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석사 학위논문

Incentives for earnings  
management of firms in the  
rehabilitation procedures

회생기업의 이익조정 유인에 대한 고찰

2023년 2월

서울대학교 대학원

경영학과

정지연

Incentives for earnings  
management of firms in the  
rehabilitation procedures

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이 논문을 석사 학위논문으로 제출함  
2023 년 1 월

서울대학교 대학원

경영학과

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# Abstract

This study examined the earnings management method and earnings management patterns at each point in time of rehabilitation firms subject to external audit. Due to the conflict of interest between creditors and shareholders, the pursuit of maximization of shareholder value, the risk of deprivation of management rights, and the possibility of liability for damages for insolvent management, there is a possibility that insolvent firms may not choose the rehabilitation procedure in a timely manner. Accordingly, controlling shareholders and managers, who are insiders, have an opportunistic incentive to report sound financial conditions through earnings management to outsiders such as creditors in order to delay debt repayment requests and maximize their profits. As a result of this study, the rehabilitation firms are managing earnings, and report negative accrual earnings management since two years before the start of the rehabilitation procedure. This is presumed to be due to negative earnings management in the process of reflecting the actual poor performance of the firms because of no room to inflate earnings anymore, and consideration of management rights and management's liability for damages, and reflecting the existing insolvency revealed in the investigator's investigation in the start year. In addition, in this study, I found that there is a possibility that the measurement of earnings management through discretionary accruals may be diluted because rehabilitation firms tend to secure insufficient operating cash flows by adjusting working capital. The rehabilitation process is based on the sacrifice of stakeholders. Therefore, the balance between the creditors and the debtors is important, and in order to minimize the social loss, it is necessary to improve the information balance of the outsiders.

**Keyword : rehabilitation, earnings management, opportunism**

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# Chapter 1. Introduction

If a firm is in a state of financial bankruptcy and unable to pay its debts despite it being worthwhile to continue its business, it files for rehabilitation procedure and follows the procedure to restructure its debts. In general, a debtor (firm) which is economical in the business but is in a state of financial distress files an application with the court for commencing the rehabilitation procedures to rebuild the business through debt restructuring. If a firm has a going concern value, it is more valuable to proceed with the rehabilitation procedure than going bankruptcy since the firm has its own roles such as investment and employment maintenance, even if the firm goes through the rehabilitation process at the expense of stakeholders, such as shareholders and creditors. From the creditor's point of view, if the going concern value of the firm is higher than the liquidation value, it is more valuable for the debtor to continue operating and pay off the debt than to pay off the debt through liquidation, based on the principle of creditor's wealth maximizing principle.

<Table 1> shows that 3,192 firms have been initiating rehabilitation procedure, and 1,582 firms have successfully completed rehabilitation procedures over the past five years<sup>①</sup>. In other words, it appears that only about 49.5% of firms reach graduations after start their rehabilitation procedure by bankruptcy courts. The reason for not graduating after the rehabilitation procedure is that there are clearly no going concern value, or the consents of the creditors cannot be obtained at the assembly of related parties due to the question of whether the payment will be properly performed to the creditors. In addition, even if the court has received a decision to graduate, there are cases in which the earnings are not generated as expected after graduation and the debtors fail to repay the debt according to the rehabilitation plan, leading to file for the rehabilitation procedure again.

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<sup>①</sup> <https://www.scourt.go.kr>. Judicial Yearbook 2017-2021

It is quite important for distressed firms to make timely debt restructuring in a financial crisis. If the firms missed this period, there are cases in which the rehabilitation procedure is filed at the very late point in time due to an urgent debt repayment request of financial institutions. However, in this case, the business of the distressed firms has already been destroyed, the economic value of the firms might disappear. Therefore their going-concern value are expected to fall short of their liquidation values.

<Figure 1> shows that while the number of rehabilitation procedure filing cases has been stagnant and decreasing, the number of bankruptcy filing cases has been generally increasing recently<sup>②</sup>. This phenomenon may have various reasons, such as recent trend in the increasing start-ups, however it cannot be ruled out that bankruptcy due to failure to file for rehabilitation procedures in a timely manner.

In the case of corporate rehabilitation cases, Lee(2016) pointed out the problem of filing for bankruptcy too late, claiming that the firm's financial structure and business ability were already significantly deteriorated to the extent that it could not recover.

This paper investigates why many firms are unable to file for rehabilitation procedure in a timely manner.

The debtor may file an application with the court for commencing the rehabilitation procedures:

1. Where the debtor finds it impossible to repay his or her obligations due and payable without any serious hindrance to the continuation of his or her business.
2. Where facts leading to bankruptcy are likely to arise with respect to the debtor.

In case falling under case 2, creditors or shareholders<sup>③</sup> may also

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② In 2021, the number of rehabilitation and bankruptcy cases temporarily decreased due to the government's debt repayment deferral policy due to the spread of COVID-19(<https://www.scourt.go.kr>. Judicial Yearbook)

③ According to Article 34 of the Debtor Rehabilitation and Bankruptcy Act (Application for Commencement of Rehabilitation Proceedings), in cases falling under paragraph (1) 2, the person prescribed in each item of the relevant subparagraph may also file an application for commencement of

file an application for commencement of rehabilitation procedure. In most cases, debtors which cannot repay their debts normally file for the procedure.

The rehabilitation procedure is a system in which the debtor legally suspend debt repayment and receive debt relief according to the approved rehabilitation plan, and the disposition of security rights is limited by the automatic stay regardless of the debt contract, so it can be considered to be considerably advantageous for the debtor. However, the debtor hesitates to file for rehabilitation procedures in a timely manner for the following reasons. First of all, when filing for rehabilitation procedure, the debtor's insiders (controlling shareholders and managers) would be reluctant to apply for rehabilitation procedure due to fear of deprivation of management rights.

In the past, the firm reorganization process was based on the deprivation of management rights of existing managers, but after the enactment of the Integrated Bankruptcy Act in 2006, the DIP (Debtor in possession) system for appointing existing managers as custodians (insolvency representatives) was introduced, and this phenomenon is presumed to have weakened<sup>④</sup>, however, if financial distress is caused by the director's misappropriation or concealment of properties or poor management with serious responsibility, the insider's management rights are deprived<sup>⑤</sup>, and there is a risk of filing

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rehabilitation procedures according to the classification of each of the following subparagraphs:

1. When the debtor is a stock firm or a limited-liability firm:

(a) A creditor who holds a claim equivalent to not less than 1/10 of the capital;

(b) A shareholder or the equity right holder who holds the share or the equity share equivalent to not less than 1/10 of the capital;

<sup>④</sup> In the past, the U.S. Federal Bankruptcy Act divided the corporate rehabilitation process into Chapter 10 for large firms, but Chapter 11 for small or closed firms in principle, but Chapter 11 for DIP. However, due to the avoidance of firms concerned about the replacement of management rights, it was revised in 1978 and integrated into Chapter 11 based on DIP (Lee Jae-hee, 2016)

<sup>⑤</sup> According to Article 74 of the Debtor Rehabilitation and Bankruptcy Act

a compensation suit by interested parties<sup>⑥</sup>. In addition, in the debt restructuring process, the shareholding ratio of existing controlling shareholders is usually greatly reduced through debt-for-equity swap and capital reduction procedures, so controlling shareholders will feel burdened accordingly. In addition, if the consents of the creditors is not obtained at the assembly of related parties<sup>⑦</sup>, there is a risk of failure to restructure the debt. Even if debt restructuring is successful through the rehabilitation procedure, there is a possibility that the transaction may be suspended due to difficulties in obtaining external funds from other financial institutions and the stigma effect of a rehabilitation firm on the customer. For these reasons, there are incentives for debtors to delay the filing for rehabilitation procedure.

Shareholders benefit from the majority of the increase in firm value, however the lender cannot share in the increase in firm value except for interest and principal repayment. Therefore, shareholders try to maximize their wealth through risky and volatile investments, but creditors try to prevent default risk.

Shareholders have an incentive to make risky investments at a time when the corporate value is already extremely low and repayment to creditors is uncertain because the value of equity does not decrease below “0” when business activities of a firm are already deteriorated. Therefore, the firm seeks to increase the corporate value even though the possibility is low rather than

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(Selection and Appointment of Custodians), The court shall appoint debtors' representatives as custodians with the exception of the following instances, When the debtor's financial distress is caused either by misappropriation or concealment of properties by any of the following persons or by poor management substantially attributable to such person:

<sup>⑥</sup> According to Article 401 of the Commercial Act, if a director violates laws or articles of association intentionally or gross negligence, or neglects his/her duties, the director is jointly responsible for compensating for damages to a third party. According to Article 115 of the Debtor Rehabilitation Act (investigation and final and binding trial on the right to claim damages, etc.), a trial may be conducted to investigate and confirm the existence and details of the right to claim damages due to the liability of directors, etc.

