The Adoption of XBRL Reporting: Implications for Industry and Education

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The SEC issued a mandate in 2009 that requires all public companies and foreign private issuers to file their financial reports using eXtensible Business Reporting Language (XBRL). XBRL is a global initiative undertaken in order to transform financial reporting by developing an efficient way of communicating financial information in a form that allows faster and easier analysis. Specifically, the goal of XBRL is to provide greater comparability through requiring that companies map a common taxonomy to the information within their financial statements. The benefits of XBRL are said to accrue to all participants in the financial information supply chain. This paper examines the impact of XBRL on two specific groups within this supply chain: (1) accounting professionals and (2) security analysis professionals. This is done by examining the trends in awareness and usage of XBRL by the two groups, and by examining the degree to which information regarding XBRL has been incorporated into the education curriculum required for professional certification in these fields. We then end the paper with a discussion of different challenges that exist regarding XBRL implementation.

1. Introduction

In 2009, the Securities and Exchange Commission (SEC) issued a mandate requiring all public companies to file financial reports in eXtensible
Business Reporting Language (XBRL) (SEC 2009). XBRL is a global initiative with the purpose of making financial reporting more efficient. It is expected to allow for easier and faster analysis through a common language used by all participants. The benefits from this common language will arise from more timely, reliable, and transparent financial reporting. This transparency should improve comparability of financial reporting among companies. Indirect benefits could include broader analyst coverage of companies, more market exposure of companies, and increased investor confidence.

Specifically, XBRL involves tagging financial reporting items with identifiers from a common taxonomy of terms used by all participants. XBRL turns data into information by using an open-source standard for tagging financial data, transmitting it over networks, exchanging it between software applications, and storing it in databases. The XBRL taxonomy is “extensible” in the sense that it allows companies to extend the taxonomy by adding tags for financial reporting items that may not be directly represented within it.

The accounting profession has been involved with XBRL from the beginning. When the SEC mandate was still under consideration, the American Accounting Association (AAA 2004) issued a comment letter to the SEC that identified major benefits of the initiative. Among these benefits was the ability to process financial information faster, resulting in efficiency in cross-checking financial data across industries, the potential to develop new risk-return metrics, and the potential to perform various types of real-time comparison and value analyses.

In addition to obtaining the perspective of accountants, the SEC ensured that XBRL was evaluated both from an analyst and investor perspective in several ways. For example, XBRL was discussed in roundtable forums that took into account investor and analyst needs, and evaluated through meetings with data providers that serve investors (SEC 2009). Despite these efforts, there is anecdotal evidence that there has been “little demand or evident interest in XBRL” (Jones 2008) from analysts and investors. It has been speculated that this is largely due to limited knowledge of XBRL and skepticism concerning its benefits (McFarland 2007; Grgeta 2006;
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Pinsker 2003; Johnson 2008; Ghani, Laswad and Tooley 2009). However, research has not yet empirically examined whether this limited knowledge and skepticism actually exists among analysts and investors.

This paper represents the first step in an effort to understand the ramifications of the XBRL mandate on two important user groups: (1) accountants and (2) security analysts. We discuss the operational impacts of the mandate on these user groups, as well as changes to the educational curriculum for each group. We close with a discussion of challenges concerning the implementation of the mandate from the perspective of both user groups.

2. The Accounting Perspective

Accounting is frequently described as “the language of business”. That is, accounting captures information concerning company transactions, and provides it in a format that is suitable for decision makers. These decision makers can be internal or external to the company. Given that XBRL concerns financial reports to those outside of the company, its adoption will affect both the accounting educational curriculum and the profession at large from the perspective of both types of users.

