VALUE-RELEVANCE OF MULTIPLE-STEP INCOME STATEMENT – AN ANALYSIS OF EARNINGS COMPONENTS

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Abstract

The value relevance of accounting earnings has attracted the attention of researchers for decades. However, how important earning components provided by multiple-step income statement relative to earnings has limited evidence. Studies do show that earnings components provide additional value-relevance to earnings; but it is not clear if the relative additional value-relevance of earnings components beyond earnings can be systematically affected by firm characteristics. I focus on investigating if more detailed disaggregation in a multiple-income statement affects the additional value-relevance of earnings components beyond earnings. I use a recent paper's measure of the disaggregation quality (DQ) and find that higher DQ increases both value relevance of earnings and earnings components. I also find that DQ has a positive effect on the additional explanatory power of earnings components beyond earnings. Moreover, I find that this positive relation is especially strong for firms with high information uncertainty. My finding suggests that even highly disaggregate earnings information can help the analysts to improve earnings forecasts and the market to evaluate earnings but this help has minor effect on the additional value-relevance of earnings components. Studies using value-relevance of earnings to measure a firm's financial reporting quality may also consider value-relevance of earnings components.

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Introduction

This study investigates the value-relevance of income statement contributed from earnings components from the multiple-step income statement. Ideally, if the information content of bottom line earnings equals the sum of that of earnings components (in other words, numbers can be added), earnings components should not provide more value-relevance in addition to earnings. In reality, the structure and content of income statement can be analyzed in a variety of dimensions. For example, some items will affect the short-term cash flow in the firm, such as sales and cost of goods sold (COGS), while others will not, such as depreciations and impairment of goodwill. The upper components in the income statement are more likely to recur in the next accounting period than the lower components. Adding these line items with different properties may create "apple and orange" problems. In fact, previous empirical evidence indicates that some information will be lost when earnings components are aggregated into earnings (Lipe, 1986). Hence, earnings components have different implications to future earnings, and the market will place different valuation weights on each of the components.

In many studies investigating reporting quality, value-relevance of earnings (i.e. VRE) is often the focus. As business is getting more complicated, bottom line earnings are vulnerable to earning management. It is expected that the market may pay more attention to detailed earnings information, such as earnings components. Thus, examining the information content in earning components will provide further understanding for the research on valuation and reporting quality. The difference between the value-relevance of earnings components (referred as VREC) and VRE relies on how earnings components differ from earnings can be viewed from at least two perspectives. First, the difference is affected by the implication to future profits or the degree of permanence of earnings and earnings components. For instance, a dollar increase in sales should

be more permanent then a dollar increase from asset sale gains. It is likely that upper components in the multiple-income statement will have more value implications than the lower part components as the structure of multiple-income statement is based on the functional importance of the components. Once these components are aggregated, the implication of VRE will then be ambiguous. Moreover, the informativeness of earnings and earnings components of a given firm could vary year by year and across firms depending on the number of non-recurring items. Second, more detailed disclosures can help the market in assessing a firm's earnings quality (e.g. earnings permanence). The difference between VRE and VREC can be smaller as the managers may not be able to hide some important earnings properties, and the market can use the detailed information to assess earnings permanence, which will increase VRE.

Previous studies are limited in exploring what factors will influence the different behavior patterns between the value relevance of earnings and that of earnings components. More clearly, whether the relative additional value-relevance of earnings components beyond earnings can be systematically affected by firm characteristics or other factors is an interesting empirical question.

In this study, I investigate whether more detailed disaggregation in financial statements affects the additional value-relevance of earnings components beyond earnings. Previous study finds that higher disaggregation level in the annual report can help the market participants in better assessing the underlying profitability of the firm. For instance, Chen, Miao, and Shevlin (2015) create a measure for degree of disaggregation and find that higher disaggregation is associated with lower financial analysts' forecast dispersion and smaller bid-ask spreads. Nevertheless, whether a greater amount of disaggregated information in the financial statements increases the additional explanatory power of earnings components beyond earnings to stock return is an open question.

On the one hand, providing detailed supporting information through disaggregated items by the managers can reveal more information content contained in earnings, and the market participants can confirm the income numbers through these disaggregated items. Under this circumstance, the explanatory power of earnings to stock return should increase. If the investors can see through earnings better based on the disaggregated information, earnings can absorb the information content of earnings component, and the additional value relevance of earnings components may decrease thereby. On the other hand, disclosing a greater amount of disaggregated information can improve the information content of earnings components and the improvement may not be fully absorbed by earnings. That is, a single earning number may not fully capture the rich information provided by the earnings components even with help from the disaggregated items. In this case, even if investors look into earnings components that help them to understand earnings, which increase VRE; however, the supplementary power of earnings components in valuation process (i.e. additional value-relevance of earnings components) will be stronger. To sum, the value relevance of both earnings and components may increase, and the amount of additional explanatory power of earnings components beyond earnings could be ambiguous.

To explore this empirical problem, I adopt a recent measure in the disclosure literature created by Chen et al. (2015): the disaggregation quality measure (DQ). The DQ measure mainly capture the extents of detailed accounting information disclosed in the annual report of the firms. Higher DQ indicates that a firm provides a greater amount of disaggregated accounting information in the annual report and has a higher reporting quality. The empirical analysis is based on the setting of the U.S capital market. The sample period starts from 1988 to 2016. The choice of this sample period considers the data availability of earning components and potential investors'

attention, since the market in early years tends to focus more on bottom line earnings. I disaggregate the bottom line net income into nine earnings components: sales, cost of goods sold, SG&A expenses, depreciation expenses, interest expenses, non-operating income, special items, income taxes, and extraordinary items and discontinued operations. Two regression models are constructed in this study. I regress return on earnings and on all nine components separately. I follow the study conducted by Ali and Zarowin (1992) and include both level and change variables into the regression to better capture the unexpected earnings and components. The incremental value relevance of earnings components beyond earnings is measured by the difference between the adjusted R squared from return-earnings regression and that from return-components regression. I implement the Fama-MacBeth (1973) regression method so that I can get the adjusted R squared in every sample year for the significance test. The baseline result of this study first shows that the value relevance of both earnings and components for high DQ firms is larger than that for the low DQ firms. More importantly, the additional value relevance of earnings components beyond earnings for firms with high DQ is larger than that for firms with low DQ. The result is marginally significant. This empirical finding indicates that a greater amount of detailed accounting information not only improves informativeness of earnings but also allow earnings components reflect more additional information content that cannot be covered by net income.

