announcement date
Industry	A set of dummy variables representing industry
e	Residual terms, the proxy measure for abnormal total/non-audit fees

3.3 Regression model

We examine the influence of fee dependence on the auditor's tendency toward conservatism, which is defined as 'the more timely recognition of bad news than good news in earnings' (Basu, 1997), and the moderating effects of board governance. According to prior studies (Basu *et al*., 2005; Chi & Wang, 2010), Taiwan firms' earnings exhibit the conservatism and timeliness of Asian economies, and support the information role of conservatism. The overall timeliness of loss recognition is jointly determined by incentives of management and auditors. In order to capture a firm-year measure of conservatism, we utilize the following regression approach developed by Khan and Watts (2009) to compare cross-sectional differences based on firm-year characteristics:

$$\begin{aligned} EARN_{it} = {} & \alpha_0 + \alpha_1 D_{it} + Return_{it}(\mu_0 + \mu_1 Size_{it} + \mu_2 MTB_{it} \\ & + \mu_3 LEV_{it}) + D_{it} * Return_{it}(\lambda_0 + \lambda_1 Size_{it} \\ & + \lambda_2 MTB_{it} + \lambda_3 LEV_{it}) + \varepsilon_{it} \end{aligned}$$

where i indicates firm, t indicates year, *EARN* is earnings scaled by beginning market value of equity, D is a dummy variable equal to 1 when *Return* is negative and 0 otherwise, *Size*, *MTB*, and *LEV* are controlled for factors related to other demands for conservatism.

After the above equation is applied, the *CScore* is estimated as the predicted value of $(\lambda_0 + \lambda_1 Size_{it} + \lambda_2 MB_{it} + \lambda_3 LEV_{it})$. By construction, the higher the *CScore*, the timelier the firm is in recognizing loss. To test our hypotheses, we regress the *CScore* on the fee dependence, the governance feature, and other control variables. The regression specification is:

$$\begin{aligned} CScore_{it} = {} & \beta_0 + \beta_1 Feedep_{it} + \beta_2 Indep_{it} \\ & + \beta_3 Feedep_{it} * Indep_{it} + \beta_4 Big4_{it} \\ & + \beta_5 Litigation_{it} + \beta_6 INST_{it} + \beta_7 Volatility_{it} \\ & + \beta_8 Cycle_{it} + \beta_9 Age_{it} + \beta_{10} Growth_{it} \\ & + \beta_{11} RDAV_{it} + \beta_{12} IMR_{it} + \upsilon_{it} \end{aligned} \quad (4)$$

where the variables are as defined in Box 2.

As mentioned earlier, we use three fee dependence measures to assess the potential for impaired auditor independence. As to the governance feature, we employ the percentage of independent directors (supervisors) on the board as a proxy for the quality of corporate governance (Lin & Hwang, 2010). According to the argument of DeFond *et al*. (2005), we predict that the impact of board independence on accounting conservatism will be negative.

Control variables are selected on the basis of the prior literature on *CScore*. Following Chi, Liu and Wang (2009), we take auditor reputation (*Big4*), sophisticated institutional shareholdings (*INST*), stock return volatility (*Volatility*), investment cycle (*Cycle*), and age of firm (*Age*) into consideration. We also include the main variables examined by Callen, Guan and Qiu (2010): sales growth (*Growth*) and intensity of intangibles (*RDAV*). In

Box 2: Definitions of variables included in CScore regression analysis

Variable	*Definitions*
Dependent variables	
CScore	The firm-year measure of conservatism developed by Khan and Watts (2009)
Explanatory variables	
Feedep	Three measures of *fee dependence* that focus on the ratio of non-audit fees to total fees, abnormal total fees, and abnormal non-audit fees
Indep	Percentage of independent directors and supervisors on the board
Big4	1 if the firm's auditor is a Big 4 firm, and 0 otherwise
Litigation	1 if the firm raises funds through the issuance of ADR/GDR/ECB in an overseas market, and 0 otherwise
INST	Ratio of the sum of institutional shareholdings, both foreign and domestic, to total ordinary shares outstanding
Volatility	The standard deviation of daily firm-level stock returns in a calendar year
Cycle	The depreciation expenses divided by lagged assets
Age	The number of years elapsed since the year of incorporation
Growth	Percentage of annual growth in total sales
RDAV	Research and development costs plus advertising expenses divided by sales
IMR	Inverse Mills ratio (see Section 3.1)
υ	Residual terms

addition, to control for an auditor's conservative tendency toward the firm's litigation risk, we include issuance of ADR/GDR/ECB (*Litigation*) as a control variable. Prior studies suggest that compared to home-country firms without a cross-listing, companies in emerging economies that have cross-listed their shares in the US or London using depositary receipts submit to stricter investor protection regimes and have improved investor relations and strong corporate governance (Reese & Weisbach, 2002; Doidge, 2004; Doidge *et al*., 2009). Since *Big4*, *Litigation*, and *INST* can serve as governance mechanisms in safeguarding accounting information (Teoh & Wong, 1993; Reese & Weisbach, 2002; Chi *et al*., 2009), we predict that the impact of these governance proxies on accounting conservatism will be negative. Finally, we include the inverse Mills ratios (*IMR*) obtained from the estimation of the probit fee-disclosure model summarized in Appendix A to account for potential problems of self-selection bias.

