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Assuring financial statements filed in XBRL – A new technology's effect on the assurance process

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Title	Assuring financial statements filed in XBRL – A new technology's effect on the assurance process.
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Key words	XBRL, assurance process, assurance issues, new auditing technology, electronically submitted financial statements
Purpose	The purpose of this master thesis is to investigate the issues surrounding the assurance of financial statements reported in XBRL and the way practitioners and other relevant parties envision and experience, in an XBRL assurance process.
Methodology	We have conducted a semi-structured survey with auditors and other relevant parties.
Theoretical perspectives	The theoretical perspective in this thesis is based on academic research conducted on XBRL.
Empirical findings	The empirical findings and the conclusions in this thesis result from semi-structured questionnaires and further comparative analysis.
Conclusions	We find that, though technically required to check XBRL filings, the assurance providers generally do not seem very concerned about the potential problems of XBRL assurance, nor do they feel that any drastic change in the assurance process is needed. On the other hand, with current proliferation of Internet and regulatory efforts of some countries (e.g. the US), the XBRL "version" of the financial statements will most likely become the version investors will rely upon, with or without direct XBRL assurance. Thus, we conclude that the problems, which are currently envisioned by academic research, may in the future become a nuisance for the practitioners if not properly addressed on time

“IT MUST BE REMEMBERED that there is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than the creation of a new system.
FOR THE INITIATOR has the enmity of all who would profit by the preservation of the old institution, and merely lukewarm defenders in those who would gain by the new one.” (Machiavelli, 1515)

Abstract

XBRL, short for eXtensible Business Reporting Language, is an XML based, meta-tagged financial reporting language, which, as anticipated by many, very soon will become one single standard for electronic filing of financial statements. The XBRL technology makes it possible for the financial reports' end users to search and analyze data in a faster and easier manner. Information in XBRL documents is not locked into a block of common text, but can move freely and independently of its presentation at the request of information consumers.

Due to the benefits XBRL offers, there are numerous countries today that either allow or mandate XBRL filing of financial statements. Despite the benefits XBRL provides, numerous studies have identified errors and inconsistencies in these filings. Error-laden XBRL documents are a serious concern for many stakeholders. However, no jurisdiction so far has mandated assurance, i.e. auditing, on XBRL filings.

Assurance is a fundamental part of any capital market system. Many questions have been raised regarding the potential assurance of XBRL filings. These questions include the nature and the level of such assurance, lack of guidance for it, meaning of an error in XBRL filings, materiality, and assurance techniques and procedures.

The purpose of this master thesis is to investigate the issues surrounding the assurance of financial statements reported in XBRL and the way practitioners and other relevant parties envision and experience, in an XBRL assurance process. The method is a qualitative approach in form of conducting a survey via semi-structured questionnaires. The scope of respondents included 22 Swedish and Dutch auditors, also mentioned as "assurance providers" throughout the thesis, who have assured financial statements filed with XBRL, 4 persons active with the XBRL adoption process in the Swedish professional organization Far, and 15 other persons actively working with assurance issues concerning XBRL in Europe, the U.S. and Asia.

We find that, though technically required to check XBRL filings, the assurance providers in Sweden and the Netherlands generally do not seem very concerned about the potential problems of XBRL assurance, nor do they feel that any drastic change in the assurance process is needed.

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Thank you, everyone!

Lund University, May 28th

Alla Kvashnina
Patrik Larsson

Abbreviations

AICPA – American Institute of Certified Public Accountants

APRA – Australian Prudential Regulation Association

ASCII - American Standard Code for Information Interchange

CPA – Certified Public Accountant

FRIS - Financial Reporting Instance Standards

FRTA - Financial Reporting Taxonomies Architecture

GAAP – Generally Accepted Accounting Practice, or Principles

HTML – Hyper Text Markup Language

IAASB – International Auditing and Assurance Standards Board

IFAC – International Federation of Accountants

ISA – International Standard on Auditing

PCAOB – Public Company Accounting Oversight Board

SEC – Securities and Exchange Commission

VFP – Voluntary Filing Program [Of the SEC]

XARL – eXtensible Assurance Reporting Language

XBRL – eXtensible Business Reporting Language

XML – eXtensible Markup Language

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1. Introduction

The first and foremost function of external assurance is to provide credibility to a company's financial statements. Through the assurance process, the auditor increases the statements' value and usefulness. When conducting an assurance, considerable expertise and knowledge of a company's operations is required in order to provide reasonable assurance that financial statements materially state a fair view (Hayes *et al.*, 2005).