The Education Curriculum

Debreceny and Farewell (2010) note that although there have been many calls by academic researchers for changes in the curriculum (AAA 1986; Albrecht et al. 1994; Albrecht and Sack 2000; Van Wyhe 2007), change has been extremely slow. One notable exception is the addition of an accounting information systems (AIS) course in a large number of institutions. Although it has been documented that the AIS course is approached very differently at institutions (e.g., Hall 1998; Macur 1998; Smith and Bain 1993), the course generally deals with technology issues in the realm of accounting (e.g., auditing information systems). At first brush, it appears to make sense to simply add XBRL as an additional topic in the AIS course. However, Debreceny and Farewell (2010) argue that XBRL should be integrated across the accounting curriculum, and
not be simply relegated as a topic to be addressed in the accounting information systems course. This is because XBRL has fundamental ramifications to all areas of the accounting discipline. Debreceny and Farewell (2010) offer suggestions as to how to teach XBRL in all of the courses in a typical program. For example, in the first Intermediate Accounting course, they suggest that students be given the following assignment: “Generate an accurate mapping of financial statement line items to the US GAAP taxonomy indicating the correct location of any necessary extensions.” It is obvious from the viewpoint of these two researchers that XBRL should have significant ramifications on the entire accounting curriculum.

**Operational Impacts**

XBRL is expected to have significant operational impacts on the accounting profession. Efficiencies will arise due to XBRL’s enablement of faster and easier data collection and report generation (Baldwin and Trinkle 2011). Such benefits can be realized due to automation made possible through tagging of data, especially as accounting software vendors are incorporating XBRL into their products (Branson 2002). Some believe that this automation will improve transparency (Hodge et al. 2004), and make it more difficult for management to create misleading financial statements (Rezaee and Turner 2002; DiPiazza and Eccles 2002). Efficiency will also be enhanced as companies will rapidly be able to compile reports under different sets of accounting standards (Coffin 2001).

Some authors have discussed how XBRL will also improve the efficiency of the audit. Over time, the audit process has moved away from a manual process and more toward an automated one. It is possible that XBRL will allow companies to move toward a continuous audit (Rezaee et al. 2002; McGuire et al. 2006), which could, in turn, lead to continuous financial reporting (Alles et al. 2002).

Overall, the efficiencies created by XBRL will have a positive impact on the bottom line. As discussed, the financial reporting process will be improved and streamlined. This will lead to decreased audit costs (Bonson et al. 2009; Rezaee et al. 2002), as well as cost savings in report creation.
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(Rezaee and Turner 2002) and dissemination of reports (Ashbaugh et al. 1999). Indirect savings are also expected as these efficiencies could potentially free up financial reporting personnel and computer resources that could be used elsewhere within the company (Bonson et al. 2009; Pinsker and Shaomin 2008).

Challenges

Although it is expected to have numerous benefits for the accounting profession, XBRL is not without its challenges. Questions have been raised regarding the validity of financial reports filed in XBRL format. Research has addressed the issue of assurance of XBRL documents (Srivastava and Kogan 2009), and has noted that errors can arise within the process (Debreceny et al. 2010).

3. The Securities Analyst Perspective

Financial securities, such as stocks and bonds, trade in public markets at values determined in part by the analysis of company financial information. The role of the securities analyst is to gather and analyze this information, and to forecast future cash flows, including assessing the risk to receiving these cash flows. One of the main components of the efficient market theory is that all publicly held information relevant to the risk of future cash flows is immediately incorporated into the stock price (Koller et al, 2010).

Going from the theory of an efficient market to the actual decision making of trading participants is not a trivial matter. There are over 10,000 actively traded securities traded on United States markets. The SEC, under regulation S-X, (17 CFR Part 210) requires that companies provide timely release of information by publicly traded firms. These mandated reports, such as filings 10-Q (quarterly data) and 10-K (annual reports), can be hundreds of pages long, and contain thousands of individual data items. Corporations are also required under other sections of the SEC rules, such as Regulation FD, to make public announcements, through press releases or other public disclosures of significant corporate
events, such as earning announcements, mergers and acquisitions, and management changes. The challenge of the securities analyst is to incorporate this data into their valuation models as quickly as possible and to communicate this information to investors, so that they can make decisions whether to buy, sell or hold their positions.