<sup>⑦</sup> Creditors consents must be obtained for at least 3/4 of the total voting rights of secured creditors, and at least 2/3 of the total voting rights of unsecured creditors.

choosing debt restructuring at this point. This is because, after all, once the corporate rehabilitation process begins, most of the shareholder's equity value is diluted through debt-for-equity swap and capital reduction procedures. Even from an insider's point of view, if the corporate rehabilitation procedure is commenced, even if the existing representative becomes the insolvency representative (custodian) in principle, if the representative's poor management is revealed, he or she may be deprived of management rights, and accordingly, a lawsuit for damages might be filed by interested parties. Therefore, rather than timely debt restructuring, managers will try to maintain their rights by increasing their value through risky investments— even if the probability is low as controlling shareholders. If the existing manager is responsible for financial distress, the incentive is likely to be strengthened. In addition, when a debtor firm files for rehabilitation procedure, the joint guarantee of the firm's representative is executed, insiders would be more reluctant to file for rehabilitation procedure.

The incentive for risky investments without timely filing for debt restructuring by insiders only raises the default risk of creditors, as creditors cannot share the increase in firm value. This is a point where the rights of insiders and outsiders are opposed, related to the Lender-Shareholder conflict<Figure2>.

Insiders have all the information about the firm, but outsiders obtain only limited data, including financial statements. For this reason, insiders are likely to distort the information collected by outsiders. Accordingly, it is predicted that there will be an incentive for the debtor to adjust its financial statement to appear sound by managing the earnings positive to avoid the creditors' request for repayment at the right time when the firm's economic value remains, and file for rehabilitation procedure only when it is no longer available. On the contrary, if poor management is revealed in the rehabilitation process, there is a risk of deprivation of management rights and claiming damages, so there is a possibility that earnings will be lowered to reflect the actual poor firm's performance, and in the start year, there is a high possibility that earnings will be lowered by

reflecting the investigator' s<sup>®</sup> findings. Therefore, in this study, there will be an incentive for earnings management before the occurrence of insolvency of rehabilitation firms, and it is predicted that there will be a difference in earnings management by time point. I analyze the earnings management behavior of the rehabilitation firm at each point in time using the accrual earnings management and the real earnings management.

Dechow and Skinner(2000) report that management of accruals is managers' act that manage earnings through managing of accruals accounts on the books by using accounting standards adopting the accrual basis. Assuming that it is difficult for managers to manage operation cash flows at their discretion, they manage earnings through accruals. Roychowdhury(2006) find that real earnings management is managers' act that manage earnings using the real activities manipulation of a firm to achieve target earnings or avoid reporting annual loss. Real earnings management is made through an increase in sales through price discounts or credit sales increases, a decrease in cost of goods sold through an over production, and a decrease in discretionary expenditures such as R&D expenses and sales expenses. Real earnings management would be preferred to the accrual management for the normal firms, as using accrual management is likely to violate the accounting principle compared to the real earnings management. However, in this study, I expect that rehabilitation firms are unable to manage real earnings due to lack of cash, so if the rehabilitation firms manage earnings, they are expected to use more accrual earnings management than real earnings management, and there will be differences by time of rehabilitation procedure.

Jang(1997) reported for upward earnings management two years before and one year before the onset of insolvency, Lee(2017) found upward management of earnings from two years before the onset of insolvency. Sweeny(1994) found that in the case of a firm that

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<sup>®</sup> When the rehabilitation procedure is initiated, the court appoints an investigator to investigate the debtor's financial status.

violates a debt contract, it increases earnings and cash flow in order not to violate the debt contract terms.

However, right before filing the rehabilitation process, rather than making upward earning management, there is a possibility that poor management performance may be expressed as it is, and rather, a downward earnings management (big bath) may be made (DeAngelo 1994, Na and Choi 2000). Kim and Park(1999) show that upward accrual earnings management appeared from eight to two years before the occurrence of insolvency, but they do not find any accrual earnings management in the immediately preceding year. Park and Choi(2019) show that the downward earnings management was made right before the rehabilitation procedure filing. Gopalan, Martin and Srinivasan(2022) find that in a situation where the creditors' rights are weak, the debtors intentionally manage earnings downward to understate firm net worth so as to be able to file for bankruptcy.

In the prior research, there are not lots of studies on earnings management of the firms which have filed for the rehabilitation procedure in the bankruptcy courts. In addition, although most of the studies focused on listed firms as a sample, most of the firms which have filed for the rehabilitation procedure in the bankruptcy courts are small-sized firms, and the smaller the size, the higher the possibility of earnings management due to poor monitoring. Kang (2019) investigated the cases of filing for corporate rehabilitation procedures from 2006 to 2015. Of these, 27.8% were firms subject to external audit and 72.2% were firms non-subject to external audit. On the other hand, it was found that the ratio of graduation of rehabilitation procedures for non-external audit firms was lower than for external audit firms.

Therefore, in this study, I examine the earnings management behavior from two years before the start year to the start year, using a sample of externally audited firms that have recently started the rehabilitation procedure in the bankruptcy courts. As a result of the study, the rehabilitation firms have been managing earning downward using accruals, and if insolvency is revealed during the procedure, there is a risk of deprivation of management rights and claiming

damages, so it is expected to clean up the existing insolvency and lower earnings by reflecting the actual poor firms' management performance. In the start year in which the investigators' findings are reflected in the financial statements, past insolvency is revealed, it is resumed that earnings management downward is made in the process of reflecting it in the financial statement. It may be an aspect that the amount of accruals decreased as the working capital was recovered by extending the days payable outstanding (DPO) due to the lack of operating cashflows at a time when the firm became difficult to operate. After the initiation of the procedure, negative real earnings management was found through strengthening credit conditions, which is believed to be due the focus on securing cashflows through collection of receivables rather than excessive earnings management.

The contributions of this study are as follows. First of all, this study examines the earnings management behavior of relatively small rehabilitation firms by expanding the sample to firms subject to external audit as well as listed firms which are relatively large. However, in the case of firms subject to non-external audit, the proportion in the rehabilitation procedure is significant, but there was a limitation that it could not be used as sample because externally disclosed data could not be found. Second, I find that there is a limit to the method of using a proxy such as accruals for general earnings management estimation, when measuring the earnings management of insolvency firms. In other words, the insolvency firms suffer from a lack of operating cash flow from the point when operating activities become deteriorated, and it seems that they actually borrow by extending the days payables outstanding of in a situation where external borrowing is limited. This fact contradicts the basic assumption that it is relatively difficult for managers to adjust operating cash flows arbitrarily when measuring accrual earnings management, so I find that there is a limit to analyzing the earnings management of insolvent firms with the existing model. Third, this study has significant implications in relation to appropriate monitoring for stakeholders such as creditors related to insolvent firms. At the

initiation year of the rehabilitation procedure, downward earnings management occurs in the process of reflecting the insolvency revealed in the investigation process, and if the possibility of insolvency is detected in advance through proactive monitoring of the firm and debt restructuring is made in an appropriate time, it will be possible to prevent a bigger insolvency loss. In addition, it will be possible to contribute to the proactive prevention of how insolvent firms that may arise in the future can be reorganized into normal firms by restructuring within the legal framework for the authorities and courts that manage the rehabilitation procedures.

## Chapter 2. Prior research and hypothesis development

### 2.1. Prior research

This section examines prior researches related to earnings management and opportunistic behavior of insolvent firms. Jang(1997) analyzed 42 insolvent firms that were listed on the KOSPI from 1991 to 1994 and applied for default, designation of management items, corporate rehabilitation procedures, and court management. The earnings ability of insolvent firms deteriorated until three years before the onset of insolvency, but improved significantly from two years before the onset of insolvency. However, there is no logical correlation between financial indicators of insolvent firms, and it is found that this phenomenon is severe two years before and one year before the occurrence of insolvency, and that this is the result of accounting earnings management to maximize earnings. Kim and Park(1999) analyzed the earnings management behavior of insolvent firms using the modified Jones model, using 75 firms listed on the stock market filed for rehabilitation procedure

from 1996 to July 1998 as a sample. As a result of the analysis, a significant amount of discretionary accrual was observed from eight to two years before the occurrence of insolvency, but no statistically significant earnings management was found in the year immediately before the occurrence of insolvency. Kim and Kim(2005) analyzed the earnings management behavior of insolvent firms using the Jones/Modified Jones model for 107 listed firms market filed for rehabilitation procedure from 1994 to 2001. It was found that insolvent firms had higher discretionary accrual than non-performing firms, but no significant difference was found between two years ago and one year ago. Lee(2017) shows that the earnings management behavior of insolvent firms using the Jones/Modified Jones model targeting insolvent firms designated as management items or delisted firms in the stock market from 1995 to 2013. Clear earnings management attempts were discovered two and one year prior to the occurrence. Sweeney(1994) found that firms increase their earnings and cash flow to avoid breaching debt contract terms.