Assurance engagement means an engagement in which a practitioner (professional accountant or auditor) expresses a conclusion based on measurement of the subject matter against identified criteria, which aims to enhance the degree of confidence the intended users other than responsible party will have about the subject matter (IFAC, 2005). In this way, assurance is the best way to define the potential service the auditors may provide on XBRL reporting since any other service provided (e.g. for internal use) would not be of value to investors.

With an increased reliance on, and use of, information technology systems in companies in general and financial statements in particular, there is considerable change in the environment in which auditors work. The new assurance environment requires of auditors to obtain new skills in order to be able to assess corporate governance and measurements (*ibid.*).

XBRL, short for eXtensible Business Reporting Language, provides a new way to report and present financial information. Instead of presenting financial data as a block of common text, companies can use XBRL "tags" to report individual items in the financial reports (Gunn, 2007). The tagged data is made interactive by submitting XBRL-tagged data to, for example, the American SEC's EDGAR (SEC, 2010) where external users such as investors, auditors and other interested stakeholders can take part of not only aggregated financial data but also the individual posts that make up the aggregated data (e.g. depreciation expense, see Phillips (2008) for additional examples).

According to Plumlee and Plumlee (2008), this method is a big step forward from traditional financial reporting and alters how external users view and use financial and non-financial data. Potential and suggested advantages include less data manipulation (of financial statements), less paper in financial reporting, less time to produce accounting information, easing the task of analyzing multiple company financial information (XBRL.org, 2010).

XBRL is used in a number of countries for financial reporting and governmental e-filings and has potential to revolutionize the processing, reporting, and accessing of business information and improve the quality of financial data for a variety of stakeholders (*ibid.*).

This technology for producing financial information will provide numerous advantages, but in its infancy it still suffers from many reporting errors and uncertainties regarding its regulation (Steinert-Threlkeld, 2009). For example, in the U.S, 68 % of the XBRL-filings in 2007 were inconsistent with the companies' regular financial filings (*ibid.*), which could prove a stumbling block in achieving credible reliability.

Though the idea of assurance on XBRL has been indicated by many, it still is a vastly under-researched topic. There are many projects around the world that allows financial statements to be filed with XBRL, and even countries that mandate XBRL for certain financial statements. For the external auditor, this way of reporting financial data with XBRL certainly provides new challenges and requires new audit techniques to be able to provide the same level of assurance as with the conventional assurance process.

Today, there are many unresolved potential issues regarding the assurance of financial statements filed with XBRL. These issues include, but are certainly not limited to, lack of appropriate guidance and standards (especially regarding the assurance process), nature of materiality and the meaning of an error, statistical techniques and sampling (Gunn, 2007; Plumlee and Plumlee, 2008; Trites, 2002).

Due to both the novelty of XBRL and lack of extensive assurance done on financial statements filed with XBRL, we feel this is an excellent opportunity to shed light on the assurance process and how it is affected by the introduction of XBRL.

2. Thesis structure/outline

This section describes how the thesis is structured and in what order we have chosen to arrange our research. This provides a structured overview of how to read the thesis. The thesis is divided into 10 chapters. After the introductory chapter and this structure section, we present the problematization, purpose of the thesis and research questions. We formulate the problem of assuring XBRL, which leads to the purpose of the thesis. In addition to the purpose, we formulate a number of research questions, strongly connected to the purpose, to be answered before we fulfill the purpose.

After the problematization, purpose and questions-section comes the methodology chapter in section 4. This chapter first formulates the research strategy employed, including the reason for choosing this particular strategy. This is followed by explaining the method chosen for gathering the empirical data used to properly analyze and answer the research questions. The chapter is concluded by two subsections, data analysis in section 4.3 which explains how we go about to analyze the data obtained in the research and credibility and reliability in section 4.4 which gives an account for the adjudged reliability and credibility of the research.