The information that flows into securities analysts’ valuation and pricing models has evolved over the past decades with the increased usage of electronic and web based financial reporting. Beginning with the Securities Act of 1933 and the Securities Exchange Act of 1934 financial data was almost entirely distributed in paper format. An analyst would have to physically obtain a copy of the filed data, and manually calculate period-to-period, and company-to-company, ratios and comparisons. This had several disadvantages; it was time consuming and laborious, but also subject to input error. During this time, there was also a lack of standardization in the financial analysis process between analysts and across different firms; even common ratios such as debt to equity would be calculated in different ways.

To facilitate securities analysis, several data vendors, such as Standard and Poor’s, Thomson Reuters, and Bloomberg began to compile data directly from the SEC and sold the processed information on a subscription basis. These services had the scale to implement data assurance and quality control, as well as to begin the process of consistent taxonomy of financial statement information. Interestingly, the availability of consistently reported data from these data vendors helped created the modern capital assets pricing models, as computer readable financial and trading data was finally available for academic study.

Beginning with the SEC’s mandate of the Electronic Data Gathering, Analysis and Retrieval system (EDGAR) in 1996, companies were required to file information in computer readable format. After the implementation of EDGAR, analysts had the ability to download a company filing very shortly after it was filed. Although the data was available sooner, the format of the data was basically an image of the printed page; the analyst had to locate and copy the data from the EDGAR filings to the analysis model.
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Data vendors, driven by intense competition to service the rapidly expanding investment and trading industry, also evolved their systems. Moving from manual input of printed pages, the firms developed proprietary tagging software that would identify financial items on a page and load the data files based on the context. As search and text analysis evolved, these systems became extremely sophisticated. One large data vendor, Standard& Poor’s, has had as many as 2,500 people involved on the data gathering and input process (personal communication, Kahn, T., Data Analytics Director, Standard & Poor’s, April 5, 2012).

Each data vendor has their own set of data classification standards, which allow for consistent reporting analysis between companies being analyzed and over historical time periods. But, while these standards may be consistent within each vendor, they may not be across different vendors.

Classification of Securities Analyst Roles
To evaluate impact of the new XBRL reporting, we can divide the securities analyst roles into four categories:

1. **Buy-side Analysts**: These analysts typically are employed directly by investors, or most often by an investment fund. Their job responsibility is to locate promising undervalued securities and recommend that they be purchased. They also have the responsibility to monitor and evaluate securities that are already in the portfolio. Buy-side analysts may work for investment funds, hedge funds, pension funds and mutual funds. Typically the work of the buy-side analyst is kept proprietary to the fund that they work for.

2. **Sell-side Analyst**: A sell-side analyst typically works for a trading or brokerage firm, and is responsible for evaluating and recommending the purchase of a security to clients of that brokerage firm. The sell-side analyst will often prepare and publish research reports that forecast financial results and assign ratings of “buy” “sell”, or “hold”. The clients of the brokerage firm receive the analyses, and in return,
will often execute trades based on the analyst’s recommendations through that firm. There are several services that aggregate the opinions of buy-side analysts, which leads to the “consensus” or “street” view of a company’s prospects.

3. Portfolio Managers: A portfolio manager evaluates the suitability of an investment as it relates to a client’s specific investment objectives, risk tolerance and legal and regulatory constraints. While they may conduct analysis on a company’s financial reports, they most often receive analyses from a buy- or sell-side analyst.

4. Independent Analysts: During the 1990’s the role of the sell-side analyst was impacted by a series of legal cases, involving inherent conflicts of interest between sell-side analysts and investment banking activities at the same firm. As a result, a major impetus was created for a new business line of “independent analysts” or who are paid directly by their clients for the work that they conduct.

Expected Benefits of XBRL Implementation to Securities Analysts

Increased Depth of Analysis: Adoption of XBRL by all reporting companies will allow securities analyst easier, more consistent access to information relevant to the investment decision. As additional information is made available in XBRL format, it will be possible to link data in ways that is either not possible or very difficult to do with existing information. For example, industry specific factors, such as retail sales, airline load factors and business intelligence data can be made available in XBRL format and linked to company financial data.

