Company’s Sustainability and Accounting Conservatism: Firms Delisting from KOSDAQ

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Abstract: This paper finds evidence that delisting firms make reported earnings more conservative to avoid litigation risk. Conservatism has been used as one of suitable reporting quality measurements that is separate from discretionary accruals, in that investors can monitor the firm’s contract efficiency or litigation risk by demanding conservatism. We collect a sample that is composed of 6348 listed non-financial companies for the period 2009–2016. Our results are as follows. First, we find that companies ahead of delisting are more conservative than other companies in Korean Securities Dealers Automated Quotations (KOSDAQ). Second, companies that are ahead of delisting whose auditor is non-big4 are significantly more conservative. Our results imply that companies that are in the process of delisting are seeking to increase their sustainability and to improve earnings quality, such as conservatism, and that small auditors are more conservative in order to mitigate the higher risk of litigation in comparison with big4 auditors. This study has a role to complement prior studies regarding delisting, and provides that the delisting institutions in KOSDAQ market can improve the efficiency and the reliability of the capital market.

Keywords: delisting firms; substantial delisting investigation; conservatism; Big4

1. Introduction

Korea launched the Korean Securities Dealers Automated Quotations (KOSDAQ) market mainly for small and medium-sized enterprises (SMEs) and venture companies to list and obtain financing. Although the size of KOSDAQ has expanded and more diverse stakeholders are becoming involved in the market, issues that are related to accounting transparency, including financial distress and accounting fraud, have beset a number of companies, as management circumvented internal control systems and damaged companies. Moreover, some of those companies have delisted, which has resulted in huge damage to investors on KOSDAQ and caused the external auditors of those companies to take responsibility for covering the damages. (Samil Pricewaterhouse Coopers, the largest accounting firm in Korea, paid KRW 11.4 billion and KRW 4.7 billion in damages to investors who suffered losses from its audit failure to detect accounting fraud by For Human and Sintec, which were subsequently delisted from KOSDAQ (excerpt from Seoul Economic Daily, August 2017).)

It has been pointed out that one of the reasons for this situation is the formal criteria for delisting. Once a company is listed, it need not be delisted, even if it suffers losses owing to accounting fraud or embezzlement, as long as it maintains its financial reporting values, such as sales, at certain levels. Therefore, to address this problem, the regulatory authorities in Korea introduced a substantial delisting investigation system from February 2009 to verify the qualitative criteria. Furthermore, the
Korea Exchange recently abolished some of the formal delisting requirements of quantitative criteria, such as sales, and tightened up the substantial delisting investigation system.

It is believed that the regulatory authorities reinforced the substantial delisting investigation system for the purpose of mitigating information asymmetry between the investors and managers by preventing and detecting the behavior of companies that are at risk of delisting by not fulfilling the formal requirements through adjustments in accounting numbers, and also for the purpose of enhancing the credibility of financial information of firms that are listed on KOSDAQ.

In fact, companies that are at a high risk of delisting undertake earnings management to avoid delisting [1]. However, there has been a significant decrease in earnings management since the substantial delisting investigation was adopted, and earnings management has substantially decreased, particularly in KOSDAQ [2]. As such, most of the previous studies have examined the act of earnings management, such as discretionary accruals by delisted companies, and confirmed the effectiveness of the related systems. However, the following problems arise in confirming the characteristics of delisted companies or the effectiveness of the related system, only with earnings management.

First, delisted companies mostly experienced a radical deterioration of profitability, thereby causing problems in cash flow, and their financial solidity was relatively lower, as measured by the debt ratio and interest coverage ratio [3]. In other words, in many cases delisted companies are in financial distress. As companies that are in financial distress have extremely negative (−) accruals, it is necessary to control the performance of those companies [4,5]. In this regard, an important issue is to confirm the causality between financial distress and earnings management [6]. The second problem regards earnings management measurements. The residual model is used in discretionary accruals or real-activity earnings management. In the measurements in the residual model, as an alternative to earnings management measurements, both the characteristics of the company and the intention of the manager to conduct earnings management can exist, thereby introducing measurement errors [7].

Among the many reporting quality measurements, this study focused on conservatism as a means of confirming the characteristics of delisted companies for the following reasons. First, conservative accounting can serve as insurance for the auditor and managers to cope with the risk of litigation filed by the information user [8–10]. In particular, firms are at a very high risk of bankruptcy and litigation ahead of delisting, and the managers and the auditor can choose conservative accounting, which timeously recognizes related losses in order to avoid the liability for damages in litigation. [11]. Second, corporate sustainability is closely related to accounting conservatism. For example, companies that provide high quality corporate social responsibility (CSR) information are less disposed to carry out unethical accounting practices, such as earnings management and tending to be more conservative [12,13]. Third, earnings management through accruals and conservatism can move in different directions. In other words, accounting is not necessarily conservative when earnings management is conducted at a low level, and this can become independent measurements of earnings quality. Therefore, conservatism can be an appropriate alternative to reporting quality in terms of supplementing previous studies regarding delisting.

Consequently, this study concluded that it is necessary to confirm whether conservative accounting is performed as a defensive measure against the intention of the manager to manipulate earnings measurements or the litigation risk against the auditor ahead of delisting. In other words, we are able to examine the characteristics of delisted companies and to confirm the effectiveness of the substantial delisting investigation system by checking whether the target company belatedly intentionally recognizes losses or timeously recognizes losses.

We collected the samples of delisted companies from 2009 to 2016 and we used Ball and Shivakumar’s [14,15] conservatism models as the main proxies of accounting conservatism. In addition, we used the conservative models of Basu [16] and Givoly and Hayn [17] and the revised model of Ball and Shivakumar [14,15], which controlled bankruptcy risk, to confirm the robustness of the results. The number of samples is 6348 firm-years.
Our results are as follows. First, we found that companies ahead of delisting are significantly more conservative than the other companies on KOSDAQ. In addition, the smaller the size of the auditor, the more conservative it is to a significant extent in accounting prior to delisting. In other words, the manager or auditor behaved conservatively in accounting to avoid the litigation risk, and the small-scale auditors conservatively audited companies to prepare for a relatively higher risk of litigation [8–10]. However, there was no statistically significant difference in conservatism between companies that are subject to the substantial delisting investigation and companies that are delisted under the formal delisting regulation. Such a phenomenon can be viewed as resulting from the conservative accounting by the external auditor to prepare for litigation risk, even for companies that are subject to the substantial delisting investigation system, due to the aggressive accounting practices of the managers.