After the methodology section we present the limitations of the thesis in section 5. This section is important because it narrows the scope of our research and addresses the reliability of the research, given the issues surrounding empirical data availability.

This is followed by a section containing the Theoretical framework in chapter 6, which gives a thorough explanation of XBRL and its technical aspects as well as a presenting where in the world XBRL is implemented or about to be implemented. This section puts XBRL into a "real world"-context, giving the reader an idea of what it is from a technical point of view as well as explaining where in the world it is currently employed. After chapter 6 comes the chapter XBRL and its implications on audit and assurance services. This chapter gives an account for the specific assurance issues for XBRL, together with how XBRL assurance differs from a conventional assurance process from a theoretical research point of view.

The theoretical chapters are followed by the empirical data presentation in chapter 8. This chapter presents the data, including general opinions, obtained through the empirical research. This together with the theoretical framework is then combined to analyze the data according to the research questions posed in section 3. We then conclude our thesis in section 10 with our own opinions regarding the results found.

3. Problematization, purpose and posing questions

With the introduction of XBRL as a means of filing financial statements, there may be demand from external users for assurance of these statements. The audit profession will have to adapt to the new technology, and develop assurance techniques to address this demand. Due to the novelty of the issue and limited experience of the auditors with XBRL, as well as lack of regulations and coherent guidance to provide such assurance, it is natural that the practitioners will face issues they previously did not.

> *Thus, the purpose of this master thesis is to investigate the issues and possibilities surrounding the assurance of financial statements reported in XBRL.*

This leads us to the main research question:

> *How will XBRL financial statements affect the assurance process?*

In order to give a better and more detailed answer to the main question, we ask a number of more specific and narrow, sub-questions. These questions are formulated below:

- *What is XBRL, and how will it affect financial reporting?*
- *What are the costs and benefits of using XBRL for financial reporting purposes?*
- *What is the current state of development and use of XBRL around the world?*
- *What triggers the demand for assurance on financial statements filed in XBRL?*
- *Which particular issues and problems do auditors, audit body professionals and researchers experience or envision in the assurance process of financial statements filed in XBRL?*

4. Methodology

In order to fully answer the research questions and the purpose of the thesis, it is vital that the research method employed to gather data is valid and reliable. This section gives an account for the research method employed. Drawbacks of the method(s) used are mentioned.

4.1. Research strategy

The thesis is based on an inductive approach, which means gathering of data as a means to find a general pattern which can be transformed into a general concept. This inductive approach allows one to draw general conclusions from specific observations (Johannessen and Tufte, 2003). This is considered a good approach to answer the research questions posed in section 3 since it is not possible to test theories on empirical data because of XBRL's relative novelty and severe lack of empirical data.

The data needed to fulfill the purpose consists of two different parts. The first part is to determine the *conventional* assurance process of financial statements, which will be done by gathering data from existing literature such as specialized literature, academic research papers and reports by different regulators and professional bodies such as IFAC and the Swedish FAR. The second part is to determine the actual or planned process for conducting assurance engagements on XBRL financial statements, which will be done studying literature, reports and similar. This is then completed by sending out interview questionnaires via e-mail to practicing auditors and members of auditor organizations. These two separate parts will be the basis for the comparative analysis in section 9.

In the empirical data presentation section 8 we will present generalized opinions and practices regarding XBRL's effect on the assurance process. We then proceed to analyze these generalizations in chapter 9, and put together with theoretical data from chapter 8. We will be able to conclude general patterns in regard to XBRL's effect on the assurance process.

4.2. Method for gathering data

To answer the research questions, the thesis is based on a qualitative approach. A qualitative approach means gathering data through interviews, questionnaires or other data in text form. The intention of this method is to get detailed, full-bodied and nuanced answers regarding the research questions at hand.

The qualitative method is considered especially valuable when conducting research in an area with none or little research done (Johannessen and Tufte, 2003). Data regarding the XBRL assurance process is gathered through questionnaires sent to practicing auditors and auditors within professional organizations, data regarding the conventional assurance process through university teaching books, research papers and through regulatory bodies.

