

Introducing a New Infrastructure Element for E-Business Financial Reporting: an Internet Clearinghouse

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Abstract— *A new infrastructure element for e-business financial reporting (an internet clearing house) is introduced. It would be advisable to distribute financial reports via an electronic clearinghouse. This method would permit instant access to the reports and assure that these documents could not be modified. The existing reporting frequencies are reviewed, contrasting them with the needs of investors, and the generation of accounting transactions is described. Next, the proposed method of collection and distribution of financial reports as well as their possible analyses by a central electronic clearing house is discussed. Finally, the need for changes of the attestation standards is analyzed, ways to assure the integrity of distributed electronically financial statements are proposed, and the rational sequence of implementation of the new distribution is generated.*

Index Terms— *Internet Infrastructure, Financial Reporting, Electronic Clearing House.*

1 EXISTING REPORTING FREQUENCY VS. INVESTORS' NEEDS

OVER the decades we experienced great improvements in the areas of data communication and telecommunication. News about events around the world is delivered almost instantly. Similarly, financial news is distributed with minimal

delay. With the fast growth of the securities trade (stocks, bonds, etc.) there is a growing need for fast and reliable financial information.

The basic reliable source of financial information is presently provided by financial reports [1]. Corporations listed on American exchanges are obligated to provide all its shareholders and potential investors with annual audited and quarterly non-audited (but reviewed by auditors) reports. In many European and Asian countries listed companies are required to provide only semiannual and annual reports.

Markets usually respond very quickly to the results presented in financial reports. As such, a report with a lower than expected earnings for a few technology companies in the years 1995 and 2000 resulted in a dramatic drop of stock prices for the entire technology industry. Although more frequent reporting would not have prevented the recent accounting frauds committed by several corporations, it could potentially speed up the discovery of the problems since it is more difficult to manipulate reports a dozen times a year than four times.

The existing frequency of reporting was established in the pre-computer era. One may assume that such reporting periods were the most feasible frequencies at a time of manual, time-consuming preparation of reports.

Today's investors must wait until the end of a quarter to learn about financial results or may receive an occasional release of earlier estimates of corporate earnings. Such

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information is immediately absorbed by the markets, resulting very often in significant changes of security prices. It becomes clear that institutional and individual investors would like to make use of more frequently released financial information. Such information would be most beneficial for individual shareholders since mutual funds and investment houses often obtain information directly from corporations between the reporting periods. Actually, the annual financial reports are delayed more than a quarter from the end of the annual accounting period. It takes several weeks to proof and print these reports, then distribute them by mail. Most annual financial reports reach the investors in the month of March of the next year.

In the summer of 1996, the American Security and Exchange Commission (SEC) adopted a rule permitting the use of the electronic media delivery in compliance with the information delivery requirements of the federal securities law. The term "electronic delivery" refers to transmission of information via facsimile, CD-ROM, electronic mail, electronic bulletin boards, Internet, or computer networks. SEC also issued interpretive guidance on the use of electronic media by broker-dealers, transfer agents, and investment advisors for the delivery of information to their customers.

In year 2000, SEC issued regulation requiring listed companies to make their financial releases available to shareholders at the same time as they become available to investors.

In the following paragraphs we will show that it is possible to greatly increase the frequency of financial reporting without a significant increase in the preparation effort. Also, a method of electronic delivery for financial information will be discussed.

2. POSSIBILITIES OF PAPERLESS ACCOUNTING

In the early stages of the computerized era it was easy to be convinced that we are approaching the so called "paperless society," where the use of the paper for the commerce would be greatly reduced. Ironically, computers, with their vast ability of printing reports and documents, increased the paper usage [2].

Despite this paper glut, the base for electronic transactions is being expanded. Banks and software companies are introducing, the second time around, easier systems for electronic banking. The proliferation of PC's and the increased ease of use of the Internet have drawn over 600 million estimated users, as of the year 2002. The internal electronic mail system is used by virtually all large companies and institutions. The document imaging technology, which converts paper documents into digital form, makes significant inroads into insurance, banking, and other paper-intensive industries. And for years some operations, such as electronic money transfers, have been for the most part "paperless." Another application that could operate in a similar manner, without paper, is financial reporting. Several large corporations, such as General Motors or Microsoft, post their financial statements on their Web sites [3]. Although this information may be helpful to investors, the usage of such sites may be cumbersome to investors since each site is organized in a different fashion, making the search time consuming. Furthermore, such sites may post only financial statements and skip the supplemental information, such as the SEC fillings. A shareholder holding twenty stocks will have to access twenty sites, sometimes several times if the reports were not yet released.

Accounting is a prevalent computerized application in all industries. Frequently paper is being used as the source for its input and almost always as its output. Such manufacturing companies as the SATURN car factory, a division of General Motors, started to eliminate paper documents in dealing with their suppliers. SATURN transfers supply requests via computers, paying suppliers for material based on the number of finished cars.

