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The Effects of Managerial Overconfidence on Earning Management Strategies in Traditional Wholesale and Retail Business

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Abstract

Purpose: As the distribution environment has recently changed, many traditional wholesale and retail businesses pursue various earning management strategies. Thus, these businesses should develop management strategies to attain efficiency and effectiveness advantages. Specifically, the demand characteristics sensitive to seasonal and external variables in addition to the performance-oriented environment could intensify the pressure on the businesses' short-term performance based on sales records. These businesses' structural characteristics provide environments where earning management strategies are actively used according to the managers' overconfidence. Against this background, we attempted to examine the effects of overconfidence on earning management strategies in the businesses. **Research design, data and methodology:** Data were collected from 2,917 corporate years of traditional wholesale and retail businesses listed on the securities market from 2018 to 2022. We conducted regression analyses to analyze the data. **Results:** We found that these businesses had a higher level of real activity earning management strategy than firms in other industries. In addition, we confirmed that the higher the manager's overconfidence tendency in the businesses, the greater the level of earning management using abnormal operating cash flows. **Conclusions:** We suggested that a traditional wholesale and retail business's industrial structure and the manager's tendency work in combination to affect the earning management strategy based on real activities.

Keywords : Distributor, Earnings Management, Managerial Overconfidence, Sales Record, Traditional Wholesale and Retail Business

JEL Classification Code : M10, M31, M41

1. Introduction

Recently, as the world has evolved into a hyper-connected society, the boundaries between the traditional wholesale and retail businesses and firms in other industries are breaking down. Specifically, with the spread of services such as O2O (Online to Offline) and O4O (Online to Offline), big tech firms such as Amazon, Google, Naver, and Kakao are encroaching on the conventional distribution industry. In addition, because environmental changes such as consumption channel diversification and improvement in inventory rotation rates, and increase in supply chain volatility, stakeholders' interest in the short-term performance of traditional wholesale and retail businesses is further increasing. Therefore, more than ever, traditional wholesale and retail businesses should develop appropriate management strategies to these changes in order to attain efficiency and effectiveness advantages.

Many traditional distributors, such as offline retail and wholesale firms, pursue various earning management

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strategies. In effect, unlike firms in other industries, traditional wholesale and retail businesses often possess a low proportion of fixed assets and high flexibility in business activities, thereby making it relatively easy to use earning management strategies through real activities. Especially, the demand characteristics sensitive to seasonal and external variables in addition to the performance-oriented competitive environment could intensify the pressure on traditional wholesale and retail businesses' short-term performance based on sales records. In addition, because of a simple sales-oriented value chain structure, short-term performance pressure centered on price and promotion, inventory management flexibility, and the possibility of adjusting transactions with suppliers, traditional wholesale and retail businesses should adjust their real activities to improve short-term performance. In effect, strategies such as early recognition of sales, delayed advertising costs, and adjustment of inventory purchases can be used as key earning management strategies. These structural characteristics of the distribution industry provide an environment in which earning management strategies can be actively used as management tools according to the overconfidence tendency of traditional wholesale and retail businesses' managers.

It seems a common sense that these strategies could be developed based on accounting information provided through financial reporting provides a basis for judging the performance based on sales records and financial soundness of a company to external stakeholders such as investors, creditors, and government agencies. Nonetheless, earning information is an area where the discretion of the manager can be involved and implies the possibility of being artificially adjusted through accounting selection or business activity adjustment. Accordingly, managers can perform various types of earnings managements to meet the expectations of information users or to highlight their performance based on sales records (Zhou et al., 2025).

Among these earning management, managing real activities often directly affects the management performance, such as sales records, of a firm and is within the limits allowed by accounting standards. Thus, managing real activities has recently attracted attention that it is relatively easy to avoid regulations. For example, real-activity earning management is carried out by additional discounts to promote sales, reducing unit costs due to increased production, and adjusting the timing of advertising and R&D expenditures, which have a positive effect on short-term performance based on sales records, but can cause side effects such as long-term management performance deterioration and information distortion.

Such real-based earning management strategies differ in the possibility of occurrence and ease of execution depending on the industrial characteristics of the firm. Specifically, traditional wholesale and retail businesses often have structural characteristics that make it easier to manage earnings from real activities than other industries. First, the distribution industry is an industry that generates earnings based on the purchase and sale of products without having production facilities, and has a low proportion of fixed assets and a high asset turnover rate. The fact that such flexible inventory management and sales timing adjustment are possibly makes it easy to transform real activities to adjust management performance based on sales records. Second, the distribution industry generally has a structure that is sensitive to the seasonality of demand and external variables such as economic, oil prices, and consumer sentiment. As a result, managers are pressured to present their quarterly performance based on sales records positively to the outside, which can strengthen incentives for active earning management aimed at improving short-term performance based on sales records. Third, traditional wholesale and retail businesses often belong to the highly competitive red ocean industry, and the pressure on managers' performance based on sales records intensifies along with structural transaction practices between large firms and small- and medium-sized enterprises, franchise, and platform expansion. In particular, the structure in which business adjustments (e.g., promotion, discount, and supply timing adjustments) for expanding sales or rotating inventory are directly linked to performance based on sales records increases the likelihood that real activity-based earning management strategies will become more strategic tools. The unique industrial characteristics of traditional wholesale and retail businesses suggest that they are in an environment where they can more autonomously and actively implement real activity-based earning management strategies compared to other industries.

On the other hand, managerial disposition and corporate governance are also important factors that determine the level and direction of earning management. Specifically, the manager's overconfidence induces excessive expectations and optimistic estimates of future performance based on sales records, which leads to the recognition of earning management through real activities as a 'strategic decision-making tool' rather than a simple accounting technique (Li et al., 2019).

Previous studies have analyzed the effects of managerial disposition, governance structure, and industrial characteristics on earning management behavior in various ways, especially manufacturing-oriented analysis. Nonetheless, although traditional wholesale and retail businesses are an industry where earning management strategies can be more pronounced due to their business activity-oriented structure, flexibility in real activity adjustment, and market sensitivity, systematic empirical research on this is relatively insufficient (Adam et al., 2015).

Against this background, our study aimed to analyze whether traditional wholesale and retail businesses have a higher level of use of earning management strategies through real activities than other industries, and the effect of managers' overconfidence propensity on earning management strategies through real activities. In particular, by precisely examining how the industrial characteristics of a traditional wholesale and retail business affect the strength and direction of the earning management strategy when combined with the manager's overconfidence propensity, the purpose of this study is to identify the structure of the earning management strategy in which the industrial specificity and manager factors work in combination.

2. Theoretical Background and Hypotheses

2.1. Theoretical Background

2.1.1. Strategies for Earning Management

Earnings Management refers to a series of management activities in which a business manager tries to convey a specific economic message to external stakeholders by adjusting earnings in financial statements (Healy & Wahlen, 1999). Earning management can be divided into accounting-based earnings management based on accruals and real earnings management based on real activities. Accrual earnings adjustment refers to adjusting earnings by adjusting the timing of attribution of earnings and losses through accounting for the same economic event or changing estimates, and earnings adjustment by real activities is defined as adjusting earnings by artificially adjusting actual management activities.

Unlike accounting earning management that utilizes flexibility in accounting, earning management through real activities is considered a more active management strategy that adjusts financial performance based on sales records by changing the business activity itself.