4.2.1. Questionnaire as a method

According to Saunders (2006), questionnaire helps the researcher gather valid and reliable data that are relevant to the research questions and objectives.

Questionnaires can generally be categorized into either structured or semi-structured. They have their own advantages and drawbacks, where the structured questionnaire has the highest degree of comparability and the semi-structured questionnaire has the highest degree of possibility for the respondent to expand on the question at hand.

The semi-structured questionnaire is considered to be the best method to obtain relevant empirical data. This is because XBRL from an assurance point of view is relatively new, thus available data is very limited. The respondents stated via early preliminary contacts that a questionnaire would be widely preferred to conducting interviews because of time availability.

The questions may differ from questionnaire to questionnaire, depending on a specific organizational context. Because of different contexts within which the respondents work, some questions will differ depending on a question's relevance to that particular respondent. Because of XBRL's limited use and novelty, this approach is considered to be an appropriate one. The respondents chosen were auditors actively conducting assurance on financial statements filed with XBRL, researchers involved in studying XBRL's impact on the

assurance process and persons actively taking part in a standard setting process within a professional organization.

The reason for choosing these persons is mainly their direct knowledge of XBRL, and the impact XBRL has on the assurance process, but also their practical experience (when appropriate). The questionnaire was sent to 22 Swedish auditors who have assured financial statements filed with XBRL, 4 persons active within the Swedish professional organization Far (of whom, two are also actively writing articles and taking part in the standard setting process within XBRL Sweden), 15 persons actively working with assurance issues concerning XBRL in Europe, the U.S and Asia. This means the interview questionnaire was sent to a total of 41 persons.

In order to answer the research question(s), the questions sent to respondents are strongly connected to those of the problematization section. Put together, the answers provided will provide important and valuable input into the process of analyzing XBRL's impact on the assurance process.

4.2.2. Questionnaire's content

Generally, the questions posed can be placed into one of four categories:

- What a person *knows,*
- A person's *opinion,*
- What a person *does,*
- A person's own *assessment,* how the person experiences certain phenomena.

Considering these four categories, it is vital that the researcher makes certain it is known what category a question belongs to, in order to correctly interpret the answer. Assuming a researcher's interest is to find out what a person does, the questions have to be formulated in such a way to connect them with the practice of the person (Johannessen and Tufte, 2003).

The number of questions was deliberately few, in order to get a higher rate of response than we otherwise would have. The following questions were sent to the respondents as accounted for in the previous section:

1. What, in your opinion, are the biggest differences when comparing an XBRL-assurance engagement compared to a conventional assurance engagement?

2. Will an XBRL assurance engagement require a framework of its own to work within, or will the conventional assurance framework(s) be appropriate?

3. How do you ensure correct taxonomy usage?

4. When ensuring that the XBRL-file is correct, is there anything in the assurance process which differs from a conventional assurance process?

5. Will an XBRL assurance engagement have different materiality considerations compared to the conventional assurance engagement?

6. Does an XBRL assurance engagement affect the risk assessment done?

7. Do you think XBRL filed statements generally will require more or less focus on a company's internal controls?

8. Do you believe that XBRL facilitates the possibility to perfom continuous assurance?

4.3. Data analysis

According to Johannessen and Tufte, the most extensively used form of analysis focuses on the meaningful content in texts. To collect the meaningful content, the data is organized into categories. A collection of categories gives an overview of the most important themes (Johannessen and Tufte, 2003). This approach enables the authors to compare answers given by respondents, and together with the theoretical chapters on XBRL put data into a context with the conventional assurance process in order to fully grasp the disparities and/or similarities between the XBRL assurance process and the conventional assurance process.

When analyzing qualitative data, the following activities are performed (*ibid.*):

- Data gathering, interview transcripts or similar.
- Codify data based on the data material.
- Classify codes according to themes or categories.
- Sort data according to the theme classification, to discover patterns, other similarities or differences.
- Identify meaningful patterns or processes.
- Evaluate findings in light of existing research, summarize.

