5 XBRL: A New Tool For Electronic Financial Reporting

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Abstract. eXtensible Business Reporting Language (XBRL) is an electronic markup language for the purpose of corporate business reporting. XBRL is based on XML, which is the universal format for structuring documents and data on the web. In an XBRL compliant report, each financial and non-financial item is enclosed by a pair of XBRL tags, which describes the meaning of the item. These tags provide semantic information to the reports and make the financial reports not only human readable but also computer comprehensible. Leveraging the power of computers and the Internet, XBRL provides the financial community a standard to electronically and automatically prepare, publish, exchange, and extract financial statements. It is expected that XBRL will have widespread effects on financial reporting. First, preparing financial reports will be easier with XBRL. Financial information needs to be keyed into the computer only once. XBRL-ready accounting software can generate financial reports in different formats, such as for SEC filing, loan application, or corporate web reporting. It greatly reduces the manual input burden and entry errors. Second, the publication and exchange of financial reports can be facilitated. Because XBRL-compliant reports use standardized tags, the reports can be conveniently exchanged between different software and computers, independent of the software formats and computer platforms. The financial statement users can view an XBRL report as easily as browse a web page. Third, since XBRL-compliant reports are computer comprehensible, the financial information contained in these reports can be reliably and automatically extracted through XBRL-enabled applications for financial analyses. The cost of financial analyses can be largely reduced. Decision makers, investors, creditors and other financial statement users can be al-

leviated from the burden of manually analyzing the financial reports. Small- and mid-sized companies will have an equal opportunity to compete with industrial giants for the capital market. XBRL is undergoing fast development. Since its inception in 1998, over 170 companies and organizations including Big 4 accounting firms, FDIC, Microsoft, and SAP have joined the XBRL consortium. XBRL will become the standard for electronic financial reporting in the near future.

5.1 Introduction

The objective of this chapter is to introduce a new accounting tool called XBRL that can help accountants, decision makers, analysts and regulators to prepare, exchange, extract and analyze financial reports. eXtensible Business Reporting Language, better known by its acronym XBRL, is an XBRL-based markup language for the purpose of electronic corporate financial reporting. XBRL is based on XML, which is the universal format for structuring documents and data on the web. Basically speaking, in an XBRL-compliant report, each financial and non-financial line item is enclosed by a pair of XBRL tags, which describes the meaning of the enclosed item. These tags provide semantic information to the reports and make the financial reports not only human readable but also computer comprehensible. Leveraging the power of computers and the Internet, XBRL provides the financial community a standard to electronically and automatically prepare, publish, exchange, and extract financial statements.

It is expected that XBRL will have widespread effects on financial reporting. The beneficiaries of XBRL include but are not limited to accountants, company decision makers, creditors, financial analysts, and regulators. First, for accountants, preparing financial reports can be facilitated with XBRL. Financial information needs to be keyed into the computer system only once. XBRL-ready accounting software can generate financial reports in different formats, such as for SEC filing, loan application, or corporate web reporting. It greatly reduces the manual input burden and entry errors. Second, for financial statement users, the publication and exchange of financial reports can be simplified. Because XBRL-compliant reports use standardized tags, the reports can be conveniently exchanged between different software and computers, independent of the software formats and computer platforms. The financial statement users can view an XBRL report as easily as browse a web page. Third, since XBRL-compliant reports are computer comprehensible, the financial information contained in these reports can be reliably and automatically extracted

through XBRL-enabled applications for financial analyses. The cost of financial analyses can be largely reduced. Investors, creditors and other financial statement users can be alleviated from the burden of manually analyzing the financial reports. Small- and mid-sized companies will have an equal opportunity to compete with industrial giants for the capital market.

XBRL is royalty-free and can be integrated with market-available software, which reduce the cost of using XBRL to a minimum. Users do not need to pay royalty fee to apply XBRL standards in their financial reports. Neither do the companies need to overhaul their existing information system to use XBRL. XBRL add-on modules can be imbedded in market-available software. Microsoft, together with PriceWaterhouseCoopers and NASDAQ, has developed a pilot XBRL application called "Excel Investor's Assistant" that can be imbedded in Excel. It can switch financial reports between traditional, Excel and XBRL formats with only a few mouse clicks. Ratio analysis, which can be presented in charts and diagrams, can be completed in just a few seconds. SAP and PeopleSoft have also added XBRL functionality into their ERP (enterprise resource planning) packages. XBRL-compliant financial reports can be created automatically since all the required financial data are available within the ERP systems. Moreover, it is expected that an XBRL-compliant report can be generated as easily with a few mouse clicks in the near future.

