



Financial statement risk assessment following the COSO framework

An instructional case study

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Abstract

Purpose – The purpose of this paper is to teach students the fundamental and most critical aspects of performing a financial statement risk assessment, a skill vital to help ensure both auditor and public-company compliance with guidance found in the Sarbanes-Oxley Act of 2002 (SOX), the SEC's Interpretative Guidance regarding Management's Report on Internal Control over Financial Reporting, the control deficiency evaluation framework found in Auditing Standard No. 5 (AS5) of the Public Company Accounting Oversight Board (PCAOB), and the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Design/methodology/approach – This instructional case study helps students assess the impact of a set of hypothetical internal control deficiency risks in various industries, including inherent and residual financial statement risk assessment, and concludes with determining which identified internal control weaknesses are significant deficiencies and material weaknesses in internal control. Included in the financial statement residual risk assessment process are example entity-level and process-level controls described in COSO. Learning objectives, implementation guidance, and the efficacy of using the case study in the undergraduate or graduate auditing or accounting information systems courses are also provided.

Findings – The results of classroom testing of the case study at two universities provides evidence the case study increases student understanding of the implications of internal controls and their impact on the reliability of the financial statements significantly. Students also found the case to be challenging, interesting, relevant, clear, understandable, and a realistic approximation of what they might expect to encounter in the real-world when performing a financial statement risk assessment.

Originality/value – The case study includes the development of skills important to students in performing financial statement risk assessments, either as an auditor or when working in a private industry environment, including making professional judgments related to risk assessment.

Keywords United States of America, Financial reporting, Risk assessment, Sarbanes-Oxley, Accounting, Information systems, Financial statement risk assessment, Entity-level controls, Process-level controls, Internal controls

Paper type Research paper



1. Introduction and literature review

It is challenging for students taking accounting information systems (AIS) or auditing courses at the undergraduate or graduate level to envision how to apply the internal control topics and concepts learned in real-world company-related situations, especially at the entity and process internal control levels found in Committee of Sponsoring

Organizations of the Treadway Commission (COSO). At this early stage of accounting course work, it is also rare for students to be involved in a comprehensive risk assessment evaluation of financial statements that includes the use of these controls to mitigate inherent and residual risk assessments before and after audit testing results. Nevertheless, it is important for students in upper division accounting courses to begin to understand the real-world importance of the concept of financial statement risk assessment, as well as the relationship of financial statement risk assessment, to the rules, laws, and regulations established over the past decade by Sarbanes-Oxley Act (SOX), the Public Company Accounting Oversight Board (PCAOB), and the Securities and Exchange Commission (SEC).

Research examining the topical coverage for the most widely-used AIS course textbooks and related instructor syllabi suggests internal controls are one of the major topics receiving the widest course coverage (Bain *et al.*, 2002). In connection with this research, surveys of both AIS teaching faculty and business professionals found agreement between these two constituencies on the need for placing greater importance and emphasis on teaching internal controls in the first AIS course.

Simultaneously, this case study is also designed to help meet several of the learning objectives for students as defined under the personal, functional, and broad business perspective competencies in the AICPA's *Core Competency Framework for Entry into the Accounting Profession* (AICPA, 2009). These include developing:

- problem-solving and decision-making abilities;
- the ability to interact and work with others in a business setting in a diversity of roles;
- the ability to communicate both financial and non-financial information;
- project management skills;
- research skills;
- an industry/sector perspective; and
- strategic/critical thinking.

Also, "critical thinking, communication, and interpersonal skills are critical to professional accounting success" (Miller and Stone, 2009, p. 265). Finally, the number and types of internal control weaknesses have been found to be important determinants of whether firms remediate such weaknesses in subsequent annual report filings (Chan *et al.*, 2009), again stressing the importance of the teaching of these skills to students early in their education.

At the same time, as a result of the fallout from the ongoing economic crisis since 2008, both the SEC and the PCAOB have issued rules and proposed standards pertaining to the need for increased disclosure regarding company-level risk management policies. The SEC passed Rule 3235-AK28, effective February 28, 2010, requiring firms to disclose the Board of Directors' role in risk management oversight in detail in their proxy statements. On December 17, 2009, the PCOAB proposed again for comment seven auditing standards and related amendments, originally proposed on October 21, 2008, which collectively would revise the requirements for assessing risk in a financial statement audit. Credit rating agencies such as Standard & Poor's are also focusing on firms' risk management processes in developing credit ratings, which are important for companies wishing to access the capital markets.

The managerial implications, both for private industry and public accounting firms hiring these future graduates, of utilizing such a case study in the accounting curriculum are therefore important. This case provides students with a top-down view, initially, of both the importance and challenges management faces in performing financial statement risk assessments, as well as providing students with, as the case study evolves, a bottom-up application of a set of hypothetical internal control strengths and weaknesses to a firm's set of financial statements, including reaching conclusions at the end of the case study on whether material weaknesses may exist in a firm's internal controls which could impact the financial statements.

2. The case study itself

2.1 Objectives

The objective of the case study is to provide students with the opportunity to learn the fundamental and most critical aspects of performing a financial statement risk assessment similar to that recommended by the SEC's Interpretive Guidance regarding Management's Report on Internal Control over Financial Reporting under the Securities and Exchange Act of 1934.

This case study provides students with the opportunity to perform a financial risk assessment first hand. Using real-world, publicly-listed companies, students are required to identify financial statement risks and apply information regarding internal controls to potentially mitigate those risks. The case study is aligned to perform a financial statement risk assessment in accordance with the Sarbanes-Oxley Act of 2002; however, the approach used in this case study is one of many potential options both the management of the firm and its external auditors have available to achieve compliance with SOX.

As student groups work through the case study, they identify and assess potential inherent risks, customize an internal control portfolio to mitigate those risks (using an inventory of internal controls provided by the instructor as part of the case), assign residual risk ratings in light of the results of audit testing of the internal controls selected, and evaluate the severity of each control deficiency following the control deficiency evaluation framework found in Auditing Standard No. 5 (AS5) of the PCAOB (2007).

2.2 Case study documents

Students must obtain the following documents for posting to the group page of their course-related learning management system (LMS):

- The most recent Form 10K for the chosen firm in the related industry.
- PCAOB AS5 (www.pcaob.org/Rules/Rules_of_the_Board/Auditing_Standard_5.pdf).
- The SEC's interpretative Guidance regarding Management's Report on Internal Control over Financial Reporting under Section 13(a) or 15(d) of the Securities and Exchange Act of 1934 (www.sec.gov/rules/interp/2007/33-8810.pdf).

The instructor posts the following documents to the students' group page on the LMS:

- (1) *Financial Statement Analysis and Risk Assessment Worksheet*.
- (2) A list of five specific *Control Deficiencies* found in the prior year's audit.
- (3) *COSO Entity-Level and Process-Level Controls Worksheet*.

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- (4) *Deficiency Evaluation Framework*, including-related decision trees.
 - (5) *Framework Workpaper – A Summary of Internal Control Deficiencies and the Rationale for Evaluating Deficiencies*.
 - (6) A generic sample of a *Financial Statement Risk Assessment Memo*.