By systematically gather, transcribe and analyze data, we will be able to fully answer the research questions and fulfill the purpose which is to research XBRL's effect on the assurance process.

4.4. Reliability and validity

A foundation of scientific research is the reliability and validity of data (Johannessen and Tufte, 2003).

- The reliability of data is dependent of method of obtaining data, processing of data and what data is being used. To obtain reliable qualitative data one can proceed in a number of ways, one of which is conducting the same investigation on a fixed respondent group with some time between questionings. Reliability is according to Saunders (2006), the extent to which gathered data techniques or analysis procedures will produce consistent findings.
- The validity of data is its relevance to the researched phenomena. Validity is not absolute, it is a measure of quality. Data can be more or less valid, but not absolutely valid.

Reliable data in this thesis is obtained by conducting interviews distributed via email, basing the questions on the interview guide presented in section 4.2.2 Interview Questions, with different actors in the XBRL "world". The validity of data is highly dependent on questions asked as well as our ability to process and transcribe what is said in interviews. It is very important to be able to interpret the data correctly to achieve valid data. The questions we asked are strongly connected to the research questions as well as what is written in the theoretical frameworks of chapters 6 and 7. This means validity of data obtained is high.

The reliability of empirical data of this thesis is somewhat negatively affected by some factors accounted for below:

- Reply rate was overall rather low. 65% of the respondents had replied after a reminder was sent out. Although a reply rate of 65% is deemed to be a good reply rate, the reply rate of those who answered the questions in full was limited to 25% of total respondents. This could negatively affect the ability to draw correct general conclusions from the questionnaire replies, as the number of replies was limited.
- Respondents answering in full were only auditors. Although the questionnaire was sent out to practitioners, people within professional organizations and assurance researchers, only practicing auditors replied. This could affect the reliability negatively as we were looking for respondents in all categories of respondents to answer in order to get a complete picture of the current state of XBRL assurance.
- Many of the respondents who replied wished to remain anonymous, something we granted them. The anonymity could negatively affect the external credibility of our findings.
- The Swedish auditors and persons within professional organizations expressed a wish to receive and reply in Swedish, which we granted them. There could be a negative influence on the correctness of replies when translating from English to Swedish and then translating Swedish into English.

5. Limitations

Assurance on the financial statements reported in XBRL is a rather new field and therefore existing academic research is limited. This, consequently, limits the degree to which it is possible to base the study on secondary data. Scientific journal articles, as well as frameworks and working papers proposed by interested organizations, address some of the practical issues, which we use as a stepping stone.

Due to the novelty of filing in XBRL and no official requirement for providing assurance on such filings, the number of representatives of audit industry who possess experience in the field is quite small as well. This limited the scope of our potential respondents, both in selection and variation, especially geographically. Empirical data is limited to almost exclusively Swedish auditors, which limits the thesis' ability to hold true put into different assurance contexts. Considering differences of XBRL regulations, XBRL application and governmental projects in different countries, our findings and conclusion might have been different if we had interviewed a larger selection of assurance practitioners and other parties engaged in the process.

6. Theoretical Framework

This chapter first describes the historical development of XBRL, its technical aspects, its users around the world and its proposed benefits and costs. The chapter then describes assurance of financial statements without XBRL, and finally assurance of financial statements with XBRL. These aspects of XBRL, conventional assurance and assurance of XBRL filed statements act as a context to work within when conducting empirical research and/or interviews, because it allows greater understanding of the subject, where it has been historically, where it is today as well as its benefits and costs.

6.1. Historical development of XBRL

The first idea of an electronic, meta-tagged, financial markup language came from the CPA Charles Hoffman who began experimenting with XML[1] as a way of presenting tagged financial data. Hoffman encouraged the professional organization AICPA (American Institute of Certified Public Accountants) to promote XML as an alternative to traditional financial reporting (Pollock and Papiernik, 2001).

Formerly known as eXtensible Financial Reporting Modeling Language (XFRML), XBRL was initially started under the patronage of AICPA in 1998 (Deshmukh, 2004). In 1999, AICPA created XBRL International, a non-profit organization designed to to promote, support and set XBRL standards and specifications. Today, XBRL International is a worldwide consortium of circa 550 companies governed by its International Steering Committee (XBRL.org, 2010).

