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The effect of consistency in accounting choices on financial statement comparability: Evidence from South Korea

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ABSTRACT

Purpose: To empirically document the proposition “Comparability is the goal; consistency helps to achieve the goal” (IFRS Conceptual Framework 2.26), we investigate whether accounting changes affect financial statement comparability and whether income smoothing through accounting changes has different effects on financial statement comparability.

Design/methodology/approach: We conduct pooled OLS regressions with standard errors corrected for both firm and year level clustering to test all the analyses. We also use the propensity score matching method to construct a sample with accounting changes (treatment sample) and a sample without accounting changes (control sample).

Findings: We find evidence consistent with our hypotheses that accounting changes reduce financial statement comparability. We also find that income smoothing improves financial statement comparability, but income smoothing through accounting changes reduces financial statement comparability.

Research limitations/implications: There is a small number of firms that made accounting changes, so it would be worthwhile for future research to analyse a larger sample with various types of accounting changes.

Originality/value: The main contribution of the study is that we empirically document one aspect of the conceptual framework that consistency helps to improve comparability.

Keywords: Consistency, Accounting changes, Comparability, Income smoothing, Conceptual framework

1. Introduction

The International Accounting Standards Board (IASB) states that “Comparability is the qualitative characteristic that enables users to identify and understand similarities in, and differences among, items” (IFRS Conceptual Framework 2.24). The IASB also states that “Consistency refers to the use

of the same methods for the same items, either from period to period within a reporting entity or in a single period across entities” and “Comparability is the goal; consistency helps to achieve the goal” (IFRS Conceptual Framework 2.26). As the IASB mentions, the level of comparability is likely to increase when accounting policies and methods are consistent because it is difficult to compare financial statements of comparable companies if they use the different policies or methods for the same items.

According to International Accounting Standard 8 (IAS 8), “An entity shall select and apply its accounting policies consistently for similar transactions, other

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events and conditions” (IAS 8.13), and “If an entity shall change an accounting policy, it should disclose the nature of the change in accounting policy and the amount of the adjustment for each financial statement line item affected” (IAS 8.28). Therefore, it is possible to be aware of the nature of a change in accounting policy and the amount of adjustment through notes in financial reports.

Meanwhile, the Public Company Accounting Oversight Board (PCAOB) comments that auditors should evaluate the consistency of financial statements and recognize changes in accounting principles or adjustments intended to correct a misstatement in previously issued financial statements to evaluate consistency (PCAOB Release 2008-001). The International Federation of Accountants (IFAC) states that auditors should understand the reasons for changes in accounting policies and evaluate whether the accounting policies are appropriate for the business and consistent with the applicable financial reporting framework and accounting policies used in the relevant industry (ISA 315.11). It is essential that auditors understand and evaluate the reasons for and appropriateness of changes in accounting policies and disclose this information in audit reports.

Our study focuses on the relation between financial statement comparability and accounting changes. We predict that accounting changes are likely to reduce financial statement comparability for several reasons. First, managers are likely to make accounting changes for specific purposes (Moses 1987; Lilien et al. 1988; Elliott and Philbrick 1990; Haw et al. 1991; Pincus and Wasley 1994; Fields et al. 2001; Beatty and Weber 2003), and financial statement comparability is likely to be lower when managers opportunistically engage in earnings management (Sohn 2016). Second, accounting changes produce the adjustments for each financial statement line item affected and the adjustments directly influence accounting earnings even though the underlying economic situations do not change at all. Third, as stated in footnote 1, it is most likely that firms choose accounting policies that is different from those of their peers when they make accounting changes.

We also investigate whether income smoothing through accounting changes has different effects on financial statement comparability. Income smoothing is one of the potential sources to improve accounting comparability (Barth et al. 2012). Fudenberg and Tirole (1995) and DeFond and Park (1997) argue that managers smooth earnings considering both current and future relative earnings. Moses (1987), Lilien et al. (1988), and Elliott and Philbrick (1990) also argue that managers adjust the level of earnings different from market expectations through accounting changes. We therefore expect that the income smoothing through accounting changes is likely to reduce financial statement comparability because it is difficult for stakeholders to predict earnings accurately when the level of income smoothing increases following accounting changes.

The results of our study are as follows: First, we find that accounting changes reduce financial statement comparability. Second, we find that income smoothing improves financial statement comparability. Finally, we find that the interaction term between accounting changes and income smoothing further reduces financial statement comparability.

The results of this study provide several contributions. To our knowledge, this is the first empirical study to test the effect of consistency in accounting choices on financial statement comparability. Comparability is the goal; consistency helps to achieve the goal (IFRS Conceptual Framework 2.26). Therefore, we hypothesize that accounting changes reduce financial statement comparability and find that the results are in line with our expectations. Financial statement comparability is much lower when the level of income smoothing increases following accounting changes. One of the motives for accounting choices is earnings management (Pincus and Wasley 1994), and some managers make accounting changes to smooth income (Moses 1987, Lilien et al. 1988, Elliott and Philbrick 1990). Therefore, the results of the study provide understanding to stakeholders that financial statement comparability is likely to be lower when firms with an increase in the level of income smoothing through accounting changes are compared with their peers.