Beside the main test, I also conduct further tests to provide a more comprehensive understanding of the additional value relevance of earnings components beyond earnings. Providing a greater amount of disaggregated accounting information will improve the information environment for external investors. Following the logic of baseline analysis, I first test the effect of information uncertainty on the explanatory power of both earnings and earnings components,

and I find that high information uncertainty impairs the value relevance of both earnings and earnings components as well as the additional value relevance of earnings components beyond earnings. Based on this finding, I further examine whether the effect of DQ on the incremental value relevance of earnings components beyond earnings will be affected by information uncertainty. I find that the positive effect of high DQ on the relative additional explanatory power of earnings components beyond earnings is significantly stronger for firms with high information uncertainty. This result indicates that higher disclosure quality with more detailed information can assist investors in digging out more information content of earnings components that is not reflected by net income under the high information uncertainty.

This study contributes to the existing accounting literature in several aspects. To begin with, previous literature has already discovered the additional information content in the earnings components beyond earnings but does not further investigate whether the amount of this additional information content can be affected by the amount of disaggregated accounting information in the income statement. My study provides some insights into this aspect. Moreover, this study connects the behaviors of incremental value relevance of earnings components beyond earnings with the corporate reporting practice. I document one potential advantage of disclosing more disaggregated accounting information to the capital market. That is improving the valuation effect of earnings components beyond earnings or maintaining this valuation effect under high information uncertainty. Barton, Hansen, and Pownall (2010) conduct a study investigating the value relevance of eight accounting-based performance measures based on an international setting, but the measures in their study mainly include sales, cash flows, and different types of accounting earnings. My study is different in that I disaggregate earnings into detail line items in income statement, and I show that firms with similar value relevance of earnings have significant different value relevance

of earnings components under different DQ level. Therefore, future studies may also consider the value relevance of earnings components as a measure for financial reporting quality. Since the study does not find significant increase of additional information content in the earnings components beyond earnings for firms with high DQ under the low information uncertainty, the motivation of the firms providing detailed disclosure in accounting information need to be further examined.

The rest of the paper is organized as follows. Section 2 reviews the previous literature on value relevance of earnings components and develops the main hypothesis for this study. Section 3 describes the empirical specifications, main variables constructions, and summary statistics. Section 4 presents the empirical analyses, and Section 5 concludes the study.

Literature Review and Hypothesis Development

Previous Literature on the Value Relevance of Earnings Components

The value relevance of earnings components has been investigated from different aspects in the accounting literature. From a general perspective, research conducted by Hoskin, Hughes, and Ricks (1986) shows that information on earnings components and dividends has significant incremental power in explaining stock returns beyond earnings. Lipe (1986) conducts a comprehensive study on the information content of earnings components using a time-series system model including seven equations. The study finds that all six components (gross profits, general and administrative expense, depreciation, interest expense, income taxes, and other items) provide additional information content beyond both the earnings and other five components, and the additional information content is associated with the time-series properties of the components. Ohlson and Penman (1992) also investigates the explanatory power of disaggregated accounting data for returns in different time intervals (1, 2, 5, and 10 year-window), and their results show

that both the explanatory power and magnitude of coefficients for earnings components increase and approach to those of bottom line earnings as the time interval lengthens. In the earnings prediction literature, Fairfield, Sweeney, and Yohn (1996) investigate the relation between accounting classification and accuracy of ROE forecast and find that disaggregation of earnings into components significantly improves the forecast accuracy of future ROE. Their additional tests suggest that special items should not be excluded for predicting bottom-line ROE, while extraordinary items and discontinued operations can be excluded without affecting the forecast accuracy. Studies have also been conducted on the different properties of earnings components and their effects on valuation. Ertimur, Livnat, and Martikainen (2003) examine the differential investors' reactions to revenue and expense surprises around preliminary earnings announcements, and their findings show that the regression coefficient of revenue surprise is significantly larger than that of expense surprise. They interpret that higher level of persistence and homogeneous of revenue surprise leads to this result. Furthermore, some papers explore the value relevance of several specific earnings components. Amir and Lev (1996) explore the value-relevance of both financial and non-financial information in the wireless communications industry and find that the general expenses lose the value relevance for the cellular companies, and they suggest that cellular firms separate the expenses of intangible items from the general expenses. This will allow investors to get additional information of the line items in income statement. In addition, previous studies examines the effect of accounting decisions on the value relevance of earnings components. Francis, Hanna, and Vincent (1996) investigates the management's incentives to conduct asset write-offs and the market reactions to these write-off actions, and they show that market reactions to different types of write-offs vary. Investors negatively react to write-offs in inventory and PPE and positively react to goodwill write-offs and restructuring charges. Elliott and Hanna (1996)

study how repeated accounting write-offs affect the information content of both earnings and special items and find that the coefficient of earnings before special items decrease significantly when write-offs happen, and the value relevance of special items even become insignificant as the frequency of write-offs increases.

Early research have shown that capital market does pay attention to the information content in earnings components, and the internal properties, industrial characteristics, and specific accounting decisions will all affect the informativeness of earnings components. Nevertheless, some early studies only include small and limited data samples while others mainly focus on several key components or one component under a given industry or business practice. Empirical findings from previous paper need to be verified and confirmed by using updated sample data. More importantly, most previous studies do not explore the behavior pattern of the additional value relevance of earnings components beyond earnings.

Hypothesis Development

Whether more detailed disaggregation in a multiple-income statement affects the additional value-relevance of earnings components beyond earnings can be argued from two different angles.

On the one hand, accounting earnings include both permanent and transitory components, and the permanent component has stronger value relevance. Determining the amount of permanent income is important in the valuation process. However, how permanent the accounting earnings is may rely on how permanent in earnings components. That is, earnings components can serve as a supplementary role to help assessing the permanence of earnings. With detailed disaggregated items being disclosed by managers in the income statement, more information content of earnings can be revealed. Francis, Schipper, and Vincent (2002) examine the disclosures of detailed income statements, balance sheets, and cash flow statements during earnings announcements and shows

that a greater number of items disclosed is associated with an increase in the information content of earnings, suggesting detailed information in financial statements help the market in assess earnings permanence. D'Souza, Ramesh, and Shen (2010) find that firms disclose less disaggregated information during earnings announcements when managers engage in earnings management, suggesting detailed information is associated with better earnings quality. Ideally, if earnings quality is high when managers provide more detailed information and if the capital market can fully interpret the permanent part in accounting earnings with the help of this disaggregated accounting information, then earnings will be highly value-relevant and the supplemental role of earnings components will decrease. Under this circumstance, the value relevance of earnings will increase, while the additional value relevance of earnings components will decrease or no change when managers provide more detailed information.