In 2000, XFRML was renamed to XBRL, and the first set of specifications, XBRL 1.0, was released. The first company to file reports in XBRL was the Australian APRA in 2000. Only a year later, XBRL 2.0 specifications were released (Deshmukh, 2004). The name change from XFRML to XBRL refers to the discovery that the language itself was not only applicable to financial reporting, but also to business reporting in general (Pollock and Papiernik, 2001).

United States was one of the first jurisdictions to allow XBRL filing. One big step was the 2005 project named "Voluntary Filing Program", issued by its national regulator SEC (Securities and Exchange Commission), where companies could take part at will (Choi *et al.,*

[1] For an in-depth explanation of XML, see www.xml.org

2008). An incentive for participating companies was accelerated financial documents reviews by SEC. The purposes of the voluntary program were to test costs and benefits of electronic reporting through XBRL, an open forum for participating companies to test and implement XBRL filings, as well as providing tools and data for financial analysts (*ibid.*). As of June 2009, the largest corporations, in this case meaning companies with a public float above $5 billion, in the United States are mandated to report their financial statements in XBRL (SEC, 2008).

6.2. Technical XBRL

XBRL does not change what is reported in financial statements, rather it changes how the financial (and business) information is reported and used. XBRL is based on XML, or eXtensible Markup Language, which is a set of rules for breaking a document into different parts and identifying different parts of it. In an XML-system, "identifier tags", metadata, are applied to items and groups of data in order to allow them to be processed by external computer software. The metadata provides additional information about the data processed, such as explaining layout and the logical structure of data (Boritz and No, 2003). XBRL is a version of XML, developed and tailored specifically to produce business and financial information (XBRL.org, 2010).

As an extension and development of XML, XBRL is a markup language (markups are often referred to as "tags"). As Deshmukh (2004) writes: "Markups are notations in a document that are not content. Content refers to information contained in the document, such as financial data […]". He continues that markups in a document provide information regarding information appearance and content information. Unlike other markup-languages, such as HTML that only describes appearance of information, XML and XBRL describes the nature of the information itself (Ramin *et al,*. 2003).

XBRL consists of several different interrelated items, or building blocks. Individual data items are called elements, these elements are combined to form taxonomies which in turn are defined by schemes and relationships called linkbases. An XBRL instance document is an electronically submitted business report in accordance with the XBRL taxonomies (Kay, 2009).

The *instance document* is in a sense the product of the tagging process. It includes a company's financial data, in a specific report, which is connected to a taxonomy definition, either a generally accepted taxonomy (e.g. U.S. GAAP or IFRS) or an extended individually created taxonomy (Plumlee and Plumlee, 2008). Figure 1 below displays how an instance document based on, for example, IFRS-compliant XBRL uses country-, industry- and company-specific taxonomy. The company-specific taxonomy is based on the industry based taxonomy, which in turn is based on the country-specific taxonomy and so forth.