According to H1, the higher the fee dependence (*Feedep*), the longer the delay in the recognition of losses. A negative β_1 is therefore predicted. On the other hand, our H2 hypothesizes that greater board independence (*Indep*) will moderate the auditor independence threat created by fee dependence to the degree of accounting conservatism, suggesting a positive β_3.

4. SAMPLE SELECTION AND BASIC STATISTICS

4.1 Sample selection

Our research period is 2002–2006, since audit fees, although not universally disclosed, have been available since 2002. We searched the Taiwan Economic Journal Database (TEJ) for companies listed by the Taiwan Stock Exchange Corporation (TWSE) and GreTai Securities Market (GTSM) whose variables were actually included in the TEJ database.[13] The original sample size was 5,193; after the deletion of observations from the financial industry, those missing data needed for explanatory variables to calculate IMR, control variables, as well as those without data on audit fees and NAS fees, the sample size of this study is 401.

4.2 Estimation of abnormal total fees and abnormal non-audit fees

Table 1 reports the second stage of the audit and NAS fee estimation equations. We find that *NAF* and *AF* directly influence each other. The coefficient of *AF^* is significant and positive in the non-audit fee model (3.016, p-value < 0.01), and so is the coefficient of *NAF^* in the audit fee model (1.573, p-value < 0.01). These results support the assertion of knowledge spillovers from auditing to NAS and from NAS to auditing (Antle *et al*., 2006).

The predicted signs of the fee determinants are based on prior empirical results (Whisenant *et al*., 2003; Larcker & Richardson, 2004; Ruddock *et al*., 2006). Client size (*Size*) is significantly negatively associated with audit and NAS fees, while there is a prominently positive relationship between

Table 1: Regression models for identifying the abnormal fees

$$TF_{it} = a_0 + a_1 SEG_{it} + a_2 Loss3_{i,(t-1-t-3)} + a_3 Opinion_{it} + a_4 Size_{it} + a_5 REC_{it} + a_6 INV_{it} + a_7 LEV_{it} + a_8 ROA_{it} + \Sigma Industry + e$$

$$NAF_{it} = b_0 + b_1 AF\hat{}_{it} + b_2 Issue_{it} + b_3 Size_{it} + b_4 INRE_{it} + b_5 LEV_{it} + b_6 ROA_{it} + b_7 Loss_{it} + b_8 Return_{it} + b_9 CFO_{it} + b_{10} BTM_{it} + b_{11} M\&A_{it} + b_{12} Big4_{it} + \Sigma Industry + e$$

$$AF_{it} = c_0 + c_1 NAF\hat{}_{it} + c_2 Lag_{it} + c_3 SEG_{it} + c_4 Loss3_{i,(t-1-t-3)} + c_5 Opinion_{it} + c_6 Size_{it} + c_7 INRE_{it} + c_8 LEV_{it} + c_9 ROA_{it} + c_{10} Loss_{it} + c_{11} Return_{it} + c_{12} CFO_{it} + c_{13} BTM_{it} + c_{14} M\&A_{it} + c_{15} Big4_{it} + \Sigma Industry + e$$

Variable	*Predicted sign*	*Total fee model*	*Non-audit fee model*	*Audit fee model*
Intercept	(?, ?, ?)	3.845	–10.470	5.529
		(0.000)***	(0.000)***	(0.000)***
AF∧	(?)		3.016	
			(0.000)***	
Issue	(+)		0.341	
			(0.003)***	
NAF∧	(?)			1.573
				(0.000)***
Lag	(+)			–0.000
				(0.933)
SEG	(+, +)	0.137		0.112
		(0.000)***		(0.000)***
Loss3	(+, +)	0.011		0.037
		(0.821)		(0.247)
Opinion	(+, +)	–0.107		–0.017
		(0.013)**		(0.531)
Size	(+, +, +)	0.258	–0.541	–0.289
		(0.000)***	(0.000)***	(0.000)***
REC	(+)	0.240		
		(0.073)*		
INV	(+)	–0.370		
		(0.001)***		
INRE	(+, +)		–0.391	0.227
			(0.139)	(0.001)***
LEV	(?, ?, ?)	–0.067	1.591	–1.308
		(0.589)	(0.000)***	(0.000)***
ROA	(?, ?, ?)	0.231	2.994	–1.608
		(0.293)	(0.000)***	(0.000)***
Loss	(+, +)		–0.422	0.685
			(0.021)**	(0.000)***
Return	(–, –)		–0.238	0.798
			(0.226)	(0.000)***
CFO	(+, ?)		–0.499	0.078
			(0.201)	(0.405)
BTM	(–, –)		0.861	–0.987
			(0.000)***	(0.000)***
M&A	(?, ?)		0.478	–0.755
			(0.023)**	(0.000)***
Big4	(+, +)		0.657	–2.065
			(0.000)***	(0.000)***
Industry		Included	Included	Included
Adjusted R^2		54.09%	44.92%	75.56%
F-stat.		30.36***	15.52***	61.72***
# (Obs.)		649	535[a]	649

Notes: [a]Of the 649 observations with audit fee data, 114 observations disclose no information on non-audit fee at all.
*, ** and ***denote significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed *p*-values. All the *p*-values are based on White's (1980) heteroskedasticity-corrected standard errors and clustering procedure by each firm (Petersen, 2009). Operational definitions of the variables in the fee models are provided in Box 1.

