




“The expertise of internal accounting control personnel and financial statement conservatism: Korean evidence”

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THE EXPERTISE OF INTERNAL ACCOUNTING CONTROL PERSONNEL AND FINANCIAL STATEMENT CONSERVATISM: KOREAN EVIDENCE

Abstract

The purpose of this study is to analyze how the expertise of internal accounting control personnel impacts financial statement conservatism. This study analyzed companies listed on the Korean stock market. Listed companies in Korea have been disclosing information on internal accounting personnel since 2012. Using a fixed-effect regression model, an analysis of 3,276 firm-years from 2012 to 2018 shows a positive correlation between the expertise of internal accounting control personnel and financial statement conservatism. The results from Ball and Shivakumar's (2006) CF, DD, and Jones models are all significant at the 1% level, enhancing the robustness of the study's findings. The coefficients were 0.872, 0.869, and 0.846, and the t-values were 3.93, 3.95, and 3.83 in each model. This indicates that firms with CPAs (Certified Public Accountant) among their internal accounting control personnel show stronger tendencies toward conservatism compared to those without CPAs. Furthermore, an analysis based on the firm ownership structure reveals a positive correlation between internal accounting control personnel expertise and financial statement conservatism in a non-Chaebol subsample (coefficient = 1.043, t-value = 3.58 in CF model); however, the results in the Chaebol subsample were not significant. This suggests that while having CPAs involved in non-Chaebol firms' internal control is effective, it is not effective in Chaebol companies that are highly influenced by their owners.

Keywords

internal control, internal control personnel, conservatism, Certified Public Accountant, expertise, ownership structure, Chaebol, Korea

JEL Classification

M40, M41, J33, D25

INTRODUCTION

This study analyzes how the expertise of internal accounting control (IAC) personnel impacts financial statement conservatism. Conservatism in preparing financial statements means that more convincing evidence is required to recognize assets or revenues than to recognize liabilities or expenses, indicating structural asymmetry (Basu, 1997). While previous accounting standards have defined conservatism as one of the qualitative characteristics necessary for financial information to be useful, international accounting standards have introduced the concept of prudence to discourage excessive conservatism. Nevertheless, certain international accounting standards still stipulate accounting treatments that are based on conservatism. Moreover, in practice, conservatism is widely accepted as a foundation for judgment under uncertainty due to its principles-based nature and emphasis on professional judgment. When information asymmetry exists and managers and shareholders' interests are not aligned, managers may engage in opportunistic behaviors to pursue their self-interests, leading to agency costs. In such scenarios, conservative accounting can reduce a company's agency costs by restraining



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and monitoring opportunistic behaviors of managers who might otherwise inflate profits and downplay losses to maximize their private benefits (Watts, 2003). IAC systems, including asset-protection and fraud-prevention programs, play a monitoring role in controlling and supervising managers, contributing to reducing agency costs between managers and stakeholders. IAC personnel are a crucial component of a company's IAC system, and their expertise is closely related to the quality of the financial statements produced (Ashbaugh-Skaife et al., 2008; Choi et al., 2013). Specifically, IAC personnel with superior expertise have the ability produce more reliable accounting information, thereby mitigating information asymmetry between a company and its external stakeholders. Information about the characteristics of the personnel responsible for IAC systems is uniquely disclosed in South Korea. Korean regulatory agencies compel this disclosure to provide external stakeholders with information that will allow them to infer the effectiveness of a company's IAC system. Companies that invest more in human resources to ensure effective IAC systems can better control agency problems and improve the quality of their financial statement information.

1. LITERATURE REVIEW AND HYPOTHESIS

Accounting conservatism can be described as a tendency to impose stricter recognition criteria for good than bad news (Basu, 1997). It refers to the structural asymmetry that occurs where more convincing evidence is required to recognize assets or revenues than that required for liabilities or expenses. When conservative accounting treatments are applied, costs are recognized immediately, but revenues are delayed. Such conservative treatments prevent overestimating assets and underestimating liabilities, helping ensure financial stability. CEOs who aim to maximize performance during their tenure may be inclined to select investment options that generate positive cash flows while they are in office but that may lead to losses after they leave. However, if conservative accounting practices lead to early recognition of such potential losses, managers may be deterred from choosing investments with negative net present values, thereby effectively reducing agency costs (Ball, 2001; Ball & Shivakumar, 2005; Watts, 2003).