Earning management strategies through real activities are implemented within the scope of normal business activities allowed by accounting standards. In essence, the earning management strategy is one of the more widely used management strategies in recent years in that the detection possibility of external audits or regulatory agencies is low (Roychowdhury, 2006). Nonetheless, earning management strategies through real activities performed by traditional wholesale and retail businesses to achieve earning targets for a specific accounting period may have the external effect of improving financial performance based on sales records in the short term, but in the long run, side effects such as damage to corporate value, increased operating cost efficiency, and deterioration of future performance based on sales records may be accompanied.

The typical types of earning management strategies through real activities are as follows. First, it is excessive promotions or discount sales to increase sales. This is a method of implementing excessive promotions or price discounts to increase sales awareness in the short term, which may increase current earning, but may lead to lower earning ability and distortion of customer expectations in the future. Second, it is a method of lowering sales costs by dispersing fixed costs through production expansion. This artificially increases production regardless of actual demand, thereby lowering manufacturing costs per unit, thereby lowering sales costs, ultimately increasing the gross margin of sales. However, this method has the possibility of future losses due to increased overstock and storage costs due to excess production. Third, it is a strategic delay (advertisement, R&D, management expenses, etc.) method of cost. This can increase the earning by delaying the recognition of expenses such as R&D expenses or advertising expenses for the current period to the next accounting period, but it can lead to a decrease in product competitiveness or a weakening of brand value.

The real activity earning management strategy is strategically used by managers for the purpose of achieving short-term performance goals, stock price management, and maximizing performance compensation (Ji et al., 2019). Real activities are useful in practice in that they can adjust earning figures without changing accounting methods, which can be implemented without approval for changes in accounting audits or accounting policies. The real-based earning management strategy can also exert a stronger signaling effect than accounting earning management in that it can be disguised as a normal business activity without being seen as a one-time measure, and that it can affect not only earning levels but also various performance indicators such as sales growth and gross margin at the same time (Graham et al., 2005).

Meanwhile, Roychowdhury (2006) presented an empirical model related to real activity earning management that could distinguish between normal and abnormal business activities of a company, and subsequent studies related to real activity earning management using it were actively conducted.

Overseas research is as follows. Cohen et al. (2008) reported that the passage of the SOX Act served as an opportunity to further utilize real activity earning adjustment as a means of earning management. Cohen and Zarowin (2010) reported that managers use a real activity earning management strategy with a relatively low level of legal costs and responsibilities in the case of a paid-in capital increase. Zang (2012) reported that firms employ both real earnings management and accrual-based earnings management simultaneously but establish a strategic trade-off between the two approaches depending on circumstances.

Irani and Oesch (2016) reported that as analyst coverage increases, firms prefer real activities–based earnings management over accrual-based earnings management, indicating that external monitoring shifts the means of earnings management. Kothari et al. (2016) reported that firms prefer real activities–based earnings management to inflate performance at the time of SEOs, which yields short-term positive effects but ultimately leads to deteriorating performance and the destruction of shareholder value in the long run. Ji (2019) reported that Korean exporting firms use earnings management as an income smoothing strategy to mitigate performance shocks from exchange rate fluctuations; however, while this may help secure short-term stability, it carries the risk of undermining accounting transparency in the long run. Kang and Kim (2019) analyzed listed firms in the retail industry and reported that both accrual-based earnings management and real earnings management have a significantly positive effect on firm value. Potharla et al. (2021) reported that a reduction in discretionary expenses (such as advertising and R&D) significantly weakens the persistence of firm value, and that when real earnings management (REM) is undertaken with the intention of meeting zero earnings, both abnormal increases in operating cash flows and reductions in discretionary expenses substantially reduce the persistence of firm value. Siahaya et al. (2021) reported that financial risk significantly affects real earnings management through production costs and discretionary expenses, but has no significant effect through operating cash flows. Earning management strategies through real activities are one of the most realistic and important strategic options in corporate management today, and their level of use and effectiveness may vary depending on industrial structure, market competition, managerial disposition and authority structure. In particular, in industries where earning management of real activities is structurally easy, such as traditional wholesale and retail businesses, this strategy can be recognized as a management strategy rather than an accounting tool.

2.1.2. Distributors' Characteristics and Activities

The distribution industry is an industry that performs intermediate distribution processes such as procurement, storage, display, and sales rather than production of goods, and has unique financial and operational characteristics compared to other industries such as manufacturing and financial industries. These structural characteristics of traditional wholesale and retail businesses provide strategic flexibility for managers to carry out earning management strategies through real activities and act as a factor to increase the feasibility and intensity of earning management strategies based on real activities.

The following presents structural, financial, competitive, and practical aspects of whether traditional wholesale and retail businesses can use real activity-based earning management as a management strategy. First, traditional wholesale and retail businesses have a low proportion of facility assets or R&D assets due to their asset structure, and have an asset structure centered on product inventory and trade receivables. Since the proportion of current assets is larger than fixed assets, there is a lot of room for adjustment of business activities, and managers have a large choice in purchase and sales policies, inventory control, and distribution channel strategies at a specific point in time. This structure provides an environment that can flexibly change business performance based on sales records within a short period of time, and is advantageous in meeting the incentives to adjust accounting figures at the level of actual management activities. For example, short-term sales can be artificially increased by selling inventory at the end of the quarter at a large discount or by changing distribution channels to induce early release. Since this is considered a normal business activity in accounting, it is relatively difficult to detect by external audits or regulatory agencies.

Second, the distribution industry is sensitive to consumers' purchasing behavior and seasonal factors. Sales fluctuate greatly depending on the seasons of holidays, holiday seasons, year-end holidays, and new semesters, and demand fluctuates sharply or sharply increases depending on external economic factors (economic recession, inflation, oil prices, etc.). This external sensitivity strengthens the pressure on managers' performance management and increases the incentive to respond with short-term performance management based on real activities. In particular, in a structure with a large sales deviation between high season and low season, real strategies can be easily mobilized to induce more-than-expected sales by utilizing excessive sales strategies during high season, and to mitigate earning volatility by delaying costs and reducing marketing during low season.

Third, traditional wholesale and retail businesses are an industry in which external evaluation centred on total sales is stronger than manufacturing. In particular, in the case of large retailers and franchise headquarters, maintaining sales growth is becoming an important management strategy because the performance of the headquarters has a strong signal effect on franchisees and partners. In this environment, the incentive for managers to meet market expectations through short-term external growth increases, and it is highly likely that adjustment of business activities (price discount, promotion reinforcement, supply line expansion, etc.) will be strategically selected as a means to realize this. Excessive promotion is perceived as an increase in earnings accounting for a situation where real demand is

not supported, but in the long run, it can lead to problems such as falling margins and lower brand value.

Fourth, traditional wholesale and retail businesses often have widely distributed field-oriented practical implementation organizations such as each branch, store, and logistics base, and considerable practical autonomy exists unless the central headquarters controls each one. This means that decision-making based on real activities is an environment in which decision-making can be autonomously executed outside the control of internal management or external audit system. Decisions such as discount rate adjustment, release date change, promotion timing adjustment, and advertising expenditure timing are likely to result from the execution of on-site staff rather than post-adjustment by accounting standards, so earning management strategies are likely to be made invisible.