On the other hand, higher disaggregation level in the multiple-step income statement may also improve the information content of earnings components, in turn, its supplementary role increases but its own value-relevance also increase. It is possible that single bottom line earnings cannot reflect the whole information content contained in all earnings components even with detailed disaggregated information. Lipe (1986) finds that some information content will be lost when earnings components are aggregated into earnings. Different earnings components have various level of permanence, resulting in different level of explanatory power to stock returns. Ertimur et al. (2003) finds that investors react to revenue surprise stronger than expense surprise. When more disaggregated information is provided, the supplementary role of earnings component for the value of earnings will increase. However, the increase in the supplementary role may accompany with the increases in value-relevance of earnings components beyond its

supplementary role. If this increasing component of value-relevance cannot be absorbed and reflected by earnings, the additional value relevance of earnings components will increase.

Based on the above reasons, whether the additional explanatory power of earnings components beyond earnings will increase when the disaggregation level increases is not clear, hence, I state my main hypothesis of this study as non-directional.

H1: There is significant association between the amount of disaggregated information in the income statement and the incremental value relevance of earnings components beyond bottom line earnings.

Empirical Specifications, Sample Selection, and Descriptive Statistics

The research setting is based on public firm listed in the U.S capital market. In order to cover detailed line items in income statements, I disaggregate the bottom line net income into nine components including sales, COGS, selling, general, and administrative expense (XSGA), depreciation expenses (DP), interest expenses (XINT), non-operating income (NOPI), special items (SPI), income taxes (TXT), and extraordinary items and discontinued operations (XIDO). These nine components nearly cover all line items in the annual income statement and do not overlap with each other. There are still few items in the income statement that is not included. The magnitude of these items is closed to zero and cannot provide meaningful implications in the regression analysis. I exclude them thereby. The detailed subaccounts in each of the nine components will vary for firms in different industries. For example, the calculation of COGS and depreciation expenses is more complicated in manufacturing firms than in service providing firms. It is possible that the difference in the complexity of each earnings components in different industries will affect the investors' interpretation of the information content in earnings components. I do not attempt to explore these effects for each industry in this study and leave it

for the future studies. I follow Lipe (1986) and transform all nine components into the revenue form. The components of COGS, XSGA, DP, XINT, and TXT will be expressed in negative terms. By doing this, the sign of earnings components coefficients can be easy to analyze. I follow the classic return-earnings analysis method and construct two regression models:

VRE Model:

$$BHAR_{it} = \beta_0 + \beta_1 Earnings_{it} + \beta_2 \Delta Earnings_{it} + \varepsilon_{it} \quad (1)$$

VREC Model:

$$BHAR_{it} = \gamma_0 + \sum_{k=1}^{9} \gamma_{1k} Earnings\ Components_{it} + \sum_{k=1}^{9} \gamma_{2k}\, \Delta Earnings\ Components_{it} + \mu_{it} \quad (2)$$

Both of the models include level and change variables for earnings and all nine components. Different from most of previous studies, I use the bottom line net income rather than income before extraordinary items to measure the accounting earnings. The main level independent variables are all scaled by average total assets. All earnings and components variables are winsorized at 1% and 99% level before the regression analysis. I use the buy and hold abnormal returns (BHAR) as the dependent variable for the regression. The construction of BHAR follows the study conducted by Daniel, Grinblatt, Titman, and Wermers (1997) (henceforth DGTW). DGTW subtracts from each stock return the return on a portfolio of firms matched on size, market-book, and return momentum (i.e., prior one-year return) quintiles. The final BHAR is calculated over 12 months starting from the 4th month after the fiscal year end.

To measure the level of disaggregation in the multiple-step income statement I adopt the DQ measure created by Chen et al., (2015)[1]. DQ is a disclosure quality measure based on the

[1] I thank Bin Miao for generously providing the DQ score dataset.

Compustat balance sheet and income statement items. This measure captures the level of disaggregation of accounting information by counting non-missing items according to the Compustat balancing models. The overall DQ score is the average of the balance sheet DQ score and income statement DQ score. The higher the DQ score is, the more disaggregated accounting information is disclosed in the annual report. However, study of Chen et al., (2015) indicates that the DQ measure will be correlated with different firm fundamentals. If I directly use the raw DQ measure to group the whole sample firms, the regression results could be driven by other factors and become noisy. For example, the raw DQ score of a firm could be positively correlated with asset restructuring and merging and acquisition process since the firm is required to disclose extra information during these two events. The size and age of the firm could also positively affect the DQ score. The larger size or longer age of a firm indicates a greater number of segments or divisions the firm has, and this could increase the number of detailed items disclosed in the financial statements. To address with these concerns, I follow Chen et al., (2015) and construct the discretionary DQ (DISC DQ) score, which mainly captures the DQ component results from managerial incentives. I regress the original DQ score on a list of variables and generate the residual to measure DISC DQ. These variables are measures for special or unusual firm events (restructuring, mergers and acquisitions, seasoned equity offerings, and special items), volatility of business or operations (earnings volatility, return volatility), and complexity of operations (the number of business segments, firm size, and firm age). All variables are defined in Appendix A, and the correlation of variables is present in Table 1. The regression model is developed below, and standard errors are clustered by year and industry. The regression results are showed in Table 2.

$$DQ_{i,t}=\alpha_0+\alpha_1 Restructure_{i,t}+\alpha_2 M\&A_{i,t}+\alpha_3 SEO_{i,t}+\alpha_4 AGE_{i,t}+\alpha_5 BUSSEG_{i,t}+\alpha_6 SIZE_{i,t}$$

$$+\alpha_7 SI_{i,t}+\alpha_8 STD\_EARN_{i,t}+\alpha_9 STD\_RET_{i,t} + Industry\ FE + Year\ FE+ \omega_{i,t} \quad (3)$$

[Insert Table 1 and Table 2]

Since this study investigate whether value relevance of earnings and earnings components vary under different level of information uncertainty, I follow Chen et al. (2002) and use the uncertainty indicator (UNCERTAIN) to group the whole sample firms. The uncertainty indicator is a dummy variable equal to one if the summation of the five information uncertainty proxies (*HITECH*, *LOSS*, *MA*, *YOUNG*, and *D_SDRET*) is higher than or equal to three, and zero otherwise. The definition of all fine proxies will also be presented in Appendix A.

The sample period starts from 1988 to 2016. Financial and utility firms are excluded from the sample. All accounting data are collected from Compustat database, and data related to stock return are collected from CRSP database. Overall, there are 76,659 firm-year observations in the full sample. The summary statistics of the variables used in main empirical analysis is presented in Table 3, and the Pearson Correlation coefficients of main variables are presented in Table 4.