As showed above, although it is generally predicted that insolvent firms make upward earnings management, there are many studies that conclude that they do downward earnings management. Leah and Newsom(2007) focuses on earnings management resulting from impending bankruptcy of publicly traded firms(NYSE, AMEX, NASDAQ)which voluntarily or involuntarily file for Chapter 11 from 1980 through 2000. Their results show that five years before filing, firms cause their financial statements to look better by forcing their discretionary current accruals to be significantly positive, however, this earnings management behavior reversed as bankrupt firms near their filing date. In the two years prior to filing, bankrupt firms reverse their DCA, and this causes sales and net income on the income statement to be lower. Na and Choi(2000) showed whether earnings management was performed before insolvency occurred using a sample of insolvent firms that met the condition for delisting of securities from 1990 to 1996. Contrary to general expectations, it was found that insolvent firms did not perform upward earnings management before the onset of insolvency, and rather reported less

discretionary accruals than non-performing firms two and one year before the onset of insolvency. They found that insolvent firms make more effort into improving cash flows than increasing earnings through discretionary accruals. Park and Choi(2019) provided whether or not to manage earnings at each time point from before the commencement of the rehabilitation procedure to the time it was graduated, targeting firms that started and graduated the rehabilitation procedure between 2008 and 2016. As a result, it was found that firms reported negative discretionary accruals in the year immediately before the commencement of the rehabilitation procedure, and lowered their earnings when the commencement of the rehabilitation procedure was certain.

Regarding to opportunistic behavior, Radhakrishnan Gopalan (2022) argued that under the weak investor protection, the debtor firm's insiders coordinate debt restructuring through opportunism by proving that the firm intentionally manage earnings downward to understate firm net worth so as to be able to file for bankruptcy and that the firm that reported lower abnormal accruals before bankruptcy would make larger related transactions. They studied how the debtors manage earnings to make an advantageous select according to the intensity of filing for bankruptcy compared to the case where the degree of protection of rights between creditors and debtors is high or low.

As mentioned above, there are not many research results on earnings management for firms undergoing rehabilitation procedures, and the results of earnings management studies on insolvent firms are somewhat different.

## **2.2. Hypothesis development**

The results of the preceding studies above generally suggested that insolvent firms are managing earnings, and there is an opportunistic incentive for insiders to file for bankruptcy. As a result, rehabilitation firms are more likely to manage earnings than normal

firms, and despite the possibility of accounting standard violation, it is expected that accruals earnings management is more likely than real earnings management involving over production or sales discounts. In addition, the pattern of earnings management will be different for each point before and after the rehabilitation procedure. Prior to filing for the procedure, there will be upward earnings management to avoid earning repayment, loss of management right, and damage to shareholder value. However, right before the procedure, there will be no more room for earnings management, or downward earnings management that reflects actual poor performance by cleaning up existing insolvency due to loss of management right and risk of damage suit. It is expected that there will be downward earnings management in the start year by reflecting the prior poor performance according to the investigator' s findings. Therefore, this study derived the following hypothesis.

Hypothesis 1 : Firms that filed for rehabilitation procedures will manage earnings.

Hypothesis 2 : Firms that filed for rehabilitation procedures have different directions for earnings management at each point in time.

## Chapter 3. Data and sample selection

### 3-1. Sample selection

- (1) Firms subject to external audit that have received a decision to commence the rehabilitation procedure after filing for the rehabilitation procedure from 2018 to 2020

- (2) Non-financial firms
- (3) Firms that can obtain related financial statement data using the KIS-VALUE database of Korea Credit Rating Information Co., Ltd.
- (4) Firms subject to external audit between 2016 and 2020 compared to the above firms that commence the rehabilitation procedure (Control firms)

This study analyzed firms subject to external audit that received a decision to initiate rehabilitation procedures between 2018 and 2020. Using both firms under the rehabilitation procedure and firms not under the rehabilitation procedure as samples, it was examined whether firms under the rehabilitation procedure made earnings management compared to. In accordance with the above selection criteria, a total of 131 firms without omission of financial data were selected as the final rehabilitation firms. <Table 2> shows industry distribution of treatment firms by year.

I examine whether or not earnings management was made by period from two years before the rehabilitation commencement to the year of the rehabilitation commencement, and exclude samples with less than 10 samples in the same industry for a specific year<sup>⑨</sup>. During this period, 655 rehabilitation firms-year and 66,143 non-rehabilitation firms-year. Therefore, a total of 66,798 firms-year samples were used for this study.

### 3-2. Model design

The main purpose of this study is to verify whether the rehabilitation firms manage earnings through comparison between the firms that initiated the rehabilitation procedure (Treatment) and

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<sup>⑨</sup> The number of samples was limited to secure validity in the process of estimating accrual earnings management and real earnings management by year and industry.

the normal firms (Control), and to verify at what point the rehabilitation firms manage earnings.

### 3-2-1. Accruals earnings management

As a proxy of verifying accrual earnings management, discretionary accruals were used, and discretionary accruals were measured using the Modified Jones model of Dechow, Sloan and Sweeney (1995). Accruals are assumed to be the difference between net income and operating cashflows. Since the accruals can be determined at the discretion of the manager, the value obtained by subtracting the part to which the discretion of the manager cannot adjust at his or her discretion is defined as the discretionary accrual. This model assumes that sales and PPE are not used as a means of earnings management, and in the case of the Modified Jones model, changes in credit sales are deducted from non-discretionary accruals because there is an incentive for managers to adjust the collection period of account receivables at their discretion.

The modified Jones model is as follows.

$$\frac{TACC_t}{TA_{t-1}} = \alpha_0 \left( \frac{1}{TA_{t-1}} \right) + \alpha_1 \left( \frac{(\Delta REV_t - \Delta AR_t)}{TA_{t-1}} \right) + \alpha_2 \left( \frac{PPE_t}{TA_{t-1}} \right) + \epsilon_t \quad (1)$$

$$DA_t = \left( \frac{TACC_t}{TA_{t-1}} \right) - \left[ \alpha_0 \left( \frac{1}{TA_{t-1}} \right) + \alpha_1 \left[ \frac{(\Delta REV_t - \Delta AR_t)}{TA_{t-1}} \right] + \alpha_2 \left( \frac{PPE_t}{TA_{t-1}} \right) \right] \quad (2)$$

$TACC_t$  : Total accrual in year t of firm i (= net income – cash flow from operating activities)

$\Delta REV_t$  : Change in sales of firm i in year t

$\Delta AR_t$  : Change in account receivables of firm i in year t

$PPE_t$  : Property, plant and equipment of firm i in year t

$TA_{t-1}$  : Total assets of firm i in year t-1

$\epsilon_t$  : Error term in year t of firm i (= discretionary accrual)

$DA_t$  : Discretionary accrual in year t of firm i

In this model, discretionary accruals were estimated as error terms and used as a proxy for accruals earnings management.

### 3-2-2. Real earnings management

As a proxy of verifying real earnings management, Roychowdhury (2006)' s abnormal cash flow management was used.

Abnormal cash flows are classified into management of cash flows from operations, production costs, and discretionary expenses. For example, as part of the management of business activities, managers use price discounts and more lenient credit terms to temporarily increase sales, overproduction to report lower cost of goods sold, and reduction of discretionary expenditures to improve reported margins.

The models for measuring three manipulation methods are as follows.

