

# **Financial Statement Preparers' Revenue Decisions: Accuracy in Applying Rules-Based Standards and the IASB-FASB Revenue Recognition Model**

**Mary McCarthy**  
Central Connecticut State University

**Richard McCarthy**  
Quinnipiac University

*The IASB-FASB revenue-recognition project is due to be finalized over the next year with the result being a shift from a rules-based set of accounting standards to a principles-based standard. The purpose of this research is to examine financial managers' revenue decisions under a principles-based accounting standard compared to a rules-based accounting standard. The experiment included 127 experienced financial managers with an average of 20 years of experience and 82% at a manager level or above. The results indicate applying rules-based standards provide less accurate revenue decisions. Additionally, there was not a statistically significant difference in the amount of judgment required when applying rules-based standards and subjects applying principles-based standards.*

## **INTRODUCTION**

U.S. accounting standards are perceived to be rules-based while International Financial Reporting Standards (IFRS) are thought to be principles-based (Benston, Bromwich, & Wagenhofer, 2006; Financial Accounting Standards Board, 2002a; Schipper, 2003). Currently, Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) are working together on several joint projects. Shifting from a rules-based to a principles-based accounting framework will require more professional judgment on the part of financial statement preparers' decisions in areas involving accounting estimates, uncertainty, and inherent subjectivity. Further, the standards lack detailed guidelines, scope exceptions, and quantitative thresholds (Bennett, Bradbury, & Prangnell, 2006; Benston, et al., 2006; Clor-Proell & Nelson, 2007; Financial Accounting Standards Board, 2002a). Little experimental research has been performed on how the converged standards will affect the decisions made by financial statement preparers.

The FASB and IASB are committed to convergence with the likely outcome being a shift from a rules-based accounting system to a principles-based accounting system (Financial Accounting Standards Board, 2002b). It is unclear if this transition will improve the decision-usefulness of the financial statements. To date very few studies on the revenue-recognition differences between U.S. GAAP and IFRS exist. Studies have generally focused on consolidations, leases, and expenses accounting standards.

This research provides evidence from an experimental setting in determining the quality of revenue reported in financial statements prepared under both rules-based and a principles-based standards using the objectives-oriented approach proposed by the SEC Staff Study. Financial statement preparers'

decisions related to the revenue-recognition model contained in the IASB-FASB Exposure Draft: *Revenue from Contracts with Customers* is examined. Additionally, this research builds upon prior research and provides important information of particular interest to practitioners setting entity strategy, regulators, and standard setters. The research can aid in determining the factors that influence financial-statement preparers in their decision-making process.

## **PRIOR LITERATURE AND HYPOTHESES DEVELOPMENT**

### **Pros and Cons of Principles-Based and Rules-Based Standards**

There are a wide variety of views on the meaning of principles-based standards but all have some perceived similar advantages and disadvantages. Table 1 highlights key characteristics of rules-based, principles-based (or objectives-oriented), and principles-only standards.

Both principles-based (objectives-oriented and principles-only) and rules-based standards have attributes that are perceived to be advantageous. Table 2 summarizes some significant perceived advantages and disadvantages of rules-based and principles-based accounting standards frameworks.

**TABLE 1  
CHARACTERISTICS OF RULES-BASED STANDARDS  
AND PRINCIPLES-BASED STANDARDS**

|   |
|---|
| <b>Rules-based Accounting Framework</b>   |
| <ul style="list-style-type: none"> <li>* Very detailed and specific in applying the accounting methods prescribed in the standard</li> <li>* Attributes include quantitative ("bright-line") thresholds, examples, scope restrictions, treatment exceptions, and detailed implementation guidance</li> </ul>  |
| Source: Nelson (2003); Nobes (2005); Schipper (2003); Securities and Exchange Commission (2003)   |
| <b>Principles-based (Objectives-oriented Basis) Accounting Framework</b>  |
| <ul style="list-style-type: none"> <li>* Based on an improved (U.S. GAAP) and consistently applied conceptual framework</li> <li>* Clearly states the accounting objective of the standard</li> <li>* Provides sufficient detail and structure so that the standard can be operationalized and applied on a consistent basis</li> <li>* Minimizes exceptions from the standard</li> <li>* Avoids use of percentage tests ("bright-lines" that permit financial engineers the ability to achieve technical compliance with the standard while evading the intent of the standard.</li> </ul> |
| Source: Securities and Exchange Commission, 2003, p.5   |
| <b>Principles-only Accounting Framework</b>   |
| <ul style="list-style-type: none"> <li>* Provide insufficient guidance to make the standards reliably operational</li> <li>* Requires financial statement preparers and auditors to exercise significant judgment in applying overly-broad standards to more specific transactions and events, and often do not provide a sufficient structure to frame judgment that must be made.</li> </ul>  |
| Source: Securities and Exchange Commission, 2003, p.6   |

**TABLE 2**  
**ADVANTAGES AND DISADVANTAGES OF RULES-BASED AND PRINCIPLES-BASED**  
**ACCOUNTING STANDARDS FRAMEWORKS**

| <b>Rules-based Accounting Framework</b>   |  |
|---|--|
| <b>Advantage</b>  | <b>Disadvantage</b>  |
| <ul style="list-style-type: none"> <li>* Detailed guidance provides a common knowledge base and a common set of assumptions</li> <li>* Potentially reduced difficulties with enforcement bodies</li> <li>* Potentially reduced litigation</li> </ul>  | <ul style="list-style-type: none"> <li>* Transactions can be manipulated to circumvent the standard</li> <li>* Comparability may be compromised due to dissimilar transactions forced into the same accounting treatment</li> <li>* Numerous exceptions and voluminous guidelines can lead to inconsistencies in practice</li> <li>* Standards may become obsolete due to complex, rapidly changing environment</li> </ul>   |
| <b>Principles-based Accounting Frameworks</b>   |  |
| <b>Advantage</b>  | <b>Disadvantage</b>  |
| <ul style="list-style-type: none"> <li>* Transactions reflect their true economic substance</li> <li>* Reduce complexity of financial statements and increase understandability</li> <li>* Broad guidelines may make compliance easier due to simpler standards</li> <li>* Opportunity to apply professional judgment in assessing the substance of the transaction</li> <li>* Mitigate opportunities for earnings management</li> <li>* Limited scope and treatment exceptions</li> <li>* Standards unlikely to become obsolete</li> </ul> | <ul style="list-style-type: none"> <li>* Lack of precise guidelines could produce inconsistencies in the application of standards across companies</li> <li>* Increase expertise and reliance on professional judgment required by financial statement preparers and auditors</li> <li>* Increased income volatility as eliminates accounting treatments existing solely to smooth income</li> <li>* May cause dissatisfaction by preparers, investors, and others who prefer accounting treatments intended to smooth out inherent economic fluctuations</li> </ul> |
| Source: Shortridge & Myring (2004); Schipper (2003); Fitch Ratings (2004); Nelson, Elliott, and Tarpley (2002); SEC (2003)  |  |

*Rules-Based Standards*

Through the detailed guidance provided, proponents of rules-based standards believe decision-makers have a common knowledge-base and common set of assumptions thus the rules-based standards will provide increased comparability, verifiability, reduced income volatility, and reduced litigation (Schipper, 2003; Shortridge & Myring, 2004). On the other hand, there exists the potential for earnings management by structuring transactions and circumventing the intent and spirit of the standards. It is believed that a move towards principles-based standards would mitigate opportunities for transaction structuring however, earnings management can be accomplished through management judgments and decisions

(Healy, 1985; Nelson, Elliott, & Tarpley, 2002; Schipper, 2003; Wüstemann & Wüstemann, 2010). The detailed standards frequently provide a benchmark for determining compliance in form but not in substance (Maines, Bartov, Fairfield, Hirst, & et al., 2003).

### *Principles-Based Standards*

Principles-based standards imply limited scope and treatment exceptions (Schipper, 2003). Proponents of principles-based standards believe the reporting of transactions will: reflect their true economic substance, improve comparability, easier to comprehend, apply to a wide range of transactions, and reduce potential for earnings management through transaction structuring. Furthermore, principles-based standards may produce financial statements that more accurately reflect a company's actual performance and may reduce manipulations of the rules (Shortridge & Myring, 2004) thus faithfully representing (reliability) the financial transactions of the company. Another advantage of a principles-based accounting framework is that it would result in simpler standards. Principles would be easier to comprehend and apply to a wide range of transaction rules (Shortridge & Myring, 2004).

A perceived disadvantage of the flexibility of principles-based standards is that financial statement preparers may not always interpret and apply the accounting standard consistently. The financial statement preparers (e.g., Chief Financial Officers, Controllers) of organizations know best the economic reality of a transaction and how to account appropriately for the transaction however, motivations may exist that influence their decision-making (Nelson, 2003; Wüstemann & Wüstemann, 2010). Another potential shortcoming of principles-based standards rests in the lack of precise guidelines that could produce inconsistencies in the application of standards across organizations. If financial statement preparers interpret the guidance differently, the result would be reduced comparability and consistency (Shortridge & Myring, 2004).