Size and total fees. On the one hand, these results may reflect the fact that large clients have more bargaining power with auditors than small clients (Casterella *et al*., 2004). Large companies adopt advanced accounting and internal audit systems, which can be expected to reduce the audit effort, and thus lower the level of audit fees (Ratzinger, 2011). On the other hand, auditors could lowball for their large clients as an effective marketing strategy, using price discounts on the joint provision of audit and NAS to prevent competitors from gaining a foothold in their particular niche (Johnson, 2001). Large companies tend to purchase NAS more frequently (Palmrose, 1986). Hiring an audit firm to give NAS has the perceived potential benefit of improving efficiency and reducing audit and non-audit effort for a given level of service.

The relationship between NAS and *Big4* is significantly positive, whereas audit services provided by *Big4* are negatively associated with audit fees. This finding may imply that market competition prompts the big audit firms to prioritize the economic benefits gained from NAS over audit fee premiums, thus earning quasi-rent from NAS by discounting their audit engagement. It is also consistent with the argument of Firth (1997) that any cost savings due to the joint production that are transferred to clients will be more likely passed on by way of lower audit fees rather than lower NAS fees.

Formulating an accurate explanation of these results is further complicated by taking the restrictions set on the sample into account: both audit fees and non-audit fees must be available for each audit firm under consideration. Small audit firms for which both types of data are available cannot be considered as representative of all small audit firms. To control for this kind of possible sample bias, our study employs the Heckman two-stage procedure. This complex web of concerns provides background to our findings. We also find that higher *LEV*, *ROA*, *BTM*, merger/acquisition activity (*M&A*), lower *Loss*, and new issues (*Issue*) are related to the demand for NAS but *LEV*, *ROA*, *M&A*, and *Loss* are inversely related to audit fees.

Most results of determinants for total fees are similar to those in previous studies (Larcker & Richardson, 2004), except for inventory (*INV*) and *Opinion*, which are proxied for risk factors. In addition, the explanatory power of the regression specification for all models is relatively high, with the adjusted R^2 being 54.09% in the total fee model, 44.92% in the non-audit fee model, and 75.56% in the audit fee model. Hence, it appears that the measures of characteristics in these fee models can successfully capture the extent of auditor–client financial linkage.

4.3 Descriptive statistics

Table 2 presents the descriptive statistics for the variables in the *CScore* regression. The untabulated mean (median) of NAS fees (*Actual NAF*) to audit fees (*Actual AF*) shows that NAS fees are 51.3% (36.2%) of audit fees. As to the dependent variable *CScore*, the mean (0.041), median (0.028), and range between the first quartile (–0.005) and the third quartile (0.059) of the disclosing sample in this study present an overall less conservative level than those reported by Khan and Watts (2009) (with a mean of 0.105, a median of 0.097, a Q1 of 0.022 and a Q3 of 0.180).[14]

Next we discuss the descriptive statistics for three fee variables which are labeled *Feedep*. Table 2 reports that the average *RNAF* is 0.286 in our sample, a value that implies that about a quarter of total fees are paid to auditors as NAS fees. The mean (median) of *AbTF* and *AbNAF* are 0.133 (0.100) and 0.314 (0.243), respectively. The results show that *AbNAF* is around twice *AbTF*.

For board independence (*Indep*), the central tendency reveals that the mean (median) of directors and supervisors on the board, 13.90% (0.00%), are independent. The dispersion of *Indep* is slightly skewed to the right (with a skewness of 0.681) and presents little board independence. With respect to the governance control variables, according to the mean (0.910) and the median (1.000) of *Big4*, 91 percent of firms are audited by Big Four firms. The means of *Litigation* (0.317) and *INST* (0.117) show that 31.7 percent of firms raise funds in the foreign market, and the average institutional ownership is 11.7%. Finally, descriptive means for the standard deviation of daily firm-level stock returns (*Volatility*), depreciation expenses deflated by lagged assets (*Cycle*), age of firm (*Age*), sales growth (*Growth*), research and development costs plus advertising expenses divided by sales (*RDAV*) and the inverse Mills ratio (*IMR*) are 2.543, 0.025, 29.199 years, 0.153, 2.5% and 1.255, respectively.

4.4 Correlation results

Table 3 reports the Pearson correlation coefficients between variables in the main test. The *CScore* is

Table 2: Descriptive statistics

Variable	*Min*	*Q1*	*Median*	*Mean*	*Q3*	*Max*	*Std. Dev.*
Panel A: Fee description							
RNAF	0.001	0.193	0.266	0.286	0.364	0.884	0.152
AbTF	–2.103	–0.099	0.100	0.133	0.357	1.714	0.398
AbNAF	–3.086	–0.119	0.243	0.314	0.751	4.003	0.800
Panel B: Variables description of the CScore regression							
Dependent variable							
CScore	–0.403	–0.005	0.028	0.041	0.059	0.757	0.087
Governance quality							
Indep	0.000	0.000	0.000	0.139	0.300	0.600	0.166
Control variables							
Big4	0.000	1.000	1.000	0.910	1.000	1.000	0.286
Litigation	0.000	0.000	0.000	0.317	1.000	1.000	0.466
INST	0.000	0.015	0.058	0.117	0.158	0.782	0.149
Volatility	0.776	2.033	2.487	2.543	3.033	4.995	0.759
Cycle	0.000	0.008	0.018	0.025	0.033	0.154	0.023
Age	9.014	19.639	27.089	29.199	37.772	64.839	12.244
Growth	–0.994	–0.011	0.088	0.153	0.276	2.359	0.349
RDAV	0.000	0.002	0.015	0.025	0.033	0.270	0.032
IMR	0.346	0.996	1.239	1.255	1.529	2.073	0.355