Management of cash flows from operations

$$\frac{CFO_t}{TA_{t-1}} = \alpha_0 \left( \frac{1}{TA_{t-1}} \right) + \alpha_1 \left( \frac{REV_t}{TA_{t-1}} \right) + \alpha_2 \left( \frac{\Delta REV_t}{TA_{t-1}} \right) + \varepsilon_t \quad (3)$$

$$AB\_CFO_t = \left( \frac{CFO_t}{TA_{t-1}} \right) - \left[ \alpha_0 \left( \frac{1}{TA_{t-1}} \right) + \alpha_1 \left( \frac{REV_t}{TA_{t-1}} \right) + \alpha_2 \left( \frac{\Delta REV_t}{TA_{t-1}} \right) \right] \quad (4)$$

Management of production

$$\frac{PROD_t}{TA_{t-1}} = \alpha_0 \left( \frac{1}{TA_{t-1}} \right) + \alpha_1 \left( \frac{REV_t}{TA_{t-1}} \right) + \alpha_2 \left( \frac{\Delta REV_t}{TA_{t-1}} \right) + \alpha_3 \left( \frac{\Delta REV_{t-1}}{TA_{t-1}} \right) + \varepsilon_t \quad (5)$$

$$AB\_PROD_t = \left( \frac{PROD_t}{TA_{t-1}} \right) - \left[ \alpha_0 \left( \frac{1}{TA_{t-1}} \right) + \alpha_1 \left( \frac{REV_t}{TA_{t-1}} \right) + \alpha_2 \left( \frac{\Delta REV_t}{TA_{t-1}} \right) + \alpha_3 \left( \frac{\Delta REV_{t-1}}{TA_{t-1}} \right) \right] \quad (6)$$

Management of discretionary expenses

$$\frac{DSEXP_t}{TA_{t-1}} = \alpha_0 \left( \frac{1}{TA_{t-1}} \right) + \alpha_1 \left( \frac{\Delta REV_{t-1}}{TA_{t-1}} \right) + \varepsilon_t \quad (7)$$

$$AB\_DISEXP_t = \left( \frac{DSEXP_t}{TA_{t-1}} \right) - \left[ \alpha_0 \left( \frac{1}{TA_{t-1}} \right) + \alpha_1 \left( \frac{\Delta REV_{t-1}}{TA_{t-1}} \right) \right] \quad (8)$$

$CFO_t$  : cash flow from operation of firm i in year t

$PROD_t$  (cost of goods sold+change in inventories) of firm I in year t

$DISEXP_t$  : discretionary expense(= selling expenses, general expenses+ R&D expenses - (taxes + depreciation +rent +insurance)

$\Delta REV_{t-1}$  : Change in sales of firm i in year t-1

In each model, abnormal cash flow management is estimated as an error term, and is used as a proxy for real earnings management after taking into account normal sales or change in sales. In the case of managements to CFO, a firm that manage upward earnings is expected to show a negative(-) value in abnormal CFO(AB\_CFO) due to an increase in account receivables due to price discounts and credit terms. In the case of production activity management, the abnormal production costs(AB\_PROD) will have a positive(+) value because the firm that manage the upward earnings are willing to lower the fixed cost per unit through overproduction. Finally, in the case of discretionary expense management, the abnormal discretionary costs(AB\_DISEXP) is expected to have a negative(-) value because the manager' discretionary expenses will be reduced.

The following maeasures(AB\_REM) that combine abnormal CFO, production activity management and discretionary expenses are used (Jeon Hong-min and Cha Seung-min, 2012), and each will be analyzed in this study.

$$AB\_REM_t = AB\_PROD_t - AB\_CFO_t - AB\_DISEXP_t$$

The number of samples was limited to secure validity in the

process of estimating accrual earnings management and real earnings management by year and industry.

### 3-2-3. Earnings management verification model of the firms under the rehabilitation procedure

In this study, I estimate the following regression to verify Hypothesis 1.

$$DA_{it}(\text{or } AB\_REM_{it}) = \beta_0 + \beta_1 \text{rehab} + \beta_2 \ln \text{TA}_t + \beta_3 ROA_t + \beta_4 LEV_t + \sum ND + \sum YR + \varepsilon_t \quad (9)$$

$DA_t$ : discretionary accruals from modified Jones;

$AB\_REM_{it}$  abnormal management cashflow(=  $AB\_PROD_t - AB\_CFO_t - AB\_DISEXP_t$ );

rehab: equals one if it is a rehabilitation firm;

$\ln \text{TA}_t$ : natural logarithm of total assets;

$ROA_t$ : earnings divided by total assets;

$\sum YR$ : year dummy;

$\sum ND$ : industry dummy;

$\varepsilon_t$ : error term;

The interest variables are “rehab”, with a value of 1 for rehabilitation firms(treatment) and 0 for non-rehabilitation firms(control). Here,  $\beta_0$  is the intercept value of the discretionary accruals(abnormal cash flow) regression coefficient for non-rehabilitation firms, and  $\beta_0 + \beta_1$  is the intercept value of the discretionary accrual(abnormal cash flow)regression coefficient for the rehabilitation firms. Therefore, if  $\beta_1$  has a significantly positive(+) value, there is a difference between the discretionary accrual(abnormal cash flow)of the rehabilitation firms and non-rehabilitation firms, and there is a high possibility that the rehabilitation firms will make an upward earnings management.

In addition, a multiple regression model as shown in equation (10) was established for rehabilitation firms to verify Hypothesis 2 that earnings management would be made at a specific time in anticipation

of different incentives for rehabilitation firms.

$$DA_{it} \text{ (or } AB\_REM_{it}) = \beta_0 + \beta_1 Year_0 + \beta_2 Year_{-1} + \beta_3 Year_{-2} + \beta_4 size_t + \beta_5 ROA_t + \beta_6 LEV_t + \sum ND + \sum YR + \varepsilon_t \quad (10)$$

$Year_0$  : equals one if it is a year of rehabilitation starts and zero

$Year_{-1}$  : equals one if it is a one year before rehabilitation starts and zero

$Year_{-2}$  : equals one if it is a two year before rehabilitation starts and zero

The interest variables are  $Year_{-2}$ ,  $Year_{-1}$ ,  $Year_0$ , with a value 1 for rehabilitation firms in the year and 0 for rehabilitation firms in other than the year. Here,  $\beta_0$  is the intercept value of the discretionary accrual (abnormal cash flow) regression coefficient for rehabilitation firms in other than the year, and  $\beta_0 + \beta_1$  is the intercept value of the discretionary accrual (abnormal cash flow) regression coefficient for the year in which the rehabilitation commenced. Therefore, if  $\beta_1$  has a significantly negative (-) value, there is a difference between the discretionary accrual (abnormal cash flow) in the commencement year of the rehabilitation firms and the other year of the rehabilitation firms, and there is a high possibility that the rehabilitation firms manage earnings downward.

Other control variables were referred to in the models of previous studies related to earnings management. The natural logarithm of total assets (SIZE) is included to control the earnings management tendency according to the size of the firm. The debt ratio (LEV) is expected to have a positive value because, according to the debt contract hypothesis, the more insolvent firms that are more likely to violate the debt contract, the higher the management will try to manage earnings to avoid the disadvantage of the contract. ROA is included to control the effect of corporate management performance on earnings management.

## Chapter 4. Empirical results

### 4-1. Descriptive statistics

The descriptive statistics of the major variables used in this study are as follows <Table 3> and <Table 4>. In order to minimize the effect of extreme values, all continuous variables were winsorized at the upper and lower 1% level.

In <table 3>, the average value of discretionary accrual is  $-0.003$ , abnormal cash flow (AB\_REM) is  $0.003$  and the average value of variables representing the rehabilitation firms is  $0.01$ , indicating that it corresponds to 1% of the total sample. The average of the debt ratio is 54.7%, the average of SIZE (ln TA) is 24.507, and the average of ROA is 2.1%.

In <table 4>, the average value of discretionary accrual of the rehabilitation firm is  $-0.084$ , abnormal cash flow (AB\_REM) is  $0.064$ , and the average of the debt ratio is 94.1%, the average of SIZE (ln TA) is 24.122, and the average of ROA is  $(-)$ 24.5%. Due to the nature of the rehabilitation firms, it is interpreted that the debt ratio is high and the ROA ratio is low.

<Table 5> presents the Pearson correlation matrix. Looking at the relationship between the variable of interest and discretionary accrual (abnormal cash flow), which is a proxy for earnings management, there is a significant negative relationship from the year of commencement of rehabilitation to the one year before the commencement.

### 4-2. Empirical results

#### 4-2-1. Hypothesis 1

<Table 6> presents the results of the regression analysis that tested the hypothesis 1. The dependent variable was divided into

discretionary accruals estimated by the Modified Jones model and Roychowdhury's Abnormal Real Earnings Management, and I analyzed accrual earnings management and real earnings management of the rehabilitation firms.

In the model, the coefficient value of the “rehab” variable is  $-0.011$  (t-value 3.06) in the case of accrual earnings management, and  $-0.073$  (t-value 6.86) in the case of real earnings management, showing significant negative values at the 1% level, respectively. Compared to non-rehabilitation firms, it seems that rehabilitation firms manage their earnings downward through accrual earnings management and real earnings management. Rather than showing a tendency to increase earnings, this is the result of cleaning up the existing insolvency just before rehabilitation and lowering it to reflect actual corporate performance. Through Hypothesis 2, I will examine in more detail the earnings management pattern of the rehabilitation firms by point in time.

Looking at the other control variables, the size of the firm has a significantly negative value in the case of accrual earnings management. This is interpreted as lowering earnings somewhat as the size of the firm increases, as stakeholder monitoring becomes stronger. In the case of real earnings management, the size of the firm has a significantly positive value, which also prefers a method of real earnings management that is less likely to violate accounting standards than accrual earnings management as stakeholder monitoring becomes stronger. The debt ratio has a significantly positive value. It is interpreted that the higher the debt-to-equity ratio, the more positive earnings management is to avoid violating the debt covenant (Sweeney, 1994).