(Note that items (1)-(3) are unique to each industry, while items (4)-(6) are identical for each industry.)

The instructor provides students with access, either in the instructor's office or through library reserve, to the following general reference publications:

- *Internal Control – Integrated Framework* (COSO, 1992).
- *Enterprise Risk Management (ERM) – Integrated Framework* (COSO, 2004).

2.3 Overview of the case study assignment

Each student group, consisting of a maximum of five students, is assigned an industry from the following list:

- airline;
- automotive retail;
- healthcare;
- manufacturing;
- mining;
- retail;
- software; or
- wholesale technology.

Once each group has their Industry assignment, they select a publicly-listed company from that industry and submit the name to the instructor for approval. Each group then downloads their company's most recent Form 10K filing and stores it on the group page in the LMS. As a rule, the Form 10K filing is accessible using links provided on the *Investor's* page of the company's web site or from the SEC's EDGAR database (www.sec.gov/edgar.shtml).

The first part of the case study is an important component of the study. In this section, students are required to read about and study their company and its Industry; the more students learn about both, the better they will be able to address the specific questions of financial statement risk throughout the entire case study. For example, item 1A in a Form 10K filing describes risk factors; item 1B discusses unresolved SEC staff comments between the company and the SEC (if any); item 7 is management's discussion and analysis; item 7A is quantitative and qualitative disclosure about market risk; item 8 contains the financial statements and supplementary data; item 9 contains changes in and disagreements with accountants on accounting and financial disclosures; and item 9A contains controls and procedures, including both Management's and the Auditor's Reports on Internal Control. Each of these sections of the Form 10K, therefore, is a source of information related to potential financial statement risk for the subject company.

After the study period, each group then performs a financial statement risk assessment of their chosen company and documents the results of their work, including the conclusions reached using the *Financial Statement Analysis and Risk Assessment Worksheet*. Throughout the first part of the risk assessment, each group assesses the risk(s) that resides within the company at the financial statement line item level before considering the presence of any internal controls; this is referred to as *Inherent Risk*.

In the second part of the case study, each group builds upon their initial financial statement inherent risk assessment by considering the specific attributes of risk identified and how each risk would affect the financial statements in conjunction with various COSO entity-level and process-level controls (PLCs) in place at the firm. The instructor provides each group with a *COSO Entity-Level and Process-Level Controls Worksheet* containing the control details for each internal control in place at the firm and information on whether each specified internal control is effective after audit testing. The risk remaining in the financial statements after considering the audit testing results of the various COSO entity-level and process-level controls is the *Residual Risk*.

In the last part of the case study, in light of what each group has learned and agreed upon during the duration of the case study, each group determines which, if any, internal control deficiencies noted should be categorized either as *Significant Deficiencies* or *Material Weaknesses* in internal control.

Following is a description of the case study, broken down into five phases.

Phase 1. Preparation of the Financial Statement Analysis and Risk Assessment Worksheet. Using the documents provided by the instructor and following the steps listed below, each group prepares the *Financial Statement Analysis and Risk Assessment Worksheet* for their selected company, completing all unshaded cells on the worksheet. In order to prepare the *Financial Statement Analysis and Risk Assessment Worksheet*, each group proceeds as follows:

- (a) First, students should familiarize themselves with the company's Form 10K (specifically, management's discussion and analysis, the financial statements, and the notes to the financial statements) and the *Control Deficiencies* document that is unique to each industry. Each group should develop a working understanding of their company's general business practices and processes, and how those practices and processes drive both the financial statement balances and the risks inherent to their chosen company. Each group then should fill in the financial statement amounts in column E of the worksheet from the latest audited consolidated financial statements of the company[1].

The *Control Deficiencies* document contains five control deficiencies noted during the most recent year-end audit of the related industry-specific company, the financial statement impact of each deficiency, and the potential financial statement line item(s) impacted by each deficiency[2].

- (b) Next, the group reviews each financial statement line item on the worksheet and determines the relevance of the assertions listed in the assertions covered columns as defined in AS5 (see columns G-K of the worksheet). Paragraph 14 of AU Section 326: Audit Evidence states:

[...] management is responsible for the fair presentation of the financial statements that reflect the nature of operations and that [...] management implicitly or explicitly makes

assertions regarding the recognition, measurement, presentation, and disclosure of information in the financial statements and related disclosures.

The assertions to be considered for each financial statement line item include completeness (C), existence (E), valuation (V), rights and obligations (R), and presentation and disclosure (P). On the worksheet, the group should indicate the letter H for high for each assertion that is highly applicable to the subject company's financial statements; for moderately applicable assertions, the assertion should be ranked M for moderate; and those assertions only tangentially applicable should be ranked L for low.

- (c) To assess the efficacy of internal controls and the accuracy of the recording of financial statement-related transactions and balances, the likelihood and potential effects of the relevant characteristics and attributes of each financial statement account are estimated. Each group, using the knowledge they obtain from the review of the Form 10K and the *Control Deficiencies* document, then analyzes the *Attribute Risk* (columns M-W of the worksheet) for each financial statement line item for their subject company for the potential of misstatement (M), the risk of control failure (C), or both (M, C). *Attribute Risk* for each financial statement item (columns M-W of the worksheet) includes considering the materiality[3] of the item; its transaction-related volume; the existence of any prior period adjustments made for the item; other risks; the item's susceptibility to fraud; the accounting complexity of the item; the judgments and estimates required of the item in preparing the financial statements; the level of automation; the system complexity; and the control environment surrounding the recording of the item. Each group should assign a high (H), moderate (M), or low (L) ranking, as appropriate, to each corresponding financial statement line item (columns M-W) for the *Attribute Risk*. In the column next to each *Attribute Risk*, a tick mark should be added that references the reasoning each group describes for their conclusions. A tick mark legend should be added to the *Financial Statement Analysis and Risk Assessment Worksheet* to document the reasoning behind the attribute risk assessment in some level of detail. As previously mentioned, to help guide each group's efforts and focus, each group is provided with suggested financial statement line item accounts related to each control deficiency in the *Control Deficiencies* document for their respective industry[4].
- (d) Using the completed *Assertions Covered* and *Attribute Risk* sections of the worksheet, each group then analyzes the *Financial Statement Assertions* (columns Y-AH of the worksheet), again considering the potential for misstatement (M) and the risk of control failure (C). The factors included in the *Financial Statement Assertions* columns include completeness, existence, valuation, rights and obligations, and presentation and disclosure; each factor is considered for both the potential for misstatement and the risk of control failure. Each group then assigns a high, moderate, or low ranking, as appropriate, to each Financial Statement Assertion. Once these rankings are complete, the group has finalized their subject company's *Inherent Risk Assessment* on a financial statement line item level basis and documented the results on the *Financial Statement Analysis and Risk Assessment Worksheet*.
- (e) Finally, each group reviews the COSO controls listed in the *COSO Entity-Level and Process-Level Controls Worksheet*. The group should determine which, if any,

of the entity-level controls[5] (ELCs) listed on the worksheet could mitigate the *Inherent Risk* associated with each financial statement line item. The ELCs are the controls each group would select for actual field audit testing for their subject company. Each group should document the ELC control number in the *Financial Statement Analysis and Risk Assessment Worksheet* column titled Applicable Entity-Level Controls (column AJ). Each group must utilize at least one ELC from each of the COSO components (control environment, monitoring, or control activities) listed in column C of the *COSO Entity-Level and Process-Level Controls Worksheet*. Note, it is possible for multiple ELCs to apply to each financial statement line item, or for one individual ELC to apply several line items; however, *a maximum of four ELCs should be selected for each financial statement line item*. After considering the COSO Entity-Level Controls in phase 3, the risk remaining in the financial statements is called the *Residual Risk*.