Lafond and Watts (2008) report that conservatism serves as a governance mechanism that reduces managerial motivation and opportunities for earnings management and decreases information asymmetry. Several studies examine the relationship between corporate governance and conservatism (e.g., Garcia Lara et al., 2007; Leventis et al., 2013; Lim, 2011). Garcia Lara et al. (2007) find that when managers are also board chairs, their influence over the board increases, limiting the board's ability to check the manager and weakening con-

servatism. Lim (2011) shows that in Australian companies, a higher proportion of independent directors on a board and separation of the CEO and chair roles are associated with more conservative accounting treatments.

Kim and Zhang (2016) argue that accounting conservatism, in which bad news is promptly recognized, can avert the phenomenon of plummeting stock prices due to accumulated losses. They further assert that conservative accounting treatments constrain managers from issuing overly optimistic forecasts of future corporate performance, which can prevent stock price crashes. Studies have also shown that conservatism improves external stakeholder protection. Firms with conservative accounting practices have higher earnings quality than those without (White et al., 1998), and conservatism reduces managers' opportunistic behaviors during their tenure, decreasing the risk associated with stakeholders' investments and lowering contracting costs (Basu, 1997; Watts, 2003). Watts (2003) argues that conservatism enhances contracting efficiency, contributes to mitigating declines in corporate value, and positively impacts creditor and investor protection.

The Committee of Sponsoring Organizations of the Treadway Commission (COSO) in the United States advises using accounting professionals to enhance financial reporting reliability. They emphasize that policies and hiring procedures related to the personnel who manage IAC should be systematically designed for effective internal control over financial reporting. IAC systems aim to prevent embezzlement, reduce information asymme-

try, and protect shareholder wealth, making them a component of effective corporate governance mechanisms. A robust governance structure creates a transparent financial environment, reducing information asymmetry between managers and investors, thus contributing to increased corporate performance and value. Ashbaugh-Skaife et al. (2006) systematically study the relationship between various corporate governance characteristics and credit ratings. Their findings indicate that larger boards, separation of the CEO and board chair positions, and more financial experts on boards alleviate agency problems and information asymmetry, leading to better credit ratings. Bhojraj and Sengupta (2003) mention that firms with stronger governance structures receive higher credit ratings and bear lower capital costs. Verrecchia (1983) reports that companies have incentives to reduce external financing costs by mitigating information asymmetry, while Bushman and Smith (2001) also note that disclosures that reduce information asymmetry enhance a firm's ability to invest in profitable opportunities. Sengupta (1998) notes that corporate governance affects bond ratings and returns by reducing information asymmetry. Among its many duties, a board of directors is responsible for monitoring and checking management (Dichev & Skinner, 2002); thus, it is a crucial element in reducing agency costs due to misalignment between the goals of management and stakeholders and improving the reliability of the financial reporting process. Klein (2002) finds that the characteristics of the board that monitors the financial reporting process affect the validity of accounting information. Moreover, Smith and Warner (1979) reveal that bond prices are sensitive to board characteristics due to a board's role in supervising the financial reporting process and measuring capital costs based on the effectiveness of debt contracts.

Companies with excellent internal controls are expected to have reduced managerial discretion and more transparent financial information, leading to less information asymmetry. Elbannan (2009) states that companies with higher quality internal controls have broader scope for low capital cost investment opportunities, higher profitability, improved competitiveness, and easier capital acquisition. Yoon et al. (2023) find that investing in both quantitative and qualitative human resources for

internal control mitigates the negative effects of pay disparity on a firm's investment efficiency in South Korea. McMullen and Raghunandan (1996) report that companies with CPAs in their audit committee had fewer financial reporting problems. Doyle et al. (2007) examine the relationship between internal control weaknesses and accrual quality, finding that companies that disclose weaknesses had lower quality accruals. Ashbaugh-Skaife et al. (2008) present similar results and verify that companies that reported internal control weaknesses in the previous year but improved their internal control in the current year had increased accrual quality compared to those that did not improve their internal control. Choi et al. (2009) show that as the proportion of personnel responsible for IAC systems increases, the degree of earnings management, as measured by discretionary accruals, decreases. They interpret this finding as indicating that companies with higher investment in personnel operate more effective IAC systems, thus restraining opportunistic earnings management. Further analysis also indicates that companies with significant investments in personnel are less likely to have weaknesses in their IAC systems.