Variables are as defined in Box 2.

not correlated with the three fee-related variables. In particular, the *CScore* is negatively related to *Indep* (–0.163, p-value < 0.01) and *RDAV* (–0.155, p-value < 0.01), and positively related to *Age* (0.186, p-value < 0.01) and *IMR* (0.104, p-value < 0.05). The negative relationship between *CScore* and *Indep* is consistent with our prediction that firms with lower levels of conditional conservatism tend to have more independent directors. Moreover, *Big4* is positively related to *RNAF* (0.154, p-value < 0.01), *AbTF* (0.232, p-value < 0.01), and *Indep* (0.134, p-value < 0.01), but negatively related to *AbNAF* (–0.198, p-value < 0.01). This implies that the Big Four have higher fee reliance on NAS and total fee premiums; however, they have less unexpected NAS fees. The positive relationship between *Big4* and *Indep* shows that clients audited by the Big Four have higher board independence. In addition, the untabulated results show that the highest variance inflation factor (VIF) for all the variables for the main tests is 1.43, suggesting that the regression results in this study are likely not driven by multicollinearity.[15]

5. EMPIRICAL FINDINGS

5.1 Main results

Table 4 documents the results of the *CScore* regression. Since this study uses three measures of fee dependence (*Feedep*), *RNAF*, *AbTF*, and *AbNAF*, three corresponding columns are provided. Of the three estimated coefficients of *Feedep* – *RNAF* (–0.065, p-value < 0.1), *AbTF* (–0.021, p-value < 0.1), and *AbNAF* (–0.013, p-value < 0.05) – all are significantly negative. That is, the level of the NAS fee ratio, abnormal total fees, and abnormal NAS fees reduce the level of conservative reporting. Taken as a whole, the results here are consistent with H1, suggesting that the level of NAS economic dependence negatively affects the level of accounting conservatism. In addition, the negative effects of board independence (*Indep*) on conservatism in all three columns reveal that board independence serves as a substitutive mechanism for a lower level of conditional conservatism. If we regard accounting conservatism as corporate governance from a contracting argument (Watts, 2003a),[16] this result is consistent with our proposition that a lower level of conservatism creates more demand for a higher level of board independence.

With respect to H2, the moderating effects of *Feedep* × *Indep* are significantly positive in all results. These findings indicate that the higher level of conservative reporting is associated with increased board independence in firms with NAS purchased from the incumbent auditor. Specifically, conditional upon a nonzero *Indep*, the total effects of *Feedep* on conservatism are shown to be positive.

Table 3: Pearson correlation matrix

Variables	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*K*	*L*	*M*	*N*
CScore (A)	0.050	–0.010	–0.061	–0.163***	0.060	0.013	–0.056	0.055	0.038	0.186***	–0.040	–0.155***	0.104**
RNAF (B)		0.226***	0.594***	–0.088*	0.154***	0.143***	–0.065	0.126**	–0.040	0.082	0.124**	–0.014	0.139***
AbTF (C)			0.405***	0.031	0.232***	0.028	0.035	0.048	0.066	–0.034	–0.118**	0.042	0.060
AbNAF (D)				0.016	–0.198***	–0.024	–0.067	0.074	–0.006	–0.040	0.018	0.009	0.069
Indep (E)					0.134***	–0.026	–0.050	0.005	–0.088*	–0.394***	0.003	0.153***	–0.098*
Big4 (F)						0.140***	0.098**	–0.041	0.072	–0.122**	0.059	0.116**	0.091*
Litigation (G)							0.250***	0.044	0.050	–0.093*	0.191***	–0.058	0.001
INST (H)								–0.222***	0.143***	0.062	–0.018	–0.032	–0.166***
Volatility (I)									0.096*	–0.173***	0.078	–0.004	0.084*
Cycle (J)										–0.129***	–0.075	0.051	0.069
Age (K)											–0.136***	–0.293***	–0.009
Growth (L)												0.076	–0.056
RDAV (M)													0.121**
IMR (N)													

Notes: *, ** and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed *p*-values. Variables are as defined in Box 2.

Table 4: The findings of CScore model

$$CScore_{it} = \beta_0 + \beta_1 Feedep_{it} + \beta_2 Indep_{it} + \beta_3 Feedep_{it} * Indep_{it} + \beta_4 Big4_{it} + \beta_5 Litigation_{it} + \beta_6 INST_{it} + \beta_7 Volatility_{it} + \beta_8 Cycle_{it} + \beta_9 Age_{it} + \beta_{10} Growth_{it} + \beta_{11} RDAV_{it} + \beta_{12} IMR_{it} + \upsilon_{it}$$