### **Prior Research Examining Principles-Based Standards versus Rules-Based Standards**

Thus far, limited experimental research has been performed on how the new converged standards will affect the judgments and decisions made by financial managers. Results of the current research tend to support a principles-based accounting framework as a quality accounting framework.

Psaros and Trotman (2004) examined the impact of the type of accounting standards on financial statement preparers' judgments. They addressed the relationship between consolidation judgments and the interpretation of accounting standard inflexibility with case-specific information. They found that when financial statement preparers used a principles-based standard, the financial statement preparers justified their judgments based on case specific information resulting in financial reporting that faithfully represented the transaction. Psaros (2007) also examined whether principles-based accounting standards lead to financial reporting favorable to the decision-maker. He examined the consolidation judgments of senior accountants of Australian listed companies and found that when provided an incentive using a principles-based standard, the decisions of the financial statement preparers did not necessarily lead to unfair financial reporting.

Jamal and Tan (2010) examined the impact of principles-based versus rules-based standards on financial managers' reporting judgments while interacting with three different auditor types. Their findings reflect that when the auditor is client-oriented, adoption of a principles-based accounting standard has no effect on the reporting decisions of financial managers and is likely to result in improved financial reporting quality. When the auditor is principles-oriented, adoption of a principles-based standard has a significant effect on discouraging financial managers from making reporting decisions that are in line with incentives. Lastly, when the auditor is rules-oriented, adoption of a principles-based standard is less effective in deterring financial managers from engaging in aggressive reporting practices.

Tsakumis, Douppnik, and Agoglia (2011) examined the impact of principles-based standards and rules-based standards on lease reporting decisions of financial statement preparers, as well as the role of the audit committee in mitigating aggressive reporting behavior under the two standard types. They found that financial statement preparers were less likely to report aggressively when applying a principles-based standard.

## Revenue-Recognition Accounting Standards and Prior Research

“The revenue line item on the income statement is typically the largest amount reported and is a crucial number in assessing a company’s financial performance”(International Accounting Standards Board, 2010, p. 5). U.S. GAAP revenue standards are lengthy, complex, industry specific, inconsistent, contain quantitative thresholds, examples, scope restrictions, treatment exceptions, and detailed implementation guidance. The current IFRSs underlying the two main revenue-recognition standards (IAS 18 *Revenue* and IAS 11 *Construction Contracts*) are inconsistent and ambiguous (International Accounting Standards Board, 2008).

### Prior Research on Revenue Recognition

A review of the literature did not reveal any experimental research examining revenue-recognition reporting under U.S. GAAP (rules-based) compared to the IASB-FASB’s views expressed in their Exposure Draft: *Revenue from Contracts with Customers* (principles-based). Up to now, little experimental research has been conducted on revenue recognition despite its current complexity.

Altamuro, Beatty and Weber (2005) use the reporting requirements imposed by SEC Staff Accounting Bulletin No. 101 to examine how accounting methods that accelerate revenue recognition affect financial reporting. They were specifically examining two ideas – 1) the SEC’s concern that allowing revenue recognition prior to completion of the earnings process results in increased earnings management and lower earnings quality and 2) the FASB’s revenue-recognition project (now the IASB-FASB joint project) position that inclusion of unearned revenue in earnings provides value-relevant information about future performance. They found some evidence of increased earnings management by firms that accelerate revenue recognition and also, that on average, the relevance of reported earnings for these firms is greater than when the revenue-recognition process is delayed. Their findings are consistent with the FASB’s concerns (Financial Accounting Standards Board, 2008a).

Caylor (2010) found evidence that managers use judgment in both accrued and deferred revenue to avoid negative earnings surprises. However, he found little evidence that discretion is used to avoid losses or earnings decreases. His results imply that the revenue-recognition joint project undertaken by the FASB and IASB to reduce managerial estimation in revenue recognition may have the unplanned effects of leading to greater real costs imposed on shareholders as firms are likely to use even greater discretion particularly in accounts receivable, an accrued revenue account.

### Hypothesis 1

The quality of the financial statements will be improved if the financial information contained in the statements is more useful for decision-making purposes by the users of the financial statements. Quality is improved when the financial statements portray the fundamental (relevance and faithful representation) and enhancing qualitative characteristics. Proponents believe the qualitative characteristics, comparability and verifiability, are better embodied within rules-based standards while critics believe that representational faithfulness may be lacking due to the ability to circumvent the “true spirit” of the standard or forcing dissimilar transactions into the same accounting treatment. Proponents of principles-based standards believe representational faithfulness and comparability may be improved when applying the principles-based standards. Studies have not considered the degree of judgment required in applying the two types of standards. This study examines whether a rules-based standard is so detailed and complicated that financial managers making a revenue-recognition decision will not consistently employ the same interpretive process in their decision-making. Ultimately this would result in revenue-recognition decisions that are not comparable and inaccurate, as financial managers applying an accounting standard to the same transaction will recognize different revenue amounts. This leads to the first hypothesis:

*H<sub>1</sub>: Financial statement preparers with no personal incentive to increase revenue will make a less accurate reporting decision when applying a rules-based standard than when applying a principles-based standard.*

*Bonus Plan Hypothesis*

Financial statement preparers acting as agents on behalf of stockholders and responsible for accounting information, specifically the preparation of financial statements, may be motivated to act in their own self-interests when their compensation incentives (i.e., bonus plans) are linked to the very actions for which they have responsibility (Watts & Zimmerman, 1986). To further complicate the decision process, as U.S. GAAP migrates towards the principles-based IFRS, financial statement preparers will be required to exercise more judgment in the evaluation of revenue-recognition transactions.

**Hypotheses 2, 3, and 4**

If financial reports are intended to communicate managers' information on their companies' performance standards, financial statement preparers are in the best position to identify the most appropriate accounting method. The most appropriate method best reflects the underlying economics of the transaction. The financial statement preparers are the most knowledgeable about the business and therefore in the best position to match the organization's business economics with the appropriate accounting methods (Healy & Wahlen, 1999). Financial statement preparers need to make quality, objective judgments and decisions when selecting the accounting transactions methods. Understanding how incentives affect financial statement preparers' behavior in their decision-making process may assist policy setters, investors, creditors, and analysts to evaluate the quality of the financial information and guiding principles.

Therefore, the following hypotheses were investigated:

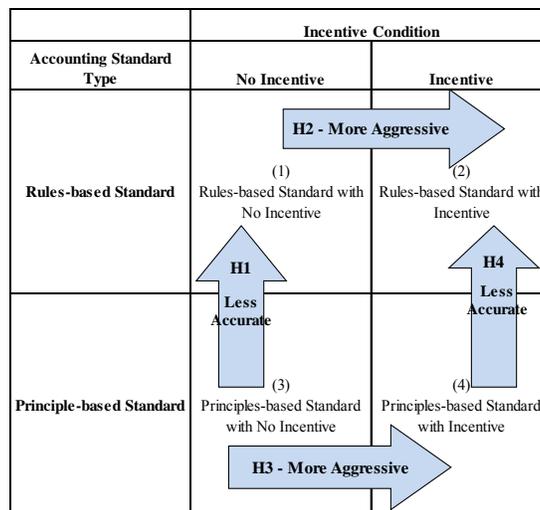
*H<sub>2</sub>: Financial statement preparers applying a rules-based accounting standard will make a more aggressive reporting decision when they have an incentive to increase revenue recognition than when they have no incentive.*

*H<sub>3</sub>: Financial statement preparers applying a principles-based accounting standard will make a more aggressive reporting decision when they have an incentive to increase revenue recognition than when they have no incentive.*

*H<sub>4</sub>: Financial statement preparers with an incentive to increase revenue will make a less accurate reporting decision when applying a rules-based standard than when applying a principles-based standard.*

Figure 1 shows the relationship between the four hypotheses.

**FIGURE 1**  
**HYPOTHESES – ACCOUNTING STANDARD TYPE VERSUS INCENTIVE CONDITION**



## METHODOLOGY

### Experimental Instrument

A case experiment was used to test the hypotheses. The case experiment provided to the participants included background on a fictitious company, the applicable accounting guidance (either the rules-based or principles-based guidance) and a software bundled-package sales transaction adapted from the accounting standards team of the American Institute of Certified Public Accountants (AICPA). The case developed by the AICPA was in response to feedback the team provided to the joint FASB/IASB Boards on the Discussion Paper, *Preliminary Views on Revenue Recognition in Contracts with Customers* ([http://www.aicpa.org/Advocacy/FinancialReporting/DownloadableDocuments/AICPAIndustryLettertoFASB\\_july29\\_2009\\_Final.pdf](http://www.aicpa.org/Advocacy/FinancialReporting/DownloadableDocuments/AICPAIndustryLettertoFASB_july29_2009_Final.pdf)). The case required the participants to make a decision on the amount of revenue to recognize in the current year. The scenario is described below:

To meet sales quotas CNS Corporation added free services to a contract. At the end of 20X0, CNS Corporation sold a bundled software package with a 10% discount plus free installation and three years of additional free software maintenance and support. The contract is signed and the customer accepts the software. The software is installed on 12/29/X0.

|                          |                     |
|--------------------------|---------------------|
| List Price of the Bundle | \$20,000,000        |
| Discount                 | <u>\$ 2,000,000</u> |
| Total Sales Price        | \$18,000,000        |

Contents of Bundled Software Package:

- Software Package – Never offered without 1 year support, 1 year maintenance, and installation and formal customer acceptance. No fair value exists for the software package only.
- Software Support for 1 Year – First year of support is always included, never sold separately. Annual renewal is offered at a list price of \$2,000,000. This has never been discounted.
- Software Maintenance – First year always included in pricing, never sold separately. Renewal of full maintenance support is at a list price of \$2,000,000.