[Insert Table 3 and Table 4]

Empirical Analysis

Full Sample Regression

In this section, I present the main empirical findings for the behavior of the additional value relevance of earnings components beyond the net income. Firstly, I conduct the regression analysis using both VRE model and VREC model for the full sample. Table 3 shows the results of the full regressions. Panel A is the main table for the average regression coefficients generated from Fama-MacBeth (1973) method. I report the coefficients for both level and change variables as well as the sum of these two types of coefficients. This reporting pattern follows the previous study conducted by Cheng, Liu, and Schaefer (1996). Reporting the sum coefficients of level and change variable can capture the explanatory power of unexpected earnings and earnings components when

the earnings are predominantly permanent. According to the result in Panel A, the majority of the coefficients are statistically significant. This indicates that both net income and components contain information content to explain the movement of stock return. The negative coefficients on the change and sum of income taxes result from the inherent characteristics of this component. The number of income taxes is positively related to the amount of net income. Higher income taxes thereby send a positive signal of a firm's performance to the capital market. The elements of interest in Panel A are the adjusted R squared from the ERC and ECRC model, which capture the explanatory power of net income or all nine components to the abnormal annual stock return. In the Panel B of Table 3, I conduct a significance test (t-test) for the adjusted R squared from two models, and the p-value is based on one-tailed test. The result shows that disaggregating net income into components provides significantly (t=12.50) larger explanatory power (3.93%) beyond net income alone to the abnormal return. This test verifies and confirms the empirical evidence documented by previous studies.

[Insert Table 5]

Regression Analysis for the Main Hypothesis

After confirming the previous empirical findings, I conduct the baseline analysis for the main research question of this study. To examine the effect of disclosure quality from the perspective of disaggregation in the income statement, I adopt the discretionary DQ measure (DISC DQ) developed in the previous section to divide the whole sample observations into two groups (high vs. low). I run the Fama-MacBeth (1973) regression using ERC and ECRC model for each group separately. In the Panel A and B of Table 6, the regression coefficients of all net income variables in the high DISC DQ group are larger than the corresponding coefficients in the low DISC DQ group. The sum coefficients of all earnings components except XIDO in the high DISC DQ group

are larger than those in the low DISC DQ group. Panel C presents the comparison of adjusted R squared in the two models of two groups. The value relevance of net income for both groups of firms is not significantly different from each other. This result indicates that disclosing additional detailed accounting information in the annual report cannot improve the value relevance of net income dramatically under a general circumstance. The value relevance of all nine components in the high DISC DQ group is slightly larger than that in the lower DISC DQ group (1.07%). This difference is statistically significant at 5% level in the one-tailed test. The additional value relevance of earnings components beyond net income measured by the incremental adjusted R squared in both groups is significant at 1% level in the one-tailed test. More importantly, the additional value relevance of earnings components beyond net income for firms in the high DISC DQ group is larger than that in the low DISC DQ group (0.55%). The difference is statistically significant at 10% level in the one-tailed test. Although this significance is marginal, the empirical findings do support the argument that providing a greater amount of disaggregated information in the annual report can positively affect the additional explanatory power of earnings components beyond net income.

[Insert Table 6]

A potential explanation for the marginal significance in the Panel C of Table 6 can be that the main test only considers the disclosure quality but ignore the interaction between a firm's disclosing behaviors and the information environment. Firms operate under different levels of information uncertainty. The level of information uncertainty could inherently result from firms' characteristics. For instance, firms operating in traditional industries with fewer segments may have lower level of information uncertainty, and the accounting information of those firms could be easily digested and incorporated in the stock prices. The external investors can interpret most

of the information content in earnings components even without further disaggregation. On the contrary, firms having segments in different industries or operating under complex business model may have higher level of information uncertainty, and the investors could find it hard to predict the future earnings and conduct valuation with limited disclosure in annual report. Therefore, the firm will have the incentive to signal the market by providing a greater amount of detailed accounting information so that the explanatory power of net income and earnings components to stock return can return to the normal level. In order to demonstrate the reasoning above, I consider information uncertainty and conduct a further analysis.

Further Analysis from the Perspective of Information Uncertainty

In this part, I investigate whether the degree of information uncertainty will affect the main findings documented in the previous part. To begin with, I examine the direct effect of information uncertainty on the value relevance of earnings and earnings components. I use the uncertainty indicator constructed in the empirical specification section to divide the whole sample firms into two groups. The Fama-MacBeth (1973) regression is conducted using ERC and ECRC model for both groups as the same for the baseline analysis. The results are reported in Table 7. Panel A and Panel B show the regression coefficients for all variables. The coefficients of all net income variables in the high information uncertainty (IU) group are smaller than the corresponding coefficients in the low information uncertainty group, while the sum coefficients of all earnings components except SPI and TXT in the high IU group are smaller than those in the low IU group. Panel C presents the comparison of adjusted R squared in the two models of two groups. The value relevance of net income in the high IU group is not significantly different from that in the low IU group, while the value relevance of earnings components in the high IU group is significantly smaller (at 1% level) than that in the low IU group (1.75%). The incremental adjusted R squared

in both high IU and low IU group is significant at 1% level in the one-tailed test. More importantly, the incremental value relevance of earnings components beyond net income in the high IU group is significantly smaller than that in the low IU group at 5% level in the one-tailed test. The empirical findings in Table 7 indicate that higher information uncertainty will impair both the overall value relevance and the incremental value relevance of earnings components beyond net income. Under this circumstance, whether improving the reporting quality by further disaggregation in the income statement will mitigate the negative effect of high information uncertainty on value relevance is an interesting question.

[Insert Table 7]

Based on the evidence in Table 7, I further divide the subsamples in high IU and low IU groups into high DISC DQ and low DISC DQ firms. Now the whole sample is divided into 4 groups, and I repeat the baseline analysis for each group. Table 8 presents the results. Panel A and Panel B show the regression coefficients of high and low DISC DQ sample firms under high information uncertainty, while Panel C and Panel D report the regression coefficients of high and low DISC DQ sample firms under low information uncertainty. The pattern of the coefficients of net income and component variables for high and low DISC DQ observations is similar to the pattern that has been documented in Table 6 and Table 7. Moreover, the sum coefficients of net income and upper components variables (Sales, COGS, and XSGA) for high DISC DQ group under high information uncertainty are smaller than those for high DISC DQ group under low information uncertainty. The key findings are presented in the Panel E. The value relevance of net income for high DISC DQ group is significantly larger than that for low DISC DQ group under low information uncertainty, but this result cannot be found for the groups under high information uncertainty. More importantly, the incremental value relevance of earnings components beyond

net income for high DISC DQ group is significantly larger than that for low DISC DQ group at 5% level under high information uncertainty. This result is stronger than the one documented in the Panel C of Table 6 and cannot be found for firms under low information uncertainty. The final difference-in-difference test confirms the significance of the larger incremental value relevance of earnings components beyond earnings. The findings in the Panel E indicate that a greater amount of disaggregated information in the income statement will mitigate the negative effect of high information uncertainty on the overall value relevance and the incremental value relevance of earnings components beyond net income.