The remainder of this paper is organized as follows: We summarize the prior research and develop hypotheses in section 2. Then, we discuss the research design and methods including the samples and empirical models in section 3. Finally, the results are reported in section 4, and the conclusions and limitations of the study are presented in section 5.

II. Literature Review and Hypotheses Development

A. Consistency

Pincus and Wasley (1994) argue that there are two motives for accounting choices: (1) managerial opportunism/earnings management and (2) efficient (optimal) contracting. In addition, Fields et al. (2001) argue that there are three motives for accounting choices: (1) contracting including CEO compensation and debt covenants, (2) asset pricing influenced by information asymmetries, and (3) externalities affecting non-contracting parties.

Based on the various motives of accounting changes, several studies investigate the association between accounting changes and earnings management. Haw et al. (1991) and Beatty and Weber (2003) argue that firms that are close to debt-covenant constraints make accounting changes to increase income. Francis (1990) and Sweeney (1994), however, argue that firms make accounting changes by considering not only debt-covenant constraints but also other factors. Francis (1990) finds that firms make accounting choices to minimize costs related to covenant violation and compliance. Sweeney (1994) finds that firms that are close to debt-covenant constraints make accounting changes to increase income by considering the tax effect, which means that managers do not choose to make accounting changes to increase income if the accounting changes entail significant cash outflows due to taxes.

On the other hand, some studies investigate the association between accounting changes and income

smoothing. Moses (1987) finds that earnings reduction due to accounting changes is correlated with unexpected earnings and that earnings reduction is larger when unexpected earnings are positive compared to when they are negative. He argues that managers use accounting changes to adjust the level of earnings. Elliott and Philbrick (1990) document the association between accounting changes and income smoothing by considering analysts' earnings forecasts. They find that the revision in analysts' earnings forecasts is smaller as the impact of accounting changes on earnings is greater, which suggests that managers make accounting changes to smooth income.

Lilien et al. (1988) hypothesize that the reasons for accounting changes differ for firms with high and low stock returns and find that firms with high stock returns are likely to use accounting changes to decrease income, but firms with low stock returns are likely to use accounting changes to increase income. They argue that firms with high stock returns use accounting changes for income smoothing and that firms with low stock returns use accounting changes for earnings management. According to Lilien et al. (1988), firms are likely to make accounting changes to either increase income or decrease income (income smoothing) based on their own economic situation.

B. Comparability

De Franco et al. (2011) develop a method to measure financial statement comparability. They document that financial statement comparability increases earnings forecast accuracy and decreases earnings forecast dispersion, and they argue that financial statement comparability decreases information acquisition costs and increases the amount of qualitative and quantitative information available to analysts.

Several studies using the De Franco et al. (2011) method (DKV) have been published. Chen et al. (2018) find that acquirers make more profitable decisions when financial statement comparability of the target firms is greater, which suggests that financial statement comparability allows for better acquisition decisions

to be made in the M&A market. Shane et al. (2014) find that seasoned equity offering (SEO) firms experience less underpricing and SEO managers overstate the value of equity securities less often when financial statement comparability of SEO firms is greater, which means that financial statement comparability allows for a better assessment of the underlying value of SEO firms.

Yip and Young (2012) and Barth et al. (2012, 2018) use the Ohlson (1995) model to measure financial statement comparability. Financial statement comparability increases after IFRS adoption across 17 EU countries (Yip and Young 2012) and it increases between IFRS adopting firms and adopted firms (Barth et al. 2018). Barth et al. (2012) find that financial statement comparability increases between IFRS firms and US GAAP firms. They additionally find that financial statement comparability is greater when IFRS firms adopt mandatorily, operate in common law and high enforcement countries, and their accounting data are more recent. Therefore, the IFRS are a high-quality GAAP such as the US GAAP and are likely a driver that improves financial statement comparability across countries. Wang (2014) finds that financial statement comparability measured through transnational information transfer is higher when the same or a similar accounting standard is applied than when different accounting standards are applied. She shows that using similar GAAPs as well as the IFRS improve financial statement comparability.

Francis et al. (2014) and Kawada (2014) use accruals to investigate the effect of audit style on financial statement comparability. Francis et al. (2014) find that financial statement comparability of firms audited by the same Big 4 auditor is greater than that of firms audited by two different Big 4 auditors. Kawada (2014) additionally find that financial statement comparability of firms audited by the same Big 4 auditor in the same local office is greater than that of firms audited by the same Big 4 auditor in different local offices. Kim et al. (2019) also argue that the unique management style of each business group improves financial statement comparability.

On the other hand, Zhang (2018) posit that financial

statement comparability helps auditors work efficiently and accurately, and they find that financial statement comparability is negatively related to audit fees, audit delay, and the likelihood of audit opinion errors. Based on the results, he highlights the possibility of reverse causality such that audit style affects financial statement comparability, as noted by Francis et al. (2014). He argues that financial statement comparability improves the availability of clients' accounting information.

C. Hypothesis Development

To improve accounting comparability, firms should use accounting policies and methods consistently because consistency helps to achieve an improvement in comparability (IFRS Conceptual Framework 2.26). The IASB emphasizes the importance of consistency in accounting policies and methods and states that firms should disclose the nature of the change in accounting policy and the amount of the adjustment when they make changes in accounting policies and methods. The PCAOB and IFAC also state that auditors should understand and evaluate the reasons for and appropriateness of changes in accounting policies and disclose this information in audit reports.