Fewer errors: Direct download of data into valuation models will reduce the instances of input and transcription errors for those analyst who rely primarily on the use of source documents. Standardization of XBRL tagging with GAAP and IFRS protocols will reduce interpretation errors of data disclosure by corporations.

More Timely Reporting: Although data vendors and sell-side research firms have become quite efficient in their ability to process filings, there
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is still a time lag for the information to be input from the filing into the evaluation model. XBRL should be able to increase the efficiency of this process by allowing faster input.

More Efficient Securities Markets: There is currently a forced prioritization in the securities analysis. Because of the large number of traded securities (over 10,000) and the distribution of holdings, the large capitalization companies, such as those in the S&P 500 index, are normally analyzed in much greater detail, while smaller companies or less frequently traded securities receive much less attention. The prices of these large capitalization stocks react quickly to new information, and trade in very efficient markets. Smaller capitalization firms may not trade efficiently due to lack of analyst coverage, and lower the returns of the average market participant.

Improved Access for All Investors: Even though there is no cost to download company reports from the EDGAR website or the company investor relations pages, there is a very large cost associated with the ability to access the compiled data from third party data vendors. In many investment firms, the largest cost after personnel is for data subscriptions such as Thomson Reuters, Bloomberg and S&P.

**CFA Institute Involvement**

The most recognized professional credential for a securities analyst is the Chartered Financial Analyst or CFA designation. The CFA charter is administered by the CFA institute, which has over 100,000 members internationally. To obtain a CFA Charter, a candidate must have a bachelor’s degree or equivalent, 4 years of investment management work experience, agree to a code of ethics, and pass 3 levels of comprehensive qualifying examinations. These exams are revised every year by the CFA Institute to reflect the changing information necessary to be a securities analyst.

**XBRL and the Global Body of Investment Knowledge (GBIK)**

The CFA Institute has taken on the responsibility for promulgating the comprehensive body of knowledge necessary for an investment analyst.
This is referred to as the Global Body of Investment Knowledge (GBIK). The GBIK is developed by the CFA Institute based on a practice analysis, with input from membership, securities regulators, and investment managers. This practice analysis is based upon a series of surveys and interviews, and is intended to determine the knowledge, skills and experience needed in the investment analysis field.

CFA Institute identifies new items for inclusion in the GBIK through an interactive web based discussion group, whereby CFA members can recommend topics to be added to the GBIK. By monitoring the status of an investment topic through the discussion boards, and into the GBIK, we can gain an understanding of the relevance of that topic to the investment professional.

The first mention of XBRL is in October of 2007, where a proposal was made to include a discussion of the use of the XBRL filing format in the GIBK, Section IV, Financial Reporting and Analysis. This proposal was related to preparing common size financial and ratio comparisons. Over the next two months, there were several posts regarding XBRL and whether it needs to be included. The last set of postings, in December, 2007 point to a consensus that XBRL is a method of delivery of financial information, such as an Excel or HTML file, not a financial reporting standard, such as GAAP or IFRS. As a result, XBRL is not currently

<table>
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<th>Date</th>
<th>October 2007</th>
<th>November 2007</th>
<th>December 2007</th>
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<tr>
<td>Topic of Posts</td>
<td>Introduction of XBRL topic</td>
<td>Whether XBRL is necessary for inclusion in GBIK</td>
<td>No inclusion of XBRL</td>
<td>No additional discussion on XBRL</td>
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a GBIK component. There have no other posts regarding XBRL since December, 2007.

CFA Institute Center for Financial Market Integrity
Survey Results
As the leading professional group for securities analysts, the CFA Institute acts as an advocate in the establishment of the XBRL taxonomy and implementation schedule. In 2006, The CFA Institute Center for Financial Market Integrity (CFAFMI) formed an XBRL working group. As a part of this effort, the CFAFMI decided to implement regular surveys of the awareness and usage of the XBRL framework among CFA Institute members.

The first study was conducted in June and July of 2007. Of the then current 94,000 CFA Institute members, the CFAFMI selected 10,000 members based on their likelihood of being end users of financial statement data. Using an e-mail survey, with follow-up, they received a total of 864 completed responses, for a total response rate of 8.64%.

