the Developer tab. The Developer tab is not shown on the Excel toolbar by default but can be turned on by going to File | Options | Customize Ribbon and checking “Developer” under the “Main Tabs”. The code can then be viewed by clicking on "View Code":

Figure 11. Developer Tab.

The main code can be found by double clicking on the Module “MainApplication”:

Figure 12. Main Application Location.

REFERENCE


David Porter is a Professor of Finance at the University of Wisconsin-Whitewater.

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Demonstrating Retrieval of Financial Information in XBRL

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The Securities and Exchange Commission (SEC) has upgraded the existing system of Electronic Data Gathering, Analysis, and Retrieval (EDGAR), to Interactive Data Electronic Applications (IDEA) platform, using eXtensible Business Reporting Language (XBRL). In January 2009, the SEC issued its final mandate for XBRL adoption and the conversion target dates for all firms. This conversion enables users to retrieve listed companies’ financial statement information at two levels, document and the data element, compared to the document level alone under the existing system of EDGAR. Beneficial to all users, this change is particularly important to resource-strapped entities such as small businesses, and universities. The result is user friendly for students researching information. With simply the industry standard tool of Microsoft Excel, without expensive proprietary XBRL modules, detailed information is now available, quickly, efficiently and at minimum cost. This paper explains the basic concept of XBRL and demonstrates the ease of the retrieval process in Microsoft Excel.

INTRODUCTION


The new rules are intended to make financial information easier for investors to analyze and to assist in automating regulatory filings and business information processing. The XBRL system lists information at both the document level, such as the entire set of financial statements for a given firm, and the data element level, such as individual accounts like inventory. In XBRL interactive data, or data tagged at the data element level, can function across multiple and/or different platforms or application programs. Thus, XBRL has the potential to increase the speed, accuracy and usability of financial disclosure, and
eventually reducing costs for financial reporting as well as business transaction processing.

At the same time as the company files its financial statements or related registration statement with the commission in XBRL format, the SEC also requires a filer, for a minimum of twelve fiscal months, to post its financial statements in interactive data format on its corporate website. The new rules will not eliminate or alter existing filing requirements that financial statements, the accompanying reports and schedules be filed in the traditional format. The SEC believes that some investors and analysts may wish to use the traditional format to obtain an electronic or printed copy of the entire registration statement or report, either in addition to or instead of using interactive data.

In the traditional format, one painstakingly sifts through pages of statements and footnotes in order to extract the relevant data. Currently, whenever financial statement data are needed for fundamental analyses, users can download the related financial statements directly from the SEC’s EDGAR system. For efficiency and/or accuracy, many users often turn to paid commercial data providers to obtain the necessary data. With Interactive Data Electronic Applications (IDEA), we will be able to retrieve these data directly from the SEC’s website.

Beneficial to all users, this change is particularly important to resource strapped institutions, such as small businesses, students and universities. Using the industry standard tool of Excel, without expensive proprietary XBRL modules, these institutions can procure detailed information quickly, efficiently and at minimum cost.

The motivation for this paper is two-fold: to explain the basic concept of XBRL and to demonstrate the retrieval process in Excel in the classroom or in a workshop. Its contribution lies in drawing attention to the possibility of bypassing commercial data providers, for end users in financial services and at educational institutions.

Exhibit 1: SEC Web site

![SEC Web site](image-url)
The paper is organized in the following manner: section 2 explains some basic concepts of XBRL (Bizarro and Garcia 2010). Section 3 demonstrates XBRL data retrieval in Excel emphasizing how this would be useful for teaching and or employee training. Conclusion follows.

SOME BASIC XBRL CONCEPTS

At the beginning, listed companies filed their required reports with the SEC using paper. Later, during the 1990s, they filed electronic reports utilizing the EDGAR database. Now, aiming to provide investors and all other interested parties with faster and easier access to financial data, the SEC is upgrading the EDGAR system to another electronic platform: IDEA. In doing so, it is increasing capital market efficiency (Fang 2005 and Malkiel 2003) through information efficiency.

For illustrative purposes, assume that an investor wants to make a substantial investment. This investor chooses to perform a set of five-year profitability trend analyses for a pair of candidate companies to finalize his investment decision. Twenty-five years ago, when filing was paper-based, it would be necessary to first spend many hours in the library collecting information by hand from volumes of loose-leaf annual reports and then to perform all the necessary calculations. With the electronic system, only a fraction of that time is needed to collect similar data on either EDGAR or some other online data warehouse. This represents an amazing gain in efficiency. EDGAR is now upgraded to IDEA, a more efficient electronic system.

