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MANAGING THE TOP LINE: THE CASE OF FIRST ADOPTION OF PRINCIPLES BASED REVENUE RECOGNITION ACCOUNTING

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Abstract

The Accounting Standards Codification (ASC) 606 revenue recognition standard, introduced by the U.S. Financial Accounting Standards Board (FASB) for fiscal years beginning after December 2017, represents a shift from rules-based to principles-based revenue recognition. This new revenue recognition paradigm offers financial statement preparers greater discretion and judgement in deciding recognized revenues in current versus future years. Therefore, the initial adoption of this new standard presented a unique opportunity for earnings management that fit the preparers' predetermined goals. This paper takes this unique opportunity in the accounting practice to examine whether financial statement preparers utilized the initial adoption of such new principles-based revenue recognition paradigm to manage their reported sales revenue as part of their earnings management effort.

The paper focuses on companies in industries with complex, bundled contracts and products, such as the software and high-tech sectors, in contrast to more conventional industries offering simpler, stand-alone products and contracts, such as retail and wholesale. Using a sample of companies that first adopted the new revenue recognition standard in both high-tech and traditional industries, our findings show evidence that preparers in the high-tech test group leveraged the more flexibility provided by the new standard to manage reported sales revenue (in contrast to their net operating cashflow) compared to preparers in the control group of traditional industries and the years preceding the year of adoption. The paper's results have implications for regulators, standard-setters, and investors, highlighting the potential effect on financial reporting and the need to consider the sector-specific nuances introduced by the new standard.

Keywords

Top Line, Revenue Recognition Accounting, Management, Principles-Based, Rules Based

1. Introduction

Due to the inherent flexibility in many accounting standards, the interpretation and application of these standards depend on the proper individual judgments of the financial statements' preparers. This may provide preparers with an opportunity to manage reported earnings using different techniques. As a result, accounting earnings may not reflect the true economic performance of the company as indicated by its ability to generate cashflows. Scott (1997) defined earnings management as the choice of accounting policies to achieve some specific managerial objectives. Because part of the financial reporting process

depends on preparers' judgment, they have motives to manage reported earnings to achieve their goals. To do this, preparers can utilize discretionary accruals or other Real Earnings Management (REM) techniques that vary according to their cost, possibility to be detected, alteration of reported income, and effect on future economic benefits (Zalata & Abdelfattah, 2021). Managers may prefer to use accruals to adjust earnings numbers because it is less likely to be observed or detected by financial statements users since it doesn't require additional disclosure or approval by the auditor. Since earnings management behavior may affect the quality of reported earnings and its usefulness for investment decisions (Kinney et al., 2004; Lev et al., 2010), it may weaken the investors' confidence in the financial reporting process. As such, the SEC and other federal agencies have been concerned about earnings management (Healy & Wahlen, 1999) particularly after the collapse of major corporations (i.e., Enron, World Com).

In theory, earnings management may not always indicate opportunistic behavior by management. For example, Subramanyam (1996) show that abnormal total accruals are priced by investors, and Gunny (2010) concludes that using real earnings management by firms is not necessarily opportunistic but might indicate managers signalling about future performance. However, the majority of the prior published research (e.g., Jiang, et al. 2022, Liu & Sun 2022, Khalil et al. 2022, Kong et al. 2022) assume that most of the earnings management behavior is opportunistic and value-decreasing. Different theories have been employed in prior studies to explain earnings management behavior, including agency theory, positive accounting theory, and information asymmetry (Abdelfattah & Elfeky, 2021). The major incentives for earnings management behavior include bonus plans incentives, debt covenants incentives, political cost incentives, and taxation incentives, among others (Scott, 1997).

The issue of earnings management continues to be a significant research topic in accounting literature from many different perspectives. These include (but are not limited to) detecting earnings management behavior either through abnormal accruals or other real earnings management measures, different factors that affect earnings management behavior (i.e., corporate governance, business financial conditions, different regulations, etc.), and different financial reporting and transactional events (such as the adoption of new accounting standards) that offer the opportunity for real earnings management practice. Recent published research on the topic includes Ege, et al. (2022), Abdullah & Nabar (2022), Jiang & Xin (2022), Jin et al. (2022), Dao et al. (2022), Kabaciński et al (2022), and Gilliam (2021) among others.