In this study, we verified, through conservative accounting, that firms and auditors prepare for litigation risk ahead of delisting. This study supplements previous studies on delisting, and the results confirm that the delisting-related systems in the KOSDAQ market contributed to enhancing the efficiency of the capital market and in improving the reliability of the information on company profits and losses.

This paper is structured as follows. After the Introduction, Chapter 2 examines previous studies on delisted companies and related systems and draws hypotheses. Chapter 3 presents the research methodology and Chapter 4 confirms the results of the hypothesis validation through regression analysis. Finally, Chapter 5 concludes.

2. Background and Prior Studies

Listed companies enjoy financing benefits, as the Capital Market Act covers them, which is a special law that relates to the Commercial Code. In addition, there are the intangible benefits of being listed, such as the improvement of corporate image. If a listed company is delisted, then it means that the company will lose all of the benefits and advantages that it has enjoyed so far. For this reason, companies are quite highly motivated to avoid delisting [2,18,19]. What is important is that many of the delisting requirements are closely associated with accounting numbers, including whether there is any earning loss or impaired capital. (Delisting requirements that are explained in this study actually exist in Korea. That is, if a company goes beyond a certain level of financial distress, such as debt ratio or interest coverage ratio, it will not be able to keep the listing. Of course, there are some cases in Korea that even if they cease listing themselves.) Thus, managers tend to keep a company listed when the delisting risk rises, even by adjusting the accounting numbers, and this offers an important incentive for earnings management by the manager [5].

There are a particularly large number of SMEs and venture companies in the KOSDAQ market, and they are relatively more vulnerable in terms of internal control and governance structure, increasing the tendency to avoid delisting by resorting to such means as earnings management [18]. In particular, those companies are highly incentivized to upwardly adjust their earnings [1], showed that companies that are at higher risk of delisting conduct real-activity earnings management that is difficult to detect, as well as earnings management through accruals.

If a company that should be delisted stays listed by circumventing the formal delisting criteria, it can severely damage the stakeholders of the capital market in the future. For this reason, the regulatory authorities introduced the substantial delisting investigation system from 2009, so that if there are such grounds as accounting fraud or embezzlement for delisting, companies can be delisted after going through the delisting review. In fact, the effectiveness of the substantial delisting investigation system has been proven in the previous studies. Ref. [2] revealed that, after the substantial delisting investigation system was implemented, the level of discretionary accruals decreased when compared to before the implementation of the system.

The existent differences in earnings management between companies that are actually delisted and those at high risk of delisting are noteworthy. Reference [5] confirmed that companies delisted
under the substantial delisting investigation had positive values (+) of discretionary accruals three and two years before delisting, but those companies had significantly negative (−) values in the year immediately prior to delisting. This phenomenon was interpreted, as follows: although the companies made upward adjustments in earnings to avoid delisting when there was a high risk of delisting, they were no longer able to perform earnings management through accruals immediately before delisting and the discretionary accruals that were previously performed were reversed.

Indeed, delisted companies desperately search for every available measure ahead of delisting. In other words, they want to meet the formal delisting requirements by using various means, including securing cash. Some of them may make efforts to lower the risk of detection of accounting fraud immediately prior to delisting by changing their external auditor to a non-Big4 accounting firm from a Big4 accounting firm [19]. However, profitability and financial soundness, which have already deteriorated owing to financial distress, would fall into an irreversible state [3].

In summary, delisted companies fall into financial distress prior to delisting, owing to the drastic increase in the debt ratio and the deterioration of profitability and, as a result, their cash flow worsens and their accruals become extremely negative (−) [3,5]. Therefore, if we were to check the level of earnings management through accruals only immediately before delisting, it could be more difficult to interpret the results, as those companies show negative (−) discretionary accruals. For this reason, caution is required when interpreting the causal relationship between financial distress and earnings management, and controlling performance is an important issue in the measurement of discretionary accruals [4–6]. In addition, it is necessary to verify the characteristics of delisted companies and the effectiveness of the related systems by using alternative earnings quality measurements and earnings management measurements, such as discretionary accruals.

3. Development of Hypotheses

Companies facing the risk of delisting sell out trade receivables or extend the maturity of trade payables, owing to financial distress. Moreover, sometimes they evade taxes to secure cash flow, and such behavior of managers can cause conservatism, which refers to under-reporting of earnings [20]. Conservatism symbolizes an asymmetrical way of recognizing the profits and losses of businesses, under which the losses or expenses are promptly recognized, while the profits or gains are belatedly recognized, requiring a high level of verifiability [16,20,21].

The manager can timeously recognize profits for negotiations on the compensation and debt contract [20,22,23]. However, recognizing losses rather than profits timeously is more favorable to creditors and stakeholders. The timely recognition of profits needs to be checked by stakeholders and the auditor, and if there is no such process, then additional costs are incurred, as the company should bear the litigation cost [20,23]. Consequently, conservatism plays the role of controlling optimistic predictions of investors and curbing the opportunistic behavior of the manager [20].

Moreover, conservatism serves as a kind of insurance in terms of a contract between the manager and the auditor [9]. That is due to the possibility of preparing for litigation filed by information users for the manager by performing conservative accounting or for the auditor by demanding conservatism of the manager [8,22]. In summary, conservative accounting makes it possible to efficiently implement contracts, and it can be a good alternative to check whether the reliability of accounting information is enhanced or not by preventing excessively optimistic predictions in accounting information.

Litigation is probably the most important issue to companies that are facing an imminent risk of delisting. For companies at risk of delisting, their responsibilities for poor management and delisting become heightened. Litigation can be an important factor in damaging the sustainability of a company. In such cases, if the manager recognizes risk factors earlier than favorable ones, the possibility of class action establishment can become lower, at least by a little margin, and the period of the establishment of class action can also be shortened, thereby decreasing the expected cost of litigation [9]. In other words, it implies that manager’s commitment to corporate sustainability is closely related to accounting conservatism [12].
Such litigation issues can also closely affect the auditor. In other words, in preparation for litigation, the external auditor can make the company cover the expected cost of litigation to be filed by stakeholders, not only by not accepting the aggressive accounting of the company, but also by putting more resources into the audit [9,12,20]. This implies that the level of conservative accounting of the companies at risk of delisting can increase due to the influence of the external auditor (Figure 1).