In this chapter, we briefly discuss the history of XBRL development in section two. Then, in section three, we compare HTML, XML, and XBRL to give a clear picture of the differences and similarities between these three markup languages. In section four, the three components of XBRL are discussed. We discuss how XBRL can aid business intelligence in section five. We explain how XBRL works in this section as well. The benefits of using XBRL for financial reports preparers and users are explored. Section six primarily provides an XBRL vendor list. The last section concludes the chapter and points out some potential issues that need to be resolved for XBRL development.

5.2 A Brief history of XBRL Development

The start of XBRL can be traced back to April 1998, when a CPA named Charles Hoffman began to develop prototypes for financial reporting using XML. American Institute of Certified Public Accountants (AICPA) supported and funded Hoffman's initiative. In June 1999, Hoffman and several other people created a business plan for XML-based financial statements, called eXtensible Financial Reporting Markup Language

(XFRML). Later in the year, they changed the name to XBRL since business reporting covers a broader range of reports than financial reporting.

XBRL is undergoing fast development. The number on the XBRL steering committee increased from 12 in 1998 to 170 in mid-2003, including many leading accounting, technology, and government organizations. The jurisdictions of XBRL have expanded from the U.S. into 12 European and Asian-Pacific countries. The first taxonomy---XBRL CI taxonomy, which serves commercial and industrial companies (representing 80% of publicly-traded companies in the U.S.), has been completed. XBRL specification for general ledger is currently available. It can tag the data at the general ledger level and facilitate data transmission between the transaction reporting and business reporting. XBRL specification has grown from 1.0 version to 2.1 version now.

Additionally, a few companies have begun to adopt XBRL in their financial reporting. In February 2001, Morgan Stanley became the first company that tags its financial statements in XBRL for SEC filing and web reporting. Microsoft became the first technology company that uses XBRL for financial reporting in March 2002. The fast development and adoption of XBRL indicate the great potential role for XBRL to play among the business reporting world in the near future. More and more software vendors have joined the development of XBRL-enabling software. Microsoft, PriceWaterhouseCoopers, and NASDAQ launched the first XBRL pilot project in July 2002. UBMatrix, CaseWare and many other companies offer products that can create XBRL-compliant reports as well as XBRL taxonomies.

To explain XBRL clearly, we need to discuss HTML and XML. HTML, XML and XBRL are all members of the markup language family. Markup language is different from other computer languages such as C and Java. It is not used for building computer applications. Instead, markup language is used for formatting and structuring data in a document and explaining the meaning of the data to the computer. Simply speaking, markup language adds tags to data items. These tags either tell how data should be formatted and presented to the user, such as HTML tags, or indicate the meaning and function of the data item, (in other words, it adds meta-data to the document) such as XML tags. All markup languages are both platform-independent and language-independent. Markup language runs on various operation systems such as Windows, Unix, Linux, etc. It also adopts Unicode, which can represent hundreds of written languages in the world including Asian, Arabic and European languages. Generally speaking, markup language has more flexibility and interchangeability than other computer languages.

Table 5.1. Timeline for XBRL history and development

Time	Achievements
04/1998	Charles Hoffman began to investigate the possible use of XML for financial reporting.
06/1999	Business plan for XFRML was created with the support of AICPA. Later XFRML changed its name to XBRL.
10/1999	First XBRL was held and the development of CI taxonomy was launched. XBRL committee had 12 members.
07/2000	XBRL specification 1.0 and CI taxonomy was released
02/2001	Morgan Stanley became the 1st company to tag its financial information in XBRL
06/2001	XBRL for general ledger taxonomy was released
12/2001	XBRL specification 2.0 was released
03/2002	Microsoft became the 1st technology company that reports its financial data in XBRL
07/2002	Microsoft, PWC and NASDAQ launched the XBRL pilot project
04/2003	XBRL steering committee has 170 members

5.2.1 HTML

HTML is the most common form of markup language in use today. HTML is used for web page presentation purpose. All the web pages we can browse are built in compliance with the HTML standards. Compared with XML, HTML has a limited number of tags. These tags tell the web browser a wide spectrum of presentation parameters, including font type, font size, font color, paragraph break, and other format information of a web page. To illustrate, let us look at an HTML snippet.

```
<H1 ALIGN=center>What is HTML</H1>
<p>HTML is a <strong>Markup Language</strong>.</p>
<P> The book <em>HTML For Dummies</em> tells you in de-
tail about HTML.
```

Each line item in the above snippet is enclosed by a pair of tags, one beginning tag and one ending tag. The ending tag is indicated by an addi-

tional back slash. The tag <H1 ALIGN=center> tells the browser that the data enclosed should be presented in Header Font Number 1 and aligned to the center. The tags and represent the start and the end of a paragraph respectively. The tag tells the browser to display the enclosed text in Bold fonts. Similarly, tag tells the browser the enclosed words are in Italic font type. As we can see, all the above tags are concerned with presentation format issues. A web browser such as Internet Explorer can process these tags and present the following web page to the user.