Fifth, the distribution industry continues to compete fiercely in a multi-variable and low-margin structure, and subtle differences in performance between firms become a key factor in determining the choice of investors or consumers. Accordingly, listed traditional wholesale and retail businesses must continue to meet market expectations through quarterly performance disclosures, and failure to achieve this will directly hit them, such as falling stock prices, leaving dealerships, and falling brand confidence at the headquarters. In this environment, it is highly likely that key executives, such as CEOs and chief financial officers, will use real activities as part of their management strategies to maintain short-term earning ability and stable growth.

2.1.3. Distributors' Overconfidence and Management

The behavioral characteristics of managers have a significant impact on a company's financial and accounting policy decisions. In particular, overconfidence is a concept that is actively discussed in the fields of behavioral finance and behavioral accounting, and is characterized by excessive confidence in managers' future predictions and an optimistic evaluation of their own decision-making (Hirshleifer et al., 2012; Malmendier & Tate, 2005; Schiefele et al., 2012).

Overconfident managers tend to overestimate a company's ability to generate future earnings, and thus have an incentive to optimistically estimate and reflect unlikely earnings in accounting. This tendency conflicts with traditional accounting conservatism principles and can lead to earning overvaluation, risk underestimation, and financial statement distortion of a company's accounting information.

Overconfident managers tend to strengthen external positive evaluation and self-confidence by achieving short-term performance goals rather than long-term strategic thinking. Real activity-based earning management can be the preferred accounting strategy for managers with overconfidence tendencies, as it is easier to accept the method of adjusting real activities rather than earning management that relies on accounting means. Graham et al. (2005) suggested in an actual corporate CFO interview that discount sales, delayed advertising costs, and rescheduling product launches are actively used as practical means to achieve corporate performance goals, suggesting that this is the result of a manager's judgment and strategy selection reflecting overconfidence.

A overseas studies verifying the effect of managers' overconfidence propensity on corporate decision-making and performance are as follows. Malmendier and Tate (2008) empirically analyzed and reported that managerial overconfidence increases inefficient corporate investments, particularly mergers and acquisitions, which can lead to shareholder value destruction. Schrand and Zechman (2011) reported that the CEO's overconfidence tendency and earning adjustment showed a positive (+) relationship, and that the higher the CEO's overconfidence tendency, the higher the level of earning adjustment. Hirschleifer et al. (2012) reported that the higher the manager's overconfidence tendency, the higher the likelihood of enjoying increased R&D expenditure, increased patent acquisition attempts, and innovative success. Ahmed and Duelman (2013) reported that the higher the manager's overconfidence tendency, the less conservative accounting treatment is. Ferris et al. (2013) found that CEO overconfidence significantly increases international M&A activity, as overconfident CEOs aggressively pursue overseas expansion. Similarly, Deshmukh et al. (2013) showed that overconfident CEOs overestimate future cash flows, prefer internal financing, and consequently reduce or destabilize dividend payouts. Hribar and Yang (2015) reported that the higher the manager's overconfidence tendency, the higher the likelihood of disclosing management prediction information and increasing the company's earnings. Huang et al. (2016) reported that overconfident CEOs take an excessively optimistic view of the firm's future and rely heavily on short-term debt, which can increase long-term financial risk. Purwidianti et al. (2023) reported that in a study of small and medium-sized enterprise owners in the Banyumas region of Indonesia, overconfidence and herding bias positively influenced investment decisions through the mediating role of risk perception. Rajabalizadeh (2023) reported that overconfident CEOs tend to make financial reporting unnecessarily complex, which can distort the decision-making of external stakeholders and undermine information transparency. Kim and Park (2024) reported that overconfident CEOs tend to experience steeper increases in bonus targets, which can lead to short-term performance pressure and the erosion of firm value.

On the other hand, traditional wholesale and retail businesses have an industrial environment in which the effects of overconfidence can be more pronounced because

managers have a large room for involvement in real activities and short-term sales fluctuations. Specifically, the characteristics of overconfident managers in the distribution industry are as follows. First, as a characteristic of an aggressive sales strategy centered on sales expansion, overconfident managers expect sufficient future demand to exist, and secure excessive inventory and sell discounts. Second, with performance prediction and reporting based on over-optimism, there is a tendency to actively recognize accounting earnings based on rosy prospects without conservative analysis of earning ability or cash flow. Third, due to the increase in the speed and dogmaticity of managers, they believe that earning management strategies through real activities are helpful to the long-term value of a company and can be implemented without internal checks.

Specifically, in the case of traditional wholesale and retail businesses, managers with overconfidence tend to be more likely to implement strategic earning management amid management pressure to reduce earnings volatility and performance-oriented external evaluation structure. As a result, it can create an accounting environment in which the boundaries between normal business activities and earning management are blurred.

2.2. Hypotheses

Earning management is a strategic tool used by corporate managers to meet the expectations of external stakeholders or adjust management performance based on sales records, and has a significant impact on the reliability and transparency of financial statements (Healy & Wahlen, 1999). Conventionally, earning management is divided into accounting earning management and real activity-based earning management, and the latter has recently attracted more attention by manipulating earnings by adjusting actual business activities while complying with accounting standards (Roychowdhury, 2006).

On the other hand, real activity-based earning management strategies differ in frequency and intensity depending on the structural characteristics of the industry. Especially for traditional wholesale and retail businesses, it is evaluated as an industry that can more easily and effectively adjust real activities due to characteristics such as simple sales-oriented business structure, high liquidity, competitive pressure, and seasonal demand structure (Schiefele et al., 2012).

Managers' tendencies are also one of the important factors that determine earning management behavior, and in the field of behavioral accounting, attention has been paid to the impact of managers' overconfidence on corporate financial reporting and strategic decision-making. Malmendier and Tate (2005) explained that overconfident managers optimistically evaluate future performance based on excessive confidence in their judgment and are more active in adjusting earnings through real activities than conservative accounting.

These studies are consistent in the sense that managers' overconfidence propensity affects the level of earning management based on real activities. In effect, managers' overconfidence is likely to be more pronounced in an industry with high structural flexibility, such as traditional wholesale and retail businesses than in other industries. Nonetheless, most of the empirical studies so far have been concentrated in the manufacturing industry, and studies on the specific mechanisms of earning management strategies that appear when the characteristics of the industry as a traditional wholesale and retail business and the characteristics of managers' overconfidence-oriented behavior are relatively insufficient.

Traditional wholesale and retail businesses often have an advantageous structure to adjust real activities due to flexible contract relationship with suppliers, and consumer demand. Thus, at the same performance pressure, traditional wholesale and retail businesses are more likely to select the real activity-based earning management strategy than are other industries. Accordingly, we posited the following hypothesis:

H1: The level of earning management strategy through real activities in traditional wholesale and retail businesses would be higher than that of firms in other industries.

In addition, traditional wholesale and retail businesses are likely to have abundant means to execute real activity-based earning management strategy and often respond immediately to the market. Therefore, the manager of a traditional wholesale and retail business is expected to maintain short-term performance based on over confidence in future performance. Accordingly, we posited the following hypothesis:.

H2: In traditional wholesale and retail businesses, the higher the CEO's overconfidence tendency, the higher the level of earning management strategy through real activities.

3. Research Method

3.1. Data and Sample

We selected traditional wholesale and retail businesses that are listed on the securities market from 2018 to 2022 and that meet all of the following conditions as our sample:

[1] Traditional wholesale and retail businesses that settle accounts at the end of December

[2] Non-designated traditional wholesale and retail

businesses subject to capital erosion or management
[3] Traditional wholesale and retail businesses that can collect financial information from the FnGuide and TS2000

The financial data of distributors required for data sources were collected from the FnGuide and TS2000. Among the distributors, we observed a total of 3,178 corporate years. Nonetheless, we excluded 159 cases that little presented the financial data and 102 cases regarded as outliers (the mean ±3×standard deviation). Finally, a total of 2,917 corporate years were our sample.