Figure 1. Relationship between companies at risk of delisting and conservative accounting.

Meanwhile, the larger is the auditor’s scale, the more economic quasi-rent is generated by the learning effect, and the auditor’s independence can increase as the self-interest threat relatively declines [24]. Moreover, the larger auditors tend to maintain a high level of audit quality to protect their reputations [25]. However, in Korea, a substantial number of studies have found that the scale of an auditor cannot represent audit quality or earnings quality [8,26].

Large-scale auditors are more exposed to litigation risk, including damage to their reputation, as they are in charge of auditing a number of companies and, as there are multiple stakeholders, they can demand conservative accounting to prepare against potential losses. However, one of the important objectives of the external auditors that audit firms at risk of delisting is to remove audit risk, and they face a very high risk of litigation from stakeholders. Large accounting firms are fully prepared for the possibility of paying damages by accumulating the reserve for damages and purchasing insurance, but the small-scale auditors are not as prepared as large auditors. Therefore, it is rather likely that small-scale auditors require managers to adopt conservative accounting.

This study sets the following null hypothesis to assess whether there is any relationship between the size of the auditor that audits a company at risk of delisting and conservative accounting.

**Hypothesis 1.** In the case of companies at imminent risk of delisting, there is no difference in the tendency toward conservative accounting based on the size of the auditor.

In Korea, the substantial delisting investigation system has been implemented since 2009 for cases in which accounting fraud (substantial delisting investigation system has been implemented
when a listed company violates disclosure obligations or accounting standards, or when there is a suspicion of embezzlement or misappropriation) exceeding a certain scale is detected. The purpose of introducing the substantial delisting investigation system was to prevent financially marginal firms that are at high risk of delisting from circumventing the formal delisting criteria by conducting earnings management [19]. Companies that are under substantial delisting investigation want to avoid delisting, even by changing the external auditor immediately before delisting [19]. In other words, it is assumed that the managers of such companies avoided delisting by conducting earnings management and by lowering the independence of the auditor rather than by undertaking self-help efforts, including selling assets. In doing so, the auditors of those companies probably place more focus on the acquisition of audit fees than on the rise of litigation risk and, consequently, companies under substantial delisting investigation are likely not to perform conservative accounting. Based on this, we set the second hypothesis, as follows.

**Hypothesis 2.** The tendency of companies under substantial delisting investigation toward conservative accounting weakens immediately before delisting more than companies delisting under formal delisting requirements.

4. Research Methodology

4.1. Study Design

Timely gain or loss recognition causes the manager to efficiently perform the compensation contract and the loan contract by conveying timely information on the financial statements of the company [23,27]. In general, there is a negative (−) association between accruals and the operating cash flow, owing to reversals. Dechow et al. [28], but timely recognition of accruals related to accounts of gain or loss generates positive (+) correlation between the related accruals and operating cash flow (decreasing reversals), weakening the negative (−) association between accruals and operating cash flow. Ball and Shivakumar [23]. (For instance, assume that unearned revenue of KRW 1 million in period \( t-1 \) is recognized and it is realized in \( t \) period. Subsequently, in \( t-1 \) period, the company spends KRW 1 million in operating cash flow in \( t-1 \) period, and the unearned revenue expires in \( t \) period. However, if the unearned revenue is recognized as sales in an aggressive manner in \( t-1 \) period, the expenditure of operating cash flow and the expiry of unearned revenue occur simultaneously in \( t-1 \) period.) In such cases, if the manager timeously recognizes the accruals that are related to loss rather than those related to gain, the negative (−) association between accruals and operational cash flow weakens to a larger extent in the case of loss [14,23]. Therefore, as the company conducts conservative accounting, \( b_3 \) in Formula (1) is positive (+). For delisted companies, the positive (+) association between the negative (−) operating cash flow and the relevant accruals grows. Consequently, to validate Hypothesis 1, \( b_{11} \) in Formula (1) has a significantly positive (+) or negative (−) value. Formula (2) is the model of Ball and Shivakumar [15], which is included to control the accruals, as accruals (\( TACC \)) are influenced by the variant in sales (\( \Delta REV \)) and the plant assets (\( PPE: Property, Plant, and Equipment \)). If \( b_{13} \), which is required to validate Hypothesis 1, shows a significantly positive (+) or negative (−) value in Formula (2), Hypothesis 1 is dismissed, which means that the extent of conservative accounting changes depending on the size of the external auditor. In this regard, the model to validate Hypothesis 1 is as follows.

\[
TACC_{it} = b_0 + b_1 \text{CFO}_{it} + b_2 \text{DCFO}_{it} + b_3 \text{DCFO}_{it} \times \text{CFO}_{it} + b_4 \text{DELIST}_{it} + b_5 \text{DELIST}_{it} \times \text{CFO}_{it} + b_6 \text{DELIST}_{it} \times \text{DCFO}_{it} + b_7 \text{DELIST}_{it} \times \text{DCFO}_{it} \times \text{CFO}_{it} + \text{BIG4}_{it} + b_9 \text{DELIST}_{it} \times \text{BIG4}_{it} \times \text{CFO}_{it} \times \text{DCFO}_{it} + \varepsilon_{it}
\]  
(1)
TACC_{it} = b_0 + b_1\text{CFO}_{it} + b_2\Delta\text{REV}_{it} + b_3\text{PPE}_{it} + b_4\text{DCFO}_{it} + b_5\text{DCFO}_{it} \times \text{CFO}_{it} + \\
b_6\text{DELIST}_{it} + b_7\text{DELIST}_{it} \times \text{CFO}_{it} + b_8\text{DELIST}_{it} \times \text{DCFO}_{it} + \\
b_9\text{DELIST}_{it} \times \text{DCFO}_{it} \times \text{CFO}_{it} + b_{10}\text{BIG4}_{it} + b_{11}\text{DELIST}_{it} \times \\
b_{12}\text{BIG4}_{it} \times \text{DCFO}_{it} + \\
b_{13}\text{DELIST}_{it} \times \text{BIG4}_{it} \times \text{CFO}_{it} \times \text{DCFO}_{it} + \epsilon_{it} \\
(2)

Hereafter,

TACC: total accruals (total accruals are the change in non-cash current assets, less the change in current liabilities (exclusive of short-term debt and taxes payable), less depreciation, and amortization expense.) divided by total asset at the beginning of the fiscal year

CFO: operating cash flow divided by total assets at the beginning of the fiscal year

DCFO: dummy variable that takes the value of 1 if CFO is negative or 0 otherwise

DELIST: dummy variable that takes the value of 1 if a firm is about to be delisted or 0 otherwise

BIG4: dummy variable that takes the value of 1 if a firm’s auditor is a Big4 or 0 otherwise

ΔREV: change of sales divided by total assets at the beginning of the fiscal year

PPE: property, plant, and equipment, divided by total assets at the beginning of the fiscal year

Meanwhile, Formulas (3) and (4) are different from Formulas (1) and (2), in that their samples include only companies ahead of delisting. If b_4 in Formula (3) is displayed in the negative (−) sign in the verification of the effect of introducing the substantial delisting investigation system among the reasons for delisting of delisted companies, then it can be said that conservatism in the companies that are delisted under the substantial investigation is weakening. If b_7 in Formula (3) and b_9 in Formula (4) have significantly negative (−) values, Hypothesis 2 is verified.

TACC_{it} = b_0 + b_1\text{CFO}_{it} + b_2\Delta\text{REV}_{it} + b_3\text{PPE}_{it} + b_4\text{DCFO}_{it} + b_5\text{DCFO}_{it} \times \text{CFO}_{it} + b_6\text{SUBST}_{it} + b_7\text{SUBST}_{it} \times \\
\text{CFO}_{it} + b_8\text{SUBST}_{it} \times \text{DCFO}_{it} + b_9\text{SUBST}_{it} \times \text{DCFO}_{it} \times \text{CFO}_{it} + \epsilon_{it} \\
(3)

TACC_{it} = b_0 + b_1\text{CFO}_{it} + b_2\Delta\text{REV}_{it} + b_3\text{PPE}_{it} + b_4\text{DCFO}_{it} + b_5\text{DCFO}_{it} \times \text{CFO}_{it} + \\
b_6\text{SUBST}_{it} + b_7\text{SUBST}_{it} \times \text{CFO}_{it} + b_8\text{SUBST}_{it} \times \text{DCFO}_{it} + \\
b_9\text{SUBST}_{it} \times \text{DCFO}_{it} \times \text{CFO}_{it} + \epsilon_{it} \\
(4)

Hereafter,

TACC: total accruals divided by total assets at the beginning of the fiscal year

CFO: operating cash flow divided by total assets at the beginning of the fiscal year

DCFO: dummy variable that takes the value of 1 if CFO is negative or 0 otherwise

SUBST: dummy variable that takes the value of 1 if a firm is about to be delisted by substantial investigation or 0 otherwise

ΔREV: change of sales divided by total assets at the beginning of the fiscal year

PPE: property, plant, and equipment, divided by total assets at the beginning of the fiscal year

4.2. Selection of Samples

This study collected samples from the firms that were listed in the KOSDAQ market of Korea from 2008 to 2015. The reason the samples were collected from 2008 is that, for the companies delisted in 2009, there were no financial data for 2009 in many cases and, therefore, we could acquire the latest financial statements of those firms for 2008 at the latest. 2015 was set as the final year of sampling, because it was possible to use more samples when we used the financial data for 2015, as for the firms delisted in 2016. In the case of corporations whose securities are listed, their size and financial stability was different from the companies that were examined in this study, and the number of delisted companies was far smaller than the companies that are listed on KOSDAQ, and thus, they
were excluded from this study. Corporations operating financial businesses and those that do not perform account settlement in December every year were excluded based on the homogeneity of the financial data, and we conducted winsorizing for the extreme values within the range of the top and bottom 1%. The number of firms that were delisted during that period is 330, while there were 99 firms subject to the substantial delisting investigation. The total number of the samples analyzed is 6348 firm-years. Among them, the number of delisted companies is 485 firm-years, while that of going businesses is 5863 firm-years. Table 1 presents the sample selection process.

Table 1. Sample Selection.

| Panel A: Sample Selection | Number of Firm-Year Observations |
|---------------------------|----------------------------------|
| Number of firm-year observations | 10,864 |
| Other year-end | (1023) |
| Unavailable data | (3493) |
| Total | 6348 |

| Panel B: Yearly Delisting Samples |
|-----------------------------------|
| Year | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | Total |
| Substantial investigation | 16 | 28 | 15 | 14 | 6 | 3 | 12 | 5 | 99 |
| Formal delisting criteria | 49 | 47 | 43 | 14 | 27 | 12 | 20 | 19 | 231 |
| Total | 65 | 75 | 58 | 28 | 33 | 15 | 32 | 24 | 330 |

5. Empirical Results

5.1. Descriptive Statistics and Correlation Analysis

Table 2 presents the descriptive statistics of variables to confirm the effect of introducing conservatism in delisted companies and the substantial delisting investigation system. The mean of delisted companies (DELIST) is 0.076. The mean of the size of auditor (BIG4) is 0.428, the mean of companies that are delisted under the substantial investigation (SUBST) is 0.019, and the mean (median) of total accruals (TACC) is $-0.046$ $(0.145)$. The mean (median) of operating cash flow is $0.044$ $(0.107)$, the mean (median) of dummy variable (DCFO), which shows a negative direction of operating cash flow, is $0.300$ $(0.458)$, the mean (median) of the growth rate of sales (ΔREV) is $-0.055$ $(0.263)$, and the mean (median) of tangible assets (PPE) $0.157$ $(0.129)$.

Table 2. Descriptive Statistics.

| Variables | Mean | Std. Dev. | Min | 1st Quartile | Median | 3rd Quartile | Max |
|-----------|------|-----------|-----|------------|--------|-------------|-----|
| DELIST    | 0.076 | 0.266    | 0.000 | 0.000      | 0.000  | 0.000       | 1.000 |
| BIG4      | 0.428 | 0.495    | 0.000 | 0.000      | 0.000  | 1.000       | 1.000 |
| SUBST     | 0.019 | 0.137    | 0.000 | 0.000      | 0.000  | 0.000       | 1.000 |
| TACC      | $-0.046$ | 0.145 | $-1.116$ | $-0.097$ | $-0.030$ | 0.030 | 0.396 |
| CFO       | 0.044 | 0.107    | $-0.551$ | $-0.014$ | 0.045  | 0.105       | 0.384 |
| DCFO      | 0.300 | 0.458    | 0.000 | 0.000      | 0.000  | 1.000       | 1.000 |
| ΔREV      | $-0.055$ | 0.263 | $-1.271$ | $-0.159$ | $-0.034$ | 0.067 | 0.897 |
| PPE       | 0.157 | 0.129    | 0.001 | 0.057      | 0.127  | 0.225       | 0.677 |

(N = 6348). Variable definitions: DELIST: dummy variable that takes the value of 1 if a firm is about to be delisted or 0 otherwise; BIG4: dummy variable that takes the value of 1 if a firm’s auditor is a Big4 or 0 otherwise; SUBST: dummy variable that takes the value of 1 if a firm is about to be delisted by substantial investigation or 0 otherwise; TACC: total accruals divided by total assets at the beginning of the fiscal year; CFO: operating cash flow divided by total assets at the beginning of the fiscal year; DCFO: dummy variable that takes the value of 1 if CFO is negative or 0 otherwise; ΔREV: change of sales divided by total assets at the beginning of the fiscal year; PPE: property, plant, and equipment, divided by total assets at the beginning of the fiscal year.

Table 3 shows the results of Pearson correlation analysis among each variable. The Pearson correlation coefficient among whether a firm is delisted or not (DELIST), the size of auditor (BIG4),
total accruals (TACC), cash flow from operating activities (CFO), and tangible assets (PPE) shows a significantly negative (−) correlation, while there is a positive (+) correlation in the negative (−) operating cash flow (DCFO). This result means that there is a close relationship between delisted companies and financial distress, and we do not believe that the correlation among subject variables causes any serious problem in conducting the regression analysis.

Table 3. Correlation Coefficients among Variables (Pearson).

| Variables | DELIST | BIG4 | SUBST | TACC | CFO | DCFO | ΔREV | PPE |
|-----------|--------|------|-------|------|-----|------|------|-----|
| DELIST    | −0.092 *** | 0.485 *** | −0.240 *** | −0.225 *** | 0.196 *** | 0.017 | −0.068 *** |
| BIG4      | −0.081 *** | 0.040 *** | 0.118 *** | −0.088 *** | −0.012 | 0.031 | ** |
| SUBST     | −0.167 *** | −0.167 *** | 0.130 *** | −0.009 | −0.058 *** |
| TACC      | −0.240 *** | −0.240 *** | 0.156 *** | −0.062 *** | 0.017 |
| CFO       | −0.725 *** | −0.088 *** | 0.129 *** |
| DCFO      | 0.041 *** | 0.041 *** | −0.118 *** |
| ΔREV      | −0.067 *** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively. Variable definitions: DELIST: dummy variable that takes the value of 1 if a firm is about to be delisted or 0 otherwise; BIG4: dummy variable that takes the value of 1 if a firm’s auditor is a Big4 or 0 otherwise; SUBST: dummy variable that takes the value of 1 if a firm is about to be delisted by substantial investigation or 0 otherwise; TACC: total accruals divided by total assets at the beginning of the fiscal year; CFO: operating cash flow divided by total assets at the beginning of the fiscal year; DCFO: dummy variable that takes the value of 1 if CFO is negative or 0 otherwise; ΔREV: change of sales divided by total assets at the beginning of the fiscal year; PPE: property, plant, and equipment divided by total assets at the beginning of the fiscal year.

5.2. Difference Analysis

Table 4 shows the results of difference analysis among delisted companies (DELIST = 1) and those that were not delisted (DELIST = 0). When considering the size of auditor (BIG4) first, the share of small accounting firms is significantly large among delisted companies. Moreover, there is a significantly negative (−) difference between the two groups in total accruals (TACC), cash flow from operating activities (CFO), and tangible assets (PPE), while there is a significantly positive (+) difference between the two groups in the negative (−) cash flow (DCFO).

Table 4. Difference Analysis.

| Variables | Group | Mean | Std. | t-Value | z-Value |
|-----------|-------|------|------|---------|---------|
| BIG4      | DELIST = 1 | 0.270 | 0.444 | −0.041 *** | 3.608 *** |
|           | DELIST = 0 | 0.441 | 0.496 | 12.684 *** | 5.280 *** |
| SUBST     | DELIST = 1 | 0.249 | 0.433 | −11.794 *** | 6.655 *** |
|           | DELIST = 0 | 0.000 | 0.000 | 14.509 *** | 7.237 *** |
| TACC      | DELIST = 1 | −0.167 | 0.242 | −5.541 *** | 3.336 *** |
|           | DELIST = 0 | −0.036 | 0.129 | −14.059 *** | 7.160 *** |
| CFO       | DELIST = 1 | −0.040 | 0.134 | −5.541 *** | 3.336 *** |
|           | DELIST = 0 | 0.051 | 0.102 | 1.262 | 1.612 ** |
| DCFO      | DELIST = 1 | 0.612 | 0.488 | 14.772 *** | 7.160 *** |
|           | DELIST = 0 | 0.274 | 0.446 | −5.541 *** | 3.336 *** |
| ΔREV      | DELIST = 1 | −0.039 | 0.290 | 1.262 | 1.612 ** |
|           | DELIST = 0 | −0.056 | 0.261 | 1.262 | 1.612 ** |
| PPE       | DELIST = 1 | 0.127 | 0.126 | 1.262 | 1.612 ** |
|           | DELIST = 0 | 0.160 | 0.129 | 1.262 | 1.612 ** |

*, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively. Variable definitions: ASSET: natural log of beginning total assets; LEV: total debt divided by total equity for firm i in year t; OCF: operating cash flow divided by total assets for firm i in year t; GROWTH: growth rate of sales for firm i in year t; RLS: ratio of the largest shareholder and related party ownership for firm i in year t; RFIO: ratio of foreign investment ownership for firm i in year t; ALTMAN: Altman(1968) Z score; BIG4: dummy variable that takes the value of 1 if a firm’s auditor is a Big4 or 0 otherwise; LOSS: dummy variable that takes the value of 1 if a firm’s net income is negative or 0 otherwise.
5.3. Companies Ahead of Delisting and Conservatism

Table 5 shows the results of verification that was performed by modifying the models of Ball and Shivakumar [14,15] to verify Hypothesis 1. In Formulas (1) and (2), regression coefficients (t-value) $b_{11}$ and $b_{13}$ show significantly negative (−) values within the range of 1% at −0.816 (−2.780) and −0.780 (−2.669), respectively, and such results reject Hypothesis 1. In other words, in the case of companies ahead of delisting, companies that are audited by small auditors (Non-BIG4) perform accounting in a more conservative manner than do their counterparts that are audited by large auditors (BIG4). This result indicates that small auditors audit firms more conservatively, as they are faced with higher litigation risk, such as a concern regarding whether the accounting firm can continue to exist when it takes responsibility for paying damages in litigation as the auditor of a delisted company. In other words, the analysis results imply that small auditors maintain audit quality at an appropriate level by inputting in many audit resources to lower the potential litigation risk immediately before delisting and require companies to conduct conservative accounting.

**Table 5. Regression Analysis of Big4 Conservatism: H1. (Ball and Shivakumar 2005, 2008).**

| Variable | Ball and Shivakumar (2005) | Ball and Shivakumar (2008) |
|----------|---------------------------|---------------------------|
|          | Parameter Estimate | Parameter Estimate |
|          | (t-Stat)            | (t-Stat)            |
| Intercept | −0.014 * (−1.956) | −0.032 *** (−4.792) |
| CFO      | −0.492 *** (−17.185) | −0.525 *** (−18.187) |
| $\Delta$REV | −0.051 *** (−7.880) |                 |
| PPE      | −0.002 (−0.143) |                 |
| DCFO     | −0.001 (−0.140) | −0.001 (−0.150) |
| $DCFO \times CFO$ | −0.016 (−0.288) | 0.035 (0.622) |
| DLEIST   | −0.128 *** (−9.009) | −0.140 *** (9.197) |
| $DLEIST \times CFO$ | 0.340 ** (2.156) | 0.414 *** (2.628) |
| $DLEIST \times DCFO$ | −0.053 *** (−2.608) | −0.053 ** (2.593) |
| $DLEIST \times CFO \times DCFO$ | 0.008 ** (0.041) | −0.082 (−0.449) |
| BIG4     | 0.011 *** (3.209) | 0.011 *** (3.170) |
| $DLEIST \times BIG4 \times CFO$ | 0.342 * (1.849) | 0.359 * (1.951) |
| $DLEIST \times BIG4 \times DCFO$ | 0.006 (0.195) | 0.009 (0.320) |
| $DLEIST \times BIG4 \times CFO \times DCFO$ | −0.816 *** (−2.780) | −0.780 *** (−2.669) |

* ∑IND included, ∑YEAR included. F-stat. (Adjusted R-Square) 35.191 (18.09%) 35.320 (18.86%)

*, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively. Variable definitions: TACC: total accruals divided by total assets at the beginning of the fiscal year; CFO: operating cash flow divided by total assets at the beginning of the fiscal year; $DLEIST$: dummy variable that takes the value of 1 if CFO is negative or 0 otherwise; $DELIST$: dummy variable that takes the value of 1 if a firm is about to be delisted or 0 otherwise; $\Delta$REV: change of sales divided by total assets at the beginning of the fiscal year; PPE: property, plant, and equipment divided by total assets at the beginning of the fiscal year; BIG4: dummy variable that takes the value of 1 if a firm’s auditor is a Big4 or 0 otherwise.
Table 6 presents the results of confirmation of Hypothesis 2. In Formula (3), which was modified from the model of Ball and Shivakumar [14], the regression coefficient (t-value) $b_7$ is 0.662 (1.735), showing a slightly significant positive (+) value within the range of 10%, but in Formula (4), which was also modified from the model of Ball and Shivakumar [15], the regression coefficient (t-value) $b_9$ is 0.618 (1.627), which is not a significantly positive (+) value. This result can be interpreted, as follows. Among companies that are about to delist, those that are subject to substantial investigation do not necessarily conduct aggressive accounting. However, the results in this study are probably due to offsetting between the manager’s aggressive accounting and the demand by the external auditor for conservative accounting in the case of companies that are subject to substantial delisting investigation.

Table 6. Regression Analysis of Conservatism: H2. (Ball and Shivakumar 2005, 2008).

| Variable | Ball and Shivakumar (2005) | Ball and Shivakumar (2008) |
|----------|----------------------------|----------------------------|
|          | Parameter Estimate (t-Stat) | Parameter Estimate (t-Stat) |
| Intercept| $-0.013^*$ ($-1.784$)     | $-0.034$ ($-5.022$)       |
| CFO      | $-0.457^{***}$ ($-15.699$) | $-0.489$ ($-16.687$)      |
| $\Delta$REV |                      | $-0.052$ ($-7.802$)     |
| PPE      | 0.005 (0.327)             |                            |
| DCFO     | $-0.004$ ($-0.674$)       | $-0.004$ ($-0.704$)       |
| DCFO $\times$ CFO | 0.123 ** (2.362) | 0.172 (3.299)          |
| SUBST    | $-0.098^{***}$ ($-3.018$) | $-0.102$ ($-3.157$)      |
| SUBST $\times$ CFO | $-0.372$ ($-1.048$) | $-0.345$ ($-0.978$)      |
| SUBST $\times$ DCFO | $-0.111^{***}$ ($-2.763$) | $-0.108$ ($-2.705$)      |
| SUBST $\times$ CFO $\times$ DCFO | 0.662 $^*$ (1.735) | 0.618 (1.627)          |
| $\sum$IND | included                  | included                  |
| $\sum$YEAR | included                 |                            |

*$^*$, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively. Variable definitions: TACC: total accruals divided by total assets at the beginning of the fiscal year; CFO: operating cash flow divided by total assets at the beginning of the fiscal year; DCFO: dummy variable that takes the value of 1 if CFO is negative or 0 otherwise; $\Delta$REV: change of sales divided by total assets at the beginning of the fiscal year; PPE: property, plant, and equipment, divided by total assets at the beginning of the fiscal year; SUBST: dummy variable that takes the value of 1 if a firm is about to be delisted by substantial investigation or 0 otherwise.

5.4. Additional Analysis

We concluded that it is necessary to verify the hypotheses in this study by using conservative models other than that of Ball and Shivakumar [14,15] to enhance the robustness of our results. We used the model of Basu to this end, [16]. Formulas (5) and (6) were used to verify Hypotheses 1 and 2, as follows.
The results are as follows. In Model 1 used to verify Hypothesis 1 in Table 7, the regression coefficient (t-value) of $b_{11}$ is $-0.279(-2.707)$, and it has a significantly negative (−) value within the range of 1%. This can be interpreted, as follows: conservative accounting is demanded more as the size of the external auditor of the firm ahead of delisting becomes smaller. However, the regression coefficient (t-value) of $b_{14}$ is $-0.431(-1.424)$, a negative (−) value, and it is not statistically significant.

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The model of Givoly and Hayn [17] verified that, as the amount of cumulative non-operating accruals (cumulative non-operating accruals are calculated by subtracting operating assets (OA) from total assets (TA), and we used the model of Paek and Lee [27].) increases, the level of conservative accounting becomes higher. In the second additional analysis, this study verified Hypotheses 1 and 2 with the following model, which reflects the conservative model of Givoly and Hayn [17].

\[
GHCON_{it} = b_0 + b_1DELIST_{it} + b_2SIZE_{it} + b_3LEV_{it} + b_4\Delta REV_{it} + b_5CFO_{it} + b_6RLS_{it} + b_7ALTMAN_{it} + b_8BIG4_{it} + b_9LOSS_{it} + b_{10}DELIST_{it} \times BIG4_{it} + \sum IN_{it} + \sum YR_{it} + \epsilon_{it}
\]  

Hereafter, \(GHCON\): Givoly and Hayn (2000) conservatism \((GHCON_{it} = (-1) \times (TA_{it} - OA_{it})/ASSET_{i,t-1})\)

\(DELIST\): dummy variable that takes the value of 1 if a firm is about to be delisted or 0 otherwise

\(SIZE\): natural log of total assets at the beginning of the fiscal year

\(LEV\): total debt divided by total equity at the beginning of the fiscal year

\(\Delta REV\): growth rate of sales

\(OCF\): operating cash flow divided by total assets at the beginning of the fiscal year

\(RLS\): the ratio of the largest shareholder and related party ownership at the beginning of the fiscal year

\(ALTMAN\): Altman (1968) Z score

\(BIG4\): dummy variable that takes the value of 1 if a firm’s auditor is a Big4 or 0 otherwise

\(LOSS\): dummy variable that takes the value of 1 if a firm’s net income is negative or 0 otherwise

\(IN\): Industry dummy variable

\(YR\): Year dummy variable

Hypothesis 1 is validated if \(b_1\) in Formula (7) has a significantly positive (+) value, while Hypothesis 2 is validated if \(b_{10}\) has a significantly negative (−) value. In Table 8, in the model of Givoly and Hayn [17], the regression coefficient (t value) of \(b_1\) is 0.090 (15.715), showing a significantly positive (+) value within the range of 1%, and therefore it supports Hypothesis 1. Such a result was observed after controlling the Altman [29] Z-score \((ALTMAN)\), debt ratio \((LEV)\), and operating cash flow \((CFO)\), which indicate the financial situation of a company. We interpret the results to mean that conservative accounting is observed in companies ahead of delisting, owing to such factors as demands from the auditor as well as the voluntary efforts of the manager to overcome financial distress. By comparison, the regression coefficient (t value) of \(b_{10}\) is −0.077 (−7.539), a significantly negative (−) value, and such a result supports Hypothesis 2. We interpret these results to mean that, in the case of firms that are delisted from the KOSDAQ market, smaller auditors \((NON-BIG4)\) are more conservative than larger auditors \((BIG4)\).

Meanwhile, the conservatism model of Ball and Shivakumar [14,15] that was used in this study does not control the firm’s financial situation. Therefore, to control the influence of the financial situation of a firm ahead of delisting on total accruals, this study re-verified the hypotheses with the modified model of Ball and Shivakumar [14] controlling the bankruptcy risk, which was conducted in the study of Kim et al. [10]. In our model, debt ratio \((LEV)\) and Altman [29] Z-score \((ALTMAN)\), which shows the firm’s financial situation, are included in Formulas (2) and (4). Table 9 presents the results. The verification results of Hypothesis 1 reveal that the regression coefficient (t value) of \(DELIST \times BIG4 \times CFO \times DCFO\), which is an interacting variable, is −0.739 (−2.569) after controlling the financial situation, having a significantly negative (−) value within the range of 5%, and in Hypothesis 2, the regression coefficient (t value) of \(SUBST \times CFO \times DCFO\) is 0.612 (1.648), showing a significantly positive (+) value within the range of 10%. Such a result means that companies ahead of delisting conduct significantly conservative accounting, even after their financial situation, thereby supporting the results of this study.
Table 8. Additional Analysis of Conservatism (1): Givoly and Hayn (2000).

| Variable | Coefficient | t Value |
|----------|-------------|---------|
| Intercept | 0.355 | 8.113 *** |
| DELIST  | 0.090 | 15.715 *** |
| SIZE  | −0.036 | −8.799 *** |
| LEV  | 0.079 | 11.020 *** |
| ΔREV  | −0.028 | −5.879 *** |
| CFO  | 0.266 | 20.668 *** |
| RLS  | 0.000 | 2.285 ** |
| ALTMAN  | 0.000 | −2.148 ** |
| BIG4  | 0.000 | −0.024 |
| LOSS  | 0.086 | 27.762 *** |
| DELIST × BIG4  | −0.077 | −7.539 *** |

∑IND included 
∑YEAR included 
F-Value 58.318 *** 
Adj. R-Square 26.54%

*, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively. Variable definitions: GHCON: Givoly and Hayn (2000) conservatism (GHCONit = (−1) × (TAit − OAit) / ASSETit − 1); DELIST: dummy variable that takes the value of 1 if a firm is about to be delisted or 0 otherwise; SIZE: natural log of total assets at the beginning of the fiscal year; LEV: total debt divided by total equity at the beginning of the fiscal year; ΔREV: growth rate of sales; CFO: operating cash flow divided by total assets at the beginning of the fiscal year; RLS: the ratio of the largest shareholder and related party ownership at the beginning of the fiscal year; ALTMAN: Altman(1968) Z score; BIG4: dummy variable that takes the value of 1 if a firm’s auditor is a Big4 or 0 otherwise; LOSS: dummy variable that takes the value of 1 if a firm’s net income is negative or 0 otherwise; IN: Industry dummy variable; YR: Year dummy variable.

Table 9. Additional Analysis of Conservatism (2): Ball and Shivakumar Model (2008) with Bankruptcy Risk Variables.

| Variable | H1 Parameter Estimate (t-Stat.) | H2 Parameter Estimate (t-Stat.) |
|----------|---------------------------------|---------------------------------|
| Intercept | 0.008 (0.921) | −0.001 (−0.070) |
| CFO  | −0.592 *** (−20.564) | −0.572 *** (−19.654) |
| ΔREV  | −0.056 *** (−8.797) | −0.058 *** (−8.875) |
| PPE  | 0.048 *** (3.336) | 0.065 *** (4.433) |
| LEV  | −0.100 *** (−10.622) | −0.128 *** (−13.406) |
| ALTMAN  | 0.001 *** (5.826) | 0.001 *** (5.718) |
| DCFO  | 0.003 (0.506) | 0.001 (0.181) |
| DCFO × CFO  | 0.075 (1.373) | 0.213 *** (4.183) |
| DELIST  | −0.122 *** (−8.088) | |
| DELIST × CFO  | 0.434 *** (2.800) | |
| DELIST × DCFO  | −0.059 *** (−2.969) | |
| DELIST × DCFO × CFO  | −0.081 (−0.455) | |
| BIG4  | 0.010 *** (2.978) | |
Table 9. Cont.

| Variable | H1 Parameter Estimate (t-Stat.) | H2 Parameter Estimate (t-Stat.) |
|----------|---------------------------------|---------------------------------|
| DELIST × BIG4 × CFO          | 0.315 * (1.742)                  |                                 |
| DELIST × BIG4 × DCFO        | 0.016 (0.555)                    |                                 |
| DELIST × BIG4 × CFO × DCFO | −0.739 ** (−2.569)              |                                 |
| SUBST                    | −0.085 *** (−2.682)             |                                 |
| SUBST × CFO               | −0.313 (−0.905)                  |                                 |
| SUBST × DCFO              | −0.123 *** (−3.142)             |                                 |
| SUBST × CFO × DCFO        | 0.612 * (1.648)                  |                                 |
| ∑IND                     | included                        |                                 |
| ∑YEAR                    | included                        |                                 |

F-stat. (Adjusted R-Square) | 39.265 *** (21.34%) | 31.939 *** (16.66%) |

*, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively. Variable definitions: TACC: total accruals divided by total assets at the beginning of the fiscal year; CFO: operating cash flow divided by total assets at the beginning of the fiscal year; DCFO: dummy variable that takes the value of 1 if CFO is negative or 0 otherwise; DELIST: dummy variable that takes the value of 1 if a firm is about to be delisted or 0 otherwise; ΔREV: change of sales divided by total assets at the beginning of the fiscal year; PPE: property, plant, and equipment divided by total assets at the beginning of the fiscal year; LEV: total debt divided by total equity at the beginning of the fiscal year; ALTMAN: Altman (1968) Z score; BIG4: dummy variable that takes the value of 1 if a firm’s auditor is a Big4 or 0 otherwise.

6. Conclusions

Public companies can be especially important contributors to the long-term sustainable wealth of economies and society [30]. This study examined the characteristics of companies ahead of delisting in the KOSDAQ market and in conservative accounting. Companies that were ahead of delisting had the characteristics of marginal companies, such as deterioration of operating cash flow, rise in debt ratio, and increased bankruptcy risk. However, managers can perform a variety of efforts to improve the sustainability of the company and they can be more conservative [12,13]. Our results shows that, in the case of firms ahead of delisting, conservatism was reinforced by the voluntary efforts of managers to avoid delisting as well as auditors’ demand for conservative accounting to prepare against litigation risk. It was partially verified that small auditors show significantly more conservatism in accounting than the large auditors do. Meanwhile, companies that are subject to substantial delisting investigation did not conduct more aggressive accounting than other delisted companies. This result means that the auditor’s demands to prepare for litigation risk are also reflected in conservative accounting in the case of companies that are subject to substantial delisting investigation.

This study proved its robustness, because it verified the conservatism model of Ball and Shivakumar [14,15] and the models of Basu [16] and Givoly and Hyan [17], and the same result was verified, even after controlling the bankruptcy risk.

This study made the following contributions. First, it revealed that firms ahead of delisting execute conservative accounting to prepare for litigation risk against the external auditor and implement self-help measures to avoid delisting. Such a result differs from the negative tendencies that are found in previous studies on companies ahead of delisting, and it thereby significantly contributes to existing literature. Additionally, it implies that manager’s efforts to enhance the sustainability of companies
ahead of delisting are related to accounting conservatism. Second, this study partially verified that, for companies ahead of delisting, as the size of auditor declines, the level of conservative accounting increases. This result implies that small accounting firms make more efforts to prepare for higher litigation risk that arises out of delisting than do large accounting firms. Third, different from the findings in previous studies that firms conduct earnings management and other action to avoid formal delisting criteria, the results of this study can be a specific case of the results of Kim and Bae [31] that conservatism and earnings management can move in different directions.

The regulatory authorities in Korea recently strengthened the substantial delisting investigation system to enhance the soundness of the KOSDAQ market and, as a result, the number of marginal businesses is on the decrease and the numbers of cases of embezzlement, breach of duty, and uneven disclosure are decreasing. The results of this study confirmed that the efforts of the regulatory authorities to lower the uncertainty of the capital market are bearing fruit among companies that are ahead of delisting, and strict auditing by external auditors for companies ahead of delisting is improving their reporting quality, in accordance with the strong will of the regulatory authorities.

This study has its limits in that it did not reflect all conservatism measurements to verify the hypotheses. Moreover, we did not measure earnings qualities other than conservatism as the measurement of reporting quality. Finally, we did not look into changes in reporting quality, such as conservatism that is triggered by recent changes in the substantial delisting investigation system. Therefore, further study should be conducted to supplement the limits of this study.

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