Phase 2. Preparation of the Financial Statement Risk Assessment Memo. Once the *Financial Statement Analysis and Risk Assessment Worksheet* is completed, the group then prepares a *Financial Statement Risk Assessment Memo*. This memo should be no more than three to four pages in length. To assist each group in the memo design, the instructor provides an illustrative, generic sample of the *Financial Statement Risk Assessment Memo*. The memo is to be addressed to the Audit Committee of the subject company. For all significant financial statement line items evaluated, the memo should explain the group's risk assessment process, specifically describing the results of their assessment of the *Attribute Risk and Inherent Risk* for their subject company. The memo also should document the rationale behind the selection of the specific ELCs deemed to be potentially mitigating to each risk. Those financial statement line items deemed "significant" must be deemed so by the group. The expectation is that all material line items correlated to the direct operations and results of the company will be included in the memo. Other financial statement line items should be included in the memo at each group's discretion. In their oral presentation, each group should be prepared to defend why certain subsets of line items or certain line items were not deemed significant in their review process.

Each group posts their *Financial Statement Analysis and Risk Assessment Worksheet* and the *Financial Statement Risk Assessment Memo* to the group page in the LMS no later than a date specified by the instructor. Within one or two days, the instructor provides written comments and feedback to each group on their submission, including a list of questions or items for each group to consider before moving to the next phase in the case study. This instructor review serves as a proxy for a review made by a senior audit manager on audits of a similar nature on work performed by junior-level audit staff.

The flowchart in Figure 1 provides a summary of phases 1 and 2 of the case study.

Phase 3. COSO entity-level and process-level controls results testing considerations. The instructor then releases the password for opening the remaining columns in the *Financial Analysis and Risk Assessment Worksheet*[6]. Remember, at this point, each group has made an *Attribute Risk* and an *Inherent Risk* assessment for each financial statement line item before considering the impact of the results of audit testing of the ELCs. The password opens five blank columns (columns AL-AP) on the right-hand side of the *Financial Statement Analysis and Risk Assessment Worksheet* containing the *Residual Risk* assessment for each of the Financial Statement Assertions

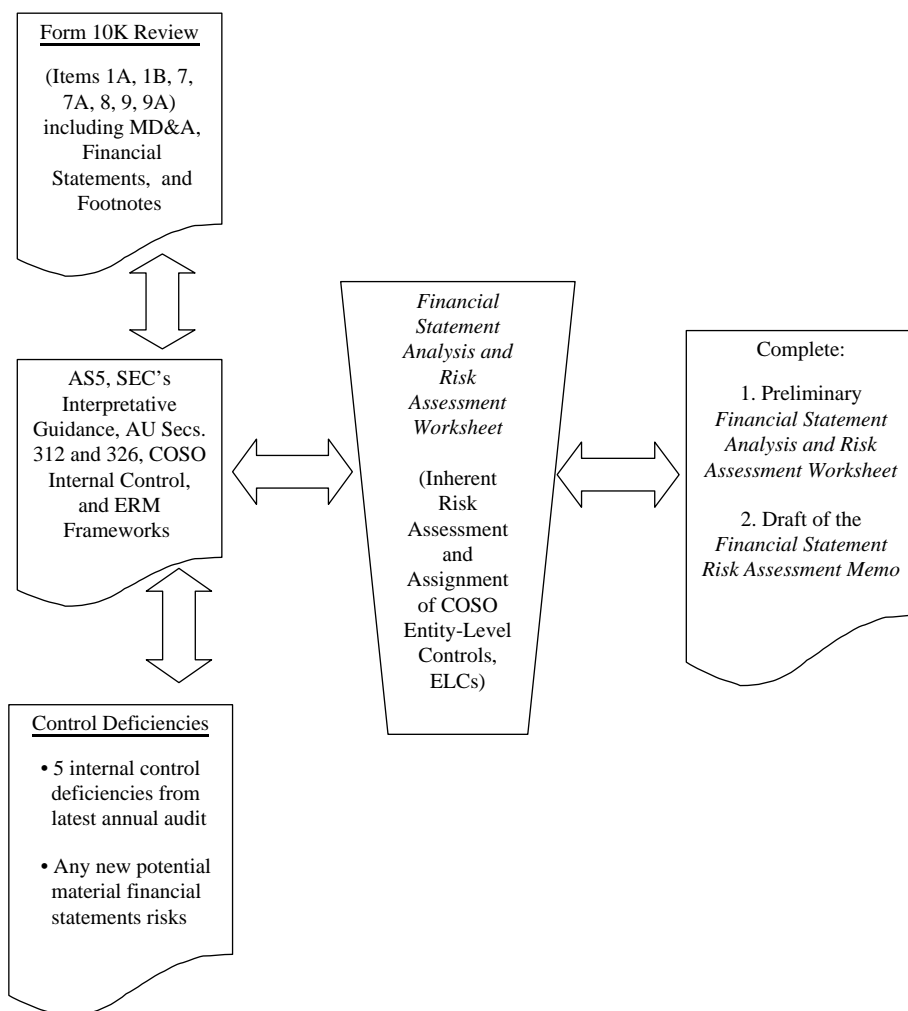


Figure 1. Case study preparation overview flowchart – phases 1 and 2

(including completeness, existence, valuation, rights and obligations, and presentation) as well as a final column (column AR) titled applicable PLCs.

In order to complete these new columns, each group first must review the results of the audit testing of the ELCs; at this time, the instructor provides the password to release the audit testing results on the *COSO Entity-Level and Process-Level Control Worksheet*. The results from the ELC audit testing hypothetically performed for the chosen company[7] is shown in column K, results of audit testing, and indicates which of the ELCs each group selected passed audit testing (“results-effective”) and which failed (“results-not effective”). Using these results, each group assesses the *Residual Risk* relevant to each financial statement line item by reassessing the Financial Statement Assertions to determine the extent to which the audit testing results of the selected ELCs mitigates the *Inherent Risk*. Each group then assigns a *Residual Risk* assessment to each

Financial Statement Assertion using the same high, moderate, and low rankings done previously, as deemed appropriate by the group.