Although most companies are still lacking a "paperless" electronic link to outside commercial partners, their internal flow of accounting data is usually performed on an electronic medium, either via tapes/disk or increasingly via the Internet or network transfer [4].

3. PROPOSED METHOD FOR DISTRIBUTION OF FINANCIAL REPORTS (DESCRIPTION OF A PROTOTYPE SYSTEM AND FEASIBILITY ANALYSIS)

Paperless accounting is creating all necessary informational premises for financial reporting with any reasonable periodicity [5], [6]. The only element missing for such frequent reporting to become implemented is a new block in already existing Internet-connected infrastructure shown on Fig. 1 – an electronic clearing house.

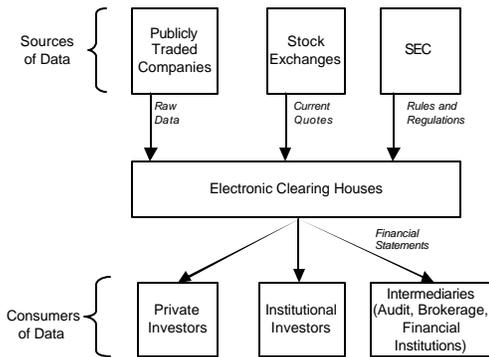


Figure1. Electronic clearing houses as a new element of an existing financial reporting system

The main mission of an electronic clearing house is clear from the block-scheme on Fig. 1 – to serve as a liaison between sources of data (companies, exchanges, SEC) and consumers of data (investors and intermediaries). This mission is to be accomplished by issuing financial statements with a periodicity desirable by each particular client. In particular, the clearinghouse would send emails informing registered shareholders that their companies' reports were posted or just email the financial reports and the supplemental information. This way every shareholder, small or large, will have an equal opportunity to review financial reports as soon as they are released.

Figure 2 - Flowchart of Functioning for Web Based Financial Reporting Using Clearinghouse - illustrates this approach. Operational applications (such as Sales or Manufacturing) generate, as a byproduct of

their basic operational functions, the resulting accounting journal entries, which, in turn, are fed into the general ledger system. It is feasible to create weekly or monthly financial statements from such an updated ledger (short of some additional entries) and submit them electronically to a clearinghouse. Shareholders of a corporation and other investors would have prompt access to these reports and financial ratios on an as-needed basis to facilitate the investment decisions. Obviously, a proper method to assure accuracy and the integrity of data must be in place.

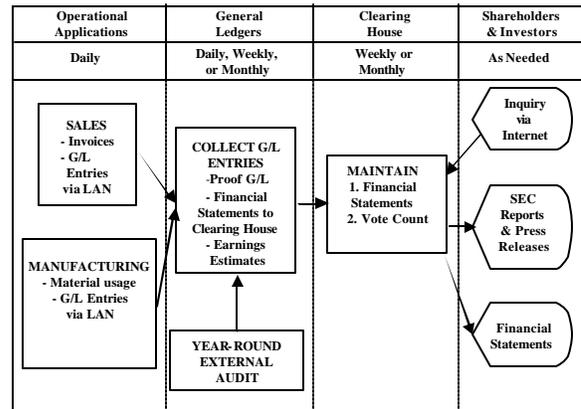


Figure 2. Web Based Financial Reporting Using Clearinghouse

For several companies, such as Bankers Trust of New York, the creation of accounting data is a required part of their technological architecture for each application. Therefore, general ledgers are customarily updated on a daily or weekly basis via magnetic media. Motorola, a \$22 billion company with six operating sectors, does its monthly books within 2 days; this proves that the preparation of frequent financial statements is an achievable task [7].

The existing frequency of report issuance (annually for audited reports and quarterly for the non-audited ones) was established in the pre-computer era. Corporations are now operationally able to prepare monthly or weekly reports and to issue them with much shorter delays than is done presently. Part of the delays is due to the usage of printer services preparing glossy reports, attractive to read, but taking a long time to validate and print. And with today's color printers and graphical capabilities investors may

receive quite esthetically pleasing reports via the internet.

Investors, both institutional and individual, would benefit from having these reports on a monthly or weekly basis. For this frequency change to occur, one or a few clearinghouses should be established in order to collect the reports from corporations and distribute them via the Internet.

Markets respond quickly to the reported news about earnings and earning projections of companies. Presently such information is known mostly to some financial analysts and institutional investors, thus depriving individual shareholders from using this information for their trading decisions.

Information submitted to clearing houses on a predetermined period basis should be accessible to all interested parties. The files should be protected from alteration. No addition or modification should be permitted, to assure the data integrity. Each shareholder would be in a position to retrieve the financial reports on his/her computer as soon as they become available at the clearinghouse or have them automatically emailed to his/her computer. Shareholders should still have an option of receiving paper printed statements, incurring the delays associated with their printing and postal delivery.