Introducing IAC systems requires managers to maintain and evaluate their effectiveness and report this in an operational status report. Auditors must also perform internal control system review procedures and express opinions on management's claims about their IAC system. Therefore, if the IAC system is operated effectively, enhanced internal control functions and supervision will improve financial statement reliability. Consistent with this expectation, Choi et al. (2009) use data on the personnel responsible for IAC systems as a proxy for effective system operation, reporting that companies with more investment in personnel can restrain opportunistic profit adjustments. Choi et al. (2021) examine the relationship between investment in human resources for information technology (IT) controls in financial reporting and the resultant investment efficiency. Their study reveals a negative correlation between the ratio of CPAs in IT control roles to a company's total workforce and its abnormal investment. This implies that allocating resources to IT control personnel can boost a firm's investment efficiency. Goh and Li (2011) report that conservatism appears lower in a sample of companies that

disclosed material weaknesses in internal control under SOX, indicating a positive relationship between internal control quality measured as weakness and conservatism. Mitra et al. (2013) reveal a more pronounced disparity in accounting conservatism between firms with internal control weaknesses and those without such weaknesses during the initial three years post-SOX compared to the latter three years of the sample period. This pattern indicates that increased corporate oversight and examination prompted firms with internal control weaknesses to adopt greater conservatism in accounting. This shift aims to diminish reporting ambiguities, improve information reliability, and foster contracting efficiency.

Ge and McVay (2005) report that a lack of personnel is the primary reason for ineffective internal control system operations. Therefore, if there is substantial investment in personnel for operating internal control systems, it is expected that operations will be more effective. Internal control systems encompass not only their output, such as financial information, but also the activities that produce this output. In the past, only financial information reliability was assessed and disclosed, but with the addition of internal control systems, the reliability of the financial information production process is also disclosed, greatly influencing corporate value and risk. Additionally, the obligation to report on internal control operational status compels companies to invest in the accounting infrastructure necessary to maintain strong accounting controls and achieve high-quality financial reporting. Thus, companies with efficient internal control environments generally produce high-quality financial reporting.

COSO emphasizes that companies should strive to enhance financial reporting reliability by employing personnel with expertise and that personnel policies and procedures should also be designed to ensure effective internal control over financial reporting. Following the implementation of SOX, audit committees are advised to have at least one accounting expert, indicating intent to retain personnel with expertise in the financial reporting process. Therefore, the expertise of the personnel in charge of the internal control system ultimately enhances accounting information transparency, increasing accounting information conservatism.

The purpose of this study is to verify whether IAC personnel have a positive effect on financial statement conservatism. Based on this, the following hypothesis is established:

H: Firms with accounting professionals in their internal control systems will have more financial statement conservatism compared to those without such professionals.

2. METHODS

This study measures the level of conservatism using Ball and Shivakumar's (2008) model. Prior research classifies conservatism into two types: conditional and unconditional. Beaver and Ryan (2005) refer to conservatism related to differential recognition of good news (GN) and bad news (BN) as conditional conservatism. In other words, conditional conservatism requires more stringent verifiability to recognize GN in financial statements than to recognize BN. In contrast, unconditional conservatism refers to applying accounting treatments that reduce profits regardless of economic conditions or transactions, such as expensing research and development costs instead of capitalizing them, leading to understating profits and assets. The first method developed to measure the degree of conservatism was Basu's (1997) conditional conservatism earnings-price returns model. This model uses a reverse regression method to measure how timely accounting earnings are reflected in stock prices. However, this method is only applicable to firms with stock return data and is inappropriate in inefficient markets due to its reliance on returns. Moreover, Basu's reverse regression analysis is only valid when returns cause accounting earnings, and the reverse is not necessarily true (Dietrich et al., 2007).

Ball and Shivakumar (2006) develop a method to address these shortcomings of Basu's (1997) approach. Ball and Shivakumar (2008) measure conservatism based on how GN and BN cash flows are reflected in accruals under differential recognition. Due to accrual reversals, accruals and cash flows have a negative relationship (Dechow et al., 1998). Ball and Shivakumar (2008) develop three models of conservatism based on three accrual models: the cash flow, Dechow and Dichev, and Jones

models. The cash flow (CF) model uses the negative relationship between cash flow and accruals. The Dechow and Dichev (DD) model is based on Dechow and Dichev's (2002) accrual model, which separates cash flow into previous, current, and next periods. Finally, the Jones model utilizes the Jones (1991) accrual model, which distinguishes between discretionary and non-discretionary accruals. This study employs all three models developed by Ball and Shivakumar (2006) – CF, DD, and Jones – to enhance the robustness of the conservatism measure. The models are shown in equations (1) to (3):