3.2. Research Model

We tested the hypotheses by developing research models. The models were divided into two parts. One research model was used to test H1. The other model was used to test H2.

3.2.1. Distributor Strategy and Real Activities

To test the relationship traditional wholesale and retail businesses and real activity earning management strategy (H1), we developed the following research model (1):

$$\text{Real Earning Management Strategy}_{i,t} = \alpha_0+\beta_1(\text{Retail firm})_{i,t} + \beta_2\text{SIZE}_{i,t} + \beta_3\text{LEV}_{i,t} + \beta_4\text{CFO}_{i,t} + \beta_5\text{ROA}_{i,t} + \beta_6\text{GRW}_{i,t} + \beta_7\text{Firmage}_{i,t} + \beta_8\text{OWN}_{i,t} + \beta_9\text{BIG4}_{i,t} + \beta\text{Loss}_{10i,t} + \sum\text{YEAR} + \varepsilon_{i,t} \quad (1)$$

where the dependent variables are measures of actual activity earning management strategy; REMS denotes real activity earning management strategy (Roychowdhury, 2006); REMS_CFO represents abnormal operating cash flow× (-1); REMS_SG&A indicates abnormal SG&A equipment×(-1); Independent variable is retail firm; control variables are SIZE (firm size), LEV (debt ratio), CFO (operating cash flow), ROA (total return on assets), GRW (total asset growth), Firmage (listing period), OWN (shareholder equity ratio), BIG4 (size of auditors), LOSS (loss of electricity), and YEAR (year dummy).

In accordance with the research model (1) stated above, we tested H1, the relationship between the retail company status (REMS_CFO, REMS_SG&A, REMS_Sum) and the real activity earning management strategy (REMS_CFO, REMS_SG&A, REMS_Sum). The higher the level of real activity earning management strategy of the distribution firm, the β_1 is expected to have a significant positive value.

3.2.2. Distributor Strategy of Earnings in Real Activities

We developed the following research model (2) to test H2, research hypothesis 2, the relationship between manager overconfidence propensity and real activity earning management strategy of distributionfirms:

$$\text{Real Earning Management Strategy}_{i,t} = = \alpha_0+\beta_1(\text{Retail firm})_{i,t} + \beta_1(\text{OverConfidence})_{i,t} + \beta_3(\text{Retail firm})\times(\text{OverConfidence})_{i,t} + \beta_4\text{SIZE}_{i,t} + \beta_5\text{LEV}_{i,t} + \beta_6\text{CFO}_{i,t} + \beta_7\text{ROA}_{i,t} + \beta_8\text{GRW}_{i,t} + \beta_9\text{Firmage}_{i,t} + \beta_{10}\text{OWN}_{i,t} + \beta_{11}\text{BIG4}_{i,t} + \beta\text{Loss}_{12i,t} + \sum\text{YEAR} + \varepsilon_{i,t} \quad (2)$$

where the independent variable is the overconfidence of managers of traditional wholesale and retail businesses; OverCon_1 denotes a dummy variable with a value of 1 if overconfidence is high and 0 otherwise, as measured by Ahmed and Duelman (2013) methodology; OverCon_2 represents the level of managerial overconfidence measured by Schrand and Zechman (2012) methodology, a dummy variable with a value of 1 if overconfidence is high or 0 otherwise.

In line with the research model (2), we tested the relationship between managerial overconfidence and the level of real activity earning management strategies (REMS_CFO, REMS_SG&A, REMS_Sum). We assumed that if the higher the managerial overconfidence tendency, the higher the level of real activity earning management strategies (REMS_CFO, REMS_SG&A, REMS_Sum). Therefore, β_3 is expected to have a significant positive (+) value.

3.3. Operational Definitions of Variables

3.3.1. Real Activity Earning Management Strategy

In our study, the level of real activity earning management strategy was measured by borrowing the methodologies of Roychowdhury (2006) and Cohen and Zarowin (2010). Based on these methodologies, business activity adjustment and sales management activity adjustment were classified into normal/abnormal activities, and the abnormal component of each variable was estimated and measured by subtracting the normal activity estimate from the actual value of the management activity. The regression coefficient of each model was estimated by industry-year for only industries with 10 or more observations for each industry.

Accordingly, the real earning adjustment measures in our study are three individual real earning adjustment measures calculated as follows. In general, real activity earning management activities are measured by dividing them into business activity adjustment, production activity adjustment, and sales management activity adjustment. Nonetheless, in the case of traditional wholesale and retail businesses in this study, it is difficult to apply production

activity adjustment, so it is measured and used for analysis only by adjusting sales activity and sales management activity excluding this.

First, the level of real activity earning management strategy (REMS_CFO) calculated by abnormal operating cash flows was measured as follows.

$$\frac{CFO_{i,t}}{Asset_{i,t-1}} = \beta_1\left(\frac{1}{Asset_{i,t-1}}\right) + \beta_2\left(\frac{Sales_{i,t}}{Asset_{i,t-1}}\right) + \beta_3\left(\frac{\Delta Sales_{i,t}}{Asset_{i,t-1}}\right) + \varepsilon_{i,t}$$

$$abCFO_{i,t} = \left(\frac{CFO_{i,t}}{Asset_{i,t-1}}\right) - \left[\hat{\beta}_1\left(\frac{1}{Asset_{i,t-1}}\right) + \hat{\beta}_2\left(\frac{Sales_{i,t}}{Asset_{i,t-1}}\right) + \hat{\beta}_3\left(\frac{\Delta Sales_{i,t}}{Asset_{i,t-1}}\right)\right] \quad (3)$$

Second, the level of real activity earning management strategy (REMS_SG&A) calculated by abnormal audit expenses was measured as follows.

$$\frac{SG\&A_{i,t}}{Asset_{i,t-1}} = \beta_1\left(\frac{1}{Asset_{i,t-1}}\right) + \beta_2\left(\frac{Sales_{i,t-1}}{Asset_{i,t-1}}\right) + \varepsilon_{i,t}$$

$$abSG\&A_{i,t} = \left(\frac{SG\&A_{i,t}}{Asset_{i,t-1}}\right) - \left[\hat{\beta}_1\left(\frac{1}{Asset_{i,t-1}}\right) + \hat{\beta}_2\left(\frac{Sales_{i,t-1}}{Asset_{i,t-1}}\right)\right] \quad (4)$$

In our study, for the readability of the analysis results, the direction of the real activity earning management strategy measure was matched by multiplying the abnormal operating cash flow (abCFO) and the abnormal management cost (abSG&A) by a negative value. In addition, this study uses one additional integrated real income adjustment measure that combines the two individual real income adjustment measures calculated earlier as follows in order to reflect the comprehensive effect of the real activity earning management strategy (REMS) level in the analysis.

$$\text{REMS\_Sum} = (-)\text{abCFO} + (-)\text{abSG\&A} \quad (5)$$

3.3.2. Independent Variables

3.3.2.1. Distribution Firm

Retail firm, an independent variable for testing research H1, was limited to firms falling under "large category G. wholesale and retail" classified as distributors under the Korean Standard Industrial Classification (KSIC). Specifically, it is “45. Sub-classification. Automobile and Parts Sales Business”, “46 Sub-classification: Wholesale Business," and "47 Sub-classification: Retail Business”.

