EDI

And The Financial Auditor

Janet L. Colbert, (E-mail: janet.colbert@wku.edu), Meany-Holland Professor of Accounting at Western Kentucky University
Jared Smalling, (E-mail: jsmalling@kpmg.com), KPMG Peat Marwick LLP, Nashville

Abstract

Entities are increasingly harnessing the power of electronic data interchange (EDI) to serve efficiently and effectively their constituents. In response, auditors of financial statements must adapt their evidence-gathering techniques. The client's use of EDI causes the auditor to shift away from testing the dollar amounts in the financial statements and towards extensive tests of controls. Also, the experience level of the staff and the number of staff assigned to the job are adjusted in response to the presence of an EDI system. Besides changes to the audit, EDI brings new opportunities to accountants serving their clients.

Introduction

Entities are increasingly utilizing the power of electronic data interchange (EDI) to transfer efficiently and effectively information to suppliers, customers, regulators, and others. The use of EDI brings special challenges to auditors of financial statements as they study internal control and gather evidence to support the opinion on the financial statements. EDI necessitates changes in the manner in which the system of internal control is evaluated and in which evidence regarding the dollar amounts in the financial statements and the underlying accounts is gathered. Besides altering the audit process, EDI also offers new opportunities for accountants to service clients.

EDI and Internal Control

On every engagement, the auditor is required, by auditing Standards, to understand the system of internal control (AICPA, 1988 and

1995). Controls are especially important in an EDI environment. In turn, the auditor's understanding of controls takes on increased significance.

Besides understanding the system of internal control, the Standards note that the auditor may elect to go further and test the design and operation of controls. The results of such tests may be used as a basis to reduce later tests of account balances.

The auditing Standards present the definition of internal control. Also, the three objectives of internal control and its five components are provided in the Standards.

Definition and Three Objectives

The Standards define internal control as:

A process--effected by an entity's board of directors, management, and other personnel--designed to provide reasonable assurance re-

Readers with comments or questions are encouraged to contact the authors via e-mail.

garding the achievement of objectives in the following categories: (a) reliability of financial reporting, (b) effectiveness and efficiency of operations, and (c) compliance with applicable laws and regulations.

As shown above, the three objectives of internal control are incorporated into the definition of internal control. An entity's use of EDI impacts the achievement of each of the objectives.

Whether operating in a manual or an electronic mode, the entity strives to ensure reliable financial reporting. In an EDI environment, the data on purchase orders, invoices, bills of lading and other documents, which are aggregated and used to produce the financial statements, exist in an electronic format. An EDI environment, if properly controlled, surpasses a manual system by being more accurate and more reliable.

Besides helping achieve the objective of producing reliable financial reports, EDI also influences the effectiveness and efficiency of an entity's operations. The installation of an EDI system often leads to greater efficiency in the general and administrative functions. In turn, these efficiencies allow resources to be focused on the effective production and marketing of a company's product or service.

EDI's impact on the compliance objective involves its ability to react and report quickly. EDI speeds communications, thus allowing more timely reporting and resolution of compliance issues both within the organization and between the organization and regulatory agencies.

Of the three objectives of internal control, the financial statement auditor is primarily interested in the objective of generating reliable financial reports. The other objectives bear on the auditor's quest to form an opinion on the financial statements only in a peripheral way. That is, if the effects of noncompliance or ineffi-

cient or ineffective operations impact the financial statements, the auditor must investigate. However, a lack of compliance or the presence of inefficient or ineffective operations does not necessarily mandate the auditor's involvement.

Five Components of Internal Control

Each of the three objectives of internal control is made up of five components. They are the control environment, risk assessment, control activities, information and communication, and monitoring. The utilization of EDI affects each of the components.

When EDI is employed, the control environment should include an enhanced level of control consciousness. Strong controls are typically embedded in the system. In an EDI system, the auditor should gain an extensive understanding of the control environment.