Revenue recognition is a challenging issue that attracts the attention of many stakeholders including standard setters, investors, and auditors. Interestingly, the FASB noted that revenue recognition has been a main source of restatements (Carmichael, 2019). Furthermore, revenue recognition is one of the most commonly reported key (critical) audit matters in the auditor reports (FRC, 2022). In the U.S., the Financial Accounting Standards Board (FASB) issued its new revenue recognition standards (ASC 606) effective for fiscal years beginning after December 2017. The new standards represented a significant shift from a rules-based to a principles-based approach of revenue recognition.

Prior studies on the adoption of ASC 606 focused on several aspects such as analysts forecast quality (Hao & Pham 2022), and liquidity and comparability effects (Ferreira, 2021). However, this new principles-based revenue recognition paradigm allows more latitude for financial statement preparers to exercise their judgement in deciding how much revenue to be recognized in current versus future years. Therefore, the initial adoption of the new revenue recognition paradigm offered a unique opportunity of real earnings management that fits preparers' predetermined targets.

Motivated by this unique opportunity in the accounting practice, the current study aims to examine whether financial statement prepares in the U.S. have used the event of the initial adoption of such new principles-based revenue recognition paradigm (ASC 606) to manage their reported sales revenue, as part of their earnings management effort. The study focuses on the first adoption of the new revenue recognition standard by companies in industries that offers more compounded and bundled contracts and products such as the software and other high-tech industries compared with more traditional industries that offers simple and stand-alone products and contracts such as retail and wholesale industry.

We use real earnings management techniques, which are proxied in the Roychowdhury (2006) model, because such practices are more common than accrual earnings management practices in situations surrounding transactional or regulatory events like the first adoption of new revenue recognition standards (Purwaningsih & Kusuma, 2020). Using a sample of US companies that first adopted the new revenue recognition standard in both high-tech and traditional industries, we find evidence that preparers in the test group of high-tech companies have used the more flexibility provided to them under the new standard to

manage reported sales revenue (in contrast to their net cash flow from operations) compared to preparers in the control group of more traditional industries and compared to the years preceding the year of adoption.

The study contributes to the earnings management and financial reporting literature in many ways. First, we provide evidence of the impact of the new standard of revenue recognition on real earnings management. Our findings suggest that the new standard might have some unintended consequences through promoting revenues management as a tool for real earnings management. Second, we contribute to the ongoing debate on the effect of different approaches for standards setting, rules-based versus principles-based, on the value relevance of accounting information. Third, our results suggest that the new standard of revenue recognition (ASC 606) promotes some sector-specific nuances. The study has important implications as it informs regulators and standard setters in their post-implementation reviews. Furthermore, our study highlights the potential impact of revenue-based earnings management on the taxes. Managing the amounts of revenues in the current and future years might affect the tax-related accounts on the financial statements as well as the cashflows.

The remainder of the paper is structured as follows. Section 2 reviews the literature and develops the study hypothesis. Section 3 presents the research methodology, while Section 4 discusses the findings. The conclusion is presented in Section 5.

2. Literature Review and Hypotheses Development

2.1 Earnings management

Although most of the recent research on earnings management focuses on discretionary accruals as a tool managers use to adjust reported earnings, managers may also use other techniques. Some earnings management techniques are real ones by managing earnings through the timing of events' occurrence and/or recognition in financial statements. Other techniques are artificial by just adjusting reported earnings through accounting choices and/or changes, or classification of earnings components in the income statement.

Managing through timing. Management can time actual transactions so that their effects on reported earnings will be in the desired direction. For instance, managers can recognize the write-off of some permanent assets in the period(s) in which they like to reduce reported earnings (Bartov 1993 and Poitras et al 2002). In addition, Francis et al (1996) found that write offs of impaired long-lived assets can be used opportunistically to manipulate earnings either by not recognizing impairment when it has occurred or by recognizing it only when it is advantageous to the management to do so.