## 4-2-2. Hypothesis 2

Hypothesis 2 tests the specific timing of when the rehabilitative firms attempt earnings management. <Table 7> presents the results of regression analysis verified by Hypothesis 2. As in Hypothesis 1, the dependent variable was divided into discretionary accruals

estimated by the Modified Jones model and Roychowdhury's Abnormal real earnings management, earnings management of the rehabilitation firms was analyzed by time in point.

In <Table 7>, when discretionary accrual is used as a dependent variable to examine the timing of accrual earnings management, the coefficient value of the year<sub>-2</sub> variable is -0.023 (t-value -1.85), showing a significant negative value at the 10% level, and the coefficient value of the year<sub>-1</sub> variable is -0.030 (t-value -2.24) showing a significant negative value at the 5% level. It shows that the rehabilitation firms are making significant downward earnings management through accruals management just before the date of decision to commence the rehabilitation procedure. In the case of Year<sub>-0</sub>, which represents the starting year, the coefficient value is -0.053 (t-value -4.06), showing a significant negative value at the 1% level, and the management of (-) accrual earnings is prominent over time.

The reason is interpreted as follows. From the point when the initiation of the rehabilitation firm is likely, it can be interpreted that the earnings is lowered by reflecting the actual management performance of the distressed firm rather than hiding the loss. In addition, if insolvency is revealed in the rehabilitation process, there is a risk of deprivation of management rights and claiming damages, so it is expected to clean up the existing insolvency and lower earnings by reflecting the actual poor firm's management performance. In addition, firms just before rehabilitation begin to suffer from a lack of cash flow as their business begin to become difficult. Since the level of operating cash flow that the firm absolutely needs cannot be met through its current operational activities and there is a possibility of receiving a request for repayment of loans from creditors, the firm will focus more on securing cash flow than managing accounting earnings through management of accruals. Accordingly, the firm will try to secure cash flows by delaying the payment date of accounts payable or focusing on the collection of accounts receivable, and since the account receivable collection date is uncontrollable to the rehabilitation firms,

it will mainly secure cash flows while extending the payment date.

Since there is no incentive for (+) earnings management through accruals in the rehabilitation procedure initiation year, it is judged that significant (–) earnings management is made in the process of reflecting the insolvency in the financial statements. It is also expected at this point that more emphasis will be placed on receivables collection to secure cash flows. Accordingly, in the real earnings management verification, when the dependent variable was *Abn\_cfo*, the coefficient value of *Year-0*, the starting year, was significantly positive (0.019).

In order to examine the timing of the real earnings management of the rehabilitation firm, *AB\_REM* was used as a dependent variable, but no significant results were derived. Accordingly, I will analyze the detailed components of *AB\_REM* which are *AB\_CFO*, *AB\_Disexp*, and *AB\_Prod*.

<Table 8> Panel A shows the results of analysis of real earnings management for rehabilitation firms using the components of real earnings management as a dependent variable. As a result, only when *AB\_CFO* is analyzed as a dependent variable, the coefficient value of the *year-0* variable is 0.019 (t-value 1.77), showing a significant positive value at the 10% level. In the case of Panel B, which limits the sample to manufacturing rehabilitation firms, when *AB\_CFO* and *AB\_PROD* are analyzed as dependent variables, they show significant positive(+) and negative(–) values at the 10% level. In other words, in the start year of the rehabilitation procedure, the focus will be on securing cash flows by cash sales and reducing credit sales term rather than managing real earnings by promoting credit sales, which is consistent with the results of the accrual earnings management. Even when the sample was limited to manufacturing firms and *AB\_PROD* was analyzed as a dependent variable, the coefficient value of the *year-0* variable was –0.032 (t-value 1.94), showing a significant negative value at the 10% level. In the case of manufacturing rehabilitation firms, since cash flows are limited, it is interpreted that they secure cash flows while maintaining a minimum level of inventory, such as disposing of pre-produced inventory

rather than overproduction.

In conclusion, no positive earnings management behavior was found before the rehabilitation procedure, but it seems that the closer it is to the start of the rehabilitation procedure, the more negative accrued earnings management. This can be seen as reflecting the existing insolvency and realistically reflecting it, and it seems to be because the payment date of the account payable is extended at a time when a lack of cash flow is urgent. Gopalan, Martin and Srinivasan(2022) report that the debtors intentionally manage earnings downward to understate firm net worth so as to be able to file for bankruptcy. In addition, no significant results were analyzed for real earnings management due to a lack of cash flow just before the start year. However, since the rehabilitation procedure has already been disclosed at the time after the start year, negative accrual earnings management and real earnings management appear due to the collection of receivables and disposal of inventory to secure cash.

#### **4–3. Additional analysis**

<Table 9> Panel A compared the accruals and operating cycles of rehabilitation firms and normal firms. The accrual of rehabilitation firms was  $-0.135$ , and normal firms were  $-0.027$ , indicating that the accrual of rehabilitation firms was low. It is estimated that the reason why the amount of accruals of rehabilitation firms is lower than that of general firms is because the shortage of cash flows due to poor performance is recovered as operating cash flows. The cash conversion cycle of the rehabilitation firms was shorter than that of the non-rehabilitation firms. This is because despite the increase in DIO(Days of inventory outstanding) due to the increase in inventory level caused by worsening business activities, the collection period of trade receivables is short and the payment date of payables is long. In other words, it shows that although the absolute cash flow decreases due to a decrease in earnings due to the bad business activities, it is focusing on securing cash flow through working capital

at a time when external financing becomes difficult.

In order to examine the changes in each point in time of the rehabilitation firms, panel B presented the time series flow of the financial ratio of the firms from two years before the rehabilitation procedure. From two years before the start year, the ROA was a negative value, and the losses intensified one year before the start year. ROA decreases more significantly in the start year, and the investigator's investigation reveals the insolvency, recognizing impairment losses on existing insolvent assets, and there may be a reason for a decrease in sales due to uncertainty over the approval of rehabilitation procedures in the opening year. In addition, in the start year, sales decrease due to poor business performance due to uncertainty over whether or not the rehabilitation procedure will be approved.

The leverage ratio increases before start year. The leverage ratio increases in the start year, and it is presumed that the increase in the start year is due to the recognition of impairment of insolvent assets and the repayment of liabilities through the sale of land, buildings, machinery and non-operational assets. Accruals decreases from positive to negative two years ago, and main reason is presumed to be that it raises fund through operating cash flow that have become insufficient due to the deteriorating business performance. Cash conversion cycle sharply decreased a year ago compared to two year before filing for rehabilitation procedure, mainly due to a significant increase in DPO from 56.555 days to 101.008 days. In other words, it is interpreted that the firms actually borrow money that have been insufficient due to deteriorating business performance just before the rehabilitation procedure by delaying the payment of the commercial liabilities.

Cash conversion cycle improves even after the procedure decision is made, despite a decrease in DPO due to restrictions on credit purchase transactions. This can be seen as a relatively sound improvement by reducing the DSO rather than excessive credit sales and maintaining an appropriate inventory rather than increasing inventory through excessive production.

There are the following limitations in analyzing the earnings management of rehabilitation firms by managing accruals. Rehabilitation firms have different characteristics from general firms. As reviewed above, the closer it is to the time of filing for rehabilitation initiation, the more likely the payment date of the purchase liabilities will be extended due to a lack of cash flow and pressure to repay loans due to deteriorating business. Accrual is assumed to be the difference between net income and operating cash flow because if the purchase debt payment date extends, the accrual itself may decrease. In the case of firms with limited external borrowing and a lack of funds with worsening operating cash flow, realistic borrowing is made by extending the payment date of commercial payables. This is because, the portion that would have been included in the increase in financial cash flows under the normal circumstances is included in the operating cash flow, which artificially increases the operating cash flow. This finding is contrary to the basic assumption of accrual earnings management, which is difficult to manage operating cash flows. <figure3> shows the difference between accruals of normal firms and insolvent firms. Insolvent firms show low accrual, because insolvent firms raised the operating cash flows by delaying the payment date to secure the necessary operating cash flow. For the above reasons, in the case of a rehabilitation firms, the result of earnings management may be diluted compared to the general case.

Therefore, in a follow-up study, based on the findings of this study, it is possible to consider the characteristics of the rehabilitation firms, such as the effect of extending the payment date for commercial payables, and investigate the behavior of earnings management over a longer time period by expanding the scope of the year before initiation.

## Chapter 5. Conclusion

In this study, I analyzed whether rehabilitation firms manage earnings compared to non-rehabilitation firms and at what point in time they make upward or downward earnings management, and examined the cause of the result. According to prior researches, there are somewhat contradictory research results on whether and when insolvent firms will manage their earnings, and it is mainly limited to research on listed firms.