5.2.2 XML

XML, the acronym of eXtensible Markup Language, is a more powerful data-centric markup language than HTML. eXtensible denotes that XML is extensible to many derivative languages for specific industries or cross industries. For example, chemXML is designed specifically for chemical industry; ebXML is defined for e-business transactions. Unlike HTML, which uses predefined tags, XML allows users to define tags by themselves. These tags describe the semantics and structure of data in a document, which can be understood and processed by computer applications. With the growth of e-business and integration of supply chain partners, there is a rising demand for a common computer language for companies to communicate with each other both vertically and horizontally. The emergence of XML can satisfy this demand. Industry-specific as well as cross-industry XML-based languages can facilitate data exchange and business transactions, allowing clients to manipulate data views and permitting intelligent systems to customize information.

When writing XML documents, the user needs to define tags following a standard called Document Type Definition (DTD) to ensure the client computer application can recognize and validate the XML document. DTD is currently fading out and will eventually be replaced by the more flexible, descriptive and intuitive XML schema. DTDs and schemas are usually stored in a central repository called namespace. All user-defined tag information can be found and retrieved from namespace. At the client side, an XML parser is required to recognize the tags.

To illustrate, let us look at an XML example:

```
<?xml version="1.0" standalone="yes"?>
<!DOCTYPE address_book SYSTEM "abml.dtd"
<address_book>
<entry>
<first_name>Jia</first_name>
```

```
<last_name>Wu</last_name>
<nickname>Jack</nickname>
<organization>Rutgers University</organization>
<address type="home">
      <street>180 University Avenue</street>
      <city>Newark</city>
      <state>New Jersey</state>
      <postal_code>07102</postal_code>
      <country>USA</country>
</address>
</entry>
</address_book>
```

The XML version and its DTD are specified at the beginning of the document. Each data element in the above example is bounded by tags, which tell the computer applications what are the meanings and uses of these data. If the tags are absent from the above example, computer applications will have great difficulty in understanding and processing these data though these data may still be intelligible to human users.

5.3 XBRL

XBRL is an XML-based markup language for the purpose of financial reporting. It inherits all the attributes of XML and specializes in financial reporting. XBRL provides a standard method for the financial community to prepare, publish, extract and exchange financial information electronically. Through XBRL, users can prepare digital financial reports, which include the balance sheet, income statement, statement of owner's equity, and statement of cash flows. In addition, non-financial information, such as management notes and auditor's reports, can also be incorporated into XBRL-based financial reports.

XBRL is made up of three technical components-specification, taxonomy and instance documents. Specification and taxonomy are guidelines for XBRL tag definition. A detailed description of these three components is provided in the following section. XBRL tags provide semantic information for the enclosed data item. These tags tell the computer applications what the enclosed item is about. To illustrate, let us take a look at the following code snippet.

```
<?xbrl version="2.0" ?>
<group xmlns:ci="http://www.xbrl.org/us/gaap/ci/2002-
07-31" entity="NASDAQ:Microsoft" period="2002-12-31"
schemaLocation="http://www.xbrl.org/us/gaap/ci/2002-07-
```

```
31 scaleFactor="3" precision="9" type="statements"
unit="ISO4217:USD" decimalPattern="#.#" formatName="">
<group type="ci:Balance Sheet.Assets.CurrentAssets">
<Cash>3016</Cash>
<ShortTermInvestments>35636</ShortTermInvestments>
<AccountReceivable>5129</AccountReceivable>
<Inventories>673</Inventories>
```

<?xbrl version="2.0" ?> indicates the version of XBRL. The next line <group xmlns:ci="http://www.xbrl.org/us/gaap/ci/2002-07-31" displays the location of the namespace for XBRL and the document's taxonomy, which is CI taxonomy under U.S. accounting principles (GAAP). An XBRL-enabled application can retrieve taxonomy information from this location and parse the data accordingly. The next several lines tell us that the reporting company is Microsoft, and the reporting period ends at the end of year 2002. The tags such as <Cash>, <ShortTermInvestments>, and <Inventories> tell us what accounts the enclosed numbers represent. These tags can be read straightforwardly not only by human beings but also by XBRL-enabled computer applications. As we can see, XBRL is very similar to XML; but it is specifically concerned with financial reporting issues.