EDGAR provides users with electronic data at the document level. Companies file their financial reports in SEC prescribed forms, providing all the necessary data at the document level. This means that to perform your analysis, you first have to sift through hundreds of pages of financial statements. Then you need to manually re-enter this information in a spreadsheet or some kind of specialty software. Manual data entry is both time-consuming and potentially inaccurate.

IDEA, retaining some elements of EDGAR, uses XBRL to provide users with electronic data at the data element level (Phillips, Bahmanziari and Colvard, 2008).
Financial reporting in XBRL provides accessibility, comparability and usability (Taylor and Dzuranin, 2010). Firms post online a single XBRL instance document. This provides universal accessibility. The document contains industry specific approved taxonomies. The taxonomies serve as the means to tag data, footnotes and auditors reports. Tagging permits the association of a taxonomy element with a concept. This provides comparability across firms, search facilitated technology for comparison and transparency. Usability is enhanced via the standardized tags and elimination of transcribing data from one format to another, for example, from HTML to an analysis tool. Information is directly downloaded and then imported to a spreadsheet.

Now any application with XBRL processing capability can automatically import, cut, rearrange and present the necessary data in any shape or form according to user needs. As such, these applications are interactive. The elimination of the manual re-keying process not only improves data transmission efficiency, but also, and more importantly, data accuracy. IDEA has many advantages over EDGAR in terms of both speed and accuracy. Computers are much more efficient in searching, storing, and arranging information at the data element level, not just the document level (Fang 2009). In the next section, we will review examples of the use of information for financial analysis.

AN EXAMPLE FOR XBRL DATA RETRIEVAL: ASSET ALLOCATION FOR A STUDENT INVESTMENT FUND

The highlight of several business schools is their student investment funds. Student participation in the management of investment funds has been demonstrated to be a valuable technique for training individuals for the investment sector. The use of Microsoft Excel and XBRL makes this a cost effective proposition for most business schools. The following section demonstrates the convenience of XBRL in financial information retrieval using the ubiquitous tool of Microsoft Excel.

Exhibit 3: View Filing Data, 2008-2010
This method is more efficient than the hand collection of data required to obtain data from 10-K reports filed with the SEC only a few years ago. This section provides a detailed classroom demonstration of the advantages of using this method for data retrieval from the SEC’s IDEA platform into Microsoft Excel (2010).

A group of students, enrolled in an on-campus student-led investment fund class in finance, were assigned to pick the best military contractor to invest $2 million or 10% of the allowed investment fund. Using the capital asset pricing theory (Sharpe 1964), their professor has narrowed the candidates down to the final two companies: Lockheed Martin Corp. (LMT), and Honeywell International Inc. (HON). The students’ task was to finalize the investment decision by undertaking a trend analysis comparing profit margin ratios over the last five years. In this section we demonstrate how the student can accomplish the task to retrieve the financial statements directly from the SEC’s Next-Generation EDGAR system with Microsoft Excel. Our demonstration expands on that of Tribunella and Tribunella (March 2010) using Microsoft Excel 2007. The SEC has upgraded its IDEA system since then, so now some of their instructions are no longer functional. We extend their methods to the student-led investment fund using Microsoft Excel 2010.

To begin, open a new Excel workbook. Immediately after opening a new Excel workbook, determine whether the “Developer” tab is displayed in the Ribbon. If not, left-click the File tab and then left-click on “Options” in the pane on the left-hand side. This opens the “Excel Options” window. Choose “Customize Ribbon” in the left pane. In the right-hand column beneath “Customize the Ribbon”, check the box next to “Developer.”

Exhibit 4: Filing Window Detail
Left-click the “OK” button to confirm the selections and to return to the worksheet.

The next step is to download the necessary data. After opening an internet browser, go to the SEC website by typing in the web address (http://www.sec.gov) or by searching for “SEC” in an internet browser and clicking on the SEC link. From the SEC’s homepage, it is now possible to search for any one of the companies registered with the SEC by clicking on the “Search” button in the upper right corner (Exhibit 1). The SEC provides a few different ways to search company filings. For this sample analysis, the firm’s financial statements will be located using the name search feature. First, type “Lockheed Martin Corp” into the “Company Name” field on the left search pane. Next, left-click on the “Find Companies” button. In the “Search Results” window, a list of all the documents that the company filed with the SEC is displayed chronologically, forty documents at a time, together with all the pertinent registrant information. A blue “Interactive Data” tag is used to identify all the filings in XBRL format.