CF model:

$$ACC_{it} = \beta_0 + \beta_1 CF_{it} + \beta_2 DCF_{it} + \beta_3 DCF_{it} \cdot CF_{it} + \varepsilon_{it}. \quad (1)$$

DD model:

$$ACC_{it} = \beta_0 + \beta_1 CF_{it} + \beta_2 CF_{it-1} + \beta_3 CF_{it+1} + \beta_4 DCF_{it} + \beta_5 DCF_{it} \cdot CF_{it} + \sum IND + \sum YEAR + \varepsilon_{it}. \quad (2)$$

Jones model:

$$ACC_{it} = \beta_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 CF_{it} + \beta_4 DCF_{it} + \beta_5 DCF_{it} \cdot CF_{it} + \sum IND + \sum YEAR + \varepsilon_{it}. \quad (3)$$

For firm i and year t , ACC is accruals calculated by subtracting operating cash flow from net income and then dividing by total assets. CF is operating cash flow divided by total assets, ΔREV is the sales change compared to the previous year divided by total assets, and $GPPE$ is tangible assets divided by total assets. DCF is a dummy variable that equals 1 if CF is less than 0, and zero otherwise. The coefficient of the variable ($DCF_{it} \cdot CF_{it}$) in each model indicates how much more timely accruals reflect occurrences during BN compared to GN. If this coefficient is significantly positive, it can be interpreted as indicating conservative accounting treatment.

When submitting their business reports to the Financial Supervisory Service's electronic disclosure system (dart.fss.or.kr), Korean listed companies attach an "Internal Accounting Control System Operation Report," which includes the status of personnel in the IAC organization. This report is used to manually identify companies that have

CPAs in their IAC and operations organization to analyze whether conservatism increases when organizations' IAC personnel include CPAs. To test the research hypothesis, the dummy variable CPA (whether a company has a CPA in its internal control system) is added to each of the three conservatism models (equations (1), (2), and (3)) developed by Ball and Shivakumar (2008), resulting in the following three models (equations (4), (5), and (6)):

CF model:

$$ACC_{it} = \beta_0 + \beta_1 CF_{it} + \beta_2 DCF_{it} + \beta_3 DCF_{it} \cdot CF_{it} + \beta_4 CPA_{it} + \beta_5 CPA_{it} \cdot CF_{it} + \beta_6 CPA_{it} \cdot DCF_{it} + \beta_7 CPA_{it} \cdot DCF_{it} \cdot CF_{it} + \sum IND + \sum YEAR + \varepsilon_{it}. \quad (4)$$

DD model:

$$ACC_{it} = \beta_0 + \beta_1 CF_{it} + \beta_2 CF_{it-1} + \beta_3 CF_{it+1} + \beta_4 DCF_{it} + \beta_5 DCF_{it} \cdot CF_{it} + \beta_6 CPA_{it} + \beta_7 CPA_{it} \cdot CF_{it} + \beta_8 CPA_{it} \cdot CF_{it-1} + \beta_9 CPA_{it} \cdot CF_{it+1} + \beta_{10} CPA_{it} \cdot DCF_{it} + \beta_{11} CPA_{it} \cdot DCF_{it} \cdot CF_{it} + \sum IND + \sum YEAR + \varepsilon_{it}. \quad (5)$$

Jones model:

$$ACC_{it} = \beta_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 CF_{it} + \beta_4 DCF_{it} + \beta_5 DCF_{it} \cdot CF_{it} + \beta_6 CPA_{it} + \beta_7 CPA_{it} \cdot CF_{it} + \beta_8 CPA_{it} \cdot DCF_{it} + \beta_9 CPA_{it} \cdot DCF_{it} \cdot CF_{it} + \sum IND + \sum YEAR + \varepsilon_{it}. \quad (6)$$