At this point, certain financial statement line items may require PLCs[8]; the group should review the *COSO Entity-Level and Process-Level Controls Worksheet* and select the applicable PLC(s) to test for each financial statement line item. The group should also document the selected PLCs by indicating the applicable PLC number in column AR of the *Financial Analysis and Risk Assessment Worksheet*; at this point only financial statement line items with high or moderate residual risk require the assignment of PLC(s).

Note that if none of the PLCs in the *COSO Entity-Level and Process-Level Controls Worksheet* apply to a particular financial statement line item, the group should denote control to be determined (CTBD) in column AR of the worksheet[9].

Each group then should consider the audit testing results for the PLCs assigned to the high or moderate Residual Risk financial statement line items and decide if such results positively or negatively impact their final assessment of the residual risk existing in each particular financial statement line item.

Each group now has completed the *Residual Risk* assessment portion of the case study and moves on to the next phase of the process – determining whether a significant deficiency or material weakness in internal control exists in the company.

Phase 4. Determination of significant deficiencies or material weaknesses in internal controls. Each group now reviews the *Deficiency Evaluation Framework* document, which applies a decision tree to each of their company's five control deficiencies (as well as to any new control deficiencies identified by each group during the study) to determine if any particular control deficiency should be considered a significant deficiency or material weakness in internal control. The group then returns to the *Control Deficiencies* document to check each of the company's control deficiencies against the Internal Control Deficiency Framework found in the *Framework Workpaper*. Each step and decision in the framework should be considered carefully in light of the *Residual Risks* and the overall control environment, and must be thoroughly documented by each group according to the guidelines provided in the *Deficiency Evaluation Framework* and the *Framework Workpaper*. Many of the decisions each group makes will be conceptual, and will be guided by the overall impact attributed to the relevant financial statement line items documented in the *Financial Statement Analysis and Risk Assessment Worksheet*.

Each group should use the *Framework Workpaper* to document their final evaluation of each of the five control deficiencies, along with any new high-risk financial statement items documented in the group's financial statement risk assessment process.

Phase 5. List of group deliverables and group presentation guidelines. Approximately five days before the classroom presentation, each group posts to their LMS page the final list of group deliverables, which includes the following documents:

- *Financial Statement Analysis and Risk Assessment Worksheet.*
- *Financial Statement Risk Assessment Memo.*
- *Framework Workpaper.*
- Group PowerPoint® presentation.

- Any other supporting documentation to be used by the group during their classroom presentation.

The flowchart in Figure 2 provides a summary of phases 3-5 of the case study.

2.4 The group classroom presentation to the audit committee

Each group makes its presentation to the company’s Audit Committee, proxied by the course professor (including other faculty members of the accounting department) and/or a team of invited CPA firm audit professionals. The goal of the work performed by each group is to prepare the Audit Committee and management of the company for what the external auditor may discover during the impending year-end audit procedures. The presentation

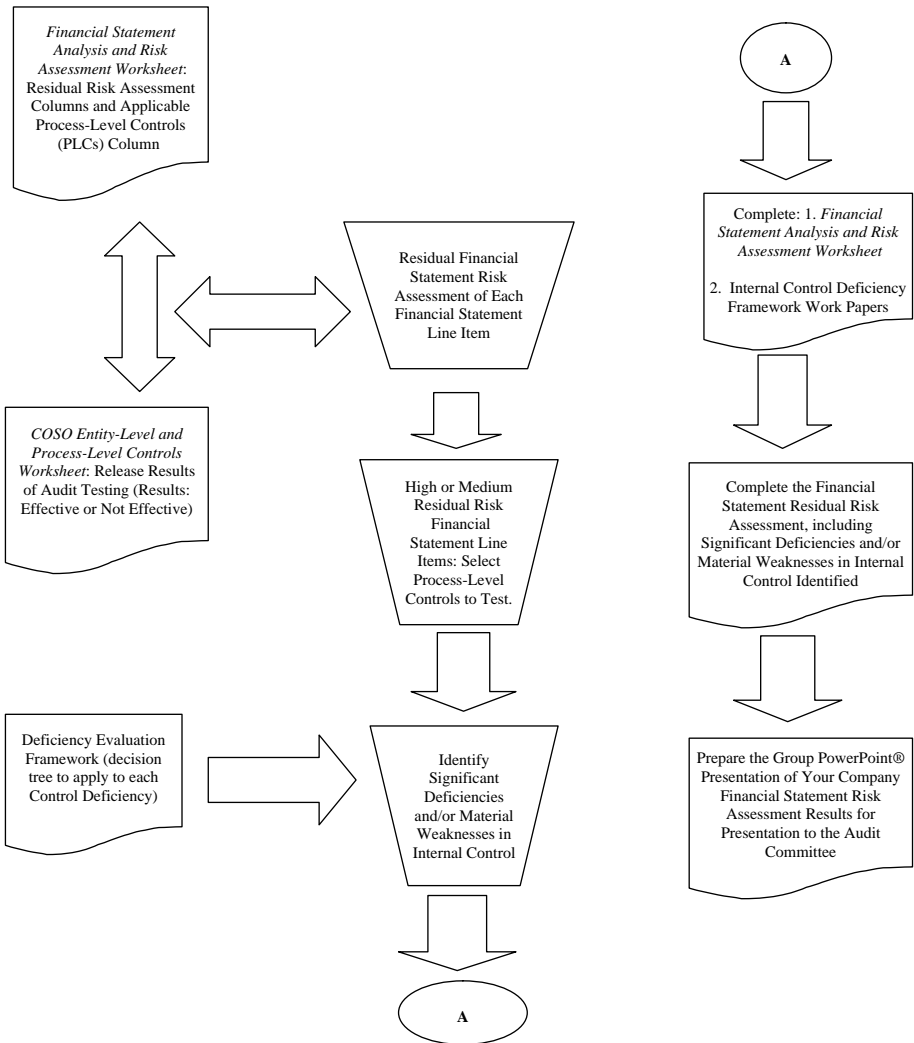


Figure 2. Case study preparation overview flowchart-phases 3, 4, and 5

also gives management and the Audit Committee of the company an opportunity to respond to identified potential material weaknesses in internal controls via changes in its internal control framework prior to the upcoming annual audit.

Each group is allowed 15-20 minutes for their presentation, and in that time must summarize the key points driving their final financial statement risk assessment, the selection of the appropriate ELCs and PLCs, and conclusions surrounding each significant deficiency and material internal control weakness. Each group must decide which key points of information should be presented to the Audit Committee. Each group member must speak during the presentation and demonstrate command of the details of the case study, the facts of the company studied, and the logic used in the various components of the risk assessment and deficiency evaluation process. Each presentation is followed by a five-minute Q&A period during which time the members of the Audit Committee ask questions. Each group is expected to anticipate the mock Audit Committee's questions and be prepared to answer them to the best of their ability.

A handout given by the instructor to students, with specific guidance regarding the Presentation Guidelines for the Audit Committee Presentation is given below.

COSO/Risk Assessment Group Project: Group Project Presentation Guidelines for the Audit Committee Presentation.

Background. You will be presenting the results of your COSO/risk assessment for your chosen company to the firm's Audit Committee, consisting of members of the Board of Directors, one of whom is required to be a "financial expert" in accordance with SOX.