3.3.2.2. Managerial Overconfidence

In our study, we measured managerial overconfidence based on Ahmed and Duelman (2013) and Schrand and Zechman (2012). First, Ahmed and Duelman (2013) believes that when capital expenditure is large compared to the industrial average, the tendency to overconfidence is high. Capital expenditure is calculated as the sum of the investment cash outflow items included in the expenditure items related to tangible assets, and if capital expenditure is greater than the industrial average, it is measured as a dummy variable value 1. Second, Schrand and Zechman (2012) uses the residuals extracted from the following regression analysis to measure managers' overconfidence propensity. After performing regression analysis by industry and year based on the equation below, if the residual is greater than 0, it is determined that the company has invested more in asset expansion than other companies in the industry, and a value of 1 is given.

$$\text{Asset growth rate}(t) = \text{Sales growth rate}(t) + \varepsilon(t) \quad (6)$$

3.3.3. Control Variables

In our study, the following variables that can affect the management strategy of real activity earning management were included in the control variable of the research model. First, company size (SIZE) is the natural logarithmic value of total assets. Second, the debt-to-equity ratio (LEV) is the value obtained by dividing total liabilities by equity capital. Third, operating cash flow (CFO) is a standardized value of current operating cash flow as total assets. Fourth, the gross return on assets (ROA) is the value obtained by dividing the current net income by total assets. Fifth, the majority shareholder's share (OWN) is the sum of the largest shareholder's share at the end of the year. Sixth, the size of auditors (BIG4) is dummy variables that have a value of 1 if audited by one of Samil, Samjeong, Anjin, and Hanyoung, otherwise zero(Ji & Yoon, 2020). Seventh, the electricity loss (LOSS) is a dummy variable that has a value of 1 for the company that lost the previous year, otherwise zero.

4. Results of Empirical Analysis

4.1. Descriptive Statistics

The following Table 1 shows the results of descriptive statistics analysis of major variables of this research model. The average value of the abnormal operating cash flow real activity earning management strategy measure (REMS_CFO), which is the dependent variable of this study, was about -0.029, and the average value of the abnormal management cost real activity earning management strategy measure (REMS_SG&A) was about -0.014, respectively. In addition, the average value of the independent variable, the retail firm, was about 0.118, indicating that approximately 12% of the total sample was traditional wholesale and retail businesses. The average value of managerial overconfidence_1 (OverCon_1), another independent variable,

was about 0.310, and the average value of managerial overconfidence_2 (OverCon_2) was about 0.321, respectively.

Table 1: Descriptive Statistics

	Mean	Median	Std. Deviation	25%	75%
REMS_CFO	-0.029	-0.027	0.077	-0.072	0.007
REMS_SG&A	-0.014	-0.009	0.113	-0.056	0.028
Retail firm	0.118	0.000	0.323	0.000	0.000
OverCon_1	0.310	0.000	0.463	0.000	1.000
OverCon_2	0.321	0.000	0.467	0.000	1.000
SIZE	27.115	26.946	1.537	26.034	27.981
LEV	0.468	0.475	0.204	0.304	0.618
CFO	0.053	0.051	0.065	0.016	0.089
ROA	0.042	0.039	0.053	0.013	0.069
GRW	0.030	0.029	0.122	-0.021	0.081
Firmage	8.816	9.077	0.808	8.441	9.451
OWN	0.453	0.451	0.172	0.329	0.562
BIG4	0.673	1.000	0.469	0.000	1.000
Loss	0.229	0.000	0.420	0.000	0.000

As control variables, the average company size (SIZE) was about 27.115, the average debt ratio (LEV) was about 0.468, the average operating cash flow (CFO) was 0.053, and the total return on assets (ROA) was about 0.042. In addition, the average value of the total asset growth rate (GRW) was about 0.030, the average value of the firm age was about 8.816, and the average value of the majority shareholder's share (OWN) was about 0.453. In addition, the average value of the auditor size (BIG4) was about 0.673, and the average value of the electric loss company (Loss) was about 0.229, respectively.

On the other hand, most of the variables do not show a significant difference between the mean and median values when considering the standard deviation, so it is judged that there is no difficulty in assuming the normal distribution of this study sample.

4.2. Correlation Analysis

Table 2 shows the results of Pearson correlation analysis between research model variables prior to testing research hypotheses, and is the result of bivariate correlation coefficient that does not control the effects of control variables.

First, the traditional wholesale and retail business and the abnormal operating cash flow real activity earning management strategy measure (REMS_CFO) showed a positive (+) correlation at the 1% significance level. In addition, the business and the abnormal management cost real activity earning management strategy measure (REMS_SG&A) also showed a positive (+) correlation at the 1% significance level. Therefore, it is expected that traditional wholesale and retail businesses are more likely to use real activity earning management strategies using abnormal operating cash flows and abnormal management costs.

Second, the managerial overconfidence propensity_1 (OverCon_1) and the abnormal operating cash flow real activity earning management strategy measure (REMS_CFO) showed a positive (+) correlation at the 5% significance level. In addition, the managerial overconfidence propensity_1 (OverCon_2) and the abnormal management cost real activity earning management strategy measure (REMS_SG&A) showed a positive (+) correlation at the 5% significance level. In addition, managerial overconfidence_2 (OverCon_2) and abnormal operating cash flow real activity earning management strategy measure (REMS_CFO) showed a positive (+) correlation at the 5% significance level. In addition, managerial overconfidence_2 (OverCon_2) and abnormal management expenses real activity earning management strategy measure (REMS_SG&A) showed a positive (+) correlation at the 5% level. Therefore, it is expected that the higher the managerial overconfidence tendency, the higher the likelihood of using real activity earning management strategies using abnormal operating cash flows and abnormal management expenses.

On the other hand, the above results are limited in their interpretation because they do not take into account the effects of control variables that are expected to affect the actual activity earning management strategy measure (REMS_CFO, REMS_SG&A).

Table 2: Pearson Correlation Analysis

	REMS _CFO	REMS _SG&A	Retail firm	Over Con_1	Over Con_2	SIZE	LEV	CFO	ROA	GRW	Firmage	OWN	BIG4
REMS _SG&A	.109***												
	0.000												
Retail firm	0.023***	0.058***											
	0.003	0.002											
Over Con_1	-.078	0.000	.067***										
	0.816	0.994	0.000										
Over Con_2	-076	0.017	.138***	.843***									
	0.642	0.357	0.000	0.000									
SIZE	0.023	0.012	.214**	.089**	.060**								
	0.216	0.520	0.000	0.000	0.001								
LEV	.127**	-0.033	-0.018	-0.019	-0.024	.268**							
	0.000	0.074	0.343	0.305	0.187	0.000							
CFO	-.483**	0.026	-0.009	.235**	.273**	.132**	-.165**						
	0.000	0.163	0.610	0.000	0.000	0.000	0.000						
ROA	-.222**	-0.009	.057**	.188**	.195**	.151**	-.245**	.602**					
	0.000	0.626	0.002	0.000	0.000	0.000	0.000	0.000					
GRW	-0.011	-0.036	.052**	.179**	.178**	.049**	-.102**	.141**	.348**				
	0.539	0.055	0.005	0.000	0.000	0.008	0.000	0.000	0.000				
Firmage	0.017	-0.033	.042*	-.098**	-.100**	-0.001	.057**	-.093**	-.155**	-.052**			
	0.360	0.072	0.025	0.000	0.000	0.960	0.002	0.000	0.000	0.005			
OWN	-.037*	0.011	.126**	0.021	0.022	0.009	-.098**	.085**	.117**	.046*	-.125**		
	0.046	0.548	0.000	0.246	0.228	0.626	0.000	0.000	0.000	0.012	0.000		
BIG4	-.050**	-0.015	.151**	.071**	.050**	.459**	.084**	.102**	.109**	0.006	-.108**	.075**	
	0.007	0.404	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.760	0.000	0.000	
Loss	.129**	-0.023	-.086**	-.172**	-.174**	-.129**	.319**	-.293**	-.439**	-.229**	.124**	-.145**	-.104**
	0.000	0.221	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: *** denotes 1% significance.