Table 5.2. A comparison of three markup languages

	HTML	XML	XBRL
Function	Web page presentation	Data processing	Financial data processing
Flexibility	Limited	Great	Great
Tags	Predefined	User defined	User defined
Components	Tags	Schema (DTD), tags	Specification, taxonomy, instance document, tags
Parser	Web Browser	XML-enabled applications	XBRL-enabled applications
Similarities	Plat-form independent, language independent, easy for document exchange		

5.3.1 XBRL Components

XBRL consists of three major components: the XBRL specification, XBRL schema, and XBRL instance documents.

5.3.2 XBRL Specification

XBRL specification aims at standardizing the creation of XBRL taxonomies and instance documents. XBRL allows each user to define his/her own set of meta-data tags. However, unless these tags are created following certain uniform standard, information exchange would be inhibited since the tags defined by one user may be incompatible with and incomprehensible to the other user's application. XBRL specification is such a uniform standard that provides guideline on how to design taxonomies and instance documents in XBRL. It defines XBRL elements and attributes that can be used to prepare, exchange, and analyze financial reports, ensuring that user-defined tags do not overlap or clash. These elements and attributes include syntax of instance documents, syntax of taxonomies, semantics of instance documents, and semantics of taxonomies.

Table 5.3. Example of XBRL specfication elemetns

	Elements	Examples	Meanings
Syntax of instance document	Company ID, reporting period, entity names	NASDAQ:MSFT	The company with NASDAQ ticker symbol MSFT
		CUSIP:41009876AB	The entity with CUSIP number 41009876AB
Syntax of taxonomies	Elements, Monetary and shares datatypes, rollup	<element name= "CurrentAsset.CashandCashEquivalents" type= "xbrl:monetary"/>	Define the elements. Note that both the colloquial name and its immediate parent are included in the element
		<element name="significantAccountingPolicies-Note.stockBasedCompensationPolicy" type= "string"/>	

5.3.3 XBRL Taxonomies

XBRL.org defines taxonomies as a "standard description and classification system for the contents of accounting reports. XBRL taxonomies can be

regarded as extensions of XML Schema. Information producers take their accounting information from their accounting system and code it in a standard fashion as described by the taxonomy." Taxonomies are used for different types of business reports. As we know, accounting can be divided into several subsets, including financial accounting, management accounting, SEC reporting, IRS reporting, etc. Each subset usually requires a special set of accounting terms, policies, and methods for reporting. Additionally, different accounting standards may require different taxonomies. For instance, U.S. General Accepted Accounting Principles (GAAP) are different from International Accounting Standards (IAS). Therefore, two taxonomies may be needed to prepare the business reports in accordance with these two different standards.

Consequently, XBRL communities have determined to create one taxonomy for each accounting subset. For example, there are taxonomies for general ledger, financial reporting, management reporting and SEC certification. Currently, two taxonomies are available to the market. One is U.S. GAAP CI taxonomy, which deals with financial reporting for commercial and industrial companies under GAAP. The other is GL taxonomy, which is concerned with reporting at the transaction level. A number of new XBRL taxonomies, including taxonomy for management notes and discussions, taxonomy for SEC certification, and taxonomy for IAS accounting, are either under development or under review.

5.3.4 XBRL Instance Document

An instance document is an XBRL-coded business report. It can be an XBRL-tagged balance sheet, an XBRL-tagged debt covenant report, or an XBRL-tagged SEC 10Q filing.

XBRL specification, XBRL taxonomies and XBRL instance documents constitute the XBRL world. An XBRL instance document includes the XBRL specification version ID as well as the name and location of XBRL taxonomies. Upon receiving an XBRL instance document, the XBRL-enabled application can process the instance document in accordance with the matching specification and taxonomies.

5.4 XBRL and Business Intelligence

XBRL has far-reaching implications for the entire business community. XBRL can dramatically facilitate business reporting. The processes of preparing, presenting, extracting, and analyzing financial reports can be

largely automated using XBRL-enabled applications. Both financial report preparers and users can harvest the huge benefits from XBRL.

5.4.1 Benefits For Financial Report Preparers

Accounting computerization has already alleviated accountants' workload for a large measure. XBRL can further increase the efficiency and effectiveness of accountants' work. XBRL can facilitate the preparation of financial reports. Traditional financial reporting requires multiple inputs of financial data for different types of financial reports. Accountants need to input a company's entire set of financial and non-financial data for its annual report to be placed on the company web site. They may input the same set of data again to prepare an SEC 10K filing or a credit report filing for bank loan application because these reports have different data and format requirements. These multiple entries of data into the computer system not only waste time and labor but also result in many input errors. XBRL eliminates this redundant task. Since XBRL applies standard tags to the raw financial data, an XBRL-enabled application can understand and process the data. The same set of data can be used across applications. Accountants can enter data once into the computer system and use it multiple times. It would be time saving, effort saving, and paper saving for accountants to prepare different business reports for different purposes using different formats. It is comparable to having a word document file that can be converted effortlessly into txt, pdf, and rtf documents.