The experiment comprised four scenarios (2 X 2 between-participants experiment):

- 1) Rules-based standard with no incentive
- 2) Rules-based standard with an incentive
- 3) Principles-based standard with no incentive
- 4) Principles-based standard with an incentive

### Data Collection

Prior to distribution of the case experiment to the participants, a *panel of experts* comprised of accounting academics and internal auditors reviewed the experimental instrument. A total of 13 experts reviewed the cases. Feedback from the experts indicated that the case took approximately 20-30 minutes to complete, the questions were clear, and the accounting guidance was sufficient and understandable to calculate revenue to be recognized from the transaction. Participants for this study were then recruited from the researcher's professional network and assistance from the Institute of Managerial Accountants (IMA®) Research Foundation.

Four separate *e-mail blasts*, one for each scenario, were created and sent out by the IMA® Research Foundation. Each *e-mail blast*, consisted of 1,250 members for a total of 5,000 members requested to participate. A follow-up request was sent to the participants two weeks later. The total sample obtained from the IMA® call and the researcher's network was 131. Four responses were removed: two from scenario (1) due to lack of response to recommended revenue; one from scenario (3) due to recommended revenue was an outlier (i.e., amount was \$567 million); and, one from scenario (4) for lack of response to recommended revenue. See Table 3 for a summary. Overall the response rate was approximately 2.5%. While the response rate was low, the participants were high level financial managers, typically a difficult population to get participation in academic studies. Similar experimental studies in recent years had a

smaller sample size (see Takumis, Douppnik, & Agoglia (2011), Jamal and Tan (2010), and Hunton, Libby, & Mazza (2006) had 96, 90, and 62 financial managers, respectively).

**TABLE 3**  
**SAMPLE SIZE**

| Scenario  | Original<br>Sample Size | Final<br>Sample Size |
|---|-------------------------|----------------------|
| (1) Rules-based standard with no incentive      | 33                      | 31                   |
| (2) Rules-based standard with an incentive      | 34                      | 34                   |
| (3) Principles-based standard with no incentive | 33                      | 32                   |
| (4) Principles-based standard with an incentive | 31                      | 30                   |
| Total   | 131                     | 127                  |

### Experimental Procedures and Task

The case required the participants to assume the role of the Chief Financial Officer (CFO). Each participant was asked to make a decision regarding how much revenue to recognize for the current year from the sale of a software-bundled package that includes installation, maintenance, and support. Included in the case was a statement to “make your decision based upon the accounting guidance only” along with a link to the accounting guidance. Additionally, the first question to the case begins with “Using the accounting guidance provided...” and also had a link to the guidance. If the scenario standard type was rules-based, the participants were provided excerpts from U.S. GAAP guidance (FASB ASC 985-Software, 605 Revenue Recognition). If the scenario standard type was principles-based they were provided excerpts from the IASB-FASB Exposure Draft: *Revenue from Contracts with Customers*. Scenarios (2) and (4) included a personal incentive to maximize revenue. The incentive encouraged the CFO to maximize revenue in the current period to meet analysts’ expectations. If analysts’ expectations are not met the CFO would not receive a significant bonus. Scenarios (1) and (3) had no mention of the personal incentive.

After reading the company information, reviewing the sales transaction information, and applying the provided accounting guidance, participants recommended the revenue amount to be reported in the current period. Additionally, participants described the assumptions used in their decision process and the factors that impacted their recommended revenue decision. Next, the participants provided feedback on the degree of judgment required to determine the recommended revenue amount with the accounting guidance provided. Lastly, the participants were asked two data manipulation checks.

### Research Design and Variables

The study utilized a two-by-two between participants factorial design. The independent variables manipulated were the type of standard (rules-based standard versus principles-based standard) and the presence of or lack of an incentive. There were four treatments (cases) randomly assigned to the participants.

The participants made a revenue-recognition decision in which the two variables of interest (standard type and pressure from an incentive) were manipulated at two levels. In the standard type condition, the participants were provided with accounting guidance that was either principles-based (IASB-FASB Exposure Draft: *Revenue from Contracts with Customers*) or rules-based (ASC 985 – Software and ASC 605 – Revenue Recognition). In the incentives pressure condition, the participants were told the Chief Executive Officer (CEO) is pressuring the CFO (their role), to identify the grey areas related to revenue recognition and resolve the issues favorably to meet the final quarter analysts’ forecasts. If the company does not meet analysts’ expectations then no bonus will be paid to the CFO.

To test the effects of the independent variables a two-way analysis of variance (ANOVA) process and t-tests were utilized. For Hypothesis 1 and Hypothesis 3 the dependent variable was the absolute percentage difference between the recommended revenue amount and the correct amounts. For Hypothesis 2 and 4 the dependent variable is the recommended revenue amount reported by the participants.

## ANALYSIS AND PRESENTATION OF FINDINGS

### Demographics

Table 4 compares the IMA® Call for participation *e-mail blasts* demographics to the demographics collected in the sample. T-tests were performed to determine if the sample was representative of the population. There were no significant differences between Title and Gender however; a significant difference existed with Years of Experience. The sample appears to be comprised of more experienced participants. Years of experience for the IMA® *e-mail blast* and the experiment sample are approximately 25% and 42%, respectively.

**TABLE 4**  
**IMA® “E-MAIL BLASTS” DEMOGRAPHICS COMPARED TO RESPONSES RECEIVED**  
**(SAMPLE) DEMOGRAPHICS**

|                                  | IMA®  | Sample |
|----------------------------------|-------|--------|
| <u>Title</u>                     |       |        |
| CFO/Executive Officer            | 0.120 | 0.126  |
| Vice President/ Corporate Office | 0.104 | 0.110  |
| Controller                       | 0.284 | 0.283  |
| Director/Manager                 | 0.281 | 0.299  |
| Accountant                       | 0.210 | 0.181  |
| Other                            |       |        |
| <u>Gender</u>                    |       |        |
| Female                           | 0.344 | 0.256  |
| Male                             | 0.656 | 0.744  |
| <u>Years of Experience</u>       |       |        |
| Less than 1 year                 | 0.063 | 0.000  |
| 1-5 years                        | 0.198 | 0.032  |
| 6-10 years                       | 0.141 | 0.136  |
| 11-15 years                      | 0.153 | 0.200  |
| 16-20 years                      | 0.192 | 0.208  |
| 21 years or more                 | 0.253 | 0.424  |

Demographic data is summarized in Table 5. A total of 127 participants were included in the analysis. All 127 participants supervised or participated in the preparation of financial statements. The average years' experience for the total sample was 20 years. Eighty-two percent of the participants were in a Director/Manager position or higher. Sixty-five percent attained a masters' degree or higher. Additional demographic data including industry and professional designations is also summarized.

### *Recommended Revenue*

In the case experiment, participants made a decision on the amount of revenue to be recognized for the current period. Upon correctly interpreting the rules-based accounting guidance, the participants