I analyzed the annual earnings management from two years before the rehabilitation commencement to the year of the rehabilitation commencement by using the discretionary accrual of the modified Jones model as a proxy for accrual earnings management and the abnormal cash flows of Roychowdhury model as a proxy for real earnings management targeting domestic firms that started rehabilitation procedures from 2018 to 2020.

As a result of analyzing the earnings management by year from two years before the commencement application of the rehabilitation firm to the year of the commencement application, Firms under rehabilitation procedure show a significant negative accrual earnings management behavior two years before the start of the rehabilitation. This finding is interpreted as a downward management of earnings by reflecting the management performance of a firm that is actually poor rather than hiding losses from the time when the start of the rehabilitation procedure is likely.

In the case of real earnings management, there was a significant negative earnings management behavior only in the initiation year. Since it is meaningless to record positive earnings in the books for financial reporting purposes when rehabilitation procedures have already been initiated, they focus on cash flows through collecting receivables rather than excessive credit sales, and maintaining proper inventory and overstock disposal level rather than overproduction. However, due to the nature of the rehabilitation firm, it is difficult to raise normal funds just before filing for the

procedure, so actual borrowing is made through extension of account payable due date, but if this is not additionally considered, it may be difficult to accurately measure the earnings of insolvent firms.

The contributions of this study are as follows. First of all, this study examines the earnings management behavior of relatively small rehabilitation firms by expanding the sample to firms subject to external audit as well as listed firms which are relatively large. Considering that most firms filing for rehabilitation procedures are unlisted firms, it will be more useful to analyze the average earnings management behavior of rehabilitation firms. In addition, it is more meaningful to include unlisted firms in that listed firms may have different characteristics from the average firms because there are more diverse stakeholders and there is a value for the listing.

Second, I found that it is important to consider the extension of the payable due date when considering the earnings management of insolvent firms. As a result of the analysis, it was found that there was a significant negative earnings management in the year of commencement and immediately before the commencement, because it is highly likely that realistic accounting was done from a conservative point of view rather than inflated earnings and in the start year, existing insolvency was found in the investigation process, and it seems that negative earnings management is made in the process of reflecting the result of the investigator. Accordingly, it is highly likely that positive earnings management was made at the time of accumulating existing insolvency. However, due to the nature of the rehabilitation firms, the cash flow through business activities decreases in the process of deteriorating the firms' business, and realistic borrowing through account payables is likely to dilute the measurement of earnings management through discretionary accruals, therefore this result should be considered in future studies. Third, this study has significant implications in relation to appropriate monitoring for stakeholders such as creditors related to insolvent firms. At the initiation year of the rehabilitation procedure, downward earnings management occurs in the process of reflecting the insolvency revealed in the investigation process, and if the possibility

of insolvency is detected in advance through proactive monitoring of the firm and debt restructuring is made in an appropriate time, it will be possible to prevent a bigger insolvency loss. In addition, it will be possible to contribute to the proactive prevention of how insolvent firms that may arise in the future can be reorganized into normal firms by restructuring within the legal framework for the authorities and courts that manage the rehabilitation procedures.

It is important to study the behavior of rehabilitation firms' earnings management for the following reasons. The rehabilitation procedure is a system in which the debtors legally suspend debt repayment and receive debt relief according to the approved rehabilitation plan, and the disposition of security rights is limited by the automatic stay regardless of the debt covenant, so it can cause significant damage to creditors. Moreover, if the due date for account payables of rehabilitation firms is extended, commercial liabilities may increase abnormally at the time of commencement of rehabilitation procedures. This can be directly related to social problems because there is a possibility of causing bankruptcies in a row by damaging small business partners with relatively lack of expertise. In addition, if this phenomenon continues, even tax and salaries may be overdue, which may cause greater social problems. However, insiders (controlling shareholders and managers) have many incentives to not actively restructure their debts in a timely manner depending on the maximization of shareholder value, the risk of deprivation of management rights, and the possibility of litigation. Therefore, it is necessary to enforce prior monitoring of firms, and if the possibility of insolvency is detected in a timely manner and debt restructuring is made at an appropriate time, greater insolvency can be prevented.

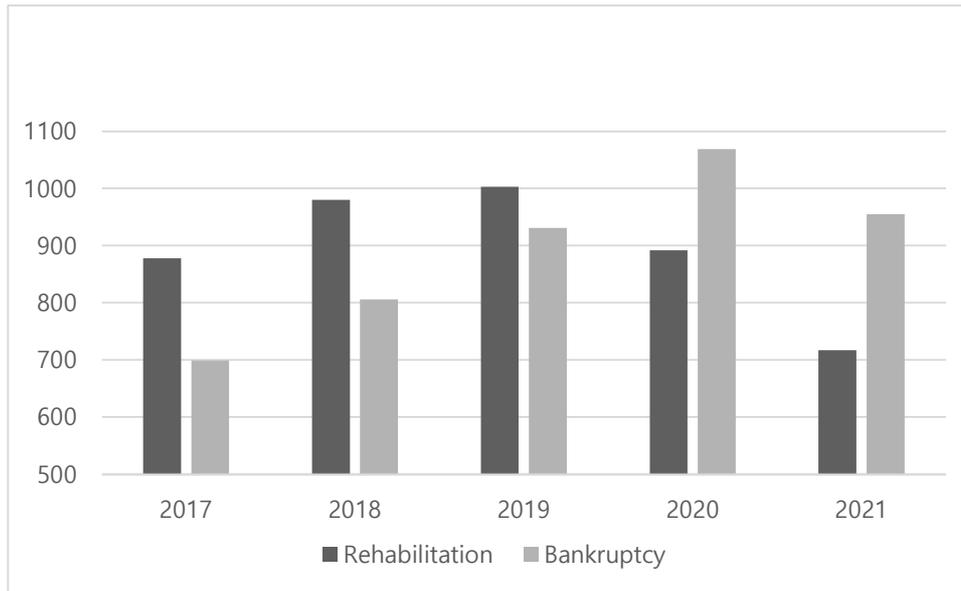
## REFERENCES

- Dechow, P. M., R. G. Sloan, and A. P. Sweeny. 1995. Detecting Earnings Managements. *The Accounting Review* 70(2): 135–225.
- Gopalan, R., X. Martin and K. Srinivasan. 2022.
- Jang, H. Y. 1997. An Analysis of Accounting Information Reliability for Publicly–Trade Korean Firms Using a Bankruptcy Sample. *Korea Accounting Review* 22(4): 61–89. [Printed in Korean]
- Kang, C. H. 2019. An empirical study on the business reorganization procedures pursuant to Korean bankruptcy law. *Korean Lawyears Association* 68(4): 651–697. [Printed in Korean]
- Kim, K. H., and J. I. Park. 1999. A Study on Earnings Management before Corporate Failure. *Korean Accounting Journal* 8(1). 259–283. [Printed in Korean]
- Kim, H. J. and M. O. Kim. 2005. A Comparison of Earnings Management Between Bankrupt Firms and Non–Bankrupt Firms : An Analysis of Various Discretionary Accrual Model. Annual Summer Conference, June. 2005. Korean Accounting Association: 1–25. [Printed in Korean]
- Leach R. and P. Newsom. 2007. Do Firms Manage Their Earnings prior to Filing for Bankruptcy. *Academy of Accounting and Financial Studies Journal* 11(3):
- Lee, J. H. 2016. How to activate timely commencement of bankruptcy procedure. *Justice* 152(2): 87–114. [Printed in Korean]

- Lee, J. S. and C. Hong. 2017. Revisiting Accrual-Based Earnings Management in Insolvent Companies of the KOSPI Market. [Printed in Korean]
- Na, C. K., and J. H. Choi. 2000. Earnings Management of Firms with Financial Distress and Capital Market Reaction. *Korean Accounting Review* 25(4): 55–86. [Printed in Korean]
- Park, S. H. and S. U. Choi. 2019. Earnings Management Around Rehabilitation Procedure. *Korean Management Review* 48(6): 1485–1513. [Printed in Korean]
- Roychowdhury, S. 2006. Earnings management through real activities manipulation. *Journal of Accounting and Economics* 42(3):335–370.
- Seoul Bankruptcy Court Trial Committee. 2019. *Rehabilitation case practice* (1). 5<sup>th</sup> edition: 3–8. [Printed in Korean]
- Sweeny, A. P. 1994. Debt-covenant violations and managers' accounting responses. *Journal of Accounting and Economics* 17(3): 281–308.