4.3. Results of Hypothesis Tests

Table 3 presents the results of verifying the relationship (H1) between the traditional wholesale and retail business and the level of real activity earning management strategy. First, the retail firm showed a statistically significant positive (+) relationship with the abnormal operating cash flow real activity earning management strategy measure (REMS_CFO) at the 1% level. Therefore, according to these results, it is judged that among industries, traditional wholesale and retail businesses have a higher level of real activity earning management strategy using abnormal operating cash flows than other industries.

Second, the retail firm showed a statistically significant positive (+) relationship between the abnormal SG&A measure of actual activity earning management strategy (REMS_SG&A) and the 5% level. Therefore, according to these results, it is judged that traditional wholesale and retail businesses have a higher level of real activity earning management strategy using abnormal SG&A than other industries. Therefore, according to the results of Table 3 above, H1 was supported that traditional wholesale and retail businesses would have a relatively higher level of real activity earning management strategy.

The results of the analysis of control variables are as follows: First, the company size (SIZE) showed a positive (+) relationship with the real activity earning management strategy measure (REMS_CFO, REMS_SG&A), and the larger the company size, the higher the level of real activity earning management strategy. Second, the debt-to-equity ratio (LEV) showed a positive (+) relationship with the real activity earning management strategy measure (REMS_CFO) using abnormal operating cash flows at a 1% significance level, and the higher the debt-to-equity ratio, the higher the level of real activity earning management strategy using abnormal operating cash flows. Third, operating cash flows (CFO) showed a negative (-) relationship with real activity earning management strategy measures (REMS_CFO, REMS_SG&A) at a 1% significance level, and the better the operating cash flow, the lower the level of real activity earning management strategy. Fourth, the total return on assets (ROA) showed a negative (+) relationship with the real activity earning management strategy measure (REMS_CFO) using abnormal operating

Table 3: Traditional wholesale and retail businesses and the Level of Real Earnings Management

$$\text{REMS\_CFO, REMS\_SG\&A}_{i,t} = \alpha_0 + \beta_1(\text{Retail firm})_{i,t} + \text{Control Variables} + \varepsilon_{i,t} \quad (7)$$

	Real Earnings Management (REMS) via Abnormal CFO(REMS_CFO)			Real Earnings Management (REMS) via Abnormal SG&A Expenses(REMS_SG&A)		
	Coef.	t	P	Coef.	t	P
Intercept	-0.165	-4.524	0.000	-0.178	-2.295	0.022
Retail firm	0.073	2.895	0.004	0.037	2.235	0.025
SIZE	0.003	3.227	0.001	0.002	2.898	0.004
LEV	0.018	2.645	0.008	-0.015	-0.083	0.934
CFO	-0.678	-28.530	0.000	-0.050	-12.146	0.000
ROA	0.129	4.064	0.000	0.068	0.568	0.570
GRW	0.027	2.557	0.011	0.022	0.027	0.979
Firmage	-0.003	-1.973	0.049	-0.003	-2.507	0.012
OWN	-0.001	-0.100	0.920	0.015	0.528	0.597
BIG4	-0.011	-3.834	0.000	-0.006	-1.771	0.077
Loss	0.000	-0.081	0.936	-0.007	-0.509	0.611
Adj-R^2	0.304			0.093		
F-value	46.439***			11.737***		

Note: *** denotes 1% significance; VIF Max = 2.038.

cash flows at a 1% significance level, indicating that companies with high total asset returns have a relatively high level of real activity earning management strategy using abnormal operating cash flows. Fifth, the total asset growth rate (GRW) showed a positive (+) relationship with the real activity earning management strategy measure (REMS_CFO) using abnormal operating cash flows at a 5% significance level, indicating that companies with high total asset growth rates have a relatively high level of real activity earning management strategy using abnormal operating cash flows. Sixth, the age of the company showed a negative (-) relationship with the real activity earning management strategy measure (REMS_CFO, REMS_SG&A) at a 5% level, indicating that companies with older companies have a relatively lower level of real activity earning management strategy. Seventh, the size of auditors (BIG4) showed a negative (-) relationship with the real activity earning management strategy measure (REMS_CFO, REMS_SG&A) within a 10% significance level, indicating that companies audited by large accounting firms had a relatively low level of real activity earning management strategy. On the other hand, the majority shareholders' equity ratio (OWN) and electricity loss (Loss) did not show a statistically significant relationship with the water activity earning management strategy measure (REMS_CFO, REMS_SG&A).

Table 4 shows the results of verifying the relationship (H2) between the managerial overconfidence_1 (OverCon_1) of a traditional wholesale and retail business and the level of real activity earning management strategy. First, the managerial overconfidence tendency of a traditional wholesale and retail business (Retail firm × OverCon_1) showed a statistically significant positive (+) relationship with the abnormal operating cash flow real activity earning management strategy measure (REMS_CFO). On the other hand, the managerial overconfidence tendency of a traditional wholesale and retail business (Retail firm × OverCon_1) did not show a statistically significant relationship with the abnormal management cost real activity earning management strategy measure (REMS_SG&A). Therefore, according to these results, the higher the managerial overconfidence tendency (Retail firm × OverCon_1) of a traditional wholesale and retail business, the higher the level of real activity earning management strategy using abnormal operating cash flows.

Therefore, according to the results of Table 4 above, H2 was supported only for normal operating cash flow real activity earning management strategies that the higher the managerial overconfidence tendency of traditional wholesale and retail businesses, the higher the level of real activity earning management strategy.

Table 5 presents the results of verifying the relationship (H2) between the managerial overconfidence_2 (OverCon_2) of a traditional wholesale and retail business and the level of real activity earning management strategy. First, the managerial overconfidence tendency of a traditional wholesale and retail business (Retail firm × OverCon_2) showed a statistically significant positive (+) relationship with the abnormal operating cash flow real activity earning management strategy measure (REMS_CFO).