Variables	*Predicted sign*	*RNAF*	*AbTF*	*AbNAF*
Intercept	?	–0.038	–0.049	–0.041
		(0.325)	(0.203)	(0.298)
Feedep		–0.065	–0.021	–0.013
		(0.054)*	(0.092)*	(0.015)**
Indep	–	–0.178	–0.058	–0.066
		(0.000)***	(0.005)***	(0.002)***
*Feedep*Indep*	+	0.474	0.087	0.062
		(0.001)***	(0.077)*	(0.003)***
Big4	–	0.036	0.034	0.027
		(0.001)***	(0.001)***	(0.007)***
Litigation	–	0.000	0.003	0.001
		(0.495)	(0.369)	(0.475)
INST	–	–0.000	–0.000	–0.000
		(0.043)**	(0.079)*	(0.089)*
Volatility	?	0.009	0.008	0.008
		(0.428)	(0.467)	(0.465)
Cycle	?	0.171	0.179	0.157
		(0.399)	(0.381)	(0.435)
Age	?	0.001	0.001	0.001
		(0.009)***	(0.014)**	(0.018)**
Growth	?	–0.003	–0.004	–0.001
		(0.750)	(0.693)	(0.947)
RDAV	?	–0.351	–0.331	–0.354
		(0.000)***	(0.001)***	(0.001)***
IMR	?	0.021	0.020	0.021
		(0.017)**	(0.023)**	(0.018)**
The coefficient of + (*Feedep* + *Feedep*Indep*0.6*)		0.220	0.031	0.024
		(0.000)***	(0.119)	(0.003)***
Adjusted R^2		7.40%	6.24%	6.79%
F-stat.		4.403***	3.238***	3.256***
# (Obs.)		401	401	401

Notes: *, ** and ***denote significance at the 0.10, 0.05, and 0.01 levels, respectively. The *p*-values are one-tailed for signed predictions, two-tailed otherwise. All the *p*-values are based on White's (1980) heteroskedasticity-corrected standard errors and clustering procedure by each firm (Petersen, 2009). Variables in the CScore model are as defined in Box 2.

The combination of coefficients ($Feedep + Feedep \times Indep \times 0.6$)[17] in the *RNAF* column (0.220) and in the *AbNAF* column (0.024) are different from zero below the 0.01 significance level. This means that board independence is an effective and efficient governance mechanism in eliminating the negative impact of the auditor's fee dependence and in enhancing the level of earnings conservatism. We conclude that our research hypotheses are supported by the above results.

The estimated results for the control variable *Litigation* are insignificantly positive. The predicted negative relationship between institutional ownership (*INST*) and the *CScore* is significant in all cases. These results conform to the substitutive relationship between governance and conservatism. The positive coefficient of *Big4* is inconsistent with our negative prediction. The audit quality of the Big Four is regarded as an external governance mechanism. According to the empirical tests performed by Chi *et al*. (2009), the results for *Big4* suggest that the demand for conservatism is lower for firms audited by the Big Four. However, on average more than 90% of our sample is audited by Big Four firms, and the NAS that they provide leads to the impairment of their appearance of

Table 5: Supplemental test for CScore findings

$$CScore_{it} = \beta_0 + \beta_1 Feedep_{it} + \beta_2 Indep_{it} + \beta_3 Feedep_{it} * Indep_{it} + \beta_4 Big4_{it} + \beta_5 Litigation_{it} + \beta_6 INST_{it} + \beta_7 Volatility_{it} + \beta_8 Cycle_{it} + \beta_9 Age_{it} + \beta_{10} Growth_{it} + \beta_{11} RDAV_{it} + \beta_{12} IMR_{it} + \upsilon_{it}$$

Variables	*Predicted sign*	*RNAF*	*AbTF*	*AbNAF*
Panel A: RNAF ≥ Median				
Feedep	–	–0.247	–0.035	–0.044
		(0.004)***	(0.067)*	(0.001)***
Indep	–	–0.434	–0.016	–0.066
		(0.001)***	(0.320)	(0.121)
*Feedep*Indep*	+	1.107	0.091	0.109
		(0.001)***	(0.137)	(0.027)**
The coefficient of + (*Feedep* + *Feedep*Indep*0.556*)		0.368	0.016	0.017
		(0.001)***	(0.305)	(0.240)
Adjusted R^2		8.30%	3.52%	7.70%
F-stat.		1.786*	1.781*	1.841**
# (Obs.)		201	201	201
Panel B: RNAF < Median				
Feedep	–	0.022	–0.009	0.005
		(0.358)	(0.254)	(0.225)
Indep	–	–0.082	–0.083	–0.073
		(0.014)**	(0.000)***	(0.001)***
*Feedep*Indep*	+	0.063	0.131	0.000
		(0.389)	(0.013)**	(0.497)
The coefficient of + (*Feedep* + *Feedep*Indep*0.6*)		0.060	0.070	0.005
		(0.269)	(0.007)***	(0.343)
Adjusted R^2		7.82%	9.97%	7.98%
F-stat.		3.562***	4.723***	3.365***
# (Obs.)		200	200	200

Notes: *, ** and ***denote significance at the 0.10, 0.05, and 0.01 levels, respectively. The *p*-values are one-tailed for signed predictions, two-tailed otherwise. All the *p*-values are based on White's (1980) heteroskedasticity-corrected standard errors and clustering procedure by each firm (Petersen, 2009). Variables in the CScore model are as defined in Box 2.

independence. It seems reasonable to state that our sample has a relatively lower *CScore* owing to the NAS provided by auditors. This result indirectly supports our hypotheses that the joint provision of auditing and NAS may compromise auditor independence and lower the level of accounting conservatism. To compensate for the concern over potential impairment of auditor independence, investors may in turn demand more accounting conservatism. The statistically significant coefficients for *IMR* indicate that selectivity bias has been corrected in this model (Byrne *et al*., 1996).

To summarize, this paper investigates the impact of auditor fee dependence on firms' conditional conservatism. Using a firm-year measure of conservatism developed by Khan and Watts (2009), this study finds consistent evidence that (i) a negative association exists between the auditor's fee dependence and tendency toward conservatism, and (ii) higher board independence can alleviate such a negative relationship.