Managing through accounting choices and changes. Accounting earnings can be managed by adopting some accounting principles and/or switching between these principles. Because of the inherent flexibility in many accounting standards and their applications, managers have the opportunity to select those applications and/or switch to other applications that achieve the desired levels of earnings. Beatty & Weber (2003) reported evidence that bank debt borrowers tend to make income-increasing accounting changes to mitigate the effect of these debts' restrictions. Examples of accounting areas that provide such flexibility include depreciation accounting and inventory accounting (Dopuch & Pincus 1988). In addition to voluntary accounting choices and changes, some studies also found evidence that firms may use the adoption of some mandatory accounting standards to influence their reported earnings. For example, Trombley (1989) found that small firms were more likely to adopt the accounting standards that allowed for the capitalization and amortization of some software development costs before their effective date than larger firms. Trombley (1989) proposed the lower political costs of small firms as an explanation of the early adoption of such income-increasing accounting standard.

Managing through classification. The income statement includes different components of earnings before reporting the net income. Because many investors and financial analysts may give more emphasis to the operating or ordinary earnings before any nonrecurring or extraordinary items, managers may have more incentives to manage this operational measurement of earnings than the bottom line. One tool management can use to achieve that objective is to use any discretion available to it in the classification of nonrecurring items into the ordinary or the extraordinary part of earnings (Barnea et al, 1976).

Most of the recent accounting research has used discretionary accruals as isolated by different economic models to capture earnings management. Studies that use discretionary accruals to measure earnings management employ different models suggested in the literature to isolate non-discretionary accruals from discretionary accruals (see Dechow et al., 1995, Ashbaugh et al 2003, and Kothari et al 2005 for more details of these models). Each of these suggested models develop some technique to measure the non-discretionary (or the normal) part of accruals. Then, the discretionary (abnormal) part of accruals is simply the difference between estimated non-discretionary accruals and total accruals. These models have been applied on both a time-series basis and a cross-sectional basis (Barton 2001, Heninger 2001, Klein 2002, Chung & Kallapur 2003).

2.2 Revenue Recognition Adoption as a Real Earnings Management Tool

The new principles-based revenue recognition standard. In May 2002, FASB added the revenue recognition project to its agenda, noting that revenue recognition issues top the list of reasons for financial reporting restatements. FASB's goals from the new project included removing inconsistencies in multiple sources of guidance, providing a more robust comprehensive framework for addressing revenue recognition issues, and improving the comparability and usefulness of financial information. In addition, FASB's concern about fraud was also one of the original motivations for the project. In December 2008, FASB issued a discussion paper on the project followed by an exposure draft in June 2010 and another in November 2011. In May 2014, Accounting Standards Update (ASU) 2014-09 is finally issued and became effective for public entities for annual periods beginning after December 15, 2017, and one year later for other entities. It became ASC Topic 606 "Revenue **Recognition** from Contracts with Customers".

ASC 606 introduces the concept of performance obligations to distinguish between the promise or obligation to provide goods and services to a customer, and any other obligations to a customer. Another critical step in determining the recognition of revenue is assessing whether an entity has satisfied an identified performance obligation by transferring control of a promised good or service to the customer. In general, after identifying the contract and the contract price, FASB ASC 606 adopted the following multi-step model for revenue recognition:

- Identifying performance obligations under the contract at its inception. FASB recognized that this step requires significant judgment by management to determine whether goods or services are distinct.
- Determine the transaction price. FASB recognized that, especially when there is variable consideration involved in the contract, the price might be based on the expected value method or the most likely method. That will be particularly true when there is a significant financing component or noncash consideration in the contract.
- Allocate the transaction price among the different contract elements and components.
- Recognize revenue as the entity satisfies the performance obligation.

ASC Topic 606 requires new estimates of variable consideration, the magnitude and likelihood of reversal of those estimated amounts, and standalone selling prices. Such principles-based and professional judgement-based model of revenue recognition are believed to create new opportunities for manipulation and biased judgments to manage the amount of recognized revenue (Carmichael, 2019).