[Insert Table 8]

Conclusion

In conclusion, this study investigates whether more detailed disaggregation in a multiple-income statement will affect the incremental value relevance of earnings components beyond bottom line earnings. Using a sample including more than 75,000 firm-year observations from 1988 to 2016, I first verify and confirm the previous empirical findings on the additional information content provided by earnings components. In the main empirical analysis, I find that higher DQ increases both value relevance of earnings and earnings components. Moreover, the additional value relevance of earnings components beyond net income for firms in the high DISC DQ group is larger than that in the low DISC DQ group (0.55%), but the result is marginally significant. This marginal significance could be caused by the ignorance of information environment in the main test. I thereby examine the association between information uncertainty and the incremental explanatory power of earnings components beyond earnings, and I find that high information uncertainty has negative effect on the overall and the incremental value relevance of earnings components. In the final set of empirical analysis, I document that disclosing a greater

amount of disaggregated accounting information (high DISC DQ) has a significantly stronger positive effect on the overall and the incremental value relevance of earnings components for firms with high information uncertainty.

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Tables of Empirical Analysis

Table 1 Correlation of Variables for Constructing Discretionary DQ

	DQ	SI	Size	BTM	Restructure	BUSSEG	STD_RET	STD_EARN	AGE	M&A	SEO
DQ	1										
SI	0.052	1									
Size	0.193	-0.109	1								
BTM	-0.070	0.055	-0.433	1							
Restructure	0.421	0.144	0.221	-0.017	1						
BUSSEG	0.082	-0.024	0.271	0.013	0.140	1					
STD_RET	-0.067	0.234	-0.407	0.160	-0.024	-0.172	1				
STD_EARN	0.038	0.346	-0.303	-0.047	0.045	-0.174	0.440	1			
AGE	0.141	-0.104	0.317	**-0.008**	0.127	0.303	-0.346	-0.234	1		
M&A	0.032	0.025	0.277	-0.122	0.059	0.120	-0.106	-0.103	0.030	1	
SEO	**0.004**	0.020	0.045	-0.107	**0**	-0.044	0.095	0.145	-0.126	0.038	1

This table reports the Pearson correlation coefficients. Bold numbers indicate significance at less than the 5 percent level.

Table 2 Regression of DQ on Firm Fundamentals

Variables	(1) DQ
SPI	0.0531***
	(6.25)
SIZE	0.0011*
	(1.92)
BTM	0.0006
	(0.49)
RESTRUCTURE	0.0290***
	(18.36)
BUSSEG	-0.0022
	(-0.85)
STD_RET	-0.0508***
	(-7.43)
STD_EARN	-0.0396***
	(-4.69)
AGE	0.0042***
	(4.42)
M&A	0.0015
	(1.04)
SEO	-0.0100***
	(-8.14)
Constant	0.5096***
	(116.52)
Observations	81,602
Adjusted R-squared	0.7176
YEAR FE	YES
INDUSTRY FE	YES
Cluster	GVKEY and Year

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3 Summary Statistics

Variable	Num. of Obs	Mean	Median	Std Dev	25th Pctl	75th Pctl
BHAR	76659	-0.0055	-0.0748	0.5401	-0.3246	0.1908
DQ	76659	0.5879	0.5809	0.1118	0.5060	0.6839
DISC DQ	76659	0.0015	0.0027	0.0620	-0.0340	0.0411
UNCERTAIN	76659	0.3030	0.0000	0.4596	0.0000	1.0000
Level Variables						
NI_lev	76659	-0.0185	0.0356	0.2004	-0.0359	0.0807
Sales_lev	76659	1.1993	1.0622	0.8088	0.6352	1.5660
COGS_lev	76659	-0.8117	-0.6466	0.6801	-1.0795	-0.3319
XSGA_lev	76659	-0.3087	-0.2531	0.2603	-0.4392	-0.1114
DP_lev	76659	-0.0483	-0.0418	0.0318	-0.0609	-0.0272
XINT_lev	76659	-0.0162	-0.0112	0.0174	-0.0245	-0.0016
NOPI_lev	76659	0.0087	0.0044	0.0180	0.0002	0.0138
SPI_lev	76659	-0.0160	0.0000	0.0518	-0.0115	0.0000
TXT_lev	76659	-0.0225	-0.0161	0.0354	-0.0404	0.0000
XIDO_lev	76659	-0.0011	0.0000	0.0152	0.0000	0.0000
Change Variables						
NI_chg	76659	0.0068	0.0067	0.1477	-0.0320	0.0383
Sales_chg	76659	0.0895	0.0662	0.2647	-0.0175	0.1919
COGS_chg	76659	-0.0569	-0.0360	0.2037	-0.1207	0.0112
XSGA_chg	76659	-0.0192	-0.0098	0.0773	-0.0416	0.0010
DP_chg	76659	-0.0034	-0.0026	0.0154	-0.0083	0.0012
XINT_chg	76659	-0.0011	0.0000	0.0086	-0.0027	0.0014
NOPI_chg	76659	-0.0002	0.0000	0.0176	-0.0034	0.0034
SPI_chg	76659	0.0004	0.0000	0.0770	-0.0068	0.0048
TXT_chg	76659	-0.0021	-0.0006	0.0320	-0.0122	0.0065
XIDO_chg	76659	0.0000	0.0000	0.0270	0.0000	0.0000