5.2 Further checks

We suspect that fee dependence should affect auditor independence only above a certain threshold. To confirm this conjecture, we divide the full sample into two sub-samples by the median of *RNAF*. Table 5 shows that the three estimated coefficients of *Feedep* are all negative and significant in the higher *RNAF* group. Conversely, the three estimated coefficients of *Feedep* in the lower *RNAF* group are all insignificant. These results indicate that the group with higher NAS fee dependence shows a negative impact on conditional conservatism. In addition, we also observe that the moderating effect of board

Table 6: Alternative proxy for governance mechanism

$$CScore_{it} = \beta_0 + \beta_1 Feedep_{it} + \beta_2 CPAchange_{it} + \beta_3 Feedep_{it} * CPAchange_{it} + \beta_4 Big4it + \beta_5 Litigation_{it} + \beta_6 INST_{it} + \beta_7 Volatility_{it} + \beta_8 Cycle_{it} + \beta_9 Age_{it} + \beta_{10} Growth_{it} + \beta_{11} RDAV_{it} + \beta_{12} IMR_{it} + \upsilon_{it}$$

Variables	*Predicted sign*	*RNAF*	*AbTF*	*AbNAF*
Panel A: RNAF ≥ Median				
Feedep	–	–0.168	–0.019	–0.033
		(0.012)**	(0.124)	(0.001)***
CPAchange	–	–0.173	–0.031	–0.036
		(0.004)***	(0.008)***	(0.037)**
*Feedep*CPAchange*	+	0.357	–0.048	0.014
		(0.015)**	(0.121)	(0.238)
The coefficient of +		0.189	–0.067	–0.019
(*Feedep* + *Feedep*CPAchange*)		(0.079)*	(0.044)**	(0.143)
Adjusted R^2		6.93%	4.28%	7.21%
F-stat.		1.744*	2.026**	2.113**
# (Obs.)		201	201	201
Panel B: RNAF < Median				
Feedep	–	0.060	0.006	0.004
		(0.107)	(0.311)	(0.219)
CPAchange	–	0.062	0.004	0.001
		(0.101)	(0.381)	(0.475)
*Feedep*CPAchange*	+	–0.293	0.086	–0.005
		(0.063)*	(0.048)**	(0.442)
The coefficient of +		–0.233	0.092	–0.001
(*Feedep* + *Feedep*CPAchange*)		(0.092)*	(0.034)**	(0.489)
Adjusted R^2		5.46%	6.32%	4.27%
F-stat.		2.177**	2.180**	2.112**
# (Obs.)		200	200	200

Notes: *, ** and ***denote significance at the 0.10, 0.05, and 0.01 levels, respectively. The *p*-values are one-tailed for signed predictions, two-tailed otherwise. All the *p*-values are based on White's (1980) heteroskedasticity-corrected standard errors and clustering procedure by each firm (Petersen, 2009). *CPAchange* equals 1 if the firm changes audit firm in the current or following year, and 0 otherwise. Other variables are as defined in Box 2.

independence is more significant in the higher *RNAF* group.

Secondly, in addition to board independence, we consider the impact of auditor switches on conditional conservatism.[18] This issue is relevant because our study examines how economic dependence of auditors on their clients affects the degree of conservatism and, according to prior studies, fee cutting in the first year is a prominent phenomenon. Table 6 presents the results of the higher *RNAF* group in Panel A and the lower *RNAF* group in Panel B. We assign a value of 1 to the variable representing an auditor switch (*CPAchange*) if the firm changes its audit firm in the current or following year, and a value of 0 otherwise. The coefficients of *CPAchange* in all three columns are significantly negative in Panel A, suggesting that firms with higher NAS fee dependence regard auditor switches as an alternative governance mechanism to offset the demand for a higher level of conservatism. However, the moderating effect of *CPAchange* is only found in the *RNAF* measure. By contrast, insignificant *Feedep* in the lower *RNAF* group implies that auditors with lower NAS fee dependence do not compromise their independence. A comparison between Tables 5 and 6 shows that, in terms of enhancing the level of accounting conservatism, the effect of board independence is stronger than that of auditor switches.

6. CONCLUSION

This study first looks into whether NAS economic dependence will negatively affect the degree of conditional conservatism. Since Taiwan is now a low litigation environment, the expected costs

to the auditors associated with independence impairment are low. The data provided in Taiwan here between 2002 and 2006 allow auditorss economic dependence to be tested in a situation where the influence of litigation can be minimized, as it commonly is in East Asian as well as in most emerging countries. Since conditional conservatism can mitigate the agency cost among the contracting parties (Watts, 2003b; Qiang, 2007; LaFond & Watts, 2008), we use *CScore*, a firm-year specific measure developed by Khan and Watts (2009), to measure accounting conservatism.

The main empirical results show that all the measures of an auditor's economic dependence are negatively related to the degree of accounting conservatism. We further categorize the samples into two groups based on the median of dependence (the NAS fee ratio) as a robustness check. In the higher fee dependence group, the results indicate that all the three fee measures are negatively related to the degree of accounting conservatism, whereas those in the counterpart group are not. Our first hypothesis that economic dependence can negatively affect accounting conservatism is robustly supported by the data.

Our second hypothesis is also confirmed by the main results. The higher the board independence of a firm, the lower the negative effect of an auditor's economic dependence. In particular, since emerging markets in Asia are characterized as insider economies where investor protection is weak (Pincus *et al*., 2007), board independence serves as a substitute for governance (DeFond *et al*., 2005). The association between board independence and accounting conservatism is significantly negative for all tests.