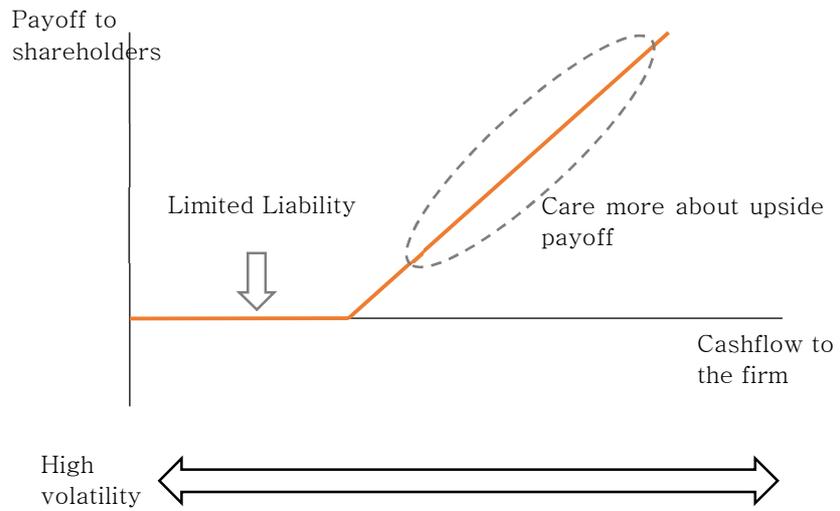
# APPENDIX

<Figure 1> Trends in the number of rehabilitation/bankruptcy filings

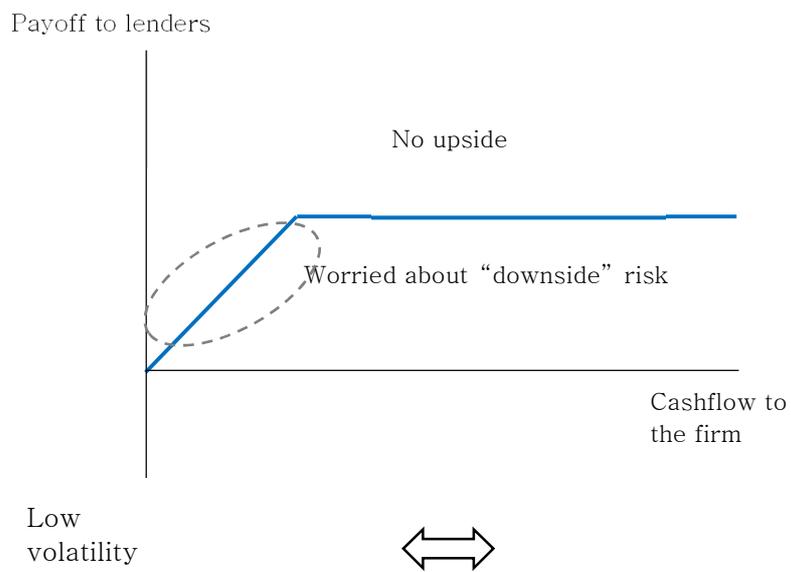


<Figure 2> Lender / Shareholder conflict

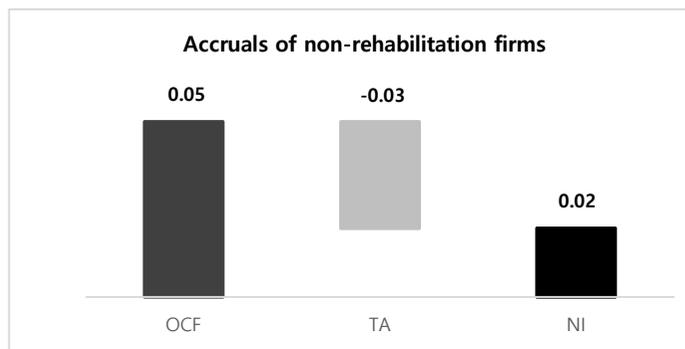
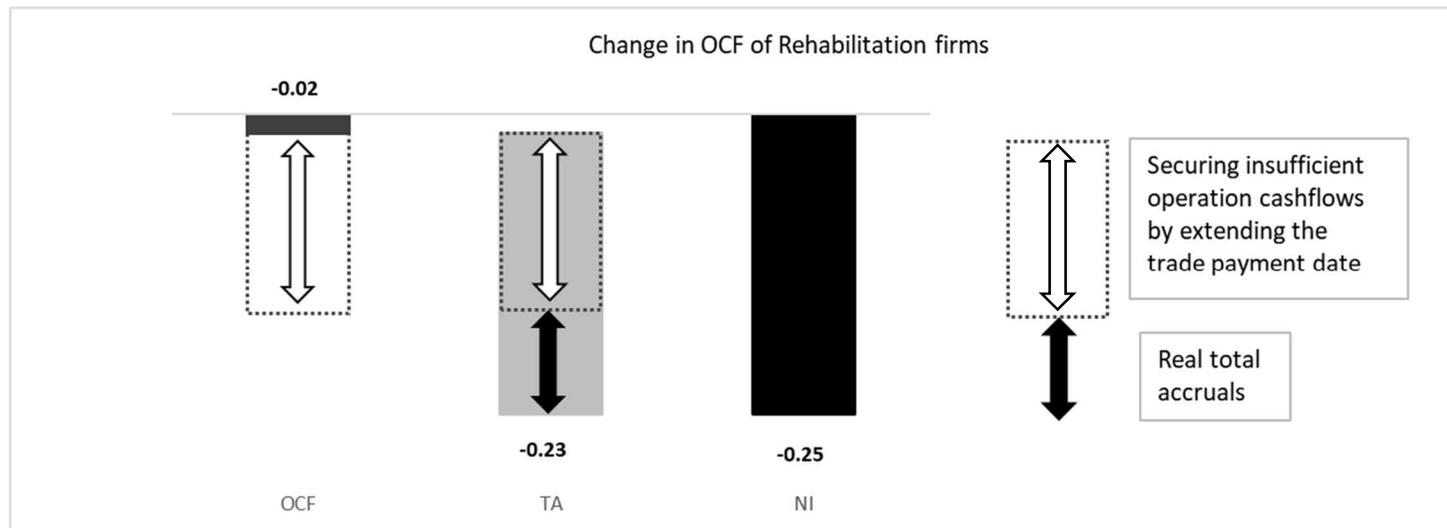
<Shareholder>



<Lender>



<Figure 3> Differences in total accruals between rehabilitation firms and non-rehabilitation firms



<Table 1> graduation ratio of firms in rehabilitation procedure in the last five years

Year	Start (A)	Confirmed (B)	Not confirmed/ Abolished(C)	Graduate (D)	Graduate ratio(D/A)
2021	535	370	302	313	58.5%
2020	614	397	238	315	51.3%
2019	734	424	269	358	48.8%
2018	680	436	210	319	46.9%
2017	629	317	250	276	43.9%
<b>Total</b>	<b>3192</b>	<b>1944</b>	<b>1269</b>	<b>1581</b>	<b>49.5%</b>

<Table 2> Industry distribution of treatment firms by year

KSIC		2018	2019	2020	Total
A	Agriculture	–	–	1	1
C	Manufacturing	30	36	43	109
F	Construction	3	2	–	5
G	Wholesale and retail	1	1	5	7
H	Transportation	–	1	1	2
I	Accommodation and food	1	1	–	2
J	Communications	1	2	2	5
<b>Total</b>		<b>36</b>	<b>43</b>	<b>52</b>	<b>131</b>

1) Industry classification is in accordance with the main classification of KSIC–9 in NICE Information Service

<Table 3> Descriptive statistics of variables used for the regression analysis (H1)

Variables	N	Mean	SD	1%	25%	50%	75%	99%
DA	66,798	-0.003	0.096	-0.335	-0.045	-0.001	0.041	0.301
AB_REM	66,798	0.003	0.277	-1.161	-0.099	0.028	0.145	0.666
rehab	66,798	0.010	0.099	0.000	0.000	0.000	0.000	0.000
SIZE	66,798	24.507	1.111	22.929	23.696	24.219	25.051	28.535
LEV	66,798	0.547	0.265	0.055	0.353	0.562	0.723	1.428
ROA	66,798	0.021	0.096	-0.452	0.002	0.024	0.062	0.265

DA = discretionary accruals from modified Jones;

AB\_REM= Sum of real earnings management (AB\_PROD- AB\_CFO-AB\_DISEXP);

Rehab = equals one if it is rehabilitation firms and zero otherwise;

SIZE = natural logarithm of total assets;

LEV = total liabilities divided by total assets ;

ROA = earnings divided by total assets ;

<Table 4> Descriptive statistics of variables used for the regression analysis (H2)