By scrolling down the list, one can find the 2010 10-K report filed on 2011-02-25 with the SEC. Left-click on the “Interactive Data” tag, which will open the “View Filing Data” window (Exhibit 2). Left-click on the “Financial Statements” tag on the left pane and select “Consolidated Statements of Earnings” from the dropdown list, granting access to Lockheed Martin Corp’s consolidated income statements from 2008 to 2010 (Exhibit 3).³ Left-click on the printer icon to print a hard copy and use it as a reference to check the accuracy of the XBRL data that will be downloaded later.

It is possible to save the information to a PC by first opening a new Microsoft Word document, switching back to the internet browser to copy the screen by holding down the “Ctrl” (“Fn” on some laptops) key and then press the “PrtSc” key on the keyboard. Then switch back to the Word document, right-click, then either select “Paste” or press “Ctrl” and “v” on the keyboard. These procedures will copy the screen shot to the Word document, which can then be saved for further use.² A second option exists for saving the reports in the Portable Document Format (PDF). Most internet browsers have the capability of either saving or “printing” a web page as a PDF. The major advantage with this second option is that instead of simply saving an image of the report, it is possible to save a searchable text document, significantly reducing time spent searching for relevant information later on in this process.

Next, download the financial statement data in XBRL format. Switch back to the internet browser, navigate back to the document list window and scroll down to the same 10-K report but left-click on the “Documents” button this time. A “Filing Detail” window will open. Scroll down to find the file with the description “XBRL INSTANCE DOCUMENT” marked “Seq. 17” for this document. Right-click the file link named “lmt-20101231.xml” and choose “Save Target As …” see Exhibit 4.

We recommend saving this file in the “XBRL” subdirectory that was created earlier.

The next step is to import the XBRL data needed for analysis to an Excel worksheet. Left-click on the Excel tab on the task bar at the bottom of the window. Open the instance document by left-clicking on the File tab, then click “Open”. Next, navigate to the “XBRL” subdirectory and select the “lmt-20101231.xml” file. After pressing the “Open” button, Excel can recognize that the file is in XML format.³ This will provide an “Open XML” dialog box. Select the “Use the XML Source task pane” option and press the OK button. A warning box will appear, reporting that “…Excel will create a schema based on the XML source data.” Press the OK button to proceed. An “XML Source” pane will open on the right side of the worksheet. In order to map the data quickly and accurately, we recommend that displaying the associated value of each XML data element. Left-click the “Options” button at the bottom of the “XML Source” pane and check all the options.

The next step is to map the XBRL data elements equivalent to “Net Earnings” on the Excel worksheet. The problem is that XBRL is still in its infancy and all the XBRL taxonomies (XBRL financial statement filing standards for various accounting standards and/or industries, e.g., IFRS vs. US GAAP, general industry vs. insurance industry) provide many different labels to tag the same or similar data elements (Capozzoli and Farewell 2010). This presents a formidable challenge for the users—especially an XBRL novice. Looking for the correct tag from a list with hundreds of data elements for any new instance document is like searching for a tiny needle in a huge haystack because we do not know which label a given company used to tag a particular data element. This is why it was previously recommended to first either print out a hard copy of the Consolidated Statements of Earnings or to save a screen shot of it, and then to choose to display the data value in the “XML Source” pane.

After scrolling about 3/4 of the way down the list on the “XML Source” pane, a data element named “ns2:NetIncomeLoss” with a <value> of “3217000000” and “ContextRef (Duration_1_1_2008_to_12_31_2008)” will be visible. Refer to the hard copy or screen shot of the Consolidated Statements of Earnings for Lockheed Martin Corp. (Exhibit 5): it can be verified that the two amounts match each other. It is also possible to learn that the company uses the label of “ns2:NetIncomeLoss” to tag its “Net Earnings”.