Some specific features of the electronic clearing house functioning are discussed in next paragraphs.

4. SYSTEM DESIGN CONSIDERATIONS

The clearing house will receive financial statements from corporations as well as other statements and announcements (such as press releases). This information will be placed in a database. The clearing house will also maintain a list of all shareholders, with pointers to corporation(s) they own stocks in. The shareholder list will contain, in addition to their postal addresses, also email addresses. The financial data will be encoded in a way that will detect any alterations.

Upon receipt of a new report the system will automatically generate emails, including a hyper link, to all shareholders, enabling them to extract the desired reports from the

site. If a corporation has submitted its data in an Extensible Business Reporting Language (XBRL) then the reports will be transmitted in such a format to the users. Shareholders lacking email address will receive a hard copy report. The site will have the same way of navigation for all corporations, making it easier for users to obtain information. Furthermore, the clearing house will compute financial ratios for each corporation and their industries, enabling users to perform financial analysis. Obviously, shareholders will be in a position to access the corporate reports at any time, not only upon receipt of an email.

5. FINANCIAL RATIOS AND VOTING

The financial statements should contain a comparison of several comparable periods for at least five years. Additionally, ratios comparing a given corporation to other entities within the industry group could be calculated. Such data should be helpful in performing financial analysis, including the computation of popular ratios.

In addition to the financial report, the corporations would transmit their SEC reports (10K, 10Q and others), their press releases, and disclosures made to financial analysts to the clearinghouse. Although SEC has a site, EDGAR, which contains SEC filings, it is difficult for a shareholder to navigate this site and the data is not arranged in a comparative fashion, which would help in analysis, especially for a small shareholder owning a dozen or two different stocks.

Since financial analysis is presently not required under the existing accounting standards, the users do not expect the issuer of the statements to perform a financial analysis of its own results. However, it would be advisable to request that the clearinghouse compute the popular financial ratios and indicators, without any commentary or recommendations regarding these results. This way an individual shareholder would have access to analysis available to institutional investors employing their own analysts.

The voting for the board of directors by all shareholders is done via mail. It could be done via Internet, assuming adequate security measures are taken. Several corporations are already offering such an

option, but again, having a standardized and secure procedure in one place would be welcomed by shareholders and it could even increase the voters' participation.

6. XBRL- THE NEW LANGUAGE OF ACCOUNTING AND FINANCE (AN EVALUATION [8])

Users of accounting and financial information encounter many difficulties in transmission, reporting, quantitative analysis, and rewrites of accounting data. To relieve these problems the American Institute of Certified Public Accountants (AICPA), Reuters, and thirty other organizations organized, in year 2000, a task force to create the accounting-oriented new language, named eXtensible Business Reporting Language (XBRL) [9]. This language uses data tags or markers to define and describe data elements contained within financial statements. These markers, always attached to the data elements, permit users to utilize all data elements for variety of reports and calculations, regardless of the temporary position of such elements due to the sorting or processing of the data. Imagine an eagle with an implanted chip, which may always be identified, even if he moved to another location. Every language and software program, such as Java, spreadsheet, or data base language could identify a particular data element, such as a depreciation amount, based on the embedded marker. XBRL is still undergoing changes and improvements, but several companies and institutions are experimenting with the new language [10], [11].

The majority of users consider XBRL as having great potential for electronic data capture. It is important that any electronic data capture option offers a strong value proposition for the provider, especially when the provider is in regular and/or multiple collections. The value proposition is much stronger to deal electronically with us if the information can be extracted from their finance and/or other management information systems. The XBRL business case for providers is that important financial information is repackaged/reused for multiple purposes. Over the years, a number of different mechanisms for exchanging data

have been developed. These mechanisms tended to be proprietary or unique to the application or purpose for which each was created. XBRL uses the meta-language XML to define the XBRL document types and constitutes one of the many industry specific 'languages' of XML. XBRL, hailed as 'the digital language of business', facilitates the reuse of information contained in business reports, providing structure and context for that information. Leaders in the accounting profession such as the International Accounting Standards Committee (IASC) have researched the impact of the Internet on the distribution of financial information and have reached the conclusion that XBRL, or something similar, is needed.

XBRL can be viewed as a framework of 'controlled flexibility'. XBRL provides a method of creating 'name/value pairs' or 'mapping' which provides fundamental attributes about a value such as its data type, format, etc. XBRL provides agreement on the names but organizations provide different values within this framework. XBRL does constrain how you do things: XBRL provides 'name/value pairs' for expressing financial facts, but defines no financial facts;

XBRL provides a method of expressing lists of financial facts, the taxonomy; and XBRL provides a method of making values of financial facts available in an instant document.