The assessment of risks when the entity utilizes EDI should include consideration of both inherent risk and control risk. Inherent risk is the risk that a transaction will be corrupted. This risk is present in all computerized systems, particularly those involving data transmission. An error in any aspect of EDI may result in improper communication. Control risk, the risk an error will not be found by control activities, depends on the effectiveness of control policies and procedures. A change in operations, revamped information systems, or new technology impacts inherent and control risks, and thus the risk assessment of EDI. The auditor should carefully assess both inherent risk and control risk in each EDI application.

The control activities of an entity encompass all controls, including EDI controls. In an EDI environment, control objectives include timeliness, accuracy/integrity, security, recoverability/retention, and processing. These EDI control objectives are a significant component of an entity's entire system of control. The auditor tests control activities that are to be relied on to

form the basis of the audit opinion.

EDI is an integral part of the information and communication component of internal control. Much of the information used by management, employees, customers, and suppliers is obtained or derived from the EDI system. Supporting an adequate system over these internal or external communications is critical to the success of the entity. The auditor's interest in the information and communication component lies in the specific information that is made available to those personnel who develop the financial statements.

The final component of internal control, monitoring, is especially important in an EDI environment. Monitoring the design and maintenance of the EDI system yields assurance that the controls are functioning properly and reducing risk. The nature and extent of monitoring performed by the client (say, by the internal auditors) may impact the nature, timing, and extent of external audit tests.

Changes to the Audit

The auditor's overall objective, regardless of whether the client utilizes an EDI system or not, is to gather sufficient, competent evidence; the auditor's objective is independent of the client's form of data processing. However, a client's use of EDI will likely bring about many changes in the form of gathering of audit evidence.

Sufficient, competent evidence

The American Institute of Certified Public Accountants (AICPA) provides guidance to aid the auditor in evaluating the sufficiency and competence of audit evidence. The guidance, in the form of another auditing Standard, notes that the auditor must use professional judgment in determining the amount and kinds of evidence considered sufficient in a specific situation (AICPA, 1996). To be competent, evi-

dence should be both relevant and valid. The Standard notes three criteria to be considered in evaluating validity: independent sources, internal control, and direct knowledge. Evidence obtained from sources independent of an entity is more reliable than that generated internally. Also, evidence gathered from an effective system of internal control provides more assurance than if controls are not reliable. Finally, evidence obtained through the direct personal knowledge of the auditor is more persuasive than evidence acquired indirectly.

Risks

Besides considering the sufficiency and competency of evidence gathered in an EDI environment, the auditor also evaluates the risks involved. The risks include audit risk, inherent risk, control risk, and detection risk.

Audit risk at the financial statement level is the risk that the auditor unknowingly gives an unqualified opinion on financial statements which contain material misstatements (AICPA, 1983). At the level of the individual account balance or class of transactions, audit risk (AR) is composed of inherent risk, control risk, and detection risk. Inherent risk (IR) is the risk that material misstatements could occur in the financial reporting process, absent any controls. Control risk (CR) is the risk that the system of internal control does not prevent or detect material misstatements. Detection risk (DR) is the risk that the auditor's procedures do not locate material misstatements, when in fact, material misstatements are present. The risks are related as follows:

$$AR = IR \times CR \times DR.$$

When planning the engagement, the auditor sets audit risk at a low level. Inherent risk is assessed, typically at a high, or even the maximum, level. With the levels of audit and inherent risk established, control risk and detection risks remain. To limit audit risk to its pre-

set low level, the auditor gathers sufficient, competent evidence regarding both the design and operation of controls and the fairness of presentation of the financial reports. Testing controls yields the level to which control risk is limited and testing the dollar amounts in the financial reports (substantive tests) generates the level of detection risk for the account. The auditor adjusts the nature, timing, and extent of tests of controls and substantive tests to achieve a low level of audit risk.

Nature of Testing

Attributes of audit evidence

In order to determine the nature of appropriate tests in an EDI system, the auditor considers the attributes of audit evidence. In a study entitled "The Information Technology Age: Evidential Matter in the Electronic Environment" (1997), the AICPA states that there are six attributes of audit evidence. They are difficulty of alteration, credibility, completeness of documents, approvals, ease of use, and clarity. The quality of the attributes in an EDI environment may differ from that traditionally found by auditors. A comparison of the attributes of evidence as found in a traditional versus the electronic environment are shown in the Exhibit.