Next, click on <value> and drag it to either cell (A1) on worksheet or to any other field appropriate for mapping the “Net Earnings” or XBRL data elements labeled “ns2:NetIncomeLoss.” Left-click on the “Developer” tab in the Excel Ribbon on top of the window and choose “Import”. Excel will display an “Import XML” window. After this, navigate to the “XBRL” subdirectory to select the same “lmt-20101231.xml” file. After pressing the “Import” button at the bottom of the window, Excel will import and place Lockheed Martin’s “Net Earnings” for all the
reporting periods (2008, 2009 and 2010) below the XBRL data element of “ns2:NetIncomeLoss”. We recommend labeling the data with the corresponding year by referring to the hard copy or screen shot of the Consolidated Statements of Earnings (Exhibit 5). Following the same procedure, scroll down the XML Source pane, about 4/5 of the way down the list, to find the “Total Net Sales” or the XBRL equivalent data elements of “ns2:SalesRevenueNet” and map it to cell “D1” on the Excel worksheet. Following the procedures described above, repeat the same process for the “Total Net Sales” data for the last three years. Right-click the worksheet tab “Sheet 1” at the bottom of the window and rename it as “LMT_Imp” and “Sheet 2” as “Report”. Save the workbook in the “XBRL” subdirectory as “XBRL_Fin”. Later, we will use the “LMT_Imp” worksheet as a template for importing all the necessary XBRL data and the “Report” worksheet for the analyses and reports. On the “Report” worksheet, choose a section for calculating the five-year Profit Margin Ratio change and trend analysis for Lockheed Martin Corp. The next step is to copy all the necessary data from your “LMT_Imp” worksheet to your “Report” worksheet. You should also setup all the formulas needed for the Profit Margin Ratio change trend analysis. For example, the formula in cell F6 is “=F3/F4,” and in cell F8 is “=(F6-E6)/E6”. You only need to enter each of these formulas once then copy and paste it to the other years, see Exhibit 6.

Following the same procedure, you can download LMT’s financial statement data for 2009 and for many years to come. Now that you have setup the XBRL mapping and Report worksheet, you need a minute or two to retrieve the data without any “input errors”—a net gain in both efficiency and accuracy.

Exhibit 5: Mapping and Importing XBRL Data
Exhibit 6: The Report Worksheet

To complete this demonstration we wish to indicate that, with the exception of the companies that took part in the SEC’s voluntary XBRL filing program, most have chosen to file their financial reports in XBRL format for just a year or two. It is possible to continue to download financial statements at the document level from EDGAR by following similar procedures to search for the target company (LMT for this example). After navigating to the “Filing Detail” window (Exhibit 4), click on the “d10k.htm” under “Document” on the top pane. EDGAR will provide the full 10-K report. It will be necessary to manually sift through the report to find the data needed for your analysis and enter the amounts in the “Report” worksheet. Hand-collection of data is much slower than the XBRL import, and more importantly, much more susceptible to “input errors”. However, a search for information online or in a saved PDF may still improve search accuracy and efficiency. These formats maintain the integrity of the reports at the document level. By using the search function, (usually “Ctrl-f”), one can instantly locate every occurrence of a given word or phrase in a document. This method is still subject to human error; beware of misspellings.

Finally, it is important to follow similar procedures to setup a separate Excel workbook as an XML import template for Honeywell International Inc. The finished report should look like the final report in Exhibit 7 (“1” is used as a placeholder for missing data).

CONCLUSION

Over the past two years, the SEC has made considerable progress in building a functional IDEA system. It has successfully implemented the Next-Generation EDGAR System, which provides its users with many convenient search options such as multiple links and RSS (really simple syndication) feeds. This new system also seamlessly combined the old document level EDGAR system with the new data element level IDEA system. Thus, a user can retrieve a company’s financial reports in XBRL format as well as in electronic document format.

In this article, we have explained related concepts and demonstrated detailed steps describing how to directly retrieve XBRL data from reports filed with the SEC and import those data into Excel. To be better prepared to handle
this challenge in the near future, business schools and institutions with modest resources will still be able to train their faculty, students and/or staff with XBRL theories and skills. By now, most of the big software houses have developed their proprietary XBRL modules to work with their Enterprise Resource Planning systems for filing financial reports with the SEC as well as retrieving IDEA data for financial analyses. However, Microsoft Excel remains the most cost effective and accessible XML-capable software for most users of more modest resources.

ENDNOTES

1. There are approximately 500 such companies with worldwide common equity float above $5 billion at the end of the second fiscal quarter of their most recently completed fiscal year.

2. Everyone has different preferences and skill levels when using Excel and internet browsers. The authors are average users; the following procedures reflect their own preferences and abilities to get the job done using Microsoft Excel 2010.

3. In Exhibit 5, the accounting line items are interactive. Each line item has a filing code. For example, left-click on “net earnings” in Exhibit 5. This opens a window with three items – definition, references and details. Left-click on the details tab. This will show you “name:us-gaap_net_income_loss”. This filing name is to be noted. It is used to identify net earnings when you are importing data.

4. We would like to take this opportunity to promote a good habit to help organize computer files in the most logical way for easy access. The authors created an “XBRL” subdirectory on a PC’s “C” drive to store all the files related to XBRL research projects. This Word document was saved in that subdirectory as “LMT_HON,” a mnemonic file name. When working on multiple research projects concurrently, utilizing this filing system may be helpful in the retrieval of files at a moment’s notice.

5. XBRL is one of the many dialects of XML.

REFERENCES


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