Table 4 Pearson Correlation of Variables for Main Empirical Analysis

	BHAR	DQ	DISC DQ	Uncertain	NI_lev	Sales_lev	COGS_lev	XSGA_lev	DP_lev	XINT_lev	NOPI_lev	SPI_lev	TXT_lev	XIDO_lev
BHAR	1													
DQ	0.015	1												
DISC DQ	0.020	0.583	1											
Uncertain	**0.003**	-0.020	-0.036	1										
NI_lev	0.162	0.068	0.107	-0.415	1									
Sales_lev	0.058	**-0.005**	0.097	-0.223	0.306	1								
COGS_lev	-0.023	0.039	-0.052	0.200	-0.142	-0.920	1							
XSGA_lev	**-0.004**	-0.048	-0.075	-0.163	0.141	-0.403	0.128	1						
DP_lev	**0.009**	0.151	0.018	-0.025	0.084	-0.011	-0.040	0.043	1					
XINT_lev	0.030	0.230	0.064	0.058	0.053	**0.002**	0.049	-0.152	0.135	1				
NOPI_lev	**-0.007**	-0.165	-0.043	0.115	-0.078	-0.160	0.117	0.017	0.066	0.072	1			
SPI_lev	0.107	-0.040	**0**	-0.141	0.417	0.063	-0.058	0.068	0.077	**-0.005**	**-0.002**	1		
TXT_lev	-0.125	**0.005**	-0.054	0.231	-0.424	-0.247	0.122	0.045	-0.055	-0.191	-0.021	-0.227	1	
XIDO_lev	0.038	**-0.003**	-0.033	-0.013	0.155	**0.003**	**0.002**	**-0.001**	**-0.004**	0.018	0.029	0.033	-0.026	1

This table reports the Pearson correlation coefficients. Bold numbers indicate significance at less than the 5 percent level.

Table 5 Full Sample Analysis

Panel A: Regression Results (Fama-MacBeth Method)

	VRE Model			VREC Model		
	Level	Change	Sum	Level	Change	Sum
NI	0.3085***	0.5507***	0.8591***			
	(7.06)	(10.68)	(20.86)			
Sales				0.1842***	0.6633***	0.8476***
				(4.72)	(13.70)	(22.95)
COGS				0.1982***	0.4328***	0.6310***
				(5.33)	(10.14)	(19.76)
XSGA				0.1963***	0.3695***	0.5658***
				(4.59)	(6.17)	(9.49)
DP				0.0731	1.8319***	1.9050***
				(0.56)	(8.75)	(9.08)
XINT				0.0212	3.3455***	3.3666***
				(0.05)	(6.39)	(6.89)
NOPI				0.0259	0.2195	0.2454
				(0.12)	(1.47)	(1.01)
SPI				0.6068***	0.1145*	0.7213***
				(8.08)	(1.87)	(11.11)
TXT				0.2173	-1.2692***	-1.0519***
				(1.61)	(-6.55)	(-4.45)
XIDO				0.6134***	0.3456***	0.9590***
				(3.16)	(3.82)	(6.18)
Constant	-0.0028			-0.0064		
	(-0.69)			(-0.42)		
Num. of Years	29			29		
Adj. R^2	**0.0585**			**0.0978**		

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel B: Significance Tests of Adj. R^2

	Average adjusted R^2
VRE	5.85%
VREC	9.78%
Incremental adjusted R^2	**3.93% (t=12.50, p=0.000)**

Table 6 Comparison between High DISC DQ and Low DISC DQ Groups

Panel A: Regression Results for High DISC DQ Group (Fama-MacBeth Method)

	VRE Model			VREC Model		
	Level	Change	Sum	Level	Change	Sum
NI	0.3353***	0.6380***	0.9734***			
	(8.89)	(9.74)	(17.56)			
Sales				0.1732***	0.8602***	1.0335***
				(4.05)	(11.38)	(19.11)
COGS				0.1901***	0.6588***	0.8489***
				(4.54)	(9.11)	(16.82)
XSGA				0.1721***	0.5435***	0.7156***
				(3.52)	(5.59)	(8.56)
DP				-0.0309	2.1006***	2.0696***
				(-0.19)	(6.79)	(7.51)
XINT				-0.0227	3.6601***	3.6374***
				(-0.04)	(6.56)	(5.76)
NOPI				0.1187	0.2359	0.3546
				(0.47)	(0.97)	(1.15)
SPI				0.6553***	0.1040	0.7592***
				(6.37)	(1.32)	(8.48)
TXT				0.3199*	-1.0378***	-0.7180***
				(1.88)	(-5.38)	(-3.32)
XIDO				0.3043	0.5134***	0.8177***
				(1.17)	(4.47)	(4.31)
Constant	-0.0026			-0.0045		
	(-0.61)			(-0.26)		
Num. of Years	29			29		
Adj. R^2	**0.0621**			**0.1075**		

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Panel B: Regression Results for Low DISC DQ Group (Fama-MacBeth Method)

	VRE Model			VREC Model		
	Level	Change	Sum	Level	Change	Sum
NI	0.2967***	0.4721***	0.7688***			
	(5.95)	(10.13)	(18.41)			
Sales				0.1795***	0.5645***	0.7440***
				(4.21)	(12.85)	(16.38)
COGS				0.1920***	0.3120***	0.5040***
				(4.72)	(8.08)	(11.91)
XSGA				0.2071***	0.2836***	0.4907***
				(4.78)	(4.01)	(6.51)
DP				0.1147	1.5509***	1.6656***
				(0.82)	(4.85)	(5.53)
XINT				-0.0436	3.2363***	3.1927***
				(-0.12)	(5.86)	(7.09)
NOPI				-0.1393	0.2706	0.1313
				(-0.53)	(1.04)	(0.57)
SPI				0.5627***	0.1316	0.6943***
				(5.63)	(1.58)	(11.06)
TXT				0.0889	-1.4246***	-1.3357***
				(0.58)	(-6.42)	(-5.38)
XIDO				1.3460***	0.1393	1.4853***
				(3.64)	(0.75)	(4.41)
Constant	-0.0044			-0.0093		
	(-0.95)			(-0.62)		
Num. of Years	29			29		
Adj. R^2	**0.0569**			**0.0968**		

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel C: Significance Tests of Adj. R^2

	High discretionary DQ	**Low discretionary DQ**	Difference
VRE	6.21%	5.69%	0.52% (t=1.07, p=0.147)
VREC	10.75%	9.68%	1.07% (t=1.83, p=0.0392)
Incremental adjusted R^2	**4.54% (t=11.45, p=0.000)**	**3.99% (t=11.96, p=0.000)**	**0.55% (t=1.52, p=0.070)**

Table 7 Comparison between High and Low Information Uncertainty Groups

Panel A: Regression Results for High Information Uncertainty Group (Fama-MacBeth Method)