This means that you do not need to present, for example, any background information on the company's business, past trends, industry characteristics, etc.; you can presume that the Audit Committee is aware of this type of information.

Please remember: you have 15 minutes to make your presentation, with every member of your group required to participate in the actual verbal presentation. I recommend using PowerPoint® to make your presentation. Your group should, of course, practice your presentation beforehand so that it moves smoothly and professionally from start to finish.

What should my group include in our powerpoint® slides?. The first slide should include your agenda: highlights of what you going to cover in your presentation.

You then should explain what you have done: a financial statement risk assessment, following COSO guidelines, the rules contained in AS5 (as well as AU Section 326 and the materiality guidelines found in AU Section 312), the rules of the SEC regarding management's responsibilities for reviewing the adequacy of internal controls, and ultimately to ensure the company meets the requirements of SOX in the preparation of its annual financial statements, including management's report on internal controls. The Process and Entity-Level Controls defined in COSO are an integral part of maintaining a system of internal controls within the company that reduce the risk that the company potentially may prepare and then issue fraudulent or materially misleading financial statements, etc.

You should explain that you performed the risk assessment using publicly-available information found in the firm's latest Annual Report and Form 10K (information available in such documents provided by your subject company's competitors) and using a list of five Control Deficiencies found in the most recent annual audit of the firm's financial statements. You should explain that after considering the results of audit testing related to the corresponding COSO Process and Entity-level Controls the firm has

for each important financial statement line item, the group made corresponding decisions for the Residual Financial Statement Risk Assessments. Remind the Audit Committee that your COSO Risk Assessment is not a complete audit, but the start of the annual risk assessment process, which is ongoing.

The Annual Report/10K information that you considered in making your risk assessment included the following sections of the 10K: (for example, item 1A, risk factors, item(s), etc.).

The group defines materiality for the purposes of the company as (for example, 5 percent of total assets, or 5 percent of net income). If your company had a loss in its latest 10K, materiality for the purposes of the company is the absolute value of the 5 percent.

You might present a slide with a condensed view of the most recent balance sheet and income statement, in numbers large enough for people attending the presentation to see. (Using the Excel worksheet I sent to you is not an option; it is too detailed and too difficult to read from the back of a room.) This will bring into focus those financial statement line items that are material and which line items potentially are not.

Next, you should address how your group, in performing the current financial statement risk assessment, dealt with each of the five Control Deficiencies from last year's audit; what the weaknesses were (describe them in simple terms, including what impact each weakness could have on the financial statements and include which specific financial statement accounts); which specific COSO-level controls the company has for each weakness that the group has identified; and what the results of the audit testing for each control were. For each of the five control deficiencies, you must discuss whether the group deemed any or all of the control deficiencies to be material weaknesses in internal control and why. If you found in your review any other control deficiencies outside of the five Control Deficiencies, describe such deficiencies in the same level of detail, including your final conclusions regarding these other control deficiencies (i.e. are they material weaknesses?).

Make sure you have a very concise, summarized conclusion at the end of your presentation. You want to leave the Audit Committee with the impression that you know what you are doing. The Audit Committee should know where, in the group's opinion, material weaknesses may exist in internal control that could impact the reliability of the firm's financial statements in the upcoming audit. By focusing on the material weaknesses, the Audit Committee then can discuss with management how to implement existing or additional process-level and entity-level controls to reduce the potential impact of such weaknesses identified by your group on the financial statements.

How long should the presentation be (in terms of the number of pages)? About 15-20 slides. Make sure you leave 5 minutes at the end of your presentation for questions.

3. Case study motivations and implementation guidance

3.1 Motivations

The prudent identification and effective management of risk are both difficult and essential for management in firms. The motivation for this case is to provide students the opportunity to consider and respond to risks associated with the composition and presentation of financial statements. In this case study, students are asked to make numerous judgments and estimates regarding financial statement risk, both before and after audit testing results, for entity-level and process-level controls that can reduce identified financial statement risks. Many accounting classes focus on the application

of specific rules to solve problems; this case study takes students out of their “comfort” zones and tests their ability to make judgments in cases where the immediate answer is not as obvious. Using the many internal control topics and concepts learned in AIS or in auditing courses, students are asked to perform a financial statement risk assessment in a real-world company specific situation, using a hypothetical set of internal control deficiencies that impact various financial statement (both balance sheet and income statement) line items.

Many AIS and auditing courses tend to be broad in nature – this case study allows the instructor to delve deeply with students into internal controls and financial statement risk assessment for a specific company in a specific Industry, and involves groups of students working together to determine ultimately if identified weaknesses in internal control potentially could result in financial statement misstatements.

The case also requires students to present their results to third parties (the Audit Committee and others, including the instructor), both orally and in writing, in a business-like setting that simulates what they might expect to experience in the real-world.

Finally, although students are provided with informative guidance regarding potential attribute, inherent, and residual risks, as well as potential mitigating controls, the case also contains an important element of ambiguity, requiring each group to formulate, justify, and present their conclusions regarding their own internal control assessment. Since internal control assessment occurs frequently in juxtaposition with limited resources and incomplete information, we believe from a pedagogical perspective that this case provides a realistic example of the unique cost-benefit thought process that future accounting graduates may require in evaluating and addressing financial statement risk.

3.2 Instructor implementation guidance

Instructors may consider using the case study either in undergraduate or graduate-level AIS or auditing courses[10]. Originally, the case necessitated the assistance of CPA firm audit professionals, though such assistance is not required, depending upon the judgment and experience of the instructor. The authors chose to test the case study in the undergraduate introductory AIS course at two different universities. The case is designed to be virtually paperless using the universities’ LMS for all case study materials, working paper drafts, and final student case study deliverables.

The overall purpose of the instructor’s introduction of the case study is to ensure students become familiar with the case study and the final deliverables required upon completion of the case. The introduction also emphasizes the importance of each group’s reading and understanding of the implications of AS5 and the SEC’s Interpretative Guidance on Internal Controls and related Financial Statement Risk Assessment.

The case study is given to students during the last third of the semester, approximately 30-40 calendar days before the semester ends. The instructor asks students to read the case study before a designated class meeting. By the time the case study is distributed, the instructor generally has covered the following major topical areas in the introductory AIS course[11]:

- (1) An overview and introduction to AIS.
- (2) System development and documentation techniques, including flowcharting and data flow diagramming.

- (3) Computer fraud and abuse.
- (4) Internal controls and AIS, including:
 - an overview of SOX (covering the requirements of Section 302, Corporate Responsibility for Financial Reports, and Section 404, Management Assessment of Internal Control of SOX);
 - the role of the PCAOB;
 - the COSO Internal Control Framework;
 - the COSO ERM framework;
 - the control objectives for information and related technology (COBIT) framework;
 - the internal environment components of COSO's internal control and ERM frameworks;
 - the risk assessment and risk response components of COSO's ERM model;
 - the control activities component of COSO's ERM model; and
 - an introduction to entity-level and process-level controls.
- (5) Illustrations of the importance of internal controls in firms, especially entity-level controls, through handouts and classroom discussions of short case study materials related to the Enron, Waste Management, and the WorldCom frauds. These are found in the Thibodeau and Freier (2007) book of illustrative fraud and inherent financial statement risk assessment cases, which include questions at the end of each case related to the applicable paragraphs of AS5.
- (6) Auditing computer-based information systems.
- (7) Various AIS development strategies employed by firms, including outsourcing, enterprise resource planning, and business process reengineering, as these strategies may be disclosed in the 10K.