Accounting and auditing institutions emphasize the importance of consistency in accounting choices for various reasons. Of course, the goal of accounting comparability could be achieved through consistency; it is better to compare financial statements of comparable companies when they use consistent policies or methods for the same items. Another reason for emphasizing the importance of consistency is to prevent earnings manipulation through accounting changes. Managers may exploit accounting changes to manipulate earnings for their purposes (e.g., managerial opportunism/earnings management or efficient (optimal) contracting, Pincus and Wasley 1994), which is likely to reduce accounting comparability.

Several studies investigate the association between accounting changes and errors in analysts' earnings forecasts. Ricks and Hughes (1985), Hughes and Ricks

(1987), and Biddle and Ricks (1988) find that errors in analysts' earnings forecasts increase when accounting changes have a greater impact on income. Hughes and Ricks (1987) assert that analysts are unaware of accounting changes or they are unable to reflect the entire impact of the accounting changes in their earnings forecasts even though they are aware of accounting changes. Similar to Hughes and Ricks (1987), Biddle and Ricks (1988) state that limited information is provided regarding the impact of accounting changes; therefore, it is difficult for analysts to forecast earnings accurately.

De Franco et al. (2011) and Shim and Ki (2017) find a negative relationship between financial statement comparability and errors in analysts' earnings forecasts and argue that financial statement comparability reduces information acquisition and processing costs and increases the qualitative and quantitative information available to analysts. The discussion above leads us to propose the following hypothesis:

Hypothesis 1: Accounting changes are negatively related to financial statement comparability.¹⁾

Barth et al. (2012) argue that income smoothing is one of the potential sources to improve accounting comparability.²⁾ If this is true, how does income

smoothing through accounting changes affect accounting comparability? We expect that income smoothing through accounting changes reduces accounting comparability based on the claims of prior studies as follows: First, Moses (1987) argues that managers exploit accounting changes to adjust the level of earnings when they expect positive unexpected earnings. Elliott and Philbrick (1990) also argue that the impact of accounting changes on earnings differs from analysts' expectations. These arguments suggest that it is difficult for analysts to predict earnings accurately when the level of income smoothing increases following accounting changes, so that accounting comparability is likely to be lower.

Second, Fudenberg and Tirole (1995) and DeFond and Park (1997) argue that managers smooth earnings considering both current and future relative earnings. For example, managers are likely to decrease current earnings when current earnings are good and future earnings are expected to be poor, and they are likely to increase current earnings when current earnings are poor and future earnings are expected to be good. Lilien et al. (1988) also argue that firms with high stock returns decrease (smooth) earnings following accounting changes because they do not have incentive to increase already high income. Therefore, we expect that accounting comparability is likely to be lower when the level of income smoothing increases following accounting changes because shareholders predict higher earnings than reported earnings of firms smoothing income through accounting changes. The above discussion leads us to propose the following hypothesis:

Hypothesis 2: Income smoothing through accounting changes is negatively related to financial statement comparability.

III. Research Methods

A. Models

The purpose of the study is to investigate whether accounting changes are negatively related to financial

- 1) It is possible to argue that accounting changes are positively related to cross-sectional comparability when accounting changes bring firms in line with accounting choices of their peers. However, as shown in Panel B of Table 1, firms changed their PP&E or investment property valuation from the cost model to the revaluation model. Lee et al. (2012) reported that only 2 percent and 3 percent of Korean listed firms chose the revaluation model in PP&E and investment property, respectively. Therefore, we hypothesize that accounting changes are negatively related to financial statement comparability because it is most likely that accounting changes bring firms different from accounting choices of their peers. It is certain that accounting changes are negatively related to time-series comparability regardless of whether accounting changes bring firms in line with or different from accounting choices of their peers.
- 2) Barth et al. (2012) argue that three dimensions of accounting quality, income smoothing, accruals quality, and timeliness are potential sources to provide insight into differences in accounting comparability between US GAAP firms and IFRS firms. De Franco et al. (2011) also argue that comparability is greater for firms with similar earnings attributes such as income smoothing, accruals quality, predictability, and whether or not losses are reported.

statement comparability and whether income smoothing through accounting changes is negatively related to financial statement comparability. The basic model for the study is as follows:

$$COMP_{it}^{DKV} = \alpha_0 + \alpha_1 AChange_{it} + \alpha_2 Smooth_{it}^{LNW} + \alpha_3 AChange_{it} \times Smooth_{it}^{LNW} + \alpha_4 Controls_{it} + \varepsilon_{it} \quad (1)$$