**TABLE 5  
SUMMARY DATA ON PARTICIPANTS**

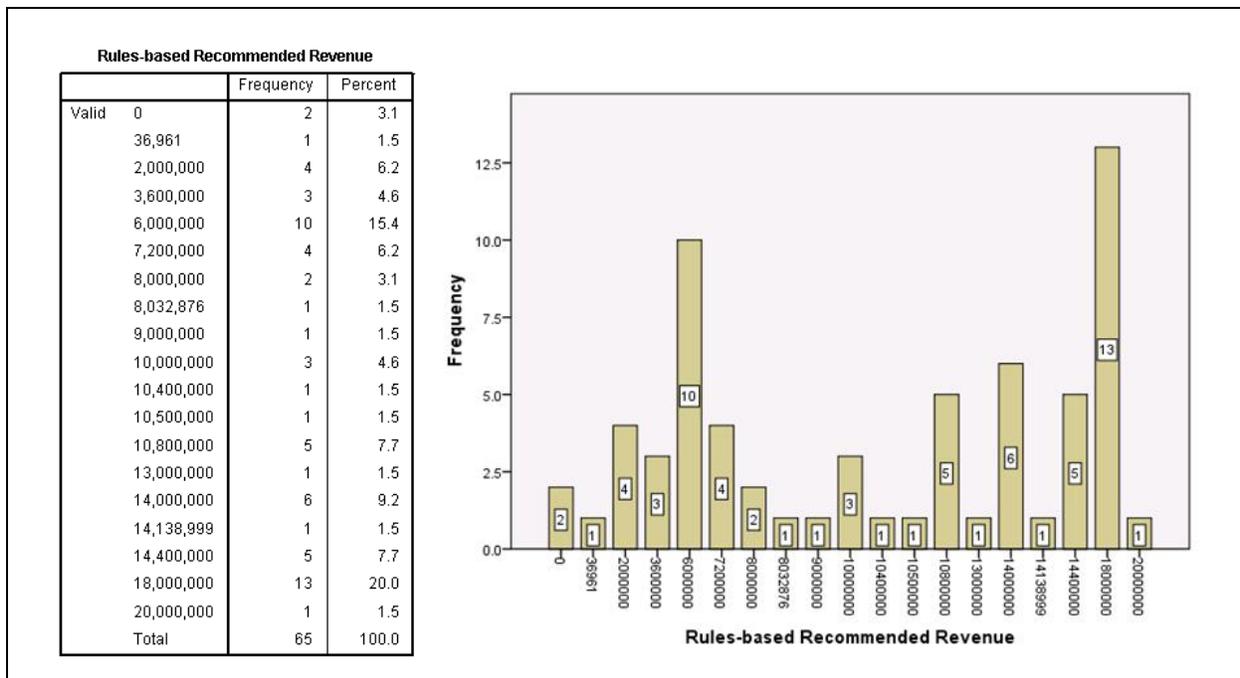
|  | Rules-based No<br>Incentive | Principles-based<br>No Incentive | Rules-based<br>With Incentive | Principles-based<br>With Incentive | Total      |
|--|-----------------------------|----------------------------------|-------------------------------|------------------------------------|------------|
| Accounting Experience Years  | 21                          | 20                               | 21                            | 17                                 | 20         |
| Gender   |                             |                                  |                               |                                    |            |
| Male   | 25                          | 23                               | 26                            | 19                                 | 93         |
| Female   | 6                           | 9                                | 7                             | 10                                 | 32         |
| Not disclosed  | -                           | -                                | 1                             | 1                                  | 2          |
| Total  | <u>31</u>                   | <u>32</u>                        | <u>34</u>                     | <u>30</u>                          | <u>127</u> |
| Highest Level of Education   |                             |                                  |                               |                                    |            |
| Bachelor's   | 8                           | 9                                | 14                            | 11                                 | 42         |
| Master's   | 22                          | 23                               | 18                            | 15                                 | 78         |
| Doctorate/Juris Doctorate  | 1                           | -                                | 1                             | 2                                  | 4          |
| Not disclosed  | -                           | -                                | 1                             | 2                                  | 3          |
| Total  | <u>31</u>                   | <u>32</u>                        | <u>34</u>                     | <u>30</u>                          | <u>127</u> |
| Title  |                             |                                  |                               |                                    |            |
| CFO/Executive Officer  | 5                           | 6                                | 2                             | 3                                  | 16         |
| Vice President/ Corporate Office                                       | 3                           | 3                                | 5                             | 3                                  | 14         |
| Controller   | 12                          | 6                                | 11                            | 7                                  | 36         |
| Director/Manager   | 9                           | 8                                | 10                            | 11                                 | 38         |
| Accountant   | -                           | 2                                | 1                             | 2                                  | 5          |
| Other  | 2                           | 7                                | 5                             | 4                                  | 18         |
| Total  | <u>31</u>                   | <u>32</u>                        | <u>34</u>                     | <u>30</u>                          | <u>127</u> |
| Industry   |                             |                                  |                               |                                    |            |
| Agriculture  | -                           | 1                                | -                             | -                                  | 1          |
| Consulting   | 4                           | 2                                | 3                             | 3                                  | 12         |
| Financial Services (including<br>Banking and Insurance,<br>Healthcare) | 4                           | 7                                | 8                             | 8                                  | 27         |
| Government/NonProfit/Higher Ec   | 4                           | 7                                | 4                             | 4                                  | 19         |
| Manufacturing  | 9                           | 7                                | 5                             | 8                                  | 29         |
| Mining/Oiling  | 1                           | -                                | 2                             | -                                  | 3          |
| Retail   | 1                           | 1                                | 1                             | 1                                  | 4          |
| Software/Technology/<br>Telecommunications                             | 4                           | 4                                | 9                             | 4                                  | 21         |
| Transportation/ Wholesale<br>Distribution                              | 3                           | 1                                | -                             | -                                  | 4          |
| Other  | 1                           | 2                                | 2                             | 2                                  | 7          |
| Total  | <u>31</u>                   | <u>32</u>                        | <u>34</u>                     | <u>30</u>                          | <u>127</u> |
| Professional Designations  |                             |                                  |                               |                                    |            |
| Certified Public Accountant  | 21                          | 22                               | 21                            | 16                                 | 80         |
| Certified Managerial Accountant  | 4                           | 7                                | 5                             | 4                                  | 20         |
| Other  | 1                           | 1                                | 2                             | 2                                  | 6          |
| Total Designations   | <u>26</u>                   | <u>30</u>                        | <u>28</u>                     | <u>22</u>                          | <u>106</u> |

would realize the transaction has multiple elements and the price should be allocated to each element based on the vendor-specific objective evidence (VSOE) of fair value. For the support and maintenance elements this would be \$2 million for each year. The software package does not have a standalone fair value however the guidance provides for the inference of VSOE on the software package by deducting the support and maintenance values. Therefore, the inferred value for the software package is \$20 million - \$2 million for support - \$2 million for maintenance or \$16 million. The guidance further states that all revenue from the software package is deferred until all elements of the arrangement have been delivered. Therefore, \$18 million sales price less the \$16 million deferred revenue results in \$2 million of revenue recognized.

If a discount exists the entire discount is applied to the delivered item. The guidance applicable to the transaction included phrases which could easily confuse the participants and cause misapplication of the guidance. Examples of the phrases included: following criteria, allocated, limited to the following, however, except as provided, deferred until the earlier of, the following are exceptions, only if both of the following conditions are met, criteria in the first paragraph, and several if statements.

Frequency tables and bar charts as well as feedback from the participants were used to analyze their decision-making process. Graph 1 shows the recommended revenue amounts for the two rules-based case scenarios.

**GRAPH 1  
RULES-BASED RECOMMENDED REVENUE**



In the rules-based scenarios the appropriate amount to be recognized is \$2 million. Of the 65 participants only four participants correctly recommended \$2 million. The four participants properly recognized they should apply the residual method and defer the fair value of the maintenance and support for four years (i.e., \$2 million per year in maintenance plus \$2 million per year for support multiplied by 4 years equals \$16 million deferred).

Thirteen of the 65 participants recommended current year revenue of \$18 million (mode value). The participants most commonly cited assumption for recognizing \$18 million was that the software was

delivered and installed. Three of the participants cited the matching principle as the primary factor for impacting their decision. One subject cited the guidance provided as the primary factor. Interesting to note is that 10 of the 13 recommendations for \$18 million were in the rules-based no incentive scenario thus driving the average recommended revenue up.

Ten participants recommended \$6 million. The participants appeared to have appropriately applied the accounting guidance provided however, they mistakenly recognized only three years of maintenance and support rather than four years. The case mentioned that the bundled-software package normally included software and one year maintenance and support. To encourage year-end sales, the bundled package included a \$2 million discount plus an additional three years of free maintenance and support. The remainder of the responses varied from recommended revenue of zero for the current year to \$20 million. In reviewing the participants' assumptions and factors for their decisions, it appears there were many differences in how the participants allocated revenue, the discount, and fair value to the different elements. The guidance provided in the case was specific and related directly to the transaction. In reality, U.S. GAAP related to revenue recognition is voluminous and far more complex. Furthermore, prior to accounting standards codification the guidance was not centralized.