XBRL can be integrated with ERP systems, corporate data warehouses, and other corporate information systems. ERP systems and corporate data warehouse can capture data at the transaction level and feed the data into XBRL-ready applications. Then the information can be tagged in XBRL using XBRL GL (general ledger) taxonomy. Afterwards, the general ledger level XBRL-compliant report can be further processed, consolidated, and customized for different user needs. The entire process can be computer automated without human intervention. This practice will further reduce the costs for financial report preparation.

5.4.2 Benefits for business report users

In addition to facilitating accountants' business reports preparation, XBRL can also streamline the extraction and analysis of business reports for a large variety of financial report users. These users can include company decision makers, auditors, creditors, financial analysts, stockholders, as well as regulators.

Different financial report users usually have different interests in the financial reports. Local managers may be interested in the sale volume and inventory turnover ratio. Top decision makers may be interested in the overall profit of the company. Auditors may be more interested in knowing if the company hidden financial problems. Creditors will be interested if the company will be able to pay back the loans. Stockholders and financial analysts are usually interested in the company's earnings, stock dividends and growth potential. Regulators usually pay more attention to if the company has complied with the laws and regulations. For example, IRS officials may pay attention to the company's taxable income and payments.

Currently, these users have to manually extract relevant data from business reports and then import these data into various computer applications for analyses. A bottleneck lies in this manual data extraction process. Computerized data extraction is hampered for four major reasons. First, not all the companies use the same set of accounting terms. For example, "cash" and "cash and equivalents" can mean the same accounting item (Kogan, 2002). It would be easy for human users to identify but will cause confusion for computer programs. Second, what makes things worse, there is no consistency for the report layout and format. The length of an annual report can vary from 5-7 pages to 70-80 pages. An income statement can be found at the beginning, middle, or end of an annual report. A line item, such as inventory, can be located at the 3rd, 4th, or even 5th line under the current assets account. The inconsistency in accounting terms and report formats prohibits the automation of data extraction and analyses from business reports.

However, with the adoption of XBRL, these problems can be easily solved. If financial reports are encoded in XBRL tags, XBRL-enabled computer applications can quickly scan the tags in the report, locate the desired line items, and extract the data for analyses. Since these XBRL tags are clearly-defined standard tags, the computer application will not have any confusion in identifying the needed data. The financial report users only need to inform the application what type of information they are interested in, and the application can extract the relevant information for them automatically. Thus, the time for data extraction can be greatly reduced by using XBRL.

XBRL can also facilitate the information exchange of financial reports. Traditional financial reports have limitation in information exchange. First, financial reports are usually prepared in different file formats by different computer applications. For example, a study of online financial reporting found that the formats of online financial reports include pdf, word document, txt, excel, and html. These files have limited compatibility. Smooth information exchange is rendered impossible by these incompatible file

formats. Moreover, different platforms, such as Windows 98, Windows 2000, Windows XP, Unix and Linux, have created more barriers for financial report exchange between different platform-dependent applications. Second, financial reports can be prepared in different languages, including but not limited to English, German, French, Chinese, Japanese, and Korean. Current financial analysis software suites are language dependent. Most of these applications can only process financial reports in one language, mostly in English. A huge portion of non-U.S.-based capital markets is excluded from the financial community due to language barrier. Last, but not least, different accounting standards, regulations and policies have prohibited seamless comparison between financial reports prepared under different accounting standards. U.S. GAAP, International Accounting Standards (IAS), and other proprietary national standards such as Japan's accounting principle prevent expedited exchange and analysis of the financial reports because the information contained in these financial reports is not comparable if the user is not familiar with these different standards.

XBRL can nicely resolve the above-mentioned problems. First, if a financial report is coded in XBRL tags, the conversion of this report into other formats can be as easy as several mouse clicks, using the XBRL-ready application. Microsoft has already added an XML module into its Office XP software package. It is expected that an XBRL module for Office applications will soon be available. On the other hand, the conversion of financial report in various formats into XBRL-compliant document is also effortless. University of Kansas has developed a prototype of an XBRL conversion tool, which can convert a text-format financial report into an XBRL-encoded one. UBMatrix and CaseWare are among the increasing number of software vendors who are developing XBRL-enabled applications to create XBRL-encode financial reports.

Second, in order to overcome the language barrier, XBRL uses Unicode as its default font. Unicode can support over 120 languages, which makes XBRL language independent. Hence, even if a human user does not understand the language in the financial report, an XBRL-ready computer application can automatically translate and analyze the financial reports for the user.