We follow DKV and calculate the proxy for financial statement comparability. The concept of this method is that the same economic events lead to comparable financial statements when the accounting systems used by firm i and firm j are similar. DKV use net accounting income as a proxy for financial statements and stock returns as a proxy for economic events. DKV make the following equation that incorporates the previous 16 quarters of accounting earnings and stock returns:

$$Earnings_{it} = \alpha_i + \beta_i Return_{it} + \varepsilon_{it} \quad (2)$$

where $Earnings_{it}$ is quarterly net accounting income divided by the beginning market value of equity and $Return_{it}$ is the stock return during the same quarter. We estimate $\hat{\alpha}_i$ and $\hat{\beta}_i$ for firm i and $\hat{\alpha}_j$ and $\hat{\beta}_j$ for firm j . We calculate the expected earnings of firm i and firm j , assuming they had the same return, $Return_{it}$ as follows:

$$E(Earnings)_{iit} = \hat{\alpha}_i + \hat{\beta}_i Return_{it} \quad (3)$$

$$E(Earnings)_{ijt} = \hat{\alpha}_j + \hat{\beta}_j Return_{it} \quad (4)$$

where $E(Earnings)_{iit}$ is the expected earnings produced by the accounting system of firm i with $Return_{it}$, and $E(Earnings)_{ijt}$ is the expected earnings produced by the accounting system of firm j with $Return_{it}$ within the same SIC two-digit industry classification. De Franco et al. (2011) define financial statement comparability between firm i and firm j as the negative average value of the absolute difference between the expected earnings of firm i and firm j as follows:

$$COMP_{ijt} = -1/16 \times \sum_{t-15}^t |E(Earnings)_{iit} - E(Earnings)_{ijt}| \quad (5)$$

where $COMP_{ijt}$ is the proxy of financial statement comparability, which is greater when the value is greater. $COMP_{ijt}^{DKV}$ is the median $COMP_{ijt}$ for all firms j in the same industry as firm i during period t .

We hand collect data in audit reports on changes in accounting principles or changes in accounting estimates. We use only firms that make accounting changes voluntarily because changes made to accounting principles due to revisions of accounting standards are commonly mandatorily applied. $AChange_{it}$ is a dummy variable that is one if firm i makes accounting changes and zero otherwise.

The proxy of income smoothing is calculated according to the method proposed by Leuz et al. (2003). The concept of the method is that insiders reduce the variability of reported earnings using both real operating decisions and accounting choices. We calculate the proxy of income smoothing of firm i as follows:

$$Smooth_{it}^{LNW} = -\sigma NI_{it} / \sigma CFO_{it} \quad (6)$$

where $Smooth_{it}^{LNW}$ is the proxy of income smoothing, which is greater when the value is greater. σNI_{it} is the standard deviation of quarterly net accounting income divided by beginning total assets for the previous 16 quarters. σCFO_{it} is the standard deviation of quarterly operating cash flows divided by beginning total assets for the previous 16 quarters. The negative sign is multiplied to make it easier to interpret because low values of this measure indicate that insiders have engaged in income smoothing.

We conduct pooled OLS regressions with standard errors corrected for both firm and year level clustering using equation (1) to test all the analyses.

We also use the propensity score matching method (PSM)³ to construct a sample with accounting changes

3) PSM addresses potential bias from functional form misspecification by reducing reliance on the specification of the relation between the variables (Rosenbaum and Robin 1983).

(treatment sample) and a sample without accounting changes (control sample). First, we set the following logit model to estimate the propensity score for constructing a control sample matched to the treatment sample.

$$AChange_{it} = \gamma_0 + \gamma_1 Lev_{it} + \gamma_2 Return_{it} + \gamma_3 ROA_{it} + \gamma_4 Size_{it} + \varepsilon_{it} \quad (7)$$

where $AChange_{it}$ is a dummy variable that is one if firm i makes accounting changes and zero otherwise. We use debt ratio (Lev_{it}), stock returns ($Return_{it}$), and profitability (ROA_{it}) because these variables could affect accounting changes according to Fields et al. (2001). They argue that firms are likely to make accounting changes when debt ratio is high and stock returns and profitability are low. We also use firm size ($Size_{it}$) to control for omitted variables. We construct one-to-two matching, treatment and control samples,⁴⁾ using the propensity score within the same SIC two-digit industry classification. In addition, we test one-to-one and one-to-five matching for sensitivity analysis and the total sample for generalization⁵⁾.

B. Sample Selection

We hand collect data on firms listed on the Korean Stock Exchange (KSE) that made accounting changes in previously issued financial statements between 2011 and 2016 because the IFRS were introduced in South Korea in 2011 (Ji 2017). We conduct an analysis using equation (1) for the sample between 2014 and 2016 because 16 consecutive quarters of earnings and stock returns data are required to calculate financial statement comparability, $COMP_{ijt}$. Our sample is restricted to non-financial firms with fiscal year-ends in December to ensure homogeneity.

We remove firms with negative net assets because they are likely to experience financial distress and firms without sufficient financial and stock data. We also remove firms that made accounting changes due to the IAS 27 amendment⁶⁾ and corrections of prior period errors⁷⁾. The total sample consists of 1,623 firm-year observations. We winsorize all variables at 1 and 99 percent with the exception of dummy variables.