The design of the survey was in 3 parts. First, general information about the respondent’s job responsibilities related to financial statements was obtained, Second, the survey included a group of questions about how the user currently accesses financial statement data, including the extent to which third party vendor data is used. Finally, several questions related specifically to XBRL were asked. Respondents who had no awareness or familiarity with XBRL were redirected out of this section, and did not complete these questions.

About half (51%) of the survey respondents indicated they were primarily buy-side analysts, and that their main job responsibility was performing regular and recurring analysis of company financial statement information. Nearly all of the total respondents (88%) indicated that they use fundamental analysis, based on analysis of financial statements, as their primary investment research tool.

In terms of their current usage of financial information, there were 4 primary data sets of most importance; the Income Statement, Balance Sheet, Statement of Cash Flows, and company earnings releases.
This data was obtained from both 3rd party data vendors (48%) and extracted manually (52%). Rating the relative attributes of the supplied data, the highest measures were reliability, (4.7 of 5), consistency (4.5 of 5) and timeliness (4.4 of 5).

With regard to XBRL, 59% said that they were not aware of XBRL. Only 9% indicated they were aware and up to date on XBRL implementation, with 32% saying they had some knowledge. Of those aware and up to date on XBRL, 71% were sell-side analysts. Of those that were aware of XBRL, less than 8% said they were regular users of XBRL tagged information, representing less than 4% of total respondents. Finally, when asked to identify the level of assurance necessary needed, 69% indicated that a integrated/and or separate audit by an independent reviewer of the appropriateness of the XBRL tagging would be required.

The CFAFMI repeated the survey in October and November of 2009. While all the questions were the same, the survey went to a much larger group, with 23,894 surveys distributed. From this larger number, a total of 1,462 valid responses were received (6.1% response rate). As with the 2007 survey, the respondents were nearly equally split between buy-side and sell-side analysts.

In this survey, the awareness of XBRL had increased, with 35% being aware, and 11% being aware and intending to use it, while 55% said they were not aware. The usage of 3rd party data providers was consistent with the earlier survey. The most important financial data sets utilized were the income statement, balance sheet, statement of cash flows and earnings releases.

There was an increase in the number of users actually using data extracted from XBRL based statements. Usage of XBRL submitted regulatory reports increased the most, going from 10% in 2007 to 16% in 2009. Usage of other reports such as IPO prospectuses and regulatory filing also increased, although the increase was not large (9% to 11%).

The CFA Institute did not conduct an XBRL survey in 2011, due to a change in priorities as the result of the global financial crisis. However, CFA is in the process of preparing a survey to be conducted during the
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**TABLE 2.** Comparison of Response Rates and Job Responsibilities, CFA XBRL 2007 and 2009 Surveys.

<table>
<thead>
<tr>
<th></th>
<th>Number Surveys</th>
<th>Completed Surveys</th>
<th>Response Rate</th>
<th>Fund/Portfolio Manager</th>
<th>Buy-side Analyst</th>
<th>Sell-side Analysts</th>
<th>Other (Corporate, Academic)</th>
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<td>2007</td>
<td>10,000</td>
<td>864</td>
<td>8.64%</td>
<td>26.6%</td>
<td>23.8%</td>
<td>8.2%</td>
<td>57.6%</td>
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<tr>
<td>2009</td>
<td>23,894</td>
<td>1,462</td>
<td>6.12%</td>
<td>8.3%</td>
<td>56.9%</td>
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<td>16.7</td>
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fall of 2012, which will include the same set of questions as in 2007 and 2009 but also extend the investigation to the way in which XBRL is being used (personal communication, Glenn Doggett, CFA Institute April 5, 2012).