During the remainder of the semester, while students are working on the case study, the instructor covers the various major transaction cycles (the revenue cycle – from sales to cash collection; the expenditure cycle – from purchasing to cash disbursement; the production cycle; the human resources management and payroll cycle; and the general ledger and financial reporting cycle).

A recommended timeline for implementing the case study is shown below.

Day 0 (about 30 days before the end of the semester). The teams and the industries are assigned. Note each group either can choose an industry or be assigned one by the instructor. For each group, the instructor sets up a group page on the school's LMS, which each student group member can access. Group members can store files and documents developed by the group on their group page, as well as communicate with each other using e-mail. The group page also can be used for discussions and collaboration (for example, virtual classroom and chat features are available in most LMS) between group members. The instructor distributes and posts case study instructions and the related case study student zip files on the LMS. Day 0, preferably, should be at the end of a school week.

Day + 5. Students are given the weekend to read through the case study instructions, select a publicly-listed company, and prepare questions to ask the instructor at the beginning of the next class meeting. Each group submits the name of their chosen

company in the industry they are assigned to evaluate to the instructor. Each group is asked to post to their respective page on the LMS a copy of their chosen Company's Annual Report on Form 10K for easy reference by both the group members and the instructor. The instructor lectures extensively on the objectives of the case study and the deliverables, and distributes and explains Figure 1 in class.

Day + 20. The groups are given at least two weeks to familiarize themselves with their chosen industry-specific company (using the company's Form 10K), to evaluate the industries' related control deficiencies using the *Control Deficiencies* document, and to complete the first version of the *Financial Statement Analysis and Risk Assessment Worksheet*. Using the initial results of the *Attribute Risk* and the *Inherent Risk* assessments, each group then drafts their initial *Financial Statement Risk Assessment Memo*, which outlines their rationale in completing the inherent risk assessment process for their subject company. Each group posts both their *Financial Statement Analysis and Risk Assessment Worksheet* and their *Financial Statement Risk Assessment Memo* to their group page on the LMS by this date for review and critique by the instructor.

Day + 22. The instructor provides each group with the passwords for opening the remaining columns of information contained in the *Financial Statement Analysis and Risk Assessment Worksheet* and the *COSO Entity-Level and Process Levels Controls Worksheet*. Then, based on this new information, each group proceeds to make their final *Residual Risk* assessments and conclusions regarding the existence of any material weaknesses in internal controls. The instructor distributes and explains Figure 2 in class.

Day + 30. Each group posts to their respective LMS group page the final document package for grading, including the *Financial Statement Analysis and Risk Assessment Worksheet*, the *Financial Statement Risk Assessment Memo*, the *Framework Workpaper*, and a copy of the PowerPoint® presentation, as well as any other supporting documentation to be used by the group during the oral classroom presentation. This gives the instructor time to review each group's submission in preparation for the ensuing classroom presentation the following school week.

Day + 35. Each group has 15-20 minutes to present the results of their evaluation to the Audit Committee, with each group member required to participate and speak during the group presentation. Points are deducted if a group exceeds the time limit. Following the presentation, there is a 5 to 10-minute question and answer period to allow the mock Audit Committee, including the instructor and representatives of the CPA firm audit professionals, to pepper the group with questions and to test their comfort level, both with the concepts in the case study and the conclusions they presented.

In our use of the case study, we had CPA firm audit professionals role-play as the Audit Committee members during the group presentations. In lieu of CPA firm audit professionals, masters-level accounting students could be used as a proxy for the Audit Committee members; or, alternatively, faculty members with field and/or teaching-related AIS and/or audit experience also can serve as Audit Committee members.

3.4 Prerequisite knowledge

To complete the case, students need a working knowledge of, or at least exposure and access to, the following professional literature:

- The COSO Report, *Internal Control – Integrated Framework* (COSO, 1992).
- The COSO Report, *Enterprise Risk Management – Integrated Framework* (COSO, 2004).

- The requirements of SOX Sections 302 and 404 (SOX 2002).
- AU Section 312 (SAS No. 107): *Audit Risk and Materiality in Conducting an Audit*.
- AU Section 314 (SAS No. 109): *Understanding the Entity and Its Environment and Assessing the Risk of Material Misstatement*.
- AU Section 326 (SAS No. 106): *Audit Evidence*.
- PCAOB AS5.
- Commission (SEC) Interpretative Guidance Regarding Management's Report on Internal Control over Financial Reporting under Section 13(a) or 15(d) of the Securities and Exchange Act of 1934.

It is recommended that instructors order from the AICPA original copies of the above COSO-related reports for student or library access.

3.5 Grading the case study

A template used to grade each group's worksheets, reports, and presentation is shown in Table I. Points are assigned for each of the items in the written report, including the submission of the final *Financial Statement Analysis and Risk Assessment Worksheet* and the *Financial Statement Risk Assessment Memo*; how each group decides to treat each of the five presented *Control Deficiencies* (and any new, potentially material, risky financial statement line items determined during the risk assessment process); and the components of the classroom group presentation, including the organization of the presentation, the presentation style, the visual aids used, and how the group responded to questions posed by the Audit Committee. The instructor competitively grades each group's submission and presentation against each of the other groups taking the instructor's course that semester.

	Points available
<i>Final written report</i>	
Financial statement analysis and risk assessment sheet	1
Financial statement risk assessment memo	1
Control deficiency no. 1	1
Control deficiency no. 2	1
Control deficiency no. 3	1
Control deficiency no. 4	1
Control deficiency no. 5	1
Newly-identified potential financial statement line item risks	Δ
Overall report quality	3
<i>Classroom presentation to the audit committee</i>	
Organization	2
Presentation style	1
Visual aids	1
Response to questions	1
Total points awarded	15

Note: Δ The instructor can re-allocate points, depending on whether the group has included in their financial statement risk assessment newly-identified potential financial statement line item risks, and on whether the group has performed the complete risk assessment, from inherent through residual risk assessment

Table I.
Instructor case study
grading template

The case study is worth about 15 percent of the total course grade, though instructors can modify this percentage easily to fit their particular course needs.

In addition, the instructor requires each student to complete an evaluation of the contribution of each of the individual group members to the final case study report submission and presentation; a copy of this group member evaluation form is included in Figure 3. The instructor uses the results of this evaluation to make adjustments (up and/or down, as appropriate) to individual grades assigned to each student on the case study.