Third, the barrier caused by the different accounting standards can also be removed by XBRL. Each XBRL-compliant financial report contains taxonomy information, which indicates the type and location of the taxonomy. Financial reports based on different accounting standards use different XBRL taxonomies. An XBRL-ready computer application can retrieve the matching taxonomy from the designated location and process data contained in the financial reports accordingly.

In summary, XBRL is a language independent, platform-independent, accounting-policy independent standard. Its adoption can facilitate financial report preparation, extraction, exchange and analysis. Accountants can prepare financial reports with ease. More frequent financial reporting is made possible by XBRL. Using XBRL-enabled software, Managers can have both very detailed and highly consolidated view of a company's financial data. More effective decisions can be made. Auditors can integrate their auditing software with XBRL business reports. Financial data can be electronically fed into the auditing software as opposed to manual input. Thus, auditing sample size can be dramatically increased, and the audit risk can be lowered. Frauds and errors can be detected more promptly. With XBRL, investors and creditors can follow more companies, including domestic and international, large and small ones. The capital and loan market will become more rational and efficient. Similarly, regulators can monitor more companies' financial performance.

5.5 XBRL Software Vendors

Although XBRL is a recent innovation, several software companies have already developed XBRL-enabled applications. A well-known application is a jointly-developed project called "Excel Investor's Assistant" by Microsoft, PriceWaterhouseCoopers, and NASDAQ. This application can pull financial data from the Internet, build XBRL instance documents, and conduct financial analyses of 21 selected companies. The beauty of this application is that it is a macro which runs on the widely-used Excel. Therefore, no new software is required. It can prepare XBRL instance documents, perform ratio analysis, compare up to five companies' financial measures, and analyze financial and nonfinancial information. Every process and task can be completed in seconds.

A number of business software vendors have developed XBRL-enabled applications. Generally speaking, current market available applications can be categorized into two major groups: XBRL instance document builder and XBRL taxonomy builder.

Fig. 5.1 shows the initial startup screen of the application. It allows the user to input the fiscal period and company names for analysis. In this case, Microsoft and Intel are added for analysis. The fiscal period is from 1st quarter in 1997 to 4th quarter in 2002. The application retrieved the XBRL documents for these two companies from the Internet immediately after the "Build Analyses" button was pressed.