Revenue Recognition Adoption and Real Earnings Management (REM). Recent accounting research in earnings management has suggested that adopting real tools of managing reported earnings might be more efficient in achieving management's objectives than the traditional accrual-based earnings management. For example, Abad, et al (2018) has suggested that earnings management through real activities manipulation confuses the market, enhances private information production, and exacerbates information asymmetry in the stock market. Therefore, REM might be more efficient from the management perspective than accrual-based earnings management. Ferentinou & Anagnostopoulou (2016) found evidence of a statistically significant shift from accrual-based earnings management to REM after the adoption of IFRS, indicating the replacement of one form of earnings management with the other. In addition, Christensen et al. (2022) raised doubts about the validity of regular accruals-based proxies of earnings management used in accounting research compared with the REM tools.

Therefore, recent accounting research in earnings management have used REM measures rather than the traditional discretionary accruals measures (examples include Chung et al. 2022, Hassan et al. 2022, Brahmono & Purwaningsih 2022, Grieser et al 2021, and Campa et al 2019). REM is a technique that managers can adopt to mislead financial statement users by altering transactions, such as cutting advertising or R&D, or temporarily cutting selling prices, to achieve financial reporting outcomes. REM differs from accruals-based earnings management which alters accounting estimates such as when a company overstates the collectability of receivables, overstates the valuation of inventory, or understates the future costs of product warranties.

Firms treat both real and accrual-based earnings management as complementary tools for earnings management (Khunkaew & Yang 2019; and Xu, et al 2021) and can be looking for transactional or regulatory events that may provide good opportunities to engage in real earnings management practice. That is particularly true in transactional or regulatory events associated with sales reporting and revenue recognition (Ahearne et al 2016) especially if it involves first or early adoption of inherently principles-based new standards. For example, both Folsom et al. (2019) and Cadot et al. (2021) reported evidence that the flexibility and lack of guidance in the new IFRS standards regarding derivatives reporting are used by preparers to manage earnings. Yang, et al (2020) examined the use of REM techniques around merger and acquisition transactions and found that acquirers tend to involve more real earnings management in cash flow from operations, discretionary expenses, and total production cost than targets do. Furthermore, transactional or regulatory events, such as the initial adoption of new revenue recognition standards, tend to witness a prevalence of REM practices over accruals practices (Purwaningsih and Kusuma, 2020).

Among the research papers that examine REM around the adoption of new accounting standards, few of them have examined the transition to the new standards of principles-based revenue recognition as one of those regulatory events. Van Wyk & Coetsee (2020) examined the application of the new IFRS revenue recognition standard and argued that the application of the guidance depends on the correct interpretation of the rights and obligations in contracts, which could create uncertainties in practice. Morawska (2021) analysed earnings management using discretion in accrued revenue recognition to avoid reporting losses and could not confirm that the IFRS 15 adoption in Poland influenced revenue-based earnings management aimed at avoiding losses and earnings decreases. Ciesielski & Weirich (2015) argued that the new principles-based revenue recognition guidance will especially affect present-day revenue recognition practices especially for firms in the industries of technology and telecommunications. Du & Whittington (2017) argued that new revenue recognition standards will significantly affect recognizing revenue in the software industry.

Overall, based on the above sections, we argue that firms operating in industries that offers compounded sales contracts such as high-tech, software, and electronics manufacturing industries are more inclined to utilize the new revenue recognition standard (ASC 606) during their initial adoption phase as a tool for real earnings management, in comparison to firms in traditional industries. This inclination is rooted in the complex and dynamic nature of revenue streams in such industries. Thus, we formulate the following hypothesis:

H1: High-tech firms are more likely to engage in earnings management via revenue recognition during the initial adoption of ASC 606 than their counterparts in traditional industries.

3. Research Design

Sample and variables measurement

Our initial sample is selected from the U.S. companies that first adopted the new revenue recognition standard (ASC606) in both high-tech and traditional industries. We use Compustat data from the fiscal year where companies first adopted the revenue recognition requirements of the ASU 14-09 in the industries with Standard Industrial Codes (SIC) codes starting with 35, 36, 37, or 38 (the HT companies) and SIC codes starting with 5 (the control sample). The number of companies with data available to measure our test variable and all the explanatory variables in the first year of adoption (Yr =0) was 506 companies.