Table 4: The Effects of Managerial Overconfidence_1 on Real Earnings Management in Traditional wholesale and retail businesses

$$\text{REMS\_CFO, REMS\_SG\&A}_{i,t} = a_0 + \beta_1 (\text{Retail firm})_{i,t} + \beta_1(\text{OverCon\_1})_{i,t} + \beta_3 (\text{Retail firm})\times(\text{OverCon\_1})_{i,t} + \text{Control Variables} + \varepsilon_{i,t} \quad (8)$$

	Real Earnings Management (REMS) via Abnormal CFO(REMS_CFO)			Real Earnings Management (REMS) via Abnormal SG&A Expenses(REMS_SG&A)		
	Coef.	t	P	Coef.	t	P
Intercept	-0.208	-4.499	0.000	-0.293	-2.984	0.003
Retail firm	0.073	2.550	0.011	0.056	2.127	0.034
OverCon_1	0.057	2.404	0.016	0.003	1.357	0.175
Retail firm×OverCon_1	0.031	2.246	0.025	0.004	0.938	0.349
SIZE	0.005	3.609	0.000	0.011	3.564	0.000
LEV	0.023	2.738	0.006	0.019	1.043	0.297
CFO	-0.700	-23.856	0.000	-0.638	-10.228	0.000
ROA	0.111	2.907	0.004	0.060	0.741	0.459
GRW	0.021	1.605	0.109	0.002	0.065	0.948
Firmage	-0.002	-1.138	0.255	-0.008	-1.761	0.078
OWN	-0.002	-0.201	0.841	-0.006	-0.331	0.741
BIG4	0.014	3.869	0.000	0.018	2.331	0.020
Loss	0.000	0.087	0.931	0.008	0.905	0.365
Adj-R^2	0.334			0.109		
F-value	31.346***			8.432***		

Note: *** denotes 1% significance; VIF Max = 2.077.

On the other hand, the managerial overconfidence tendency of a traditional wholesale and retail business (Retail firm × OverCon_2) did not show a statistically significant relationship with the abnormal management cost real activity earning management strategy measure (REMS_SG&A). Therefore, according to these results, the higher the managerial overconfidence tendency (Retail firm × OverCon_2) of a traditional wholesale and retail business, the higher the level of real activity earning management strategy using abnormal operating cash flows.

According to the results of Table 5 above, H2 was supported only for abnormal operating cash flow real activity earning management strategies that the higher the managerial overconfidence tendency of traditional wholesale and retail businesses, the higher the level of real activity earning management strategy.

Table 5: The Effects of Managerial Overconfidence_2 on Real Earnings Management in Traditional wholesale and retail businesses

$$\text{REMS\_CFO, REMS\_SG\&A}_{i,t} = a_0 + \beta_1(\text{Retail firm})_{i,t} + \beta_1(\text{OverCon\_2})_{i,t} + \beta_3(\text{Retail firm})\times(\text{OverCon\_2})_{i,t} + \text{Control Variables} + \varepsilon_{i,t} \quad (9)$$

	Real Earnings Management (REMS) via Abnormal CFO(REMS_CFO)			Real Earnings Management (REMS) via Abnormal SG&A Expenses(REMS_SG&A)		
	Coef.	t	P	Coef.	t	P
Intercept	-0.208	-4.505	0.000	-0.294	-2.991	0.003
Retail firm	0.073	2.547	0.011	0.055	1.990	0.047
OverCon_2	0.000	2.094	0.036	0.002	0.269	0.788
Retail firm×OverCon_2	0.005	1.898	0.058	0.012	0.431	0.667
SIZE	0.005	3.615	0.000	0.011	3.559	0.000
LEV	0.023	2.745	0.006	0.018	1.013	0.311
CFO	-0.699	-23.674	0.000	-0.645	-10.276	0.000
ROA	0.112	2.915	0.004	0.060	0.735	0.463
GRW	0.021	1.645	0.100	0.000	-0.013	0.990
Firmage	-0.002	-1.134	0.257	-0.008	-1.728	0.084
OWN	-0.002	-0.201	0.840	-0.006	-0.338	0.735
BIG4	0.014	3.881	0.000	0.018	2.337	0.020
Loss	0.000	0.073	0.942	0.009	0.960	0.337
Adj-R^2	0.334			0.110		
F-value	31.346***			8.440***		

Note: *** denotes 1% significance; VIF Max = 2.07.

4.4. Additional Analysis

Table 6 shows the results of verifying the relationship (H2) between managerial overconfidence propensity and the level of real activity earning management strategy for only traditional wholesale and retail businesses among the total research sample. First, the managerial overconfidence tendency (Retail firm × OverCon) showed a statistically significant positive (+) relationship with the abnormal operating cash flow real activity earning management strategy measure (REMS_CFO). On the other hand, the managerial overconfidence tendency (Retail firm × OverCon) did not show a statistically significant relationship with the abnormal management cost real activity earning management strategy measure (REMS_SG&A). Therefore, the higher the managerial overconfidence tendency of a traditional wholesale and retail business, the higher the level of real activity earning management strategy using abnormal operating cash flows.

According to the results of the further analysis in Table 6, H2 was supported only for abnormal operating cash flow real activity earning management strategies that the higher the managerial overconfidence tendency of traditional wholesale and retail businesses, the higher the level of real activity earning management strategies.

Table 6: The Relationship Between Managerial Overconfidence and Real Earnings Management : Subsample of Traditional Wholesale and Retail Businesses

$$\text{REMS\_CFO, REMS\_SG\&A}_{i,t} = \alpha_0 + \beta_1(\text{OverCon\_1, OverCon\_2})_{i,t} + \text{Control Variables} + \varepsilon_{i,t} \quad (10)$$

	Real Earnings Management (REMS) via Abnormal CFO(REMS_CFO)			Real Earnings Management (REMS) via Abnormal SG&A Expenses(REMS_SG&A)		
	Coef.	**t**	**P**	**Coef.**	**t**	**P**
Intercept	0.122	2.359	0.019	-0.100	-0.758	0.449
OverCon_1	0.007	2.005	0.045	0.006	0.667	0.505
Control Variables	Included			Included		
Adj-R^2	0.334			0.142		
F-value	18.240***			6.677***		
Intercept	0.115	2.221	0.027	-0.113	-0.853	0.394
OverCon_2	0.014	2.088	0.037	0.005	1.062	0.288
Control Variables	Included			Included		
Adj-R^2	0.337			0.141		
F-value	18.539***			6.668***		

Notes: *** denotes 1% significance; VIF Max = 1.585.

5. Conclusion

We compared the level of earning management strategy through real activities in traditional wholesale and retail businesses with that of firms in other industries. In addition, we analyzed the effects of the CEO's overconfidence tendency on the level of earning management strategy through real activities in traditional wholesale and retail businesses. The main research results were as follows.

First, we found that traditional wholesale and retail businesses are more actively using earning management strategies based on real activities than other industries. This means that the unique industrial characteristics of traditional wholesale and retail businesses (low proportion of fixed assets, high liquidity, sensitivity to seasonality and demand, fierce competition structure, etc.) improve the feasibility of real activities for short-term performance adjustment.

Second, we found the manager's overconfidence tendency could play the role of a driver that significantly influenced the level of earning management strategy for real activities of traditional wholesale and retail businesses. Specifically, managers with a high tendency to overconfidence tended to use real activity-based earning management strategies more actively using abnormal operating cash flows. This is interpreted as a result of reflecting the behavioral tendency of managers to adjust their performance based on excessive optimism and confidence in future performance.

Third, when the structural characteristics of traditional wholesale and retail businesses and managerial tendencies are combined, the strength and direction of earning management strategies may appear in a more strategic and consistent manner, suggesting that this is a crucial factor that can affect the reliability and transparency of financial information.

Our study might provide several academic implications. First, we specified the impact of the industry-specific financial and accounting environment on the earning management strategy by developing an empirically testable model highlighting a certain industry such as traditional wholesale and retail businesses and by testing it. We believe that the model could serve as a template for further studies that may attempt to generalize the results of our study. In addition, the model would be used to obtain the external validity of the results in other industry contexts. Second, we presented how the interaction between the manager's behavioral characteristics and the industrial structure could be reflected in the actual management behavior in an industry. Accordingly, our study provided a model for an interdisciplinary approach between behavioral management research and industrial management one.