**Possible Reasons for Low Awareness of XBRL Among Securities Analysts**

Although the benefits to using XBRL data seem very compelling for securities analyst, the data presented clearly show a very limited awareness and use of the technology. The CFA Institute has no plans for inclusion of XBRL information into the GBIK, and it is not a topic that will be tested on the CFA exam. There may be several explanations for this:

1. At the time of the last survey in 2009, the SEC was just requiring mandatory XBRL reporting. An analyst using XBRL data in 2009 will likely have only one year of data, which is not very useful in forming trend analysis or comparison.
2. Most analysts, especially those on the sell-side, use data that has been compiled by third party data providers. There are several of these providers available, and the competitive forces keep their data products at a very high level. Analysts using this data may be indifferent to how the data is collected, whether it is through proprietary data tagging by the data vendors or structured XBRL tagging.
3. The limited data available on 10-Q and 10-K reports that are being filed in XBRL are not very useful to analysts. SEC reporting under Regulation S-X is backward looking, focusing on past financial performance and position. Securities analysis is forward looking, and is centered on forecasting results. Companies are now required under Regulation FD to disclose material information as soon as it is available, and they cannot wait until the data is compiled in an annual or quarterly report. This is the data where timeliness is most important, but it is not being reported by XBRL.

4. There is not a high level of confidence in XBRL data. Companies have established safeguards to make certain that filed data is correct, but those safeguards do not yet extend to the XBRL data. There are currently robust checks on data integrity by data vendors and analysts firms, but the automated nature of XBRL usage leads to concerns that data is not being compiled or input correctly.

**Challenges of Implementation**

The benefits to the covered constituents (accountants and securities analysts) of using XBRL are many-fold. An age-old problem with financial data analysis is consistency. As mentioned earlier, while reporting methodologies may be consistent for financial data from a single data vendor, it is rarely the case that data is consistently reported and/or interpreted across multiple sources or vendors. Through the widespread use of consistently defined and reported data, analysts would be able to focus more attention on forecasting data and valuing cash flows than on worrying about how a particular number has been defined.

Consistency is key to comparability. It is frequently difficult to compare data from different companies, let alone data across different industries or countries. Relative analysis (ratios, trends, etc.) requires consistency to be valid. Even for a simple ratio such as price-to-earnings, three is the potential for earnings to be inconsistently reported. Comparisons are used for “screening” stocks, monitoring company performance
and assessing company value, among other responsibilities of securities analysts. The consistency and corresponding transparency offered by XBRL reporting can do nothing but enhance the overall level of consistency among financial data.

Timing of financial data is also of paramount importance. While it is still unlikely that results of analysts’ valuation models will be instantaneously updated and communicated without some level of analysis, the ability to immediately incorporate new financial information should significantly reduce the timing of new valuation estimates. XBRL is specifically designed to enable this kind of real-time update to financial information, critical to maintenance of efficiency in security pricing.

Unfortunately, perhaps even more important than consistency and immediacy, is the need for accuracy and reliability of financial data. While publicly reporting companies have been required to file financial reports using XBRL since 2009, there is still a level of discomfort among the analyst community, principally due to a lack of familiarity with the XBRL taxonomy [various studies – see page 4]. Acceptance of XBRL data is perhaps not likely until the analyst community can see side-by-side consistency with data from more established sources and vendors over a period of years. Given the level of responsibility of the security analyst, only data of the highest integrity is acceptable for analysis. Until a general level of acceptance is reached regarding the use and application of XBRL data, it may remain an esoteric tool relegated

4. CONCLUSIONS

The use of XBRL reporting has compelling advantages over the current system of primarily text based financial reporting. The implementation of XBRL reporting is contingent upon the development and approval of a consistent taxonomy among the accounting profession, regulators, reporting companies and the securities analysis industry. For several reasons, including the complexity and scope of the needed schema, and the global financial crises, there have been delays in achieving these goals. As a result, while the key elements of the system are in place, there is not
currently a high level of awareness and usage of XBRL among security analysts. This is expected to increase as all publicly traded companies are required to report using the XBRL system and as additional data reports become widely available in an XBRL format.

With the eventual adoption of XBRL reporting, educational programs, such as those in the finance and accounting, will need to incorporate more sophisticated data analysis software into their course curriculum. The new data incorporated within the XBRL framework will allow more sophisticated and meaningful analysis of financial and business results, contingent upon users have the tools and techniques necessary to extract this information and understand its meaning.
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