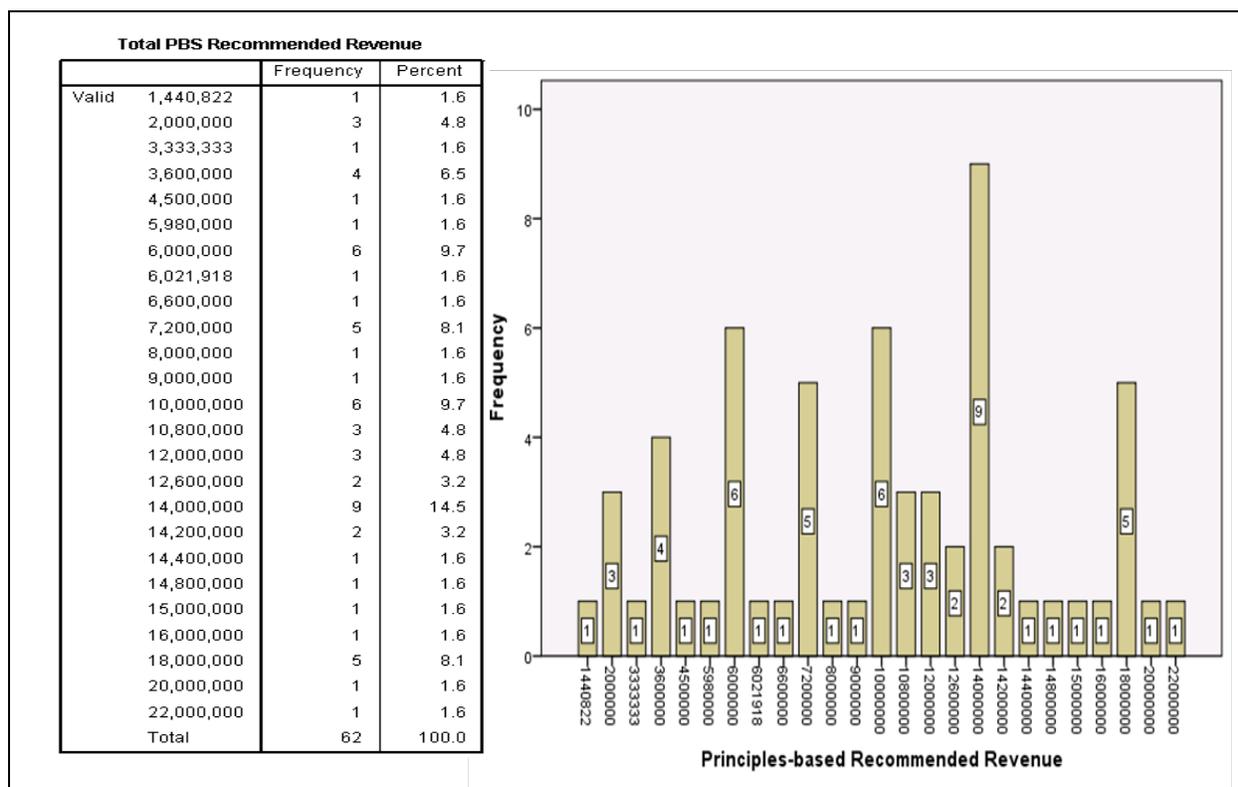
Applying the principles-based guidance correctly required the participants to allocate the estimated standalone selling price to the transaction price (sales price). The calculation follows:

|   | Estimated<br>Stand-<br>alone price | <u>Allocation</u><br>% | <u>Transaction</u><br>Price |
|---|------------------------------------|------------------------|-----------------------------|
| Software package  | \$16 million                       | 50%                    | \$9 million                 |
| Software Support<br>(1 <sup>st</sup> year + 3 additional years) | \$8 million                        | 25%                    | \$4.5 million               |
| Software Support<br>(1 <sup>st</sup> year + 3 additional years) | \$8 million                        | 25%                    | \$4.5 million               |
| Total   | \$32 million                       | 100%                   | \$18 million                |

The principles-based guidance recognized revenue upon satisfaction of a performance obligation. Therefore as the software package has been delivered, the appropriate revenue to recognize is \$9 million.

Graph 2 shows the recommended revenue amounts for the two principles-based case scenarios. In the principles-based scenarios the appropriate amount to be recognized is \$9 million. Of the 62 participants only one subject correctly recommended \$9 million as the current year revenue to recognize. In the principles-based scenarios, the accounting guidance provided was from the June, 2010 IASB-FASB Exposure Draft: *Revenue from Contracts with Customers*. The Exposure Draft permits revenue to be recognized earlier than U.S. GAAP. The Exposure Draft does not require that discounts be recognized immediately and revenue is recognized upon satisfaction of performance obligations. In a bundled-software transaction the performance obligations are identified and an estimated stand-alone selling price is determined for each obligation. Then the transaction price (consideration) is allocated based on the proportionate amount of the performance obligation's stand-alone selling price to the transaction price of the bundled transaction. In reading through the participants' assumptions, it was evident the participants did not comprehend from the guidance how to determine stand-alone selling price and/or how to appropriately allocate the stand-alone selling price to the transaction price. No examples were provided. It was evident that the participants were reading the guidance in both scenarios based on words and phrases used in their freeform responses, e.g., Vendor Specific Objective Evidence, performance obligations, residual, followed guidance, performance obligation satisfied. Other responses seemed to indicate that participants permitted their own biased knowledge to influence their judgments (e.g., matching principle, conservatism).

**GRAPH 2**  
**PRINCIPLES-BASED RECOMMENDED REVENUE**



Nine of the 62 participants recommended current year revenue of \$14 million (mode value). These participants most commonly cited the assumption for recognizing \$14 million was that the software was installed while the maintenance and support were over the next three years at \$2 million per year. Not only did they not recognize that they needed to assign the probability-weighted standalone price to the software they also failed to recognize that the maintenance and support was four years. In the rules-based scenarios \$14 million was recommended in six of the 65 cases. Overall, regardless of the guidance, the participants in both scenarios appeared to erroneously take the \$20 million less the \$2 million discount less \$2 million for maintenance and support over the next two years. Similar results existed for three participants who recommended \$12 million only in these cases \$2 million was subtracted over three years.

Six of the 62 participants recommended \$10 million be recognized (close to the correct amount of \$9 million). Assumptions noted for recommending \$10 million were to take the \$18 million transaction price less \$4 million per year for two years to defer revenue for the maintenance and support. Six of the 62 participants recommended \$6 million be recognized for current year revenue. In these responses, the participants used the same thought process as the \$10 million recommendations except the participants deferred three years of revenue for support and maintenance. The participants failed to recognize the bundled package included one year of maintenance and support plus the incentive of an additional three years of maintenance and support. This was a similar finding in the rules-based scenarios.

Overall, in the principles-based scenarios, it did not appear that the participants understood from the guidance the appropriate identification of performance obligations, calculation of the transaction price of the performance obligations, and the reflection of the probability-weighted amount of consideration received to the performance obligations. Close to half of the participants identified the performance

obligations in terms of years rather than in terms of goods or services. As with the rules-based responses, the principles-based responses were varied.

### Hypotheses and Statistical Analysis

The first expectation is that financial statement preparers with no personal incentive to increase revenue will make a less accurate reporting decision when applying a rules-based standard than when applying a principles-based standard (H<sub>1</sub>). When faced with an incentive, the expectation is that financial statement preparers applying a rules-based standard will make a more aggressive reporting decision when they have an incentive to increase revenue recognition than when they have no incentive (H<sub>2</sub>). Likewise, financial statement preparers applying a principles-based accounting standard will make a more aggressive reporting decision when they have an incentive to increase revenue than when they have no incentive (H<sub>3</sub>). Lastly, when faced with an incentive to increase revenue, financial statement preparers will make a less accurate reporting decision when applying a rules-based standard than when applying a principles-based standard (H<sub>4</sub>).

Table 6 presents the descriptive statistics for the four scenarios (Panel A) and independent t-tests of the means (Panel B) used to test H<sub>2</sub> and H<sub>3</sub>. Of note is that for both the rules-based and principles-based scenarios, the recommended revenue mean was higher in the No-Incentive conditions. Also, the standard deviation was greater in the No-Incentive Rules-based condition.

**TABLE 6**  
**HYPOTHESIS 2 AND HYPOTHESIS 3: ANALYSIS OF REVENUE RECOGNITION DECISION**  
**– RECOMMENDED REVENUE**

| <b>Panel A: Revenue Recognition Decision: Mean (Standard Deviation)</b> |                                     |                                    |                                      |
|---|-------------------------------------|------------------------------------|--------------------------------------|
| <b>Accounting Standard Type</b>   | <b>Incentive Condition</b>          |                                    |                                      |
|   | <b>No Incentive</b>                 | <b>Incentive</b>                   | <b>Overall</b>                       |
| Rules-based Standard<br>(U.S. GAAP)                                     | 11,414,096<br>(5,968,005)<br>n = 31 | 9,672,702<br>(5,230,356)<br>n = 34 | 10,503,213<br>(5,618,682)<br>n = 65  |
| Principles-based Standard<br>(IASB-FASB Model)                          | 10,905,625<br>(4,990,169)<br>n = 32 | 9,616,536<br>(5,116,059)<br>n = 30 | 10,281,872<br>(5,051,754)<br>n = 62  |
| Overall   | 11,155,825<br>(5,454,414)<br>n = 63 | 9,646,374<br>(5,136,033)<br>n = 64 | 10,395,157<br>(5,329,419)<br>n = 127 |
| <b>Panel B: Test of Means Comparison</b>                                |                                     |                                    |                                      |
|   | <b>d.f.</b>                         | <b>t-value</b>                     | <b>p-value</b>                       |
| With Incentive versus No Incentive (Rules-based)                        | 63                                  | 1.254                              | 0.1075                               |
| With Incentive versus No Incentive (Principles-based)                   | 60                                  | 1.004                              | 0.1595                               |

Panel B reveals the results of independent t-tests used to examine the incentive-based hypotheses (H<sub>2</sub> and H<sub>3</sub>). The results for H<sub>2</sub> and H<sub>3</sub> do not show a significant difference when a personal incentive is present under either standard type (p-values 0.1075 and 0.1595, respectively). Therefore, it appears financial statement preparers were not influenced by a personal incentive in the case scenarios. This is in contradiction to the literature (Watts & Zimmerman, 1986).