Moreover, the results of the present study may provide several managerial guidelines for traditional wholesale and retail businesses. First, traditional wholesale and retail business managers should keep in mind that management performance may be affected not only by the industrial structure of the business, but also by managers' tendencies and decision-making trends. In fact, by analyzing the behavior of earning management strategy focusing on the manager's overconfidence tendency, our study could expand the scope of earning management research based on managerial characteristics. Second, the results of our study may provide useful implications for auditors and regulators when interpreting the accounting information of traditional wholesale and retail businesses. The results suggested that the strategic judgment of managers with overconfidence tendencies may improve performance in the short-term, but in the long-run, it may lead to distortion of firm value and a decrease in the reliability of the information of management performance in traditional wholesale and retail businesses. Therefore, traditional wholesale and retail business managers should strengthen the monitoring function of corporate governance and upgrade the internal control system. Finally, the results of our study proposed that policy makers and capital market participants should refine the reliability and verification system of information disclosure in consideration of the relationship between the specificity of traditional wholesale and retail businesses and earning management behavior.

For future studies, it is necessary to analyze managerial propensity more objectively and consistently through elaboration of overconfidence measurement methods. In addition, it is possible to analyze in-depth the impact of managers' qualitative characteristics, such as leadership style and management, on profit management behavior. Moreover, it is entirely possible to consider how recent changes in the information environment, such as ESG evaluation and non-financial information disclosure, act as a limiting or facilitating factor in the behavior of traditional wholesale and retail businesses' real earning management strategies. Finally, it is required to compare the discriminatory effects of overconfidence propensity on earning management strategy methods in specific types of businesses such as supermarkets, convenient stores, and outlets other than traditional wholesale and retail businesses.

References

Adam, T. R., Fernando, C. S., & Golubeva, E. (2015). Managerial Overconfidence and corporate risk management. *Journal of Banking & Finance, 60*, 195-208.

Ahmed, A. S., & Duellman, S. (2013). Managerial overconfidence and accounting conservatism. *Journal of Accounting Research, 51*(1), 1-30.

Cohen, D. A., Dey, A. & Lys, T. Z. (2008). Real and accrual-based earnings management in the pre- and post-Sarbanes Oxley periods. *The Accounting Review*, *83*(3), 757-787.

Cohen, D. A., & Zarowin, P. (2010). Accrual-based and real earnings management activities around seasoned equity offerings. *Journal of Accounting and Economics*, *50*(1), 2-19.

Deshmukh, S., Goel, A. M., & Howe, K. M. (2013). CEO overconfidence and dividend policy. *Journal of Financial Intermediation, 22*(3), 440–463.

Ferris, S. P., Jayaraman, N., & Sabherwal, S. (2013).CEO overconfidence and international merger and acquisition activity. *Journal of Financial and Quantitative Analysis, 48*(1), 137–164.

Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, *40*(1–3), 3-73.

Ji, S. H. (2019). Detection of earnings management as a measure of income smoothing on fluctuations in exchange rates: Managerial implications for Korean exporters. *Journal of Korea Trade, 23*(6), 66–92.

Ji, S. H., & Yoon, K. C. (2020). The effects of widening daily stock price limits on the relevance between audit quality and stock return. *Journal of Asian Finance, Economics and Business, 7*(4), 107–119.

Ji, S. H., Yoon, K. C., An, S. B., & Oh, H. M. (2019). A study on earnings management in companies achieving sustainability: Accruals-based and real earnings management. *Journal of Distribution Science, 17*(9), 103–115.

Kim, S. Y., & Park, J. W. (2024). CEO Overconfidence and Bonus Target Ratcheting. The Accounting Review, 99(5), 333–362.

Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, *13*(4), 365-383.

Hirshleifer, D., Low, A., & Teoh, S. H. (2012). Are overconfident CEOs better innovators?. *The Journal of Finance, 67*(4), 1457-1498.

Hribar, P., & Yang, H. (2015). CEO overconfidence and management forecasting. *Contemporary Accounting Research, 32*(4), 1310-1332.

Huang, R., Tan, K. J. K., & Faff, R. W. (2016). CEO overconfidence and corporate debt maturity. *Journal of*

Corporate Finance, 36, 93–110.

Irani, R. M., & Oesch, D. (2016). Analyst coverage and real earnings management: Quasi-experimental evidence. *Journal of Financial and Quantitative Analysis, 51*(2), 589–627.

Kang, S. A., & Kim, T. J. (2019). A Research on the Relationship between Accrual-based Earnings Management and Real Earnings Management in the Retail Industry. *Journal of Distribution Science, 17*(12), 5–12.

Kothari, S. P., Mizik, N., & Roychowdhury, S. (2016).Managing for the moment: The role of earnings management via real activities versus accruals in SEO valuation. *Accounting Review, 91*(2), 559–586.

Li, C. A., Lin, T. M., & Huang, Y. W. (2019). Managerial overconfidence, compensation induced risk taking, and management. The International *Journal of Business and earning management, 12*(2), 1-26.

Liu, D., & Lee, C. H. (2024). The influence of executive overconfidence on compensation–performance sensitivity considering the effects of COVID-19 and ownership structure: A study of Chinese enterprises. *Tax Accounting Research, 81*, 73-101.

Malmendier, U., & Tate. G. (2005). CEO Overconfidence and Corporate Investment. *Journal of Finance. 60(6)*, 2661-2700.

Malmendier, U., & Tate, G. (2008). Who makes acquisitions? CEO overconfidence and the market's reaction.Journal of *Financial Economics, 89*(1), 20–43.

Potharla, S., Bhattacharjee, K., & Samontaray, D. P. (2021). Real Earnings Management and Persistence of Firm Value: Evidence from India. *The Journal of Asian Finance, Economics and Business, 8*(12), 323–336.

Purwidianti, W., Rahmawati, I. Y., & Dwiyanti, R. (2023). Overconfidence and herding bias on investment decisions: The role of risk perception as a mediator. *Asian Journal of Economics, Business and Accounting, 23*(18), 36–45.

Rajabalizadeh, J. (2023). CEO overconfidence and financial reporting complexity: Evidence from textual analysis. *Management Decision, 61*(13), 356–385.

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics, 42*(3), 335-370.

Schiefele, U., Schaffner, E., Möller, J., & Wigfield, A. (2012). Dimensions of reading motivation and their relation to reading behavior and competence. *Reading Research Quarterly*, *47*(4), 427-463.

Schrand, C. M., & Zechman, S. L. C. (2012). Executive overconfidence and the slippery slope to financial misreporting. *Journal of Accounting and Economics, 53*(1–2), 311-329.

Siahaya, S. L., Sandanafu, S. P., Aponno, C., & Sadubbbun, V. L. A. (2021). Factors Affecting Real Earning Management: Evidence from Indonesia Stock Exchange. *The Journal of Asian Finance, Economics and Business, 8*(8), 85–91.

Zang, A. Y. (2012). Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *The Accounting Review, 87*(2), 675–703.

Zhou, L., Lu, S., & Si, D. (2025). Research on the bullwhip effect based on retailers' overconfidence in the sustainable supply chain. *Sustainability, 17*(10), 1-26.