The interaction term ($DCF_{it} \cdot CF_{it}$) in models (4) to (6) represents the degree of conservatism. The coefficient of the combined variable ($CPA_{it} \cdot DCF_{it} \cdot CF_{it}$), representing whether the company has a CPA among its internal control personnel, is the regression coefficient that tests Hypothesis. Thus, if β_7 , β_{11} , and β_9 in models (4), (5), and (6), respectively, each show a positive value, it indicates that companies with CPAs among their IAC personnel are more conservative in their accounting information compared to those without CPAs among their IAC personnel. This study's sample consists of the data of Korean listed companies with fis-

cal years ending in December from 2012 to 2018. Korea and East Asian countries and firms were greatly affected by the COVID-19 pandemic. The analysis period was set until 2018 to properly verify the hypothesis regardless of the impact of the COVID-19 pandemic that occurred at the end of 2019. Companies that received non-standard audit opinions, suggesting unreliable financial statements, and financial institutions, due to the difficulty comparing their financial statements with others, were excluded from the sample. To control for the impact of outliers on the empirical results, winsorization was applied. The final sample size used for analysis was 3,276 firm-years.

3. RESULTS

Table 1 presents the descriptive statistics of the variables used in the analysis. The dependent variable used in the research model, accruals (*ACC*), shows an average and median of -2% and -2.7% of total assets, respectively. Operating cash flow (*CF*) averages 4.8% of total assets, with a median of 4.7% . The average and median gross property, plant, and equipment (*GPPE*), which is used in the Jones model, are 34.5% and 34.6% of total assets, respectively. Change in revenue (ΔREV) has an av-

erage of 2.6% and a median of 2.1% of total assets. The key variable indicating the presence of a CPA among the internal control personnel, *CPA*, has an average of 0.315 , indicating that $1,032$ of the $3,276$ firm-years have a CPA among their IC personnel.

Table 2 reports the correlations between the main variables. The correlations between the dependent variable *ACC* and *CF* and *GPPE* are significantly negative at the 1% level, consistent with prior research. Furthermore, *CF* exhibits a significantly positive correlation with *GPPE* and ΔREV at the 1% level, indicating high correlation between increases in operating cash flow and increases in tangible assets and current sales, which aligns with the findings of previous studies.

Table 3 presents the results of the regression analysis performed to test the hypothesis. Specifically, it reports the empirical results of Ball and Shivakumar's (2006) *CF* model analyzing the relationship between having a CPA among a firm's IC personnel and accounting information conservatism. The coefficient of operating cash flow (*CF*) is significantly negative at the 1% level, consistent with prior research (Ball & Shivakumar, 2006; Garcia Lara et al., 2007; Garcia Lara et al., 2009). The coefficient of the variable of interest,

Table 1. Descriptive statistics

Variable	N	Mean	Standard deviation	Minimum	Median	Maximum
ACC	3,276	-0.027	0.099	-0.921	-0.027	0.244
CPA	3,276	0.315	0.465	0.000	0.000	1.000
CF	3,276	0.048	0.066	-0.150	0.047	0.235
GPPE	3,276	0.345	0.179	0.009	0.346	0.832
ΔREV	3,276	0.026	0.170	-0.631	0.021	0.653

Notes: (1) All variables are defined in the Appendix. (2) All continuous variables were winsorized at the top and bottom 1% . (3) All *p*-values are based on two-tailed tests.

Table 2. Correlations (*p*-values below)

	ACC	CF	GPPE	ΔREV	CPA
ACC	1.000	-0.285 ($<.0001$)	-0.076 ($<.0001$)	0.014 (0.4162)	0.001 (0.9355)
CF		1.000	0.159 ($<.0001$)	0.132 ($<.0001$)	0.047 (0.0072)
GPPE			1.000	0.054 (0.0017)	-0.044 (0.0111)
ΔREV				1.000	0.027 (0.1204)
CPA					1.000

Notes: (1) All variables are defined in the Appendix. (2) All continuous variables were winsorized at the top and bottom 1% . (3) All *p*-values are based on two-tailed tests.

$CPA_{it} \times DCF_{it} \times CF_{it}$, is 0.872 with a t-value of 3.93, significantly positive at the 1% level. This indicates that companies with CPAs among their IAC personnel show stronger tendencies toward conservatism compared to those without CPAs. These results support the study hypothesis that the expertise of professionals, measured as having CPAs among the IC personnel, reduces agency costs and increases accounting information conservatism.