Three limitations in our study deserve mentioning. First, not all firms are mandated to disclose their audit fees in Taiwan. Although we use the two-stage Heckman approach to control the potential self-selection problem, we cannot rule out the possibility that our conclusions are sensitive to the data problem. Second, we do not further classify the type of NAS. For example, Paterson and Valencia (2011) use US data and find that non-recurring NAS is associated with higher probabilities of restatement and greater threats to auditor independence than their recurring counterparts. Third, conditional conservatism is merely one of the earnings attributes of interest to accounting researchers. Future research could use direct proxies for audit quality (such as issuance of going-concern opinions and incidence of financial restatements), alternative proxies for audit quality (such as abnormal accruals or earnings thresholds), or perceived audit quality (such as the cost of capital) to examine whether audit quality can be affected by the auditor's economic dependence on the client. Such research will provide policy suggestions to firms, policy makers, and regulators in emerging markets.

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NOTES

1. We measure the economic dependence of auditors on their clients primarily through provision of NAS. Economic dependence is also called fee dependence in this study.
2. We do not use the traditional Basu (1997) measure, since the interacting variables in the Basu model lead to difficult interpretation of the empirical results and several of the biases identified as unrelated to conditional conservatism are substantial and pervasive (see Section 3.3).
3. Shu (2000) documents that large firms are effectively offering packaged 'assurance and advisory services.' By 1999, audit fees had fallen to 34 percent of their revenues (Moore *et al*., 2006).
4. According to Dopuch *et al*. (2003), 'the US Securities and Exchange Commission (SEC) modified its auditor independence rule on November 15, 2000. The new rule requires auditees to disclose in their annual proxy statements certain information about the non-audit services provided by their auditors' (p. 84).
5. The Norwegian legal system is a mixture of customary law, a civil law system, and common law traditions.

6. Two papers that find a relationship between the NAS fee ratio and audit quality, measured as absolute discretionary accruals, are Frankel, Johnson and Nelson (2002) and Srinidhi and Gul (2007).
7. Audit committee members of US listed firms must all be independent.
8. Tunneling comes in two forms. First, a controlling shareholder can simply transfer resources from the firm for his own benefit through self-dealing transactions. Second, a controlling shareholder can increase his share of the firm without transferring any assets through dilutive share issues, minority freeze-outs, insider trading, creeping acquisitions, or other financial transactions that discriminate against the minority (Johnson *et al*., 2000).
9. Self-selection bias refers to the problem where the fee disclosure is observed only in a restricted, non-random sample, and traditional OLS estimation procedures are prone to overlooking the non-randomness problem of the sample (Maddala, 1991). Lennox, Francis and Wang (2012) point out that most accounting studies implement the traditional Heckman two-step approach to remove the threat of self-selection bias.
10. We find that the voluntary observations of fee disclosure increased greatly in 2006, whereas it was inefficient in the first year of this policy advocacy.
11. The joint provision of auditing and NAS has the potential to improve the auditor's ability to detect biases in the financial reporting through knowledge spillovers (Simunic, 1984; Kinney *et al*., 2004).
12. Whisenant *et al*. (2003) model each of two endogenous variables as a function of all the exogenous variables in the first model (*Lag* and *NAF* for audit fees; *Issue* and *AF* for NAS fees). When the current study uses *Lag* as the only instrument for the audit fee model, the predicted value of audit fees from the first stage causes serious multicollinearity (VIF of predicted *AF* equals 209.57) in the second stage of the non-audit fee model because of the weak instrument with low explanatory power in the first stage. Accordingly, we identify an additional three instrumental variables for audit fees from Eq. (1). On the basis of the results of the over-identification test and the Hausman test for the appropriateness of instruments (Larcker & Rusticus, 2010), we ensure that the endogeneity problem exists between audit and NAS fees.
13. TWSE and GTSM in Taiwan are analogous to NYSE and NASDAQ in the US.
14. The sample of Khan and Watts (2009) drawn from US data includes 115,516 firm-year observations with positive book value from 1963 to 2005. That the positive Q1 of *CScore* represents conservative is a widespread feature of financial reporting in the US.
15. Kennedy (1998: 190) states that, as a rule of thumb, a VIF larger than 10 denotes harmful multicollinearity.
16. Watts (2003a) suggests that the informational role of conservatism protects the shareholder's option to exercise their property rights.
17. *Indep* is a continuous variable with a region between 0.0 and 0.6, and the effect of a change in *Feedep* on *CScore* depends on the value of the conditioning variable *Indep*.
18. We are indebted to an anonymous reviewer for this additional analysis.