From the hand-collected data, we select thirty-four firms that made voluntary accounting changes between 2014 and 2016 and sixty-eight matching firms that did not make any accounting changes by using PSM. We further confirm that the matching firms did not make any accounting changes between 2011 and 2013. Panel A of Table 1 reports a summary of the sample selection. Panel B reports the type of accounting changes made by the treatment sample firms. Seventeen firms changed the valuation model of PP&E from the cost model to the revaluation model and five firms changed the valuation model

6) Thirty-three firms made changes in accounting policies from the cost method to the equity method because the ISAB amended IAS 27 (regarding separate financial statements) that the entity could elect to account for its investments in subsidiaries, joint ventures and associates either at cost, in accordance with IFRS 9 Financial Instruments, or using the equity method as described in IAS 28 Investment in Associates and Joint Ventures in separate financial statements; this accounting policy change did not have any effect on consolidated financial statements. We therefore conduct pooled OLS regressions using mandatory accounting changes firms and their matching firms (thirty-three firms and sixty-six firms, respectively). In untabulated results, we find that the coefficients $AChange$ and $AChange \times Smooth^{LNW}$ are insignificant, which suggests that mandatory accounting changes do not significantly affect financial statement comparability. It could be interpreted to indicate that mandatory accounting changes bring firms in line with accounting choices of their peers.

7) An entity shall correct material prior period errors retrospectively in the first set of financial statements authorized for issue after discovery (IAS 8.42), so the effect of corrections of prior period errors on financial statement comparability is likely to be similar to changes in accounting policies. We therefore conduct pooled OLS regressions using error corrections firms and their matching firms (twenty-eight firms and fifty-six firms, respectively). In untabulated results, we find that the coefficients $AChange$ and $AChange \times Smooth^{LNW}$ are insignificant, which suggests that error corrections do not significantly affect financial statement comparability.

4) Hulsiek (2002) argues that using one-to-two matching reduces the bias of the unadjusted treatment effect estimate by over 50%.

5) Shipman et al. (2017) claim that one-to-one matching is the most commonly used matching method in accounting research, and Hulsiek (2002) argues that one-to-five matching produces the unbiased treatment effect estimate with low variability.

Table 1. Sample description**Panel A: Sample selection procedure**

Description	2014	2015	2016	Total
KOSPI	706	725	741	2,172
Less : Financial industry	47	48	50	145
Other than fiscal year-end in December	22	39	53	114
Negative net assets	28	28	28	84
Data shortage	65	47	33	145
Mandatory accounting changes	8	10	15	33
Corrections of prior period errors	7	10	11	28
Total sample	529	543	551	1,623
Sample with accounting changes	13	9	12	34
Sample without accounting changes	26	18	24	68
Sample by using PSM	39	27	36	102

Panel B: Type of accounting changes

Type of accounting changes	Frequency
Changes in Accounting Policies	
Property, Plant, and Equipment (valuation model)	17
Investment Property (valuation model)	5
Employee Benefits (post-employment benefit plans)	2
Inventories (cost measurement)	2
Changes in Accounting estimates	
Property, Plant, and Equipment (useful life)	11
Total number of accounting changes	37

(1) Three firms made two types of accounting changes. For example, changes in the revaluation models used for PP&E and investment property were made in the same year.

of investment property from the cost model to the revaluation model. Two firms changed post-employment benefit plans from defined benefit plans to defined contribution plans and two firms changed the measurement of inventories from yearly weighted average method to monthly weighted average method. Eleven firms changed their PP&E useful life.

IV. Results

A. Descriptive statistics

The descriptive statistics of the variables used in this study are reported in Table 2. The mean (median)

of financial statement comparability ($COMP^{DKV}$) is -0.036 (-0.030). The ratio of accounting changes ($AChange$) is 0.333. The mean (median) of income smoothing ($Smooth^{LNW}$) is -0.778 (-0.545). For the control variables, the mean (median) of firm size ($Size$) is 26.886 (26.722). The mean (median) of liability ratio (Lev) is 0.562 (0.594). The mean (median) of market to book value ratio of equity (MTB) is 1.296 (0.901). The mean (median) of operating cash flow ratio (CFO) is 0.027 (0.028). The mean (median) of loss frequency ($LossProb$) is 0.442 (0.438). Finally, the mean (median) of sales volatility ($StdSales$), operating cash flows volatility ($StdCFO$), and sales growth volatility ($StdGrow$) is 0.066 (0.014), 0.050 (0.011), and 0.396 (0.167), respectively.

Table 2. Descriptive statistics (N=102)

Variables	Mean	S.D.	Min	Median	Max
<i>COMP^{DKV}</i>	-0.036	0.027	-0.132	-0.030	-0.007
<i>AChange</i>	0.333	0.474	0.000	0.000	1.000
<i>Smooth^{LNW}</i>	-0.778	0.857	-5.379	-0.545	-0.081
<i>Size</i>	26.886	1.516	23.995	26.722	31.096
<i>Lev</i>	0.562	0.177	0.048	0.594	0.897
<i>MTB</i>	1.296	1.307	0.257	0.901	7.764
<i>CFO</i>	0.027	0.064	-0.191	0.028	0.181
<i>LossProb</i>	0.442	0.243	0.000	0.438	0.938
<i>StdSales</i>	0.066	0.154	0.000	0.014	0.892
<i>StdCFO</i>	0.050	0.115	0.001	0.011	0.630
<i>StdGrow</i>	0.396	1.095	0.036	0.167	10.602

(1) Variable are defined in the Appendix A.