Table 3. IC personnel investment and accounting conservatism (CF model)

Variable	Dependent variable = ACC_{it}	
	Coef.	t-value
Intercept	-0.001	-0.25
CF_{it}	-0.481	-10.51***
DCF_{it}	-0.015	-2.03**
$DCF_{it} \times CF_{it}$	-0.094	-0.82
CPA_{it}	0.007	1.1
$CPA_{it} \times CF_{it}$	-0.057	-0.75
$CPA_{it} \times DCF_{it}$	0.029	2.05**
$CPA_{it} \times DCF_{it} \times CF_{it}$	0.872	3.93***
Industry fixed effect		YES
Year fixed effect		YES
Adj. R ²		0.094
N		3,276

Notes: (1) All variables are defined in the Appendix. (2) All continuous variables were winsorized at the top and bottom 1%. (3) ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Table 4 presents the results of the empirical analysis using Ball and Shivakumar’s (2006) DD model. The coefficient of operating cash flow (CF), similar to that in the CF model, is significantly negative at the 1% level. The coefficient of the variable of interest, $CPA_{it} \times DCF_{it} \times CF_{it}$, is 0.869 with a t-value of 3.95, significantly positive at the 1% level, consistent with the results of the CF model and supporting the study’s hypothesis.

Table 4. IC personnel investment and accounting conservatism (DD model)

Variable	Dependent variable = ACC_{it}	
	Coef.	t-value
Intercept	-0.007	-1.24
CF_{it}	-0.561	-11.77***
CF_{it-1}	0.000	0.46
CF_{it+1}	0.160	5.32***
DCF_{it}	-0.014	-1.96*
$DCF_{it} \times CF_{it}$	-0.107	-0.93

Variable	Dependent variable = ACC_{it}	
	Coef.	t-value
CPA_{it}	0.005	0.87
$CPA_{it} \times CF_{it}$	-0.185	-2.19**
$CPA_{it} \times CF_{it-1}$	0.000	-0.49
$CPA_{it} \times CF_{it+1}$	0.178	3.04***
$CPA_{it} \times DCF_{it}$	0.023	1.64
$CPA_{it} \times DCF_{it} \times CF_{it}$	0.869	3.95***
Industry fixed effect		YES
Year fixed effect		YES
Adj. R ²		0.114
N		3,276

Notes: (1) All variables are defined in the Appendix. (2) All continuous variables were winsorized at the top and bottom 1%. (3) ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Table 5 presents the results of the empirical analysis using Ball and Shivakumar’s (2006) Jones model. The coefficient of operating cash flow (CF) is significantly negative at the 1% level, consistent with the CF and DD models. The coefficient of the variable of interest, $CPA_{it} \times DCF_{it} \times CF_{it}$, is 0.846 with a t-value of 3.83, significantly positive at the 1% level, consistent with the CF and DD models. In summary, the results from Ball and Shivakumar’s (2006) CF, DD, and Jones models are all significant at the 1% level, enhancing the robustness of the study’s findings.

Table 5. IC personnel investment and accounting conservatism (Jones model)

Variable	Dependent variable = ACC_{it}	
	Coef.	t-value
Intercept	0.008	1.15
CF_{it}	-0.494	-10.7***
ΔREV_{it}	0.031	2.61***
$GPPE_{it}$	-0.029	-2.91***
DCF_{it}	-0.014	-1.98**
$DCF_{it} \times CF_{it}$	-0.055	-0.48
CPA_{it}	0.006	0.9
$CPA_{it} \times CF_{it}$	-0.043	-0.56
$CPA_{it} \times DCF_{it}$	0.029	2.02**
$CPA_{it} \times DCF_{it} \times CF_{it}$	0.846	3.83***
Industry fixed effect		YES
Year fixed effect		YES
Adj. R ²		0.097
N		3,276

Notes: (1) All variables are defined in the Appendix. (2) All continuous variables were winsorized at the top and bottom 1%. (3) ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

The empirical results reveal that companies with CPAs among their IAC personnel demonstrate a stronger tendency toward conservatism than those without CPAs. However, these results may be attributed to the complex ownership structures of Chaebol or large business groups, such as mutual shareholdings or indirect control. The term Chaebol refers to a major South Korean industrial conglomerate, typically managed and controlled by a single family or individual. Chaebols like Samsung, LG, and Hyundai have a significant impact on the Korean economy. As of 2021, the revenue of the top 10 Chaebols accounted for about 60% of Korea's gross regional domestic product. Therefore, a heterogeneity analysis is conducted to ascertain whether the empirical results differ depending on firm ownership structure.