4. Case study data analysis and research findings

The authors utilized the case study as a requirement in the introductory AIS course at two universities during the 2009-2010 school year. The descriptive data for the students participating in the case study is summarized in Table II. A total of 113 students performed the case study; these students had a mean GPA of 3.15 in their courses up to the semester they took the introductory AIS course. Of the 113 students, 56 percent were male, 44 percent were female, and 91 percent were declared accounting majors at the time they participated in the case study.

Attention: Instructor Name: _____ **Date:** _____

Your Name: _____

Assume you have 100 points to allocate among your group members:

- List each group team member's name below, including your name;
- Allocate the number of points (out of 100) each person should receive for his/her work on the Group Project, including yourself;
- The points must total 100 points; no fractional points, please;
- Do not collaborate with your other group members – this is YOUR evaluation only of each team member; and
- No two team members may receive the same points – everyone must be given a different number of points.

Points

Group Team Member's Last Name

100

Total Points Allocated

Be honest. Be fair. This is not an easy thing to do. If you indicate that one or more group team members did not do their equal share of work on the project, state why in the blank space at the bottom of this page. I mostly rely on the points above, but your explanation of why a team member (s) did not do his/her fair share is important to me. Individual group members' grades may be altered as a result of this evaluation; therefore, the information cannot be totally anonymous.

Figure 3.
Group member
evaluation form

The case's efficacy was tested using, as a proxy, a set of pre- and post-test case study Uniform CPA examination questions, including questions relating to the subject areas covered, such as entity-level controls, PLCs, and a set of other miscellaneous internal control-related topical areas which were part of the case study. During the first week of the semester, 36 past CPA examination questions were administered to each student in a pre-test, in-classroom testing environment. Students taking the introductory AIS course previously had completed their lower core of required courses, including the introductory financial and managerial accounting courses as well as an introductory course in information technology. The total results of the pre-test were posted on the LMS for each student to see, although the students were not allowed to review the exam itself nor their individual examination results. At the end of the semester, these same 36 questions were included as part of the comprehensive final examination in the course. Table III shows the pre- and post-case study CPA examination question results by topical coverage area and in total. As can be seen in Table III, there were statistically significant improvements in both the overall results and in the individual categories of the CPA examination questions (e.g. entity-level, process-level, and miscellaneous)[12].

Immediately after the group classroom presentation and before final grades were posted, students could voluntarily answer a series of questions related to the attributes of the case study and their learning experience, in a survey administered on Survey Monkey (www.surveymonkey.com). Each student rated the questions on a five-point scale from 1 (disagree) to 5 (totally agree). Table IV summarizes the results of the survey, which was answered by 94 (83 percent) of the 113 students participating in the case study. In general, students responded favorably to most of the questions presented in the survey, except for the question on whether the written materials provided were easy to understand and use; here the mean rating was 3.41. The lower rating for the written case materials could be the result of striking a balance between making the case study and required decision making process too transparent, and forcing students to make the difficult judgments required in such an instructional case study. However, student ratings related to the written case materials improved significantly from the first semester to the second semester of testing, as the authors made improvements to the quality of the written case materials provided to students.

The below list shows a representative sample of student written comments obtained anonymously using Survey Monkey immediately after the case study presentations were completed. The students noted that, on average, they spent 28.4 hours working on the case study. In general, student written comments generally were positive, as shown in the below list. Student written comments on the case study:

Number of students	113
Overall GPA	3.15
Female	50
Male	63
Accounting majors	103
Non-accounting majors	10

Note: GPA is calculated on a point scale as follows: A: 4.0 points, A - : 3.7 points, B + : 3.3, B: 3, B - : 2.7, C + : 2.3, C: 2, C - : 1.7, D + : 1.3, D: 1, D - : 0.7, F: 0

Table II.
Descriptive data:
students performing
the case study

	<i>n</i>	Mean	SD
<i>A. 36 CPA examination multiple choice questions: level of understanding (113 students took the pre-case and post-case study exam)</i>			
Pre-case study average number of questions correct	36	15.03	4.06
Post-case study average number of questions correct	36	22.82	3.97
<i>t</i> -test for difference in pre-case and post-case study means		(<i>p</i> < 0.001)	
<i>B. CPA examination multiple choice questions results by type</i>			
1. Entity-level internal control questions ^a			
Pre-case study average number of questions correct	13	4.23	1.35
Post-case study average number of questions correct	13	7.49	1.27
<i>t</i> -test for difference in pre-case and post-case study means		(<i>p</i> = 0.008)	
2. Process-level internal control questions ^b			
Pre-case study average number of questions correct	10	5.24	1.41
Post-case study average number of questions correct	10	6.71	1.39
<i>t</i> -test for difference in pre-case and post-case study means		(<i>p</i> < 0.001)	
3. Miscellaneous internal control questions ^c			
Pre-case study average number of questions correct	13	5.56	1.30
Post-case study average number of questions correct	13	8.62	1.31
<i>t</i> -test for difference in pre-case and post-case study means		(<i>p</i> < 0.001)	

Notes: ^aEntry-level controls, as defined in COSO (2004), consist of the internal environment of the firm, including the firm's "tone at the top"; risk management philosophy; risk appetite; oversight by the Board of Directors; integrity, ethical values, and the competence of the employees; and the way the firm assigns authority and responsibility to its employees; ^bPLCs commonly are thought of as controls that mitigate risks threatening a specific process and provide reasonable assurance that process objectives are met; examples of PLCs include the reconciliation of key accounts between subsidiary ledgers and the general ledger; physical verification of assets (e.g. inventory counts) and subsequent reconciliation to the general ledger; and the monitoring/oversight/approval of specific transactions (e.g. foreign exchange transactions; disposals of fixed assets); ^cmiscellaneous questions used in this study include questions related to ERM and internal controls that did not fit into the classification of being either entity-level or process-level control-related questions

Table III.
Results from CPA
examination questions

	Mean	Median	SD
I found the case study to be an interesting and relevant part of this course	4.43	5	0.93
Overall, the case study provided me with a good understanding of how to assess financial statement risk, including the implications of internal controls	4.26	4	0.85
I found the case study a realistic approximation of the real-world	4.19	4	0.86
I found the case study to be challenging	4.78	5	0.57
I found the written materials provided to me easy to understand	3.41	2	1.37
I believe the case study made an important contribution to my learning experience in this course	4.42	5	0.93
The case study increased my interest in the importance of the firm's control environment, including general and internal controls	4.16	4	1.10
The case study helped me understand the importance of performing a financial statement risk analysis	4.55	5	0.53
Making the group presentation to a CPA firm and to the instructor was a valuable part of my learning experience in this course	4.41	5	0.95
Overall, I was satisfied with the results of the case study	4.11	4	1.11

Table IV.
Results from student
survey of case attributes

Notes: *n* = 94 responses received from students; scale for case attribute questions: 1 – disagree; 2 – disagree somewhat; 3 – no opinion; 4 – agree somewhat; 5 – totally agree

- How many hours did you spend on the case study? 28.4 (mean number of hours reported by students responding to the survey, $n = 94$).
- Overall, this was a difficult, challenging, time consuming, relevant, and excellent project; one of the most job applicable projects I have ever done.
- I think that the COSO/Risk Assessment is a very valuable tool, and I found it to be very intellectually stimulating.
- I think that the Risk Assessment Case was hands down the best part of this course. This project forced me to challenge both of my dislikes/fears: working in a group and presenting.
- This was possibly the most difficult assignment I have been given; on the flip side, the sense of accomplishment was amazing.
- I thought the objectives of the case study were very relevant and a helpful learning tool.
- I believe the case study was a good experience and provided an insight into what goes on in the real-world.
- I enjoyed the project and felt it was a great learning experience – especially having to present our findings in front of the instructor, other faculty members, and the CPA firm.
- Overall, the case study was a fantastic project and I hope to get to do another similarly challenging project in future classes!
- The case study was awesome – a very cool experience!