Variables	N	Mean	SD	1%	25%	50%	75%	99%
DA	655	-0.084	0.157	-0.389	-0.179	-0.048	0.017	0.301
AB_REM	655	0.064	0.254	-0.956	-0.019	0.084	0.189	0.791
Year <sub>-2</sub>	655	0.200	0.400	0.000	0.000	0.000	0.000	1.000
Year <sub>-1</sub>	655	0.200	0.400	0.000	0.000	0.000	0.000	1.000
Year <sub>-0</sub>	655	0.200	0.400	0.000	0.000	0.000	0.000	1.000
SIZE	655	24.122	0.847	22.103	23.556	24.033	24.666	26.453
LEV	655	0.941	0.530	0.118	0.662	0.806	1.090	3.430
ROA	655	-0.245	0.452	-2.436	-0.284	-0.086	0.005	0.344

Year<sub>-2</sub>= equals one if it is two years before rehabilitation starts and zero otherwise;

Year<sub>-1</sub>= equals one if it is one year before rehabilitation starts and zero otherwise;

Year<sub>-0</sub>= equals one if it is a year of rehabilitation starts and zero otherwise;

<Table 5> Pearson correlation matrix(H2)

	DA	Year <sub>-2</sub>	Year <sub>-1</sub>	Year <sub>-0</sub>	SIZE	LEV	ROA
DA	1.000						
Year <sub>-2</sub>	0.091	1.000					
Year <sub>-1</sub>	<b>-0.107</b>	<b>-0.250</b>	1.000				
Year <sub>-0</sub>	<b>-0.341</b>	<b>-0.250</b>	<b>-0.250</b>	1.000			
SIZE	0.067	<b>0.166</b>	0.062	<b>-0.171</b>	1.000		
LEV	<b>-0.425</b>	<b>-0.157</b>	0.075	<b>0.302</b>	<b>-0.408</b>	1.000	
ROA	<b>0.743</b>	<b>0.165</b>	-0.086	<b>-0.373</b>	<b>0.220</b>	<b>-0.612</b>	1.000

1) \*\*\* indicates significance at 1% or higher level

2) See Table3 for the variable definition

<Table 6> Result of regression analysis of research model(Test of H1)

Variables	Dependent Variable (DA)		Dependent Variable (AB_REM)	
	Coefficient	t-Value	Coefficient	t-Value
Intercept	0.011	0.97	-0.180	-5.29***
rehab	-0.011	-3.06***	-0.073	-6.86***
SIZE	-0.002	-6.9***	0.005	4.85***
LEV	0.020	13.67***	0.081	17.99***
ROA	0.453	117.23***	-0.677	-56.56***
F-value	237.45		77.85	
R-square	0.188		0.071	
Adj-R square	0.187		0.070	
Obs.	66798		66798	

\*\*\*, \*\*, and \* denote significance levels of 1%, 5% and 10%, respectively  
See table 3 for the variable definition

<Table 7> Result of regression analysis of research model(Test of H2)

Variables	Dependent Variable (DA)		Dependent Variable (AB_REM)	
	Coefficient	t-Value	Coefficient	t-Value
Intercept	0.410	2.65***	0.523	1.49
<i>Year</i> <sub>-2</sub>	-0.023	-1.85*	-0.013	-0.46
<i>Year</i> <sub>-1</sub>	-0.030	-2.24**	0.004	0.14
<i>Year</i> <sub>-0</sub>	-0.053	-4.06***	-0.038	-1.28
SIZE	-0.017	-2.75***	-0.019	-1.32
LEV	0.008	0.75	-0.051	-2.07**
ROA	0.257	20.96***	-0.078	-2.79***
F-value	26.82		4.38	
R-square	0.5953		0.1938	
Adj-R square	0.5731		0.1496	
Obs.	655		655	

\*\*\*, \*\*, and \* denote significance levels of 1%, 5% and 10%, respectively  
See table 3 for the variable definition

<Table 8> Result of regression analysis of research model(Test of H2 )

PanelA: All rehabilitation firms						
Variables	Dependent Variable (abn_cfo)		Dependent Variable (abn_prod)		Dependent Variable (abn_disexp)	
	Coefficient	t-Value	Coefficient	t-Value	Coefficient	t-Value
Intercept	-0.070	-0.55	0.184	0.84	-0.292	-2.53**
<i>Year</i> <sub>-2</sub>	0.007	0.66	-0.002	-0.12	0.001	0.06
<i>Year</i> <sub>-1</sub>	-0.005	-0.41	0.005	0.26	0.005	0.52
<i>Year</i> <sub>0</sub>	<b>0.019</b>	<b>1.77*</b>	-0.022	-1.19	-0.002	-0.23
SIZE	0.002	0.32	-0.007	-0.83	0.011	2.3**
LEV	0.040	4.4***	-0.010	-0.67	-0.002	-0.24
ROA	0.040	3.92***	-0.026	-1.49	0.009	0.95
F-value	2.24		4.19		6.51	
R-square	0.1093		0.1869		0.2632	
Adj-R square	0.0605		0.1423		0.2227	
Obs.	655		655		655	

PanelB: Manufacturing rehabilitation firms

Variables	Dependent Variable (abn_cfo)		Dependent Variable (abn_prod)		Dependent Variable (abn_disexp)	
	Coefficient	t-Value	Coefficient	t-Value	Coefficient	t-Value
Intercept	-0.165	-1.28	0.018	0.09	-0.100	-0.98
<i>Year</i> <sub>-2</sub>	0.016	1.49	-0.006	-0.33	-0.009	-1.02
<i>Year</i> <sub>-1</sub>	0.005	0.44	0.001	0.05	-0.004	-0.42
<i>Year</i> <sub>0</sub>	0.022	1.94*	<b>-0.032</b>	<b>-1.82*</b>	-0.002	-0.24
SIZE	0.003	0.55	0.002	0.27	0.005	1.29
LEV	0.055	5.72***	-0.004	-0.27	-0.013	-1.77*
ROA	0.050	4.4***	-0.039	-2.19**	0.006	0.68
F-value	3.34		2.21		2.8	
R-square	0.1387		0.0964		0.1187	
Adj-R square	0.0972		0.0529		0.0762	
Obs.	545		545		545	

\*\*\*, \*\*, and \* denote significance levels of 1%, 5% and 10%, respectively

See table 3 for the variable definition

<Table 9> Analysis of cash conversion cycle

Panel A						
variables	All		rehab=1		rehab=0	
	N	mean	N	mean	N	mean
TA	66798	-0.028	655	-0.135	66143	-0.027
DSO	66798	89.066	655	70.310	66143	89.252
DIO	66798	54.251	655	67.984	66143	54.115
DPO	66798	53.171	655	66.540	66143	53.039
CCC	66798	90.146	655	71.754	66143	90.328

Panel B				
variables	N	T-2	T-1	T
TA	131	0.083	-0.183	-0.282
LEV	131	0.768	0.925	1.061
ROA	131	-0.085	-0.197	-0.281
DSO	131	69.692	72.686	65.728
DIO	131	75.350	70.163	50.087
DPO	131	<b>56.555</b>	<b>101.008</b>	75.334
CCC	131	88.487	41.841	40.481

TA=Total accruals /CCC= Cash conversion cycle/ DSO = Days of sales outstanding/ DIO = Days of inventory outstanding/DPO= Days of payable outstanding

## Abstract

본 논문은 외부감사대상 회생기업의 이익조정 방법과 시점 별 이익조정 양상에 대하여 조사하였다. 채권자-주주간의 이해상충관계, 주주가치 극대화 추구, 경영권 상실의 위험과 부실경영에 대한 손해배상책임 가능성 등으로 인하여 부실회사는 적시에 회생절차를 선택하지 않을 가능성이 있다. 이를 위하여 내부자인 지배주주와 경영진은 채무상환요청을 지연시키고 자신의 이익을 극대화하기 위하여 채권자 등 외부자에게 이익 조정을 통하여 건전해 보이는 재무상황을 보고할 기회주의적인 유인이 있다. 연구 결과, 회생회사는 이익조정을 하고 있으며, 회생절차 개시 2년전부터 음의 발생액 이익조정을 하고 있었다. 이는 회생절차가 가까워질수록 더 이상 이익을 부풀릴 여지가 없고, 경영권 상실과 경영진의 손해배상책임 등을 고려하여 실제 부실한 기업의 경영성과를 반영하며, 회생절차 개시연도에는 조사위원의 조사과정에서 드러난 기존의 부실을 장부에 반영하는 과정에서 음의 발생액 이익조정이 나타나기 때문인 것으로 추정된다. 또한 본 연구에서는 회생회사의 경우 운전자본을 조정하여 실제 부족한 영업현금흐름을 확보하는 경향을 보이고 있으므로 재량적 발생액을 통한 이익조정의 측정이 희석될 가능성이 있음을 발견하였다. 회생절차는 여러 이해관계자의 희생을 바탕으로 이루어진다. 따라서 채권자와 채무자간 균형이 중요하며, 사회적 손실을 최소화하기 위하여 외부자의 정보불균형을 보완하여야 할 것이다.

Keyword : 회생, 이익조정, 기회주의  
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