	VRE Model			VREC Model		
	Level	Change	Sum	Level	Change	Sum
NI	0.3282***	0.3699***	0.6981***			
	(8.40)	(7.85)	(15.51)			
Sales				0.2138***	0.4868***	0.7006***
				(5.08)	(10.08)	(17.28)
COGS				0.2266***	0.2435***	0.4700***
				(5.46)	(4.95)	(10.76)
XSGA				0.2364***	0.2109**	0.4473***
				(5.28)	(2.58)	(5.77)
DP				0.0932	1.9115***	2.0047***
				(0.49)	(5.68)	(6.10)
XINT				0.2531	3.1215***	3.3746***
				(0.48)	(4.31)	(5.35)
NOPI				-0.3016	0.1393	-0.1623
				(-0.86)	(0.43)	(-0.44)
SPI				0.7265***	0.0913	0.8178***
				(9.42)	(1.48)	(9.78)
TXT				0.1326	-0.9662***	-0.8335***
				(0.62)	(-4.07)	(-2.82)
XIDO				0.7632**	0.1289	0.8921***
				(2.45)	(0.60)	(2.94)
Constant	0.0352**			0.0335		
	(2.74)			(1.10)		
Num. of Years	29			29		
Adj. R^2	**0.0566**			**0.0917**		

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Panel B: Regression Results for Low Information Uncertainty Group (Fama-MacBeth Method)

	VRE Model			VREC Model		
	Level	Change	Sum	Level	Change	Sum
NI	0.4519***	0.7449***	1.1968***			
	(10.29)	(13.09)	(22.79)			
Sales				0.1628***	1.0501***	1.2129***
				(3.79)	(16.06)	(19.30)
COGS				0.1685***	0.8852***	1.0537***
				(3.94)	(13.59)	(17.65)
XSGA				0.1798***	0.7170***	0.8968***
				(4.28)	(8.67)	(11.94)
DP				0.0120	1.9933***	2.0053***
				(0.09)	(9.67)	(7.45)
XINT				-0.2176	3.7276***	3.5100***
				(-0.53)	(7.96)	(7.30)
NOPI				0.2346	0.5035***	0.7381***
				(1.08)	(2.89)	(3.76)
SPI				0.6217***	0.0828	0.7045***
				(7.06)	(0.96)	(9.95)
TXT				0.0745	-1.0156***	-0.9411***
				(0.60)	(-5.22)	(-4.43)
XIDO				0.6307**	0.4869***	1.1177***
				(2.15)	(5.01)	(4.19)
Constant	-0.0217***			-0.0286**		
	(-3.08)			(-2.27)		
Num. of Years	29			29		
Adj. R^2	**0.065**			**0.1092**		

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel C: Significance Tests of Adj. R^2

	High uncertainty	**Low uncertainty**	Difference
VRE	5.66%	6.50%	-0.84% (t=-1.30, p=0.102)
VREC	9.17%	10.92%	-1.75% (t=-2.60, p=0.007)
Incremental adjusted R^2	**3.51% (t=9.78, p=0.000)**	**4.42% (t=16.81, p=0.000)**	**-0.91% (t=-2.27, p=0.015)**

Table 8 Comparison between High and Low DISC DQ Groups under High and Low Information Uncertainty

Panel A: Regression Results for High DISC DQ Group under High IU (Fama-MacBeth Method)

	VRE Model			VREC Model		
	Level	Change	Sum	Level	Change	Sum
NI	0.3412***	0.4833***	0.8245***			
	(6.53)	(6.29)	(12.89)			
Sales				0.1737***	0.6561***	0.8299***
				(3.06)	(7.24)	(12.58)
COGS				0.1984***	0.4298***	0.6282***
				(3.09)	(4.50)	(8.90)
XSGA				0.1887***	0.2815**	0.4702***
				(2.80)	(2.72)	(4.58)
DP				-0.2051	2.6913***	2.4862***
				(-0.77)	(5.04)	(4.80)
XINT				0.3787	3.7608***	4.1395***
				(0.48)	(3.72)	(3.91)
NOPI				-0.1705	0.1893	0.0187
				(-0.33)	(0.41)	(0.04)
SPI				0.8242***	0.1422	0.9663***
				(4.96)	(1.57)	(6.31)
TXT				0.1169	-0.6633**	-0.5464*
				(0.39)	(-2.60)	(-1.73)
XIDO				0.1861	0.5231	0.7092*
				(0.36)	(1.60)	(1.81)
Constant	0.0413***			0.0386		
	(3.10)			(1.00)		
Num. of Years	29			29		
Adj. R^2	**0.0597**			**0.1091**		

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel B: Regression Results for Low DISC DQ Group under High IU (Fama-MacBeth Method)

	VRE Model			VREC Model		
	Level	Change	Sum	Level	Change	Sum
NI	0.3191***	0.2867***	0.6058***			
	(7.11)	(6.26)	(13.12)			
Sales				0.2160***	0.4245***	0.6405***
				(5.18)	(8.90)	(12.24)
COGS				0.2207***	0.1610***	0.3817***
				(5.50)	(3.19)	(7.48)
XSGA				0.2471***	0.1828	0.4300***
				(6.40)	(1.37)	(3.28)
DP				0.2944	1.3897**	1.6840***
				(1.23)	(2.56)	(3.31)
XINT				0.0343	2.9362***	2.9705***
				(0.07)	(3.66)	(5.25)
NOPI				-0.6934	0.2974	-0.3960
				(-1.66)	(0.74)	(-0.94)
SPI				0.5938***	0.1547	0.7485***
				(4.31)	(1.26)	(10.24)
TXT				0.2900	-1.1641***	-0.8741***
				(1.09)	(-3.82)	(-2.79)
XIDO				1.3908**	-0.2601	1.1307***
				(2.66)	(-0.89)	(2.90)
Constant	0.0276*			0.0275		
	(2.03)			(0.97)		
Num. of Years	29			29		
Adj. R^2	**0.0528**			**0.0855**		

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel C: Regression Results for High DISC DQ Group under Low IU (Fama-MacBeth Method)

	VRE Model			VREC Model		
	Level	Change	Sum	Level	Change	Sum
NI	0.4814***	0.7602***	1.2416***			
	(8.64)	(9.69)	(18.36)			
Sales				0.1956***	1.2400***	1.4356***
				(3.96)	(14.56)	(19.67)
COGS				0.1992***	1.0992***	1.2984***
				(4.12)	(12.72)	(17.66)
XSGA				0.1881***	0.9843***	1.1724***
				(3.62)	(7.47)	(10.89)
DP				0.0938	1.9199***	2.0136***
				(0.64)	(5.56)	(5.32)
XINT				-0.2887	3.4524***	3.1637***
				(-0.54)	(6.04)	(5.33)
NOPI				0.5083*	0.4120*	0.9204***
				(1.91)	(1.79)	(3.27)
SPI				0.6206***	0.0877	0.7083***
				(5.49)	(0.65)	(8.10)
TXT				0.2976**	-0.8728***	-0.5753***
				(2.07)	(-4.65)	(-2.90)
XIDO				0.5787*	0.5266***	1.1053***
				(1.80)	(3.94)	(4.09)
Constant	-0.0228***			-0.0320*		
	(-3.11)			(-2.03)		
Num. of Years	29			29		
Adj. R^2	**0.0708**			**0.1207**		