To test H<sub>1</sub> and H<sub>4</sub>, the dependent variable was calculated as the absolute difference between the recommended revenue amount and the correct amount (\$2,000,000) divided by the correct amount. For the rules-based scenarios, the dependent variable was calculated as follows:

$$Y = (|\text{Recommended Revenue} \Delta \$2 \text{ million}|)/\$2 \text{ million}$$

For the principles-based scenarios, the dependent variable was calculated as follows:

$$Y = (|\text{Recommended Revenue} \Delta \$9 \text{ million}|)/\$9 \text{ million}$$

Independent t-tests were used to examine the differences between the two means for H<sub>1</sub> and H<sub>4</sub>. Table 7 provides the descriptive statistics and t-test results.

**TABLE 7**  
**HYPOTHESIS 1 and HYPOTHESIS 4: ANALYSIS OF REVENUE RECOGNITION DECISION**  
**Y = (|RECOMMENDED REVENUE Δ CORRECT AMOUNT|)/CORRECT AMOUNT**

| <b>Panel A: Revenue Recognition Decision: Mean (Standard Deviation)</b> |                              |                               |                |
|---|------------------------------|-------------------------------|----------------|
| <b>Accounting Standard Type</b>   | <b>Incentive Condition</b>   |                               |                |
|   | <b>No Incentive</b>          | <b>Incentive</b>              |                |
| Rules-based Standard<br>(U.S. GAAP)                                     | 4.8335<br>(2.7638)<br>n = 31 | 3.8971<br>(2.5252)<br>n = 34  |                |
| Principles-based Standard<br>(IASB-FASB Model)                          | 0.4969<br>(0.3208)<br>n = 32 | 0.4800<br>(0.29989)<br>n = 32 |                |
| <b>Panel B: Test of Means Comparison</b>                                |                              |                               |                |
|   | <b>d.f.</b>                  | <b>t-value</b>                | <b>p-value</b> |
| With Incentive versus No Incentive (Rules-based)                        | 30.783                       | 8.684                         | 0.000000       |
| With Incentive versus No Incentive (Principles-based)                   | 34.053                       | 7.828                         | 0.000000       |

The dependent variable means and standard deviations were higher in both rules-based scenarios compared to the principles-based scenarios. Results of the t-tests show there are significant differences (p-values < .05) between the accuracy of rules-based standards and principles-based standards with no incentive and with an incentive. Therefore, it appears financial statement preparers applying rules-based standards with or without personal incentives, will make less accurate decisions than when applying a principles-based standard.

In addition to calculating the dependent variable in the rules-based standard as the absolute difference of the recommended revenue amount and the correct amount (\$2 million) divided by the correct amount an alternative dependent variable calculation was used. The alternative dependent variable was calculated as the absolute difference of the recommended revenue amount and \$6 million. Six million was used in place of the \$2 million as it appeared several participants interpreted the guidance as deferring the revenue from the software support and maintenance. That is, \$18 million (sales price) less \$2 million times 3 years (support) less \$2 million times 3 years (maintenance) equals \$6 million to be recognized.

Table 8 provides descriptive statistics and results from the independent t-tests. The results show a significant difference (p-values < .05) thus further supporting H<sub>1</sub> and H<sub>4</sub>.

*Manipulation Checks*

Manipulation-check questions directly relate to the individual scenario (case) and verify whether the participants understood the case correctly. This is important to guarantee the internal validity of the case (Libby et. al., 2002). There were several questions asked of the participants after completing the case. In the cases that included an incentive, the participants were informed if they did not meet analysts' expectations they would not receive a bonus. This information was not contained in the "no incentive" cases. One of the manipulation-check questions asked the participants to respond "yes" or "no" to the following statement:

"Senior Management is encouraging you, the CFO, to identify the opportunities related to accelerated revenue recognition and resolve the issues favorably for the company. If you do not meet the final quarter's analysts' expectations you will not receive a bonus."

**TABLE 8**  
**HYPOTHESIS 1 AND HYPOTHESIS 4: ANALYSIS OF REVENUE RECOGNITION**  
 $Y = (|RECOMMENDED REVENUE \Delta CORRECT AMOUNT|)/CORRECT AMOUNT$

| <b>Panel A: Revenue Recognition Decision: Mean (Standard Deviation)</b> |                              |                               |                |
|---|------------------------------|-------------------------------|----------------|
| <b>Accounting Standard Type</b>   | <b>Incentive Condition</b>   |                               |                |
|   | <b>No Incentive</b>          | <b>Incentive</b>              |                |
| Rules-based Standard<br>(U.S. GAAP)                                     | 1.2516<br>(0.6870)<br>n = 31 | 1.1471<br>(0.60314)<br>n = 34 |                |
| Principles-based Standard<br>(IASB-FASB Model)                          | 0.4969<br>(0.3208)<br>n = 32 | 0.4800<br>(0.29989)<br>n = 30 |                |
| <b>Panel B: Test of Means Comparison</b>                                | <b>d.f.</b>                  | <b>t-value</b>                | <b>p-value</b> |
| With Incentive versus No Incentive (Rules-based)                        | 30.783                       | 8.684                         | 0.000000       |
| With Incentive versus No Incentive (Principles-based)                   | 34.053                       | 7.828                         | 0.000000       |

Eighty-four percent of the participants in the "no-incentive" cases answered the question correctly and 61% of the participants in the "with-an-incentive" cases answered the questions correctly. Table 9 show the means and standard deviations for the four scenarios with incorrect responses eliminated. Overall, there was not a large difference.

A second question asked the participants to confirm CNS typically sells a bundled-software package with one-year support, one-year maintenance, and installation. Ninety-four percent of the participants answered this question correctly. Another question asked the participants to respond yes or no to the statement:

"The standalone software package does not have a fair value." Overall, 67 percent of the participants correctly answered the question. There may have been confusion on the part of the participants thinking the statement read "The standalone package does have a fair value." For the principles-based scenarios, the implication for not recognizing that the standalone software package did not have a fair value would

not be substantial as the guidance states to estimate the amounts if not known. On the other hand, the implication for the rules-based cases could have affected the participant's application of the guidance. However, from reading the participants' decision processes, a portion of the participants focused on the three years of additional software support and maintenance and believed those elements shared in the revenue to be recognized. They then allocated the sales price to those elements and deferred a portion of the overall sales price. Another portion of the participants, did not attribute value to the additional years of software support and maintenance and attributed the revenue to the software package that was delivered (i.e., recognized \$18 million) or allocated the sales price to the software package delivered plus deferred revenue related to the one-year software support and maintenance (i.e., recognized \$18 million - \$4 million = \$14 million). Many participants did provide evidence that they read the guidance as they mentioned VSOE, residual method, and the initial four criteria for revenue recognition. Overall, based on the manipulation-check results the overall experimental design appears successful.

**TABLE 9**  
**ANALYSIS OF REVENUE RECOGNITION DECISION BY ACCOUNTING STANDARD TYPE**  
**AND INCENTIVE CONDITIONS – SAMPLE EQUALS ALL PARTICIPANTS ANSWERING**  
**INCENTIVE MANIPULATION CHECK QUESTION CORRECTLY**

| <b>Panel A: Revenue Recognition Decision: Mean (Standard Deviation)</b> |                                     |                                    |                                     |
|---|-------------------------------------|------------------------------------|-------------------------------------|
| <b>Accounting Standard Type</b>   | <b>Incentive Condition</b>          |                                    |                                     |
|   | <b>No Incentive</b>                 | <b>Incentive</b>                   | <b>Overall</b>                      |
| Rules-based Standard<br>(U.S. GAAP)                                     | 11,813,463<br>(5,343,129)<br>n = 28 | 9,824,389<br>(5,148,536)<br>n = 18 | 7,486,462<br>(5,301,569)<br>n = 46  |
| Principles-based Standard<br>(IASB-FASB Model)                          | 11,224,000<br>(4,819,170)<br>n = 25 | 9,134,804<br>(5,408,608)<br>n = 20 | 10,295,468<br>(5,138,293)<br>n = 45 |
| Overall   | 11,535,414<br>(5,062,681)<br>n = 53 | 9,461,449<br>(5,227,110)<br>n = 38 | 10,669,363<br>(5,080,669)<br>n = 91 |

### **Familiarity with Standards and Judgment Required**

Additional data was requested from the participants to determine the amount of time the participant's spend in their professional responsibilities working with revenue-recognition decisions, their perception of the level of judgment required to answer the case question, their familiarity with revenue-recognition accounting guidance, and principles-based accounting standards (see Table 10). While, approximately 28% of the participants' job-related responsibilities deal with revenue recognition, U.S. GAAP revenue-recognition standards are inconsistent across industries and depending on the industry the standards can be complicated (e.g., software industry). Therefore, although more than a quarter of the participant's job responsibilities include revenue-recognition; they may be accustomed to applying different accounting guidance.