Dependent variable. The dependent variable of this research is a proxy for managing earnings through the management of reported sales revenue with the adoption of new principles-based accounting standard. Previous research that examined general and more comprehensive real earnings management behavior have employed models that create a real earnings management index (for example, Roychowdhury's 2006) that

includes recognized sales revenue among others. That index normally focused on the following three manipulation methods and their ultimate effects on earnings:

1. Sales manipulation, that is, accelerating the timing of sales and/or generating additional unsustainable sales through increased price discounts or more lenient credit terms.
2. Reduction of discretionary expenditures such as advertising expenses, research and development expenses, selling, general, and administrative expenses.
3. Overproduction or increasing production to report a lower cost of goods sold as a result of spreading fixed overhead costs over a larger number of units.

Since our paper focuses on the adoption of new principles-based revenue recognition standards as an earnings management tool, it will focus on the first component that reflects the difference between recognized sales revenue and reported net cash from operations. We follow previous research (e.g., Cohen et al 2020; Gunny 2010; Zang 2012; Brahmono & Purwaningsih 2022) that provides evidence of the construct validity of the proxies that focus on the difference between levels of net cash flows from operations and reported sales revenue. Thus, our main test dependent variable used as a proxy for revenue management (REV) is measured as the difference between total sales revenue and net cash flow operating activities scaled by total sales revenue.

$$REV = (Total\ Sales\ Revenue - Net\ Cash\ from\ Operating\ Activities) \ / Total\ Sales\ Revenue$$

Explanatory variables. As mentioned above, we expect that the new principles-based revenue recognition standard will particularly offer financial statement preparers more flexibility and better chance to practice professional judgement in industries that tend to sell more compounded and bundled contracts and services such as software and high-tech industries compared with more traditional industries such as retail or wholesale that sell simple and single products. We use the variable **HT** as our main explanatory variable and a proxy variable for high-tech industries as compared to traditional ones. The variable HT takes 1 if the observation company SIC code starts with 35, 36, 37, or 38 and takes 0 for observation companies with SIC code starts with 5 (retail and wholesale). We expect the levels of REV to be significantly higher for observations with HT=1 in the year of adopting the new principles-based revenue recognition standard.

In addition to the main explanatory variable HT, we also examine the effect of other potential explanatory factors reported in previous literature to be associated with the preparers' tendency to manage reported earnings. Other explanatory factors include:

- **AUDQ:** Is a proxy variable for audit quality. It takes 1 if the sample company auditor is one of the Big 4 Accounting Firms and takes 0 otherwise.
- **SIZE:** Is a proxy variable for company size. It is measured as the natural logarithm of total revenue.
- **POS:** Is a proxy variable for just reporting above zero net positive income. It takes 1 if the sample company has reported a net positive income between 0 and one standard deviation above 0 and takes 0 otherwise.
- **LOSS:** Is a proxy variable for reporting net loss. It takes 1 if the sample company has reported net loss and takes 0 otherwise.
- **Yr:** Since we are also comparing the first year of adopting the new standard with previous years, we use this variable as a proxy indication variable for the first year of adoption of the ASU 14-09 (value 0) compared with the two years prior the first adoption year (**Yr** -1 and -2).

4. Results And Discussion

Descriptive statistics

Table (1) shows the basic statistics of the study variables and the correlation coefficients among them. As shown in Table (1), our sample of first adopters is dominated by high-tech companies that tend to be smaller than more traditional companies, less likely to be audited by big audit firms, and more likely to report losses. The table shows positive but insignificant correlation between REV and HT variables. It also shows significant correlations between the main explanatory variable HT and other explanatory variables which induces multi-collinearity in any regression analysis.

Table (1) Basic Statistics and Correlation Coefficients

	REV	HT	AUDQ	SIZE	LOSS	POS
Basic Statistics All:						
Mean	1.59	.71	.73	6.80	.32	.60
SD	6.72	.46	.45	2.47	.47	.49
Basic Statistics HT=1:						
Mean	1.86		.69	6.43	.36	.56
SD	7.99		.46	2.55	.48	.50
Basic Statistics HT=0:						
Mean	.94		.81	7.68	.23	.71
SD	.13		.40	2.03	.42	.46