XBRL provides the fundamental building blocks; users of XBRL do the building. Users define the facts they wish to exchange and build documents to exchange those facts based on what they need. The 'how' you must do it offers the predictability. Vertical integration, in terms of the use of a common set of standards between national providers and all of the international users of this information, is an important first step. It is to be hoped that the logical next step can also be taken and those same standards can be incorporated into provider accounting systems, making reporting a standard extraction. This outcome provides significant gains to all parties. We believe that if we are collecting information that organizations are also providing to ratings agencies, to stock exchanges, and to tax authorities, then the information will be much more accurate. At the same time, the organizations will benefit

because they have cut down on repetitive manual effort. Furthermore, XBRL utilizes templates that recognize the internal structure of financial statements, helping in the creation and quantitative analysis of such reports. Having the markers and templates, we will recognize a given amount, let's say depreciation, as a sale or administrative expense and also link it to the accumulated depreciation on the balance sheet. For users and preparers of financial reports it will be relatively easy to utilize such marked data for analysis, computation, reporting, and comparison with prior periods or other companies. It could be beneficial if the data in the clearinghouse is stored in the XBRL format, making it easier to utilize the data by different programs on different operating system platforms. XBRL is not limited to American users, but it is intended for use internationally. This way, it may also help by making the data of different countries more understandable to foreign users.

7. COST AND SECURITY ISSUES ASSOCIATED WITH REPORT DISTRIBUTION

The electronic distribution cost would probably not exceed the recent expenses of printing and distribution of paper reports. Most probably, it would result in significant savings. The cost associated with electronic reporting should be absorbed by the issuers of financial statements.

In addition to the distribution of financial reports, the clearinghouse should also distribute the ad-hoc company press releases to make them available to all users at once, as required by the new SEC regulations. The clearinghouse may also collect shareholder votes in board of directors elections, saving again on the mailing of proxy and the count of votes.

To make it easier for shareholders, every clearinghouse, assuming there will be a few of them, will automatically transfer reports of any corporation, even if it is posted on a different clearinghouse. This way no shareholder will be required to access more than one clearinghouse in order to get all his/her reports. In fact, it does not matter how a clearinghouse stores the data internally – it is only important that shareholders can base their

communications on standardized XBRL. The clearing house would have to undergo periodic audits by a regulatory agency, such as SEC, to insure that its operations satisfy the requirements for data integrity and secure accessibility.

Security of data transfer (tamper-proof qualities of the system) will not constitute a new problem and have been addressed by several sources [12], [13].

8. NEW ATTESTATION STANDARDS

Since corporations are not presently required to issue monthly or weekly statements, the auditing standards would probably have to be modified to take into account the new frequency and delivery methods. Issuers of financial statements would have to make more frequent adjusting entries, such as depreciation. However, these adjustments will not constitute a great hardship to the preparers since extracting this information from the existing computerized databases is easy.

The existing auditing methods would have to be modified, to provide for the attestation of issued statements. However, many auditing firms already perform "constant" audits of a company's results by examining its computerized records. In fact, some auditors have an online access to the computerized records of the audited company.

Most probably a new type of attestation opinion would have to be established for these frequent reports.

9. PROPOSED STEPS FOR IMPLEMENTATION

The above changes require time and careful planning for their implementation. The initial steps, foreseen for the change, are as follows:

- Issuance of standards for the new reporting frequency and attestation could take affect within two years, so the issuers would have sufficient time for implementation of the change.

- Execution of a pilot program for companies that will elect to comply with the new requirements before the due date.

- Selection of several clearinghouses to provide the distribution services. Each of the selected clearinghouses will be obligated

to transfer information about any corporation even if it is stored on another site. This process will be transparent to the shareholders.

-After an initial test phase all corporations will have an obligation to submit their data to a clearinghouse.

-Each shareholder will have an option to select the method of receiving the data about the corporation that he/she owes shares in. Shareholders will specify the desired delivery method: email, internet access on demand, or hard copy reports.

10. CONCLUSION

In conclusion, it is reasonable to assume that it would be both possible and beneficial, especially for individual investors, to receive more frequent, electronically distributed financial statements. The new technology makes such an operation possible, likely without any increase in the costs of delivery to the provider or user. Although some companies already offer such an option to their shareholders, these services would be more reliable and much easier to use if an independent and a well secured clearinghouse was responsible for the distribution of all financial reports.

Also, it would be much simpler for an investor holding several stocks to obtain information about all of his/her companies from one source in a uniform manner, common to all companies. The clearinghouse would be in a good position to ascertain that all reports are provided in the XBRL format, enabling users to prepare their own reports and analytical ratios, if so desired.

Shareholders would have to deal with only one source for electronic voting for their boards and have an instant access to companies' press releases.

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