**TABLE 10**  
**FAMILIARITY WITH PRINCIPLES-BASED STANDARDS AND JUDGMENT REQUIRED**

| Table 10<br>Familiarity with Principles-based Standards and Judgment Required                     |                             |                               |                        |                          |                              |                         |       |
|---|-----------------------------|-------------------------------|------------------------|--------------------------|------------------------------|-------------------------|-------|
|   | U.S. GAAP -<br>No Incentive | U.S. GAAP -<br>With Incentive | IFRS -<br>No Incentive | IFRS -<br>With Incentive | Total U.S. GAAP<br>Scenarios | Total IFRS<br>Scenarios | Total |
| Approximate percentage of job responsibilities related to revenue recognition                     | 34%                         | 35%                           | 35%                    | 22%                      | 35%                          | 21%                     | 28%   |
| Amount of judgment required   | 4.29                        | 4.09                          | 4.47                   | 4.40                     | 4.18                         | 4.44                    | 4.31  |
| Familiarity with U.S. GAAP revenue recognition  | 5.13                        | 5.55                          | 5.56                   | 4.34                     | 5.34                         | 4.98                    | 5.17  |
| Familiarity with IFRS revenue recognition   | 3.27                        | 3.42                          | 3.81                   | 3.10                     | 3.35                         | 3.48                    | 3.41  |
| Familiar with principles-based standards  | 77%                         | 79%                           | 81%                    | 77%                      | 78%                          | 79%                     | 79%   |
| Believe financial statements prepared using principles-based standards provide better information | 4.13                        | 4.56                          | 4.56                   | 4.04                     | 4.35                         | 4.14                    | 4.25  |

Participants were asked how familiar they were with U.S. GAAP and IFRS revenue- recognition guidance. On a 1 to 7 Likert scale with 1 being “Not at all Familiar” and 7 being “Extremely Familiar,” the participants’ average response was 5.17 (U.S. GAAP) and 3.41(IFRS) indicating more familiarity with U.S. GAAP revenue guidance and less than somewhat familiar with IFRS. Also interesting is that 79% of all respondents were familiar with principles-based standards. Of those who indicated they were familiar with principles-based standards, the participants were asked if they believed financial statements prepared using principles-based standards would provide better information. On a 1 to 7 Likert scale with one being “Strongly Disagree” and 7 “Strongly Agree,” the mean was 4.25 indicating they somewhat agree but not strongly agree that financial statements prepared under principles-based standards will result in better information.

#### *Judgment Required*

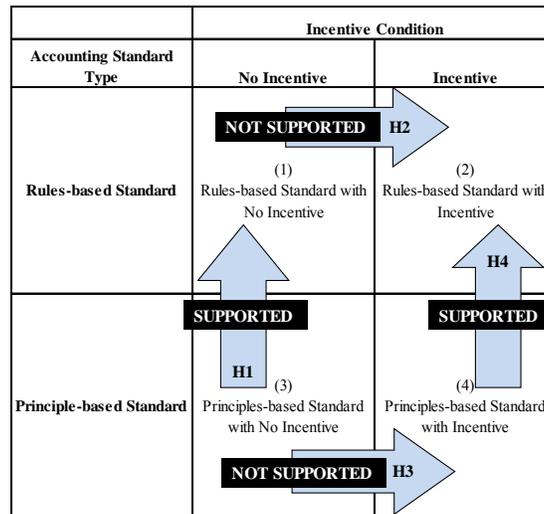
After reviewing the accounting guidance and recommending a revenue amount to recognize for the current year, the participants were asked their perception on the required amount of judgment to determine the recommended revenue after review of the accounting guidance. On a Likert scale of 1 to 7 with 1 representative of “No Judgment” and 7 “Significant Judgment,” the average response for participants in the rules-based scenarios and principles-based scenarios was 4.18 and 4.44, respectively. An independent t-test of the two responses showed there was not a significant difference in the amount of judgment required (p-value was .15). This is interesting to note as the participants indicated “some judgment” was required while “significant judgment” was not required, yet so few participants correctly answered the revenue amount and neglected to apply the guidance fully.

#### **Summary**

Overall, H<sub>1</sub> and H<sub>4</sub> were supported. Financial statement preparers applying rules-based standards in a revenue-recognition scenario provide less accurate revenue decisions than when applying a principles-based scenario. H<sub>2</sub> and H<sub>3</sub> were not supported. It did not appear that a personal incentive influenced the financial statement preparers in their revenue-recognition decisions. It was surprising to note that in the

rules-based and principles-based scenarios where a personal incentive was not present, the mean recommended revenue amounts were higher.

**FIGURE 3**  
**SUPPORTED HYPOTHESES – ACCOUNTING STANDARD TYPE VERSUS INCENTIVE CONDITION**



## SUMMARY AND CONCLUSION

### Research Findings

This study examined whether the quality of financial statements would be improved as a result of the anticipated convergence of U.S. GAAP with IFRS as reflected in the IASB-FASB Exposure Draft: *Revenue from Contracts with Customers*. The study examined financial managers' revenue-recognition decision under a principles-based accounting standard compared to a rules-based accounting standard with and without a personal incentive to maximize revenue for each standard. The research provides important information of particular interest to practitioners setting entity strategy, regulators, and standard setters in their finalization of a revenue recognition model. It is inconclusive whether the quality of the financial statements, at least as it pertains to revenue recognition will be improved. Based on the wide range of responses provided by the participants, the results indicate the difficulty in applying both the rules-based as well as the principles-based standard to a fairly simple software revenue transaction and show how experienced financial managers can interpret the guidance inconsistently and calculate different answers. Moreover, the research provides evidence for the factors that influence financial statement preparers in their decision-making process. Based on the decisions the financial managers made and the factors influencing their decisions, it appears standard-setters need to provide significant implementation guidance and examples for principles-based standards. Furthermore, an objective of the joint revenue-recognition project is to improve comparability. The revenue decisions made by the seasoned financial managers varied and application of the guidance was inconsistent. For U.S. GAAP software revenue-recognition rules-based standards, the guidance is bogged down with exceptions, criteria, and if statements and proved extremely difficult to apply.

A most striking result was the variability in the recommended revenue to be recognized. The four samples (n=127) were comprised of participants with 20-years average experience, 82% were Directors/Managers or higher, and all had financial-statement preparation experience. Only four of 65 participants in the rules-based scenarios correctly recommended \$2 million should be recognized.

Thirteen of 65 recommended the full amount, \$18 million (mode value), be recognized. The lack of accuracy may have been how the participants interpreted and applied the accounting guidance. The accounting guidance stated:

Revenue shall be recognized when **all** of the following criteria are met:

- a. Persuasive evidence of an arrangement exists
- b. Delivery has occurred
- c. The vendor's fee is fixed or determinable
- d. Collectability is probable

The second paragraph addressed the accounting treatment if a multiple-element arrangement agreement exists. The third paragraph addressed the accounting treatment if a discount exists. Additional guidance was presented on applying the residual method and lastly some exceptions were noted. From responses provided by the participants on their assumptions and factors that influenced their decision, most of the responses indicated the delivery of the software package and/or a signed contract to recognize revenue. It appears likely their decision process was biased towards the first paragraph along with academic training where the predominant justification for recognizing revenues is when they are realized (i.e., delivered) and earned (i.e., the company has accomplished what it must do to be entitled to the benefits: that is, delivery and installation) along with the criteria stated above. None of the participants in the rules-based conditions indicated they worked in the software industry and were likely unaware of the industry-specific accounting guidance. Some participants stated the maintenance and support were free services and no revenue would be associated with those services. While only a couple of pages, the accounting guidance may have been overly complicated for the participants to read and apply. The guidance included various criteria, if this..., then apply this treatment, as well as exceptions (typical characteristics of rules-based standards). In reality, the U.S. GAAP accounting guidance on revenue-recognition is substantial and voluminous.

Similar to the rules-based responses, the principles-based responses were varied. In the principles-based conditions the accounting guidance was a couple of pages which opened with the following statement:

To apply the proposed guidance, an entity shall:

- a) Identify the contract(s) with a customer,
- b) Identify the separate performance obligations in the contract,
- c) Determine the transaction price,
- d) Allocate the transaction price to the separate performance obligation, and
- e) Recognize revenue when the entity satisfies each performance obligation.

Following this information there were paragraphs describing what a performance obligation is, when the performance obligation is satisfied, how to measure revenue, how to determine transaction price, and how to allocate the transaction price to the performance obligations. The principles-based guidance did not contain "if this, then do this" type statements or exceptions. Several individuals cited the accounting guidance was a major factor in how they determined the recommended revenue. However, it appeared the participants did not correctly apply the guidance particularly with the allocation of the transaction price to the separate performance obligations. Additionally, based on comments which the participants provided on their assumptions and factors influencing their revenue-recognition decision, the participants used past accounting knowledge related to revenues and attempted to fit what they knew and were comfortable with for revenue recognition into the proposed guidance.