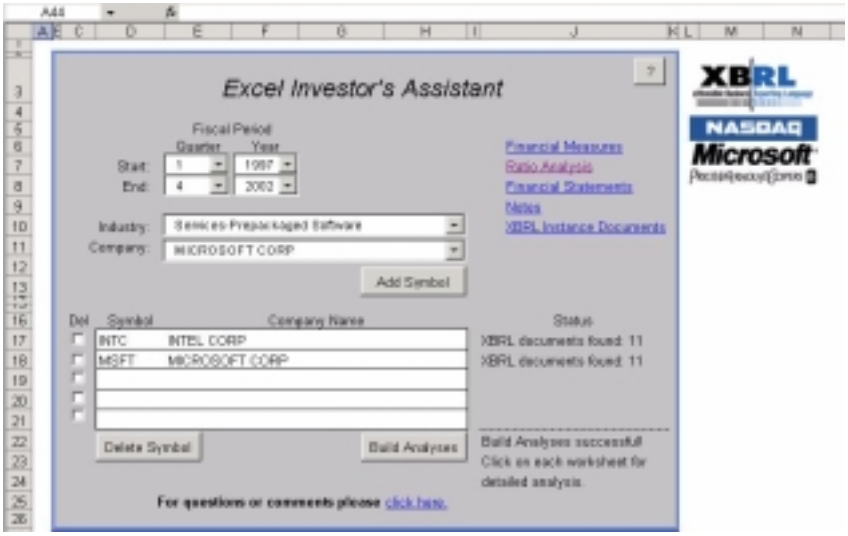

Fig. 5.1 Excel Investor's Assistant initial screen

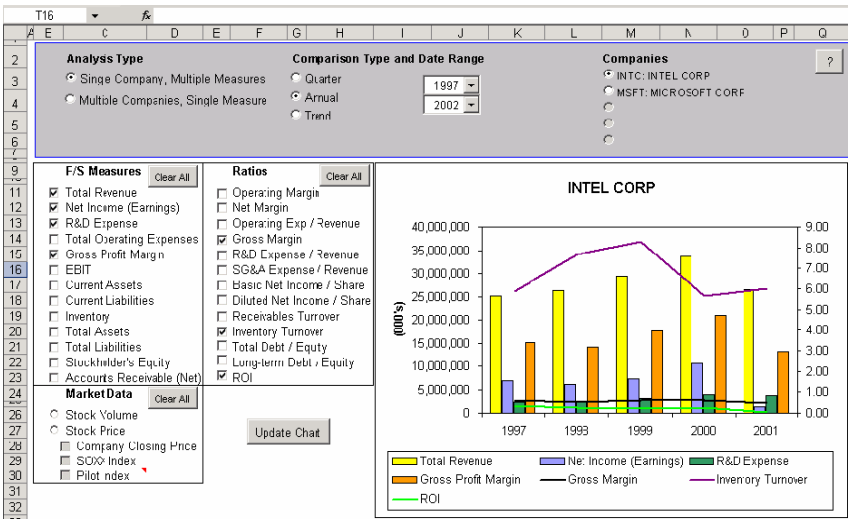

Fig. 5.2 Time series comparison

Fig. 5.2 displays the screenshot a time series comparison chart of Intel Corp's annual financial measures and ratios, such as total revenue, gross profit margin, inventory turnover, and ROI. Through the charts, financial statement users can instantly compare the current financial performance to historical performance.

Fig. 5.3 Comparison chart

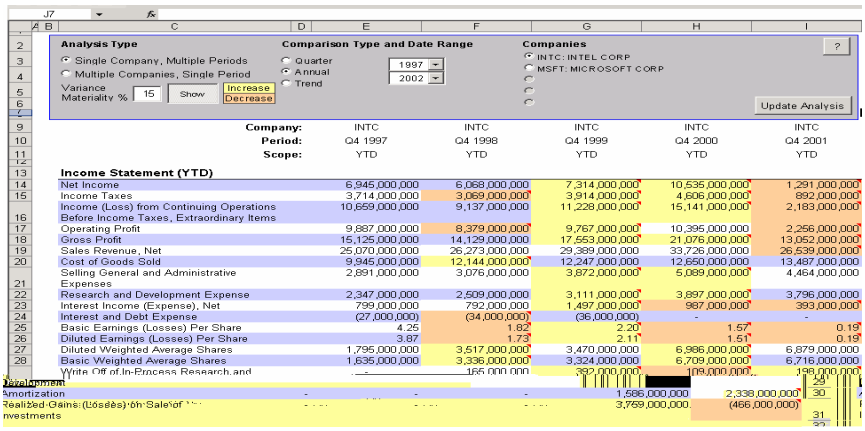

Fig. 5.4 Accounting numbers for Intel.

Fig. 5.3 shows a comparison chart of Intel and Microsoft's annual net incomes from 1997 to 2002. The financial measure comparison between these two companies is clearly visualized through the charts. Fig. 5.4 presents the accounting numbers for Intel. The increase and decrease of accounting numbers can be indicated by different colors. The variance percentage will pop up if the mouse is moved over the appropriate numbers.

XBRL instance document builders focus on making XBRL-compliant business reports. These applications either generate XBRL-compliant business reports directly from the corporate data warehouse such as PeopleSoft and SAP's financial modules and CaseWare's **Working Papers**;

or the applications convert traditional business reports into XBRL-compliant reports such as Hyperion Solutions' **Hyperion Reports** and PricewaterhouseCoopers' **EdgarScan**.

XBRL taxonomy builders allow users to create their own taxonomy. As we know, variations exist in different business reporting requirements for different business entities. Standard taxonomy is not all inclusive, which may not always satisfy business reporting needs. Sometimes an organization needs to create its own taxonomy. XBRL taxonomy building applications can help to create new taxonomies, ensuring that the taxonomies created conform to XBRL specifications and can be mapped into the company's database. This type of application includes UBMatrix's **Taxonomy Builder**, DecisionSoft's **X-Meta**, and Fujitsu Ltd's **Taxonomy Editor**.

In addition, another group of XBRL vendors provides a repository for XBRL instance documents. These vendors include **EdgarOnline** and **OneSource Information Services**.

5.6 Conclusion

XBRL can facilitate financial report preparation, exchange, extraction and analysis. Business report preparation and analysis will be much faster and less costly than ever. The adoption of XBRL technology has far-reaching benefits for accountants, decision makers, creditors and regulators. Financial data only needs to be entered into the computer system once and can be used multiple times. The workload for accountants can be reduced. Financial reports in XBRL can be easily exchanged through the Internet. Data extraction and analysis from XBRL-coded financial reports can be largely automated by computer applications. Financial report users can analyze more efficiently and effectively.