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

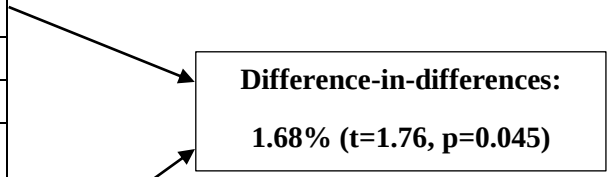
Panel D: Regression Results for Low DISC DQ Group under Low IU (Fama-MacBeth Method)

	VRE Model			VREC Model		
	Level	Change	Sum	Level	Change	Sum
NI	0.4242***	0.7372***	1.1614***			
	(8.83)	(12.46)	(20.34)			
Sales				0.1252**	0.9764***	1.1016***
				(2.39)	(12.40)	(13.37)
COGS				0.1325**	0.7986***	0.9311***
				(2.51)	(10.11)	(12.00)
XSGA				0.1623***	0.5279***	0.6902***
				(3.11)	(4.61)	(5.68)
DP				-0.0614	1.9687***	1.9073***
				(-0.44)	(5.45)	(4.66)
XINT				-0.2595	4.2053***	3.9458***
				(-0.70)	(6.67)	(6.68)
NOPI				0.0170	0.7058**	0.7227***
				(0.07)	(2.40)	(2.83)
SPI				0.6161***	0.1094	0.7256***
				(5.98)	(1.36)	(7.06)
TXT				-0.1532	-1.1234***	-1.2766***
				(-0.92)	(-4.53)	(-4.65)
XIDO				1.1312*	0.4914*	1.6225**
				(1.75)	(2.00)	(2.74)
Constant	-0.0205**			-0.0292*		
	(-2.70)			(-2.04)		
Num. of Years	29			29		
Adj. R^2	**0.0606**			**0.1106**		

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel E: Significance Tests of Adj. R^2

	High uncertainty		
	High disc. DQ	**Low disc. DQ**	Difference
VRE	5.97%	5.28%	0.69% (t=0.98, p=0.169)
VREC	10.91%	8.55%	2.36% (t=2.34, p=0.013)
Incremental adjusted R^2	**4.94% (t=9.55,p=0.000)**	**3.27% (t=5.67,p=0.000)**	**1.67% (t=2.24,p=0.017)**
	Low uncertainty		
	High disc. DQ	**Low disc. DQ**	Difference
VRE	7.08%	6.06%	1.02% (t=1.95, p=0.031)
VREC	12.07%	11.06%	1.01% (t=1.98, p=0.029)
Incremental adjusted R^2	**4.99% (t=13.24,p=0.000)**	**5.00% (t=13.01,p=0.000)**	**-0.01% (t=-0.02,p=0.493)**



Appendix A: Variable Definitions

Return, Earnings, and Earnings Components:

BHAR	DGTW returns, calculated over 12 months starting 4 months after the end of fiscal year t; DGTW subtracts from each stock return the return on a portfolio of firms matched on market equity, market-book, and prior one-year return quintiles;
NI	Bottom line net income in the income statement scaled by average total assets;
Sales	Total amount of sales in the income statement scaled by average total assets;
COGS	Total amount of cost of goods sold in the income statement scaled by average total assets, multiplied by -1;
XSGA	The amount of selling, general, and administrative expenses scaled by average total assets, multiplied by -1;
DP	The amount of depreciation expenses in the income statement scaled by average total assets, multiplied by -1;
XINT	Total interest expenses in the income statement scaled by average total assets, multiplied by -1;
NOPI	Total amount of non-operating income in the income statement scaled by average total assets;
SPI	Total amount of special items in the income statement scaled by average total assets;
TXT	Total amount of income taxes in the income statement scaled by average total assets, multiplied by -1;
XIDO	The sum of extraordinary items and discontinued operations in the income statement scaled by average total assets;

Discretionary DQ:

DQ	Chen, Miao, and Shevlin's (2015) disclosure quality measure based on the Compustat balance sheet and income statement items, capturing the level of disaggregation of accounting information by counting non-missing items according to the Compustat balancing models.
DISC DQ	Discretionary DQ: residual measure from the determinant model of DQ
Restructure	An indicator variable for asset restructuring, which equals one if Restructuring Cost Pretax (RCP) is nonzero;
M&A	An indicator variable for mergers and acquisitions, which is set to one if the firm engaged in M&A during the current fiscal year according to SDC database, and zero otherwise;
SEO	An indicator variable for seasoned equity offerings, which is set to one if the firm has a seasoned equity offering in the current fiscal year according to the SDC database, and zero otherwise;

STD_RET	Standard deviation of monthly return over the twelve months for fiscal year t, starting four months after the fiscal year end of year t-1;
STD_ROA	Standard deviation of ROA calculated over the last five years, with at least three years of data required;
SI	The absolute value of special items (SPI), divided by average total assets; SPI is set to zero if special item data is missing in Compustat;
BUSSEG	Natural logarithm of (1+number of business segments). The number of business segments is set to one if data is missing in Compustat;
AGE	Natural logarithm of (1+the number of years from the first year the firm entered the CRSP database);
SIZE	Natural logarithm of market capitalization (in billions);
BTM	The ratio of book value of equity to market value of equity at the end of fiscal year t;

Information Uncertainty:

HITECH	One if the firm operates in high-tech industries, including drugs (SIC Codes 2833–2836), R&D services (SIC Codes 8731–8734), programming (SIC Codes 7371–7379), computers (SIC Codes 3570–3577), electronics (SIC Codes 3600–3674), and precise measurement instruments (SIC Codes 3810–3845), and zero otherwise.
LOSS	One if the firm reports a net loss, and zero otherwise.
MA	One if the firm engages in mergers and acquisitions, and zero otherwise.
YOUNG	One if *AGE* is less than the annual sample median, and zero otherwise.
SDRET	Standard deviation of monthly stock returns during the year.
D_SDRET	One if *SDRET* is higher than the annual sample median, and zero otherwise.
UNCERTAIN	One if the summation of the five information uncertainty proxies (*HITECH*, *LOSS*, *MA*, *YOUNG*, and *D_SDRET*) is higher than or equal to three, and zero otherwise.