Table 3. Pearson correlations (N=102)

Variables	<i>COMP^{DKV}</i>	<i>AChange</i>	<i>Smooth^{LNW}</i>	<i>Size</i>	<i>Lev</i>	<i>MTB</i>	<i>CFO</i>	<i>LossProb</i>	<i>StdSales</i>	<i>StdCFO</i>	<i>StdGrow</i>
<i>COMP^{DKV}</i>	1	-0.200** (0.044)	0.476*** (0.000)	0.273*** (0.005)	-0.473*** (0.000)	-0.318*** (0.001)	0.313*** (0.001)	-0.727*** (0.000)	0.103 (0.302)	0.090 (0.368)	0.033 (0.742)
<i>AChange</i>		1	-0.168* (0.091)	0.065 (0.515)	0.033 (0.739)	0.027 (0.786)	0.079 (0.428)	0.179* (0.072)	0.169* (0.090)	0.058 (0.561)	0.170* (0.087)
<i>Smooth^{LNW}</i>			1	0.134 (0.179)	0.030 (0.768)	-0.145 (0.147)	0.254*** (0.010)	-0.283*** (0.004)	0.023 (0.818)	0.041 (0.682)	-0.044 (0.658)
<i>Size</i>				1	0.040 (0.688)	-0.110 (0.270)	0.264*** (0.007)	-0.304*** (0.002)	0.727*** (0.000)	0.776*** (0.000)	-0.070 (0.484)
<i>Lev</i>					1	0.182* (0.067)	0.070 (0.487)	0.408*** (0.000)	0.035 (0.728)	0.031 (0.755)	-0.096 (0.336)
<i>MTB</i>						1	-0.258*** (0.009)	0.092 (0.358)	-0.137 (0.168)	-0.125 (0.210)	0.102 (0.308)
<i>CFO</i>							1	-0.267*** (0.007)	0.107 (0.284)	0.117 (0.243)	0.013 (0.897)
<i>LossProb</i>								1	-0.083 (0.406)	-0.089 (0.372)	-0.079 (0.431)
<i>StdSales</i>									1	0.879*** (0.000)	-0.048 (0.631)
<i>StdCFO</i>										1	-0.078 (0.438)
<i>StdGrow</i>											1

(1) Variable are defined in the Appendix A.

(2) Values in parentheses are p-values; ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, based on a two-tailed t-test.

B. Correlations

The Pearson correlations of the main variables used in this study are reported in Table 3. *COMP^{DKV}* and *AChange* have an significantly negative association, and *COMP^{DKV}* and *Smooth^{LNW}* have a significantly

positive association, which means that financial statement comparability is low when accounting policies and estimates are changed and financial statement comparability is great when the level of income smoothing is high. *AChange* and *Smooth^{LNW}* have a significantly negative association, which means that the level of

income smoothing is low when accounting changes are made.

Meanwhile, the correlation coefficients between *Size* and *StdSales*, *Size* and *StdCFO*, and *StdSales* and *StdCFO* are 0.727, 0.776, and 0.879, respectively, which causes us to be concerned about multicollinearity. Therefore, we verify the variance inflation factor (VIF) value while conducting pooled OLS regressions and confirm that the maximum value of VIF is less than 6.0, which alleviates our concerns about multicollinearity.

C. The Effect of accounting changes and income smoothing on comparability

Table 4 reports the results that indicate whether accounting changes and income smoothing affect financial statement comparability. In models 1 and 2, we use the variables for accounting changes and income smoothing, respectively, and we use both of these variables and the interaction term of the two variables by using equation (1) in model 3. All

three models are significant ($p < 0.001$) and the *Adjusted R*² ranges between 0.662 and 0.767.

In models 1 and 3, the coefficient *AChange* is significantly negative ($p = 0.026$ and $p < 0.001$, respectively). The results suggest that financial statement comparability is likely to be lower when a firm makes accounting changes, which supports our hypothesis. It can be seen that financial statement comparability is lower when accounting policies and estimates are changed because it is difficult to compare financial statements of comparable companies if they use the different policies or methods for the same items through accounting changes.

In models 2 and 3, the coefficient *Smooth*^{LNW} is significantly positive ($p = 0.001$ and $p < 0.001$, respectively), which means that financial statement comparability is likely to be greater when the level of income smoothing is higher. The result is consistent with Barth et al. (2012)'s assertion that income smoothing is one of the potential sources to provide insight into differences in accounting comparability.

In model 3, the coefficient *AChange* \times *Smooth*^{LNW}

Table 4. Results for the effect of accounting changes on financial statement comparability

Variables	Model 1: <i>COMP</i> ^{DKV}		Model 2: <i>COMP</i> ^{DKV}		Model 3: <i>COMP</i> ^{DKV}	
	Coefficient (t-value)		Coefficient (t-value)		Coefficient (t-value)	
<i>Constant</i>	-0.086*	(-1.73)	-0.063	(-1.34)	-0.052	(-1.16)
<i>AChange</i>	-0.008**	(-2.26)	-		-0.016***	(-4.48)
<i>Smooth</i> ^{LNW}	-		0.010***	(3.52)	0.015***	(7.34)
<i>AChange</i> \times <i>Smooth</i> ^{LNW}	-		-		-0.012***	(-4.43)
<i>Size</i>	0.003*	(1.80)	0.003	(1.49)	0.002	(1.44)
<i>Lev</i>	-0.024	(-1.58)	-0.024**	(-2.41)	-0.025***	(-2.95)
<i>MTB</i>	-0.005**	(-2.47)	-0.005**	(-2.38)	-0.004**	(-2.04)
<i>CFO</i>	0.075**	(2.61)	0.052*	(1.94)	0.053**	(2.07)
<i>LossProb</i>	-0.051***	(-6.14)	-0.044***	(-5.13)	-0.043***	(-5.44)
<i>StdSales</i>	0.016	(0.95)	-0.002	(-0.16)	0.016	(1.00)
<i>StdCFO</i>	-0.050**	(-2.13)	-0.020	(-0.87)	-0.040*	(-1.83)
<i>StdGrow</i>	0.000	(0.22)	-0.001	(-1.08)	0.000	(0.28)
<i>IND_Dummy</i>	Include		Include		Include	
<i>F value</i>	11.270***		14.040***		22.650***	
<i>Adjusted R</i> ²	0.662		0.728		0.767	
<i>N</i>	102		102		102	