Pearson Correlation Coefficients

	REV	HT	AUDQ	SIZE	LOSS	POS
REV		.062	-.10*	-.34**	.15**	-.13**
HT			-.12**	-.23**	.12**	-.14**
AUDQ				.64**	-.33**	.21**
SIZE					-.49**	.27**
LOSS						-.84**

- **REV** = Is the proxy variable for sales revenue management and is = (Total Sales Revenue – Net Cash from Operating Activities) / Total Sales Revenue
- **HT** is the main explanatory variable and a proxy variable for high-tech industries as compared to traditional ones. It takes 1 if the observation company SIC code starts with 35, 36, 37, or 38 and takes 0 for observation companies with SIC code starts with 5 (retail and wholesale)
- **AUDQ:** Is the proxy variable for audit quality. It takes 1 if the sample company auditor is one of the big 4 and takes 0 otherwise.
- **SIZE:** Is a proxy variable for company size. It is measured as the natural logarithm of total revenue.
- **POS:** Is a proxy variable for just reporting above zero net positive income. It takes 1 if the sample company has reported net positive income between 0 and one standard deviation above 0 and takes 0 otherwise.
- **LOSS:** Is a proxy variable for reporting net loss. It takes 1 if the sample company has reported net loss and takes 0 otherwise.

* Significant at .05 level
** Significant at .01 level

Univariate analysis

Table (2) shows the results of cross-sectional univariate analysis using observations of the year of adoption only (**Yr =0**) by comparing the means of the main test variable REV based on the two groups of the main explanatory variable HT (high-tech versus non-high-tech), and other explanatory variables used in the study. The main result in Table (2) is that the variable REV is significantly higher for high-tech companies in the adoption year compared with the control companies confirming our expectation that preparers in high-tech industries have used the additional flexibility available to them under the new principles-based revenue recognition standard to manager their reported sales revenue.

Table (2) also shows results of the same univariate analysis based on other explanatory variables. Consistent with the audit quality literature that big audit firms restrict the ability of their client preparers to manipulate reported earnings, the table shows that REV was significantly lower for companies audited by one of the big audit firms in the first year of adoption. The table also shows that big companies that are more likely to be audited by big audit firms were less likely to engage in sales revenue management during the adoption year. Companies that reported net losses during the adoption year were significantly more likely to engage in sales revenue management compared with other sample companies, and there was no evidence that companies necessarily engaged in revenue management simply to avoid reporting negative earnings.

Table (2) Cross Sectional Univariate Analysis – Year of Adoption

REV Mean Based on:	All	HT=1	HT=0
HT=1	1.86	1.86	
HT=0	.94		.94
T-Statistic	2.14*	4.34**	8.99**
AUDQ=1	1.17	1.29	.93
AUDQ =0	2.69	3.12	1.01
T-Statistic	2.24*	1.98*	3.16**
LOSS=1	3.09	3.65	1.03
LOSS =0	.89	.87	.92
T-Statistic	3.44**	3.15**	4.96**
POS=1	.90	.88	.92
POS =0	2.63	3.08	.99
T-Statistic	2.84**	2.57**	3.24**
SIZE > Average	.89	.87	.92
SIZE < Average	2.41	2.75	.99
T-Statistic	2.52**	2.32*	3.19**

All variables as defined in Table (1)
* Significant at .05 level
** Significant at .01 level

In addition to the cross-sectional univariate analysis presented in Table (2), we also compare the means of the study variable REV for both the high-tech companies and other control companies between the year of adoption (**Yr =0**) and the two fiscal years preceding it (**Yr = -1 and -2**). We conduct this analysis for the high-tech test companies separate from the other control companies. Table (3) shows the results of such longitudinal univariate analysis for both groups of companies.

As shown in Table (3), the mean of the REV variable for the high-tech test companies in the adoption year 0 was significantly higher than the mean of the REV variable for the same companies in the two years preceding the year of adoption indicating the effect of the additional flexibility provided to them with the new standard. To confirm this result, we compare the mean of the REV variable for the same high-tech test group between the two years preceding the adoption (**Yr = -1** and **Yr = -2**). Table (3) Shows no significant difference in REV means between these two years.