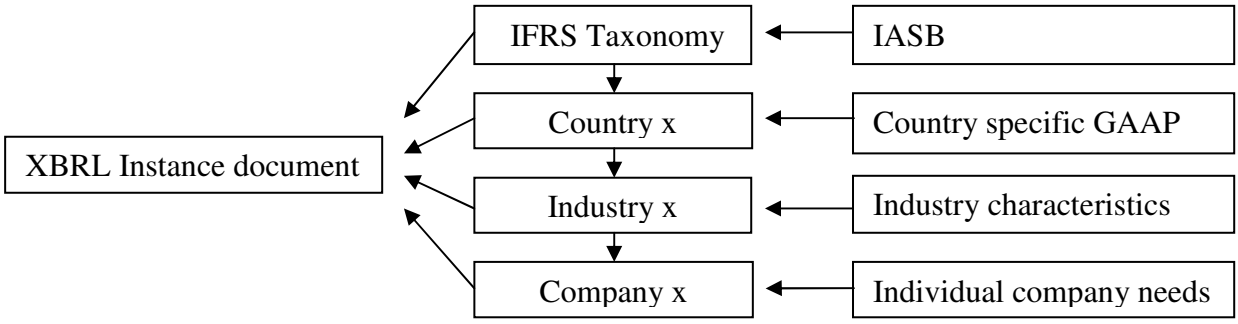


Figure 1

Taxonomies are categorization schemes that define specific tags for individual data items as well as their interrelationships. Specifically for XBRL, the identifiers of the individual elements contain information whether the items are monetary or percentage, what class of items in the financial statements they belong to et cetera. Thus, the individual data tags may contain information whether an element is an asset or a liability, the amount of the item and what period it belongs to (XBRL.org, 2010) There are different taxonomies, as each taxonomy needs to comply with rules and needs in the country where it is used, and even business sectors and individual organizations can use their own taxonomies (Deshmukh, 2004).

According to Plumlee and Plumlee (2008), an XBRL-taxonomy is typically built up by six related XML files:

- A dictionary of elements used in the taxonomy.
- Label Linkbase, the captions and headings that appear on a rendered document.
- Calculation Linkbase, calculation relation with other elements.
- Reference Linkbase containing the authorative literature associated with the element.

- Presentation Linkbase, a specification of the order of appearance in rendered financial statements of elements.
- Definition Linkbase that specifies the hierarchical relationship necessary to generate ready financial statements.

The figure below is an example of XBRL code taken from XBRL International (XBRL.org, 2010) which, when processed by appropriate software, states a fictitious company's assets. Observable are the attributes given to the different amounts, in this example the first post is the company's assets held for sale, denominated in euro. The values can be given a number of attributes, designated by different taxonomies.

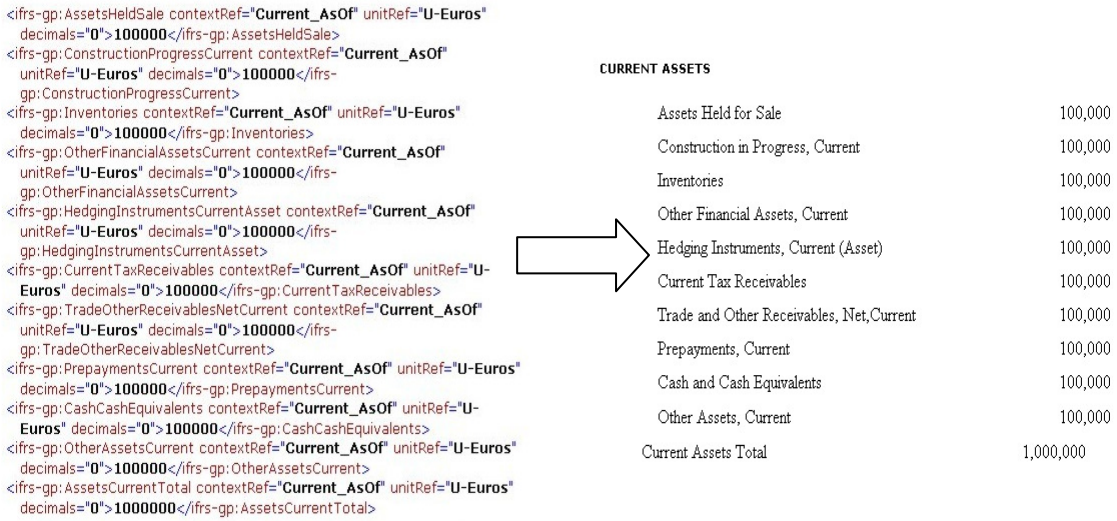


Figure 2

6.3. Global XBRL

There are numerous countries today that either allow or mandate XBRL-filing of financial statements. According to Kernan (2008), the main focus of XBRL filings differ. For instance, in the United States and around Asia, XBRL is mainly used for capital markets, while in Europe focus is also on governmental and cross-country applications that can share XBRL data. As of February 2010, no jurisdiction mandated assurance being conducted on XBRL filings (Rydberg and Thilstedt, 2010).

Most current practical applications of XBRL reporting in the world are based on the existence of original, printed, financial statements, one example being the Voluntary