The sample is divided into subsamples of Chaebol and non-Chaebol firms, which are analyzed using the CF model. The results are shown in Table 6. Interestingly, in the Chaebol subsample, no significant results are observed, but in the non-Chaebol subsample, the coefficient of $CPA_{it} \times DCF_{it} \times CF_{it}$ is 1.043 with a t-value of 3.58, significantly positive at the 1% level.

Table 6. IC personnel investment and accounting conservatism with Chaebol/non-Chaebol subsamples (CF model)

Variable	Chaebol Sample		Non-Chaebol Sample	
	Coef.	t-value	Coef.	t-value
Intercept	0.008	1.19	-0.001	-0.23
CF_{it}	-0.607	-11.07 ***	-0.448	-7.69 ***
DCF_{it}	-0.015	-1.41	-0.014	-1.55
$DCF_{it} \times CF_{it}$	-0.090	-0.52	-0.115	-0.82
CPA_{it}	-0.005	-0.89	0.010	1.07
$CPA_{it} \times CF_{it}$	0.041	0.58	-0.036	-0.31
$CPA_{it} \times DCF_{it}$	0.029	1.86 *	0.018	0.91
$CPA_{it} \times DCF_{it} \times CF_{it}$	-0.213	-0.79	1.043	3.58 ***
Industry fixed effect	YES		YES	
Year fixed effect	YES		YES	
Adj. R ²	0.374		0.064	
N	943		2,333	

Notes: (1) All variables are defined in the Appendix. (2) All continuous variables were winsorized at the top and bottom 1%. (3) ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

The DD model also shows the same results for the subsamples as the CF model. In Table 7, for

the non-Chaebol subsample, the coefficient of $CPA_{it} \times DCF_{it} \times CF_{it}$ is 0.917 with a t-value of 3.17, significantly positive at the 1% level.

Table 7. IC personnel investment and accounting conservatism with Chaebol/non-Chaebol subsamples (DD model)

Variable	Chaebol Sample		Non-Chaebol Sample	
	Coef.	t-value	Coef.	t-value
Intercept	0.005	0.75	-0.010	-1.3
CF_{it}	-0.681	-11.03***	-0.575	-9.51***
CF_{it-1}	0.000	1.28	0.000	4.14***
CF_{it+1}	0.105	2.4**	0.155	4.2***
DCF_{it}	-0.013	-1.25	-0.014	-1.59
$DCF_{it} \times CF_{it}$	-0.010	-0.06	-0.115	-0.83
CPA_{it}	-0.001	-0.28	0.003	0.34
$CPA_{it} \times CF_{it}$	0.068	0.8	-0.130	-1.05
$CPA_{it} \times CF_{it-1}$	0.000	-0.77	0.000	-2.34**
$CPA_{it} \times CF_{it+1}$	-0.089	-1.36	0.331	4.13***
$CPA_{it} \times DCF_{it}$	0.025	1.65*	0.016	0.84
$CPA_{it} \times DCF_{it} \times CF_{it}$	-0.256	-0.94	0.917	3.17***
Industry fixed effect	YES		YES	
Year fixed effect	YES		YES	
Adj. R ²	0.377		0.099	
N	943		2,333	

Notes: (1) All variables are defined in the Appendix. (2) All continuous variables were winsorized at the top and bottom 1%. (3) ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Using the Jones model, the coefficient of $CPA_{it} \times DCF_{it} \times CF_{it}$ for the non-Chaebol subsample is 1.025 with a t-value of 3.52, significantly positive at the 1% level. Thus, having CPAs among the IC personnel has a positive effect on conservatism for non-Chaebol companies. These results can be interpreted as indicating that having CPAs among IC personnel might not be effective due to the powerful influence of owners in Chaebol groups. Further research is needed to determine what led to these results.

Table 8. IC personnel investment and accounting conservatism with Chaebol/non-Chaebol subsamples (Jones model)

Variable	Chaebol Sample		Non-Chaebol Sample	
	Coef.	t-value	Coef.	t-value
Intercept	0.013	1.89*	0.009	0.95
CF_{it}	-0.605	-10.97***	-0.461	-7.89***
ΔREV_{it}	0.036	3.48***	0.024	1.9*
$GPPE_{it}$	-0.024	-2.51***	-0.032	-2.27**

Table 8 (cont.). IC personnel investment and accounting conservatism with Chaebol/non-Chaebol subsamples (Jones model)