We also conduct the same longitudinal univariate analysis for the control group of traditional non-high-tech companies and results are also reported in Table (3). With no additional flexibility provided to those companies under the new revenue recognition standard, we did not find any significant difference in the REV means either between the adoption year and the years preceding it or between the two years preceding the adoption year.

Table (3) Longitudinal Univariate Analysis – Different Years

REV Mean Based on:	HT = 1	HT = 0
Yr = 0	1.86	.94
Yr = -1	.98	.94
T-Statistic	2.02*	.17
Yr = 0	1.86	.94
Yr = -2	.97	.94
T-Statistic	2.02*	.01
Yr = -1	.99	.94
Yr = -2	.97	.94
T-Statistic	.42	.15

Yr indicates the year of adoption (0) or the years relative to it (-1 or -2)
All variables as defined in Table (1)
* Significant at .05 level
** Significant at .01 level

Regression results

Table (4) presents results of regression analysis. As shown in Table (1), the significant correlations between the main explanatory variable HT and other explanatory variables suggests the existence of multi-collinearity in regression analysis. To mitigate this issue, we regress the independent variable REV against the main explanatory variable HT and the interactions between HT and other explanatory variables. The coefficient of the interaction variables will signal the shift in the relation between REV and HT resulting from that additional explanatory variable.

Results in Table (4) support our main conclusion that that high-tech companies took advantage of the first adoption of the new revenue recognition standard to manage their reported sales revenue. The coefficient between REV and HT variables is significantly higher in Yr 0 compared with Yr -1 and -2 with both of them significant at less than 1% level. Results from the coefficients of other explanatory variables are not conclusive and not consistent with the traditional audit quality hypothesis or avoiding loss reporting. These results can be explained by the fact that first adoption is an external event imposed by accounting regulators. The adoption and application of the new principles-based approach for revenue recognition represented a steep learning curve for financial statement preparers working with their auditors to develop a practical understanding of the new paradigm. Most of the small high-tech companies tend to report net losses (especially in their early years), and it seems that the adoption of the new revenue recognition standard was not necessarily used to mitigate these reported losses.

Table (4) Regression Analysis – Different Years

	Yr = 0	**Yr = -1&-2**
HT	1.12**	.82**
HT*AUDQ	.37**	.17**
HT*SIZE	-1.14**	-.89**
HT*LOSS	-.41**	.01
HT*POS	-.42**	-.26**
F-Value	25.53**	63.29**
R^2	.21	.25

Yr indicates the year of adoption (0) or the years relative to it (-1 or -2)
All variables as defined in Table (1)
* Significant at .05 level
** Significant at .01 level

5. Conclusion, limitations, and implications

Conclusion

In this study, we investigate whether the introduction of the new principles-based standard of revenue recognition (ASC 606) introduced by the FASB affect earnings management practices in industries that offers more compounded and bundled contracts and products such as the software and other high-tech industries compared with more traditional industries that offers simple and stand-alone products and contracts such as retail and wholesale industry. The study focuses on the first adoption of the new revenue recognition ASC 606. It postulates that the new standard motivates the managers in high-tech industries to manage their earnings using reported revenues as a tool for real earnings management.

To test our hypothesis, we used data from Compustat for companies that first adopted the new revenue recognition standard in both high-tech and traditional industries. Univariate analysis and regression have been utilized and the findings show evidence that managers in the test group of high-tech companies have used the more flexibility provided to them under the new standard to manage reported sales revenue (in contrast to their net cash flow from operations) compared to managers in the control group of more traditional industries and compared to the years preceding the year of adoption.

Limitations

The current version of the study suffers from some limitations that can be handled in additional analysis of updated version of the study, and in future research. While the regression analysis focused on some main variables, other important variables that might affect the earnings management practices can be added, for example, governance factors and ownership characteristics. In addition, the current study focused on the first adoption of the new standard in specific industries. Future research might extend the study to include other industries and to investigate a longer period, before and after the implementation of the new standard.

Implications

The study has important implications as it informs regulators and standard setters in their post-implementation reviews. Furthermore, our study highlights the potential impact of revenue-based earnings management on the tax amounts. Managing the amounts of revenues in the current and future years might affect the tax-related accounts on the financial statements as well as the cashflows.

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