(1) Variable are defined in the Appendix A.

(2) Values in parentheses are t-values; ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, based on a two-tailed t-test.

is significantly negative ($p < 0.001$). This result suggests that financial statement comparability is likely to be incrementally lower when the level of income smoothing is higher following accounting changes, which supports our hypothesis. This result could be interpreted to indicate that financial statement comparability is much lower when the level of income smoothing increases following accounting changes because it is difficult for stakeholders including analysts to accurately predict earnings of firms smoothing income through accounting changes.⁸⁾⁹⁾

As mentioned above, consistency in accounting choices and income smoothing are likely to improve financial statement comparability. Moses (1987) argues that managers are likely to decrease accounting earnings through accounting changes when unexpected earnings are positive, and Lilien et al. (1988) argue that firms with high stock returns are likely to decrease accounting earnings through accounting changes. Therefore, we conclude that financial statement comparability is much lower when the level of income smoothing increases following accounting changes unlike the expectations of stakeholders.

With respect to the control variables used in model 3, *Lev*, *MTB*, *LossProb*, and *StdCFO* are negatively associated with financial statement comparability, and *CFO* is positively associated with financial statement comparability. These results could be interpreted to indicate that financial statement comparability is low

when financial distress such as closeness to debt covenants is high and aggressive accounting policies are applied rather than conservative accounting policies.

D. Additional Analysis

1. Sensitivity

We reconstruct a sample with one-to-one matching and one-to-five matching to verify whether our results are affected by the number of firms in the control sample. The results are reported in models 1 and 2 of Table 5 (one-to-one matching and one-to-five matching, respectively), and they are similar to those reported in Table 4, which reports that income smoothing is positively related to financial statement comparability, and accounting changes and the interaction term of the two variables are negatively related to financial statement comparability. However, PSM has some limitations: First, the accuracy of estimates from PSM is seriously affected by missing predictors. Second, smaller sample sizes produce less overlap between the treatment and control groups (Howarter 2015). Therefore, we test our hypothesis using total sample to address the limitations of PSM. In model 3 of Table 5, the results are similar to those in Table 4. Remarkably, the explanatory power (*Adjusted R*²) decreases from 76.7% in model 3 of Table 4 to 54.5% in model 3 of Table 5, which means that the results of PSM are more powerful and reliable than those of total sample.

2. Endogeneity

It is possible that financial statement comparability of firms in the treatment sample is inherently low regardless of accounting changes, which causes concerns about endogeneity. Therefore, we use a two-stage model using the Heckman (1979) method to correct for the bias of estimators in self-selection accounting changes.¹⁰⁾ As shown in models 1 and

8) As mentioned above, $COMP_{i,j,t}^{DKV}$ is the median $COMP_{i,j,t}$ for all firms j in the same industry as firm i during period t , as shown in Table 4. We also use the average $COMP_{i,j,t}$ of the ten firms j with the highest comparability to firm i during period t , in alignment with De Franco et al. (2011). In untabulated results, the results for the average $COMP_{i,j,t}$ are similar to those for the median $COMP_{i,j,t}$.

9) Chen et al. (2018) create the proxy for financial statement comparability by replacing earning variables with operating cash flows from operations to confirm whether the proxy for financial statement comparability captures the comparability of the accounting system or the similarities of underlying economic events. In untabulated results, we calculate the proxy for financial statement comparability with operating cash flows from operations and find that all coefficients $AChange$, $Smooth^{LNW}$, and $AChange \times Smooth^{LNW}$ in models 1, 2, and 3, respectively are insignificant, which suggests that our comparability measure captures financial statement comparability rather than underlying economic similarities.

10) We perform regressions using the Heckman's two-stage model

Table 5. Results for sensitivity

Variables	Model 1: $COMP^{DKV}$	Model 2: $COMP^{DKV}$	Model 3: $COMP^{DKV}$
	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)
<i>Constant</i>	-0.065 (-1.22)	-0.079*** (-2.68)	-0.059*** (-5.98)
<i>A Change</i>	-0.016*** (-3.49)	-0.013*** (-3.54)	-0.011*** (-2.68)
<i>Smooth^{LNW}</i>	0.016*** (7.15)	0.017*** (9.14)	0.010*** (10.47)
<i>A Change × Smooth^{LNW}</i>	-0.012*** (-4.06)	-0.012*** (-4.46)	-0.005** (-2.00)
<i>Control variables</i>	Include	Include	Include
<i>F value</i>	39.000***	23.420***	42.450***
<i>Adjusted R²</i>	0.784	0.719	0.545
<i>N</i>	68	204	1,623

(1) Variable are defined in the Appendix A.