XBRL will invoke great changes and create new opportunities in the financial reporting community. For accountants, since financial reports can be prepared more efficiently with XBRL, it is possible that more frequent and detailed financial reporting will be made. As a result, financial reports will be more transparent and informative. For company management, they can know more accurately how their unit performs as compared with other units and previous periods. Better decisions can be made based on the information contained in XBRL reports. For auditors, XBRL reduces the opportunities for management fraud and manipulation of accounting numbers. Additionally, audit sampling and testing are facilitated with XBRL. These improvements will dramatically reduce auditor risks and cut the

auditor's workload. It is also expected that XBRL will enable continuous auditing. Auditors can use XBRL to perform audits on a high frequency or even real time basis. With XBRL, creditors can closely monitor a large group of clients' debt covenant compliances at the same time. They can make better and faster credit decisions and increase the customer base. For investors, XBRL can help them to follow more companies than before and improve their investment decisions. Mid- and small-sized companies can compete with large companies for the capital market, since the cost of investment analysis will be reduced by using XBRL. Regulators will also have better control of their subjects since XBRL can provide improved monitoring functionality.

In order for XBRL to be widely employed in financial reporting, a few issues need to be solved. First, good taxonomies need to be created. Only two taxonomies, CI and GL, are available. We need more taxonomies to satisfy various reporting requirements. Second, regulators need to encourage the use of XBRL in financial reports. Only with the regulators' help can XBRL be quickly adopted. Third, more user-friendly XBRL-enabled software must be developed. Many financial statement preparers and users are not very technically inclined. The promotion of XBRL in the financial reporting community relies heavily on user-friendly and affordable XBRL applications. If these issues are resolved, we are sure to see that XBRL will be widely used in the near future.

Table 5.4. XBRL vendor list (Adapted from "XBRL Progress Report---April 2003")

Vendor Name	Application	Function	Web Site
CaseWare International	CaseWare Working Papers; CaseWare IDEA	Supporting XBRL GL compliant files, Working papers can create XBRL tagged instance documents	www.caseware-idea.com
Creative Solutions	Write-up Solutions; Trial Balance Solutions	Creating XBRL-tagged financial documents	www.CreativeSolutions.com
DecisionSoft	X-Meta; XBRL Took Kit	X-Meta can create taxonomies; Took Kit can validate taxonomy and instance documents	http://xbrl.decisionsoft.com

Table 5.4. (cont.)

Vendor Name	Application	Function	Web Site
EDGAR Online	XBRL Repository	A central repository for companies to submit their XBRL business reports, or promote XBRL applications	www.xbrl-express.com
Fijitsu Limited	Interstage XWander, Taxonomy Editor, XBRL Converter, XBRL Validator	Creating XBRL taxonomies, convert reports into XBRL- compliant documents, and validate XBRL documents regarding syntax, schema, and XBRL semantics	http://xml.fujitsu.com/en/tech/xbrl/index.html
Hyperion Solutions	Hyperion Reports	Creating XBRL instance documents under existing reporting paradigm	www.hyperion.com
iLumen	iMonitor	Its financial monitoring and benchmarking network supports XBRL and can convert multiple-format reports into XBRL	www.iLumen.com
FRx	FRx Fianncial Reporter 6.5	It can create XBRL instance document and supports XML; providing financial reporting and analysis function for leading accounting and general ledger applications	www.frxsoftware.com
Navision	Navision	It can import taxonomies and generate XBRL reports	www.navision.com
OneSource Information Services	Applink	It offers XBRL reports for 25,000 global public companies with 5 years annual and quarterly data	www.onesource.com
Oracle	Financial Statement Generator	It can import XBRL taxonomy and use it to create XBRL-compliant reports	www.oracle.com
PeopleSoft	Financial Management Solutions	It has XBRL functionality which can create XBRL instance documents for SEC filing and investors' business reporting.	www.peoplesoft.com

Table 5.4. (cont.)

Vendor Name	Application	Function	Web Site
PPA GmbH, Germany	PPA Benchbase	It provides 7000 German companies' financial reports in XBRL format	www.ppaworld.com/xbrl
Pricewaterhouse-Coppers	EdgarScan	It can extract filings from SEC server and convert them into XBRL-compliant reports	http://edgarscan.pwcglobal.com/XBRL/XBRLatPwC.html
SAP AG	Strategic Enterprise Management	It can import taxonomy, pull data from data warehouse, and create XBRL business reports.	www.sap.com/financials
Semansys Technologies B.V.	Semansys XBRL Composer	It integrates XBRL with business intelligence. It supports taxonomies management, XBRL report creation, reception and interpretation.	www.semansys.com
Universal Business Matrix, LLC	UBmatrix Taxonomy Builder, UBmatrix Studio	It is a comprehensive suite that can support XBRL taxonomy building, instance document creation, editing and validating	www.ubmatrix.com
XBI Software Inc	Convenant Monitor	It can use XBRL to monitor clients' banking covenants.	www.xbisoftware.com