5. Concluding remarks

The results in Tables II and III and in the above list suggest student understanding of the implications of internal controls, including entity-level and process-level controls and related miscellaneous internal control topics tested on prior CPA examinations, improved significantly as a result of implementing the learning objectives of the case study. The results also suggest students found the case to be challenging, interesting, relevant, clear, understandable, and a realistic approximation of what they might expect to encounter in the real-world when performing a financial statement risk assessment following the COSO framework.

6. Teaching notes

Teaching notes for this case study can be obtained by contacting the corresponding author directly by e-mail (ronald.premuroso@umontana.edu). Each of the case-related professional pronouncements referred to in the case study can be obtained directly online.

The teaching notes include the following files, organized as follows:

- *Instructor-only materials*. Contains the passwords to open the remaining columns in the *Financial Statement Analysis and Risk Assessment Excel Worksheet* and the audit testing results contained in the *COSO Entity-Level and Process-Level Controls Excel Worksheet* for each industry.
- *Student case study materials*. Contains the following documents for each of the eight industries, to be posted on the LMS by the instructor for direct access by each student group: the *Financial Statement and Risk Assessment Worksheet*;

the *Control Deficiencies* document containing the five control deficiencies found in the latest audit; the *COSO Entity-Level and Process-Level Controls Worksheet*; a sample draft of the *Financial Statement Risk Assessment Memo*; the *Deficiency Evaluation Framework* document; and the *Framework Workpaper*.

- *Sample final student group case study solution and sample report submission.* Contains a completed Student Group *Financial Statement Analysis and Risk Assessment Worksheet*; *Financial Statement Risk Assessment Memo*; *Framework Workpaper* documenting the group's conclusions regarding Internal Control Deficiencies; and the PowerPoint® presentation made to the Audit Committee for the Heath Care Industry.

The authors have not included in the teaching notes a potential solution for each of the eight industries and their related five internal control deficiency assessments. This is due to the fact that each industry is unique and that the publicly-listed company chosen by each group financial statement risk assessment is different, including the judgments to be made based upon the Form 10K assessment. Associating the COSO Entity-Level and Process-Level Controls with the proper financial statement line items should be fairly obvious from their individual descriptions shown on this worksheet. The sample final student group case study submission included with the teaching notes is an excellent and representative example of a thorough and comprehensive student group submission, which the instructor should expect from each student or group of students at the completion of the case study.

Notes

1. If the latest audited consolidated financial statements of the selected company contain financial statement line items not listed in column D of the proforma worksheet, the group should add or insert such line items into the worksheet for consideration.
2. In this document, a total of five control deficiencies for each industry are provided to each group; the control deficiencies are different for each industry.
3. AU Sec. 312, *Audit Risk and Materiality in Conducting an Audit*, provides additional explanation of the term materiality.
4. The instructor strongly encourages students to identify new, material, and potentially high-risk financial statement line items in the financial statement risk assessment process, which may not be included on the *Control Deficiencies* document from the previous audit. For example, with the global economy facing severe economic challenges starting in calendar year 2009, several balance sheet accounts (for example, accounts receivable and the allowance for doubtful accounts) in certain industries potentially could contain higher inherent risk assessment in the current year's financial statement risk assessment process each group is undergoing.
5. Entity-level controls are internal controls that, along with the overall control environment that includes monitoring and control activities, help ensure management's directives pertaining to the entire company are carried out. Regulations pertaining to entity-level controls are described in SOX, the PCAOB, and in AS5, and include, for example, the following controls: management's monitoring of the results of operations; variance analysis reporting; the IT environment and organization; management's policies that address business controls and risk management; policies and procedures that address the period-end financial reporting process; and other controls, including activities of the audit committee and the internal audit function.

6. To ensure each group considers any failed entity-level control tests when selecting the appropriate PLCs to apply to each control deficiency, the instructor does not provide the passwords to release the five remaining blank columns of the *Financial Analysis and Risk Assessment Worksheet* and the audit testing results contained in the *COSO Entity-Level and Process-Level Controls Worksheet* until the beginning of phase 3.
7. The instructor explains to students that in a real audit, an auditor performs audit testing to determine if each ELC or PLC is operating effectively. For this case study, students are provided with the hypothetical results of the audit testing performed by an auditor for each individual ELC and PLC so that students can evaluate the impact of these results in their overall financial statement risk assessment.
8. PLCs are the departmental, divisional, and functional level internal controls within the firm, which are designed to identify specific risks in the company. For example, a PLCs for travel and entertainment expenses is the firm's policies and procedures related to the review and approval of employee travel expenses; a PLCs for payroll is restricting system access for entering data into the payroll system, including proper segregation of duties between the human resource management and payroll departments. Other examples of PLCs include reconciliations of key accounts; physical verification of assets (e.g. inventory counts); the monitoring/oversight of specific transactions (e.g. foreign exchange transactions); and proper processing of employee performance evaluations or terminations. Depending upon the nature and the strength of the control in preventing potential financial statement misstatements, PLCs may compensate for the lack of entity-level controls for a particular financial statement line item.
9. In the group presentation to the audit committee, the instructor would expect the group to describe, in some detail, potential new or additional ELCs or PLCs that management could implement to reduce the residual financial statement risk for these particular line items.
10. The case study is designed to be used in the AIS course, whether this course is before or after the auditing course, and at either the undergraduate or graduate level. The instructor can administer the case study either on a group or on an individual basis, depending on accreditation requirements. The case study also is attractive for use in private schools, which may be able to offer certain courses only once per school year.
11. The topical coverage may vary, depending on the AIS or auditing course, the course level (undergraduate or graduate), and individual instructor course topic coverage preferences.
12. The overall percentage of CPA examination questions answered correctly by the students improved from 41.75 percent in the pre-test to 63.39 percent in the post-test. It is important to emphasize that the majority of students included in this study are first semester, junior level students, who have not completed either the intermediate accounting or the auditing courses included in traditional accounting-major programs. A suggestion for future study is to evaluate the results of the set of CPA examination questions used in this study in an auditing class taken by accounting students in their final year, or in their final semester, of accounting-related coursework. Also, the improvement in the results, due to the timing of the pre-test and the post-test, may have been due to the other materials covered in the course during the semester, not purely due to the case study itself.

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