Tests of controls

Due to the nature of the EDI environment, the auditor may find that the hard-copy evidence obtained from substantive tests is not of the same quality as might be gathered in a more traditional setting. Because substantive tests are, by necessity, typically de-emphasized in an EDI setting, tests of controls take on an increased significance.

The client's EDI systems, including controls, incorporate, to varying degrees, the six attributes noted in the APS. The auditor designs tests of controls to evaluate both the design and operation of controls relevant to each of the at-

tributes.

Substantive tests

Although tests of controls take on increased importance and the use of substantive tests is decreased, some substantive work is still performed in an EDI environment. Of the substantive tests employed, analytical procedures, which have proved to be effective and efficient tools in the auditor's toolkit, will likely be a significant component.

Timing of Testing

Besides changes in the nature of the audit procedures performed, a client's utilization of an EDI system will impact the timing of the procedures.

Much of the audit work for a client with an EDI system can be moved from at or after year-end to an interim date. The emphasis on preventive, rather than detective, controls allows the auditor to test the system during the period under audit rather than after period end.

In the traditional audit, interim work is performed late in the fiscal year, after nine or ten months of accounting records are complete. In an EDI environment, audit work may be spread more uniformly throughout the year. That is, the auditor may choose to perform procedures at several points during the period. Studying controls at many points in the year provides additional assurance on their effective operation throughout the year and aids in reducing control risk. For files which are updated and no backup copies are retained, testing at several points during the period may be necessary.

Some client and auditor systems may allow the auditor to not only test several times during the year, but also to conduct tests without the client's knowledge. That is, auditors may be able to link directly to the client's system and test unobtrusively at any time. This capability

Exhibit
Attributes of Evidence in Traditional and Electronic Environments

<u>Attribute</u>	<u>Traditional Environment</u>	<u>Electronic Environment</u>
● Detection of alterations to client's evidence	● Relatively easy to detect alterations	● Difficult to detect alterations
● Credibility of the client's evidence	● High degree of credibility in paper documents	● Depends on ability to test controls within the system
● Completeness of documents	● Document shows the terms; acknowledges data entry and posting. Matching of documents is evident.	● Electronic format may mask codes. Matching may be within the system, not evident to the auditor.
● Evidence of approvals	● Approvals typically on the face of the document	● Approvals often integrated into the electronic record may not be visible.
● Ease of use	● Hard-copy documents are easy to evaluate and understand. Easy to extract data from.	● May be difficult to extract. May need specialists, or system-based techniques to utilize the information.
● Clarity	● Evidence is typically clear, allowing for consistent interpretation	● The nature of the evidence is not always clear, allowing for misinterpretation

Adapted from "The Information Technology Age: Evidential Matter in the Electronic Environment," AICPA, 1997.

allows the auditor to have high confidence that the system the client asserts is in place is actually operating. Also, testing from the auditor's own office should result in a more efficient audit effort, as the auditor will spend less time at the client's location while having access to the client's EDI system during the period under audit.

Extent of Testing

In an EDI environment, the auditor will likely adjust not only the nature and timing of procedures, but also the extent of tests. The direct electronic interchange of data eases the effort spent in obtaining evidence and allows the auditor to test more extensively. Increasing the extent of testing reduces audit risk, providing greater assurance in the audit findings.

The extent of testing may be impacted by the client's use of a VAN (value-added network). Many clients employ a VAN to facilitate the storage and transfer of electronic messages. If another auditor has issued a report on the operation and effectiveness of the VAN's system of internal control, that report may reduce the extent of work necessary on the audit engagement. "Reports on the Processing of Transactions by Service Organizations" (AICPA, 1992) provides guidance to the auditor in engagements involving VANs.

Staff, Technology

As clients adopt EDI systems, auditing firms will not only adjust the nature, timing, and extent of testing, but may also alter the audit

staff and the technology utilized on the engagement.