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APPENDIX A: REGRESSION MODEL FOR IDENTIFYING THE INVERSE MILLS RATIO

To obtain the inverse Mills ratio, we estimate the following probit fee-disclosure model in the first stage which is in response to the mandated restrictions and includes fee drivers discussed in Hay *et al*. (2006):

$$AUNAU_{it} = \theta_0 + \theta_1 M\&A_{it} + \theta_2 IPO_{it} + \theta_3 Issue_{it} + \theta_4 CPAchange_{it} + \theta_5 Y2006_{it} + \theta_6 Size_{it} + \theta_7 LEV_{it} + \theta_8 INRE_{it} + \theta_9 ROA_{it} + \theta_{10} Loss3_{i,(t-1-t-3)} + \theta_{11} SEG_{it} + \theta_{12} Fore_{it} + \theta_{13} Opinion_{it} + \theta_{14} Big4_{it} + \Sigma Industry + e$$

Variable	*Predicted sign*	*Inverse Mills ratio model*
Intercept		–3.779 (0.000)***
M&A	+	0.328 (0.008)***
IPO	+	0.573 (0.000)***
Issue	+	0.065 (0.162)
CPAchange	+	0.244 (0.004)***
Y2006	+	0.914 (0.000)***
Size		0.145 (0.000)***
LEV		0.850 (0.000)***
INRE		0.018 (0.895)
ROA		0.153 (0.637)
Loss3		–0.143 (0.037)**
SEG		–0.063 (0.110)
Fore		–0.285 (0.012)**
Opinion		0.061 (0.334)
Big4		0.044 (0.573)
Industry		Included
McFadden R^2		11.76%
LR-stat.		385.06***
# (Obs.)		3308

Notes: *, ** and ***denote significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed *p*-values. All the *p*-values are based on White's (1980) heteroskedasticity-corrected standard errors and clustering procedure by each firm (Petersen, 2009).

Variable definitions:

AUNAU = 1 if the audit fees are disclosed or disclosed non-audit fees are paid to the same audit firm in the current year, and 0 otherwise;
M&A = 1 if the firm is engaged in a merger/acquisition activity, and 0 otherwise;
IPO = 1 if the firm has an Initial Public Offering in the current year or the next year, and 0 otherwise;
Issue = 1 if the firm issues long-term debt or equity in the current year, and 0 otherwise;
CPAchange = 1 if the firm changes audit firm in the current or following year, and 0 otherwise;
Y2006 = 1 if an observation is from year 2006, and 0 otherwise;
Size = the natural logarithm of total assets;
LEV = ratio of total liabilities to total assets;
INRE = inventory plus accounts receivable, deflated by beginning-of-year total assets;
ROA = operating income deflated by beginning-of-year total assets;
Loss3 = 1 if the firm reports a net loss in any of the previous three years, and 0 otherwise;
SEG = the natural logarithm of the number of business segments;
Fore = the proportion of foreign subsidiaries to total subsidiaries;
Opinion = 1 if the firm receives a modified audit opinion, and 0 otherwise;
Big4 = 1 if the firm's auditor is a Big 4 firm, and 0 otherwise;
Industry = a set of dummy variables representing industry.

APPENDIX B: THE FIRST STAGE OF THE JOINT ESTIMATION OF THE AUDIT FEE & NON-AUDIT FEE

To control for the joint determination of audit and non-audit fees, we employ the two-stage least squares procedure as shown in Whisenant *et al*. (2003) to calculate the expected part of the non-audit fee. According to the suggestion of Larcker and Rusticus (2010), we report the coefficient estimates for the first stage to judge the adequacy of instrument application.

$$NAF_{it} = b_0 + b_1 AF_{it} + b_2 Issue_{it} + b_3 Size_{it} + b_4 INRE_{it} + b_5 LEV_{it} + b_6 ROA_{it} + b_7 Loss_{it} + b_8 Return_{it} + b_9 CFO_{it} + b_{10} BTM_{it} + b_{11} M\&A_{it} + b_{12} Big4_{it} + \Sigma Industry + e$$

$$AF_{it} = c_0 + c_1 NAF_{it} + c_2 Lag_{it} + c_3 SEG_{it} + c_4 Loss3_{i,(t-1-t-3)} + c_5 Opinion_{it} + c_6 Size_{it} + c_7 INRE_{it} + c_8 LEV_{it} + c_9 ROA_{it} + c_{10} Loss_{it} + c_{11} Return_{it} + c_{12} CFO_{it} + c_{13} BTM_{it} + c_{14} M\&A_{it} + c_{15} Big4_{it} + \Sigma Industry + e$$

Variable	***Non-audit fee estimation***	***Audit fee estimation***
Intercept	–1.823 (0.051)*	3.920 (0.000)***
AF	0.292 (0.021)**	
Issue	0.292 (0.013)**	
NAF		0.027 (0.070)*
Lag		–0.000 (0.718)
SEG		0.160 (0.000)***
Loss3		0.097 (0.048)**
Opinion		–0.075 (0.065)*
Size	0.229 (0.000)***	0.209 (0.000)***
INRE	–0.153 (0.577)	0.129 (0.170)
LEV	0.667 (0.099)*	–0.398 (0.004)***
ROA	0.753 (0.329)	–0.652 (0.013)**
Loss	–0.476 (0.013)**	–0.019 (0.783)
Return	–0.483 (0.018)**	–0.054 (0.438)
CFO	0.171 (0.667)	0.306 (0.022)**
BTM	0.614 (0.000)***	–0.089 (0.083)*
M&A	0.490 (0.027)**	–0.045 (0.553)
Big4	1.398 (0.000)***	0.222 (0.000)***
Industry	Included	Included
Adjusted R^2	39.23%	55.66%
F-stat.	12.49***	21.31***
# (Obs.)	535	535

Notes: *, ** and ***denote significance at the 0.10, 0.05, and 0.01 levels, respectively, based on two-tailed *p*-values. All the *p*-values are based on White's (1980) heteroskedasticity-corrected standard errors and clustering procedure by each firm (Petersen, 2009). Operational definitions of the variables in the fee models are provided in Box 1.