Variable	Chaebol Sample		Non-Chaebol Sample	
	Coef.	t-value	Coef.	t-value
DCF_{it}	-0.012	-1.13	-0.014	-1.55
$DCF_{it} \times CF_{it}$	-0.088	-0.51	-0.074	-0.52
CPA_{it}	-0.005	-0.93	0.009	0.92
$CPA_{it} \times CF_{it}$	0.046	0.67	-0.032	-0.28
$CPA_{it} \times DCF_{it}$	0.024	1.57	0.018	0.91
$CPA_{it} \times DCF_{it} \times CF_{it}$	-0.219	-0.82	1.025	3.52***
Industry fixed effect	YES		YES	
Year fixed effect	YES		YES	
Adj. R ²	0.384		0.067	
N	943		2,333	

Notes: (1) All variables are defined in the Appendix. (2) All continuous variables were winsorized at the top and bottom 1%. (3) ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

4. DISCUSSION

This study's results indicate a positive relationship between IAC personnel expertise and the level of a company's accounting conservatism, suggesting that the presence of CPAs among IAC personnel enhances conservatism. This implies that when companies employ specialized IAC personnel, timely review and supervision of accounting functions occurs, leading to effective internal control. To determine whether the empirical results are driven by differences in organizational structure, the sample was divided into subsamples of non-Chaebol and Chaebol firms, which have a significant impact on the Korean economy. An additional analysis was conducted to see if the presence of CPAs among IAC personnel strengthens financial statement conservatism. The additional analysis shows that the study findings are not solely attributed to Chaebol groups. In future research, it is

imperative to explore and understand the underlying reasons that CPAs within the internal control frameworks of Chaebol entities fail to perform effective monitoring.

Previous studies have measured the quality of internal control based on disclosure of internal control weaknesses (Ashbaugh-Skaife et al., 2007; Doyle et al., 2007; Goh & Li, 2011). Internal accounting control systems in Korea are largely adopted from the SOX system in the United States. However, unlike SOX, which requires an audit by external auditors, systems in Korea undergo a review. This difference leads to a lower proportion of companies in Korea reporting significant weaknesses than that in the United States, which highlights the limitation of judging the effectiveness of a company's IAC system solely on the presence of weaknesses. Information on the characteristics of the personnel who manage IAC is not disclosed in any country except Korea. Since IAC system operation is influenced by the personnel in charge of the system, their characteristics can provide useful information for external users to assess the effectiveness of a company's system. In this context, this study's results show that the expertise of IAC personnel enhances the quality of financial reporting and supervision, reducing agency problems and moral hazard while increasing accounting information conservatism.

Overall, these results suggest that the presence of high-quality human resources in internal control improves financial reporting and supervision quality, thereby reducing agency costs and enhancing accounting information conservatism. This aligns with previous studies, including Choi et al. (2013) and Shin et al. (2017), which demonstrate that superior internal control personnel can enhance the effectiveness of a company's internal control and operations.

CONCLUSION

This study's purpose was to verify the relationship between the expertise of IAC personnel and financial statement conservatism in listed Korean companies. This study reports that accounting information conservatism increases when CPAs are members of companies' IAC personnel. The study's findings have the following implications for capital market stakeholders and regulatory agencies. Internal control personnel's accounting expertise positively impacts the quality of accounting information supplied to markets by making information more comprehensive. Moreover, conservatism in accounting information, where

costs are immediately recognized but revenue recognition is delayed, can help ensure financial stability by averting overestimated assets and underestimated liabilities. Therefore, market investors should pay attention to companies that have CPAs in their IAC system management and operation organizations when making investment decisions. This study's findings, which show that placing CPAs in IAC systems can mitigate agency costs, can serve as a future reference for regulatory agencies when enhancing policies related to internal accounting control systems. This study focused on verifying the status of CPAs in IAC system management and operation organizations. Future research should examine how the number and experience of personnel in charge of IAC systems impact accounting information conservatism.

AUTHOR CONTRIBUTIONS

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APPENDIX A

Table A1. Variable definition

Variable	Definition
Dependent Variables	
ACC	Net income minus cash flow from operations divided by total assets
Independent Variables	
CPA	Equals 1 if a firm has a CPA in the internal accounting control system, and zero otherwise
Control Variables	
CF	Cash flow from operations divided by total assets
DCF	Equals 1 if CF is less than 0, and zero otherwise
Δ REV	Sales increase compared to the previous year divided by total assets
GPPE	Tangible assets divided by total assets