Because an audit of a client employing EDI is not likely to incorporate extensive and labor-intensive substantive tests, fewer juniors will be included on the audit team. Rather, the team will include computer information systems (CIS) professionals. Any other auditors on the team should certainly have a strong base in information technology and systems in order to facilitate supervision of and communication with CIS personnel.

To expertly serve their clients, auditors must keep abreast of technology. Thus, the auditor's need for frequent upgrades of both hardware and software will continue. By having expertise with the technology used by the client before the engagement commences, the auditor can serve the client well.

Other Opportunities

Besides a substantial impact on the audit, a client's utilization of EDI will certainly have a significant effect on other work the public accountant performs. Also, EDI will create new opportunities for public accounting services.

A public accountant may currently perform quarterly reviews for audit clients or may review the annual financial statements of non-audit clients. If the clients employ an EDI system, changes to the procedures performed during the engagement will occur. The modifications to either a quarterly or annual review engagement will parallel those made to work on the audit. That is, the nature, timing, and extent of procedures will be altered and the size and composition of the staff will change in an EDI environment.

In traditional reviews, the accountant relies heavily on inquiries and analytical procedures. Both procedures are employed for clients with EDI systems, but the focus of the inquiry

shifts to the controls embedded in EDI. Also, in order to formulate appropriate queries, the staff assigned to reviews in an EDI environment must be proficient with the client's technology and the accompanying terminology.

Expertise in EDI provides the public accountant with many opportunities to serve clients besides audits and reviews. For example, a client may ask the accountant to conduct a feasibility study before installing an EDI system. Another example of new EDI work is a preventative review; the accountant studies controls in the client's EDI system and make recommendations for improvements to prevent errors. This type of engagement and the client's subsequent adoption of the recommendations can ultimately lead to a reduction in the cost of the audit.

Conclusion

With clients increasingly utilizing the power of EDI, auditors are finding that evidence-gathering procedures must be modified to be compatible with the electronic environment. The nature of audit procedures will shift toward more tests of controls, the work will be performed at many times throughout the year, and the extent of tests will most likely be expanded. In addition, fewer staff are required on an EDI environment engagement. Those staff members will possess a high degree of technical expertise.

Besides changes in the audit, an EDI system brings alterations to other types of engagements which accountants currently perform. Also, EDI opens up opportunities to perform new types of services for clients.

Suggestions for Future Research

Future research in the EDI/financial audit arena should explore the auditor's utilization of professional judgment. The auditor uses judgment to determine an appropriate mix of control and substantive tests. Research should focus on the auditor's judgments regarding the

appropriate division between the two types of tests.

Transactions by Service Organizations,” SAS 70, 1992.

Besides exploring the division of evidence-gathering techniques between tests of controls and substantive tests in an EDI environment, researchers can also study details of each of the two types of tests. The nature, timing, and extent of testing controls in an EDI environment should be probed to determine the most effective and efficient mix. Substantive tests in an EDI environment should also be studied. For example, the appropriate level and use of analytical procedures in EDI engagements are especially relevant topics.

Other areas in which research relating to EDI and financial audits may be performed include staffing of engagements and new opportunities for public accountants. Researchers may investigate whether the experience level, mix, and number of audit staff differs for clients who utilize EDI extensively versus those who do not. Also, researchers may study the types of EDI work, other than audits, which best serve the needs of the clients of public accounting firms.

References

1. American Institute of Certified Public Accountants (AICPA), “Amendment of SAS 31, Evidential Matter,” *Statement on Auditing Standards (SAS) 80*, 1996.
2. AICPA, “Audit Risk and Materiality in Conducting an Audit,” *SAS 47*, 1983.
3. AICPA, “Consideration of the Internal Control Structure in a Financial Statement Audit,” *SAS 55*, 1988.
4. AICPA, “Consideration of Internal Control in a Financial Statement Audit: An Amendment of SAS 55,” *SAS 78*, 1995.
5. AICPA, “The Information Technology Age: Evidential Matter in the Electronic Environment,” *Auditing Procedures Study* 1997.
6. AICPA, “Reports on the Processing of