Prior research examining decisions made when applying a principles-based standard compared to a rules-based standard generally support principles-based standards. Past studies found that when applying a principles-based standard, financial managers' decisions were not made in line with incentives nor did their decision lead to unfair financial reporting (Psaros & Trotman, 2004; Psaros, 2007; Jamal & Tan,

2010; Tsakumis, Doupnik, Agoglia, 2009). The results of this study provide marginal support consistent with prior research. The results indicate that financial managers applying a rules-based standard in a revenue-recognition scenario made less accurate revenue-recognition decisions than in a principles-based scenario. Faced with a bonus-based, personal incentive to recognize more revenue in the current period, in both principles-based and rules-based conditions, financial managers did not make decisions aligned with their personal incentives. This may be attributed to the participants recognizing the incentive and consequently making conservative revenue decisions. Recent accounting scandals (e.g., WorldCom, Enron), legislation in response to the scandals (i.e., Sarbanes-Oxley Act), and loss of public confidence may have heightened the participants awareness to the incentive. Indeed, some participants recognized an incentive was present and noted: “the most important factor was ensuring the integrity of the revenue amount,” “the correct answer is the same regardless of bribery,” and cited “conservatism” is a factor. Perhaps with many of the accounting scandals in recent past still fresh in the minds of individuals, the participants may have been more aware of the presence of the incentive and the requirement for objectivity in their decision.

This study used experienced financial managers and contributed in the area of rules-based and principles-based accounting standards as well as a bonus-based incentive. The study provided evidence on how experienced financial managers apply guidance and make a revenue-recognition decision. The study also demonstrated how difficult it is to apply accounting standards whether rules-based or principles-based. Experienced financial managers can take one, fairly simple transaction, recognize various amounts, and rationalize and support their calculations. *Could this practice be occurring in the real world with managers justifying their decisions to auditors?* While everyone has the same set of accounting standards it appears interpretation and application is inconsistent and difficult whether principles-based or rules-based. The findings suggest the importance of implementation guidance and examples. One logical explanation of the findings might be that for the U.S. based standards, participants may have opened the accounting guidance and quickly saw some familiar guidance and then closed the document and continued the case not realizing there was industry-specific guidance. One uniform principles-based revenue-recognition standard applicable to all industries would eliminate inconsistencies and the need to be aware of industry-specific guidance.

### **Limitations**

One limitation of the research is that the participants were provided with restricted information to make their revenue-recognition decision. They were unable to ask questions to clarify issues for example, some participants made assumptions about warranties expenses, and contra revenue accounts. Further, case experiments are difficult to replicate the real world pressures from personal incentives in a case. In reality, financial managers are faced with multiple personal incentives.

A second limitation related to the accounting guidance. While participants were told to use and apply the guidance, there was nothing that ensured they used the guidance. Consequently, participants may have felt like they knew the accounting guidance and therefore did not fully read the guidance.

A third limitation was the geographic sample was limited to the United States.

### **Future Research**

As one of first studies on revenue-recognition decisions under U.S. guidance and IFRS, the study provides guidance for future research in the IFRS arena. Future research should continue to explore how financial managers interpret and apply accounting standards. This research can explore further how managers evaluate and process accounting guidance. Additionally, it would be noteworthy to examine multiple personal incentives in one case to see if one incentive has more influence on biasing a financial statement preparers decisions over another type of personal incentive.

Future research can also explore the impact of incentives on international preparers and investigate how domestic and international auditing practices will modify to accommodate principles-based standards.

## Conclusion

The results indicate experienced financial statement preparers applying rules-based standards in a revenue-recognition scenario provide less accurate revenue decisions than when applying a principles-based scenario; however, in both accounting standards scenarios very few participants correctly answered the revenue amount to be recognized. Moreover, the results did not show that a personal incentive influenced the financial managers in their revenue-recognition decisions. Surprisingly, in the rules-based and principles-based scenarios where a personal incentive was not present, the mean recommended revenue amounts were higher. In providing the amount of judgment required to determine the revenue to be recognized, there was not a statistically significant difference in the amount of judgment required between participants applying rules-based standards and participants applying principles-based standards. Overall, the participants stated there was a little more than “Moderate Judgment” required for both the rules-based and principles-based guidance. The means of both rules-based and principles-based participants indicated some judgment even though no significant judgment was required. This is interesting to note that so few participants correctly answered the revenue amount and neglected to apply the guidance fully.

This study was a step towards understanding how financial managers apply guidance and make a revenue-recognition decision. It is still unclear if a rules-based standard or principles-based standard improves the quality of financial reporting. It appears that financial managers recognize an incentive in a case study and are not influenced to make an aggressive decision.

## REFERENCES

- Altamuro, J., Beatty, A. L., & Weber, J. (2005). The effects of accelerated revenue recognition on earnings management and earnings informativeness: Evidence from SEC staff accounting bulletin no. 101 *The Accounting Review*, 80(2), 373-401.
- Bennett, B., Bradbury, M., & Prangnell, H. (2006). Rules, principles and judgments in accounting standards. *Abacus*, 42(2), 189-202.
- Benston, G. J., Bromwich, M., & Wagenhofer, A. (2006). Principles- versus Rules-based Accounting Standards: The FASB's Standard Setting Strategy. *Abacus*, 42(2), 165.
- Boiney, L. G., Kennedy, J., & Nye, P. (1997). Instrumental bias in motivated reasoning: More when more is needed. *Organization behavior and human decision processes*, 72(1), 1-24.
- Caylor, M. (2010). Strategic revenue recognition to achieve earnings benchmarks. *Journal of Accounting and Public Policy*, 29(1), 82.
- Clor-Proell, S., & Nelson, M. (2007). Accounting Standards, Implementation Guidance, and Example-Based Reasoning. *Journal of Accounting Research*, 45(4), 699.
- Financial Accounting Standards Board. (2002a). Proposal, principles-based approach to U.S. standard setting, from [http://www.fasb.org/project/principles-based\\_approach.shtml](http://www.fasb.org/project/principles-based_approach.shtml).
- Financial Accounting Standards Board. (2002b). Norwalk Agreement, from [http://www.fasb.org/cs/ContentServer?c=Document\\_C&pagename=FASB%2FDocument\\_C%2FDocumentPage&cid=1218220086560](http://www.fasb.org/cs/ContentServer?c=Document_C&pagename=FASB%2FDocument_C%2FDocumentPage&cid=1218220086560).
- Financial Accounting Standards Board. (2008). Completing the February 2006 Memorandum of Understanding: A Progress Report and Timetable for Completion.
- Healy, P. M. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics*, 7, 85-107.
- Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, 13(4), 365-383.
- Hunton, J. E., Libby, R., & Mazza, C. L. (2006). Financial Reporting Transparency and Earnings Management. *The Accounting Review*, 81(1), 135.
- International Accounting Standards Board. (2008). Discussion paper London, UK: IASB.
- International Accounting Standards Board. (2010). Exposure Draft: Revenue from Contracts with Customers. London: IASB Retrieved from Retrieved from

<http://www.ifrs.org/NR/rdonlyres/EFA36EF7-238C-4C88-9C36-D6AACEB7762F/0/EDRevRecogSt0610.pdf>.

- Jamal, K., & Tan, H. (2010). Joint effects of principles-based versus rules-based standards and auditor type in constraining financial managers' aggressive reporting. *The Accounting Review*, 85(4), 1325-1346.
- Libby, R., Bloomfield, R., & Nelson, M. (2002). Experimental research in financial accounting. *Accounting, Organizations and Society*, 27(8), 775.
- Maines, L. A., Bartov, E., Fairfield, P., Hirst, D. E., & et al. (2003). Evaluating concepts-based vs. rules-based approaches to standard setting. *Accounting Horizons*, 17(1), 73.
- Nelson, M. W. (2003). Behavioral evidence on the effects of principles- and rules-based standards. *Accounting Horizons*, 17(1), 91.
- Nelson, M. W., Elliott, J. A., & Tarpley, R., L. (2002). Evidence from Auditors about Managers' and Auditors' Earnings Management Decisions / DISCUSSION OF Evidence from Auditors about Managers' and Auditors' Earnings Management Decisions. *The Accounting Review*, 77, 175.
- Psaros, J. (2007). Do principles-based accounting standards lead to biased financial reporting? An Australian experiment. *Accounting and Finance*, 47(3), 527-550.
- Psaros, J., & Trotman, K. T. (2004). The impact of the type of accounting standards on preparers' judgments. *Abacus*, 40(1), 76-93.
- Schipper, K. (2003). Principles-based accounting standards. *Accounting Horizons*, 17(1), 61.
- Shortridge, R. T., & Myring, M. (2004). Defining Principles-Based Accounting Standards. *The CPA Journal*, 74(8), 34.
- Tsakumis, G.T., Douppnik, T.S., & Agoglia, C.P. (2011). Principles-based versus rules-based accounting standards: The influence of standard precision and audit committee strength on financial reporting decisions. *The Accounting Review*, 86(3), 747-767.
- Watts, R. L., & Zimmerman, J. L. (1986). *Positive Accounting Theory*. Upper Saddle River, NJ: Prentice-Hall, Inc.
- Wüstemann, J., & Wüstemann, S. (2010). Why Consistency of Accounting Standards Matters: A Contribution to the Rules-Versus-Principles Debate in Financial Reporting. *Abacus*, 46(1), 1.