(2) Values in parentheses are t-values; ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, based on a two-tailed t-test.

Table 6. Results for endogeneity

Variables	Model 1: $COMP^{DKV}$	Model 2: $COMP^{DKV}$
	Coefficient (t-value)	Coefficient (t-value)
<i>Constant</i>	-0.130** (-2.39)	-0.140*** (-4.65)
<i>A Change</i>	-0.014*** (-4.19)	-0.010*** (-2.64)
<i>Smooth^{LNW}</i>	0.014*** (5.75)	0.010*** (10.46)
<i>A Change × Smooth^{LNW}</i>	-0.011*** (-3.67)	-0.005** (-2.00)
<i>Mills</i>	0.026* (1.90)	0.011*** (2.94)
<i>Control variables</i>	Include	Include
<i>F value</i>	22.230***	41.240***
<i>Adjusted R²</i>	0.782	0.550
<i>N</i>	102	1,623

(1) Variable are defined in the Appendix A.

(2) Values in parentheses are t-values; ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively, based on a two-tailed t-test.

2 of Table 6 (two-stage models with one-to-two matching and total sample, respectively), the results are similar to those reported in Table 4, which alleviates our concerns about endogeneity.

3. Adjustment of the final sample

There is a possibility that prior accounting changes could affect current accounting comparability because the proxy of financial statement comparability is calculated using data on four previous years. Therefore,

as follows: In the first stage, we run a probit model using equation (7) and obtain the inverse Mills ratio. In the second stage, we include the inverse Mills ratio as a control variable in equation (1).

we exclude eight firms in the treatment sample because they had made accounting changes in the past three years and six firms in the control sample.¹¹⁾ In untabulated results, we find that the results are similar to those reported in Table 4, which indicates that our results are robust.

4. Alternative measures

Prior research documents that firm-specific news is incorporated in stock prices before accounting earnings

11) We exclude eight firms in the treatment sample and sixteen firms in the control sample to conduct regressions using the adjusted final sample.

announcements. De Franco et al. (2011), therefore, include lagged price changes into the accounting model as follows:

$$Earnings_{it} = \alpha_i + \beta_{1i}Return_{it} + \beta_{2i}Return_{it-1} + \varepsilon_{it} \quad (8)$$

where $Return_{it-1}$ is the stock return during the prior quarter. In untabulated results, we find that the results are similar to those reported in Table 4, which alleviates the concern that “prices lead earnings (PLE)”.

V . Conclusion

In this study, we investigate whether accounting changes affect financial statement comparability and whether income smoothing through accounting changes has different effects on financial statement comparability. Our sample consists of firms listed on KSE that made accounting changes (treatment sample) and firms that did not make any accounting changes (control sample) between 2014 and 2016.

We find evidence consistent with our hypotheses that financial statement comparability is lower when accounting policies and estimates are changed and that financial statement comparability is much lower when the level of income smoothing increases following accounting changes. We conduct several additional analyses and the results are similar to our main results reported in Table 4, which indicates that our results are robust.

The main contribution of the study is that we empirically document one aspect of the conceptual framework: “Comparability is the goal; consistency helps to achieve the goal” (IFRS Conceptual Framework 2.26).

The limitation of this study is that it is possible that there may be inherent errors due to the PSM method, self-selection bias, and omitted variables, which could affect our results, but we could not control for the effects. However, we conduct various additional

tests to address these effects. Furthermore, there is a small number of firms that made accounting changes, so it would be worthwhile for future research to analyse a larger sample with various types of accounting changes.

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Appendix A. Variable definitions

Variables	Definitions
<i>COMP^{DKV}</i>	Median among firm-pairs for firm <i>i</i> within the same industry according to De Franco, Kothari, and Verdi (2011)
<i>Smooth^{LNW}</i>	Income smoothing according to Leuz, Nanda, and Wysocki (2003): (-) standard deviation of quarterly net accounting income scaled by standard deviation of quarterly operating cash flows
<i>AChange</i>	One if firm <i>i</i> makes accounting changes (changes in accounting policies or estimates), zero otherwise
<i>Size</i>	Natural log of total assets
<i>Lev</i>	Total liabilities scaled by total assets
<i>MTB</i>	Market to book value of equity
<i>CFO</i>	Cash flows from operations scaled by beginning of year total assets
<i>LossProb</i>	Loss probability is the proportion of quarters for which the firm reports a negative quarterly net income in the past 16 quarters
<i>StdSales</i>	Standard deviation of sales is calculated over the preceding 16 quarters
<i>StdCFO</i>	Standard deviation of operating cash flows is calculated over the preceding 16 quarters
<i>StdGrow</i>	Standard deviation of sales growth is calculated over the preceding 16 quarters
<i>IND_Dummy</i>	Industry dummy variable
<i>Return</i>	Annual stock price return from April 1 to March 31 of the following year
<i>ROA</i>	Net accounting income scaled by beginning of year total assets
<i>Mills</i>	Inverse Mills ratio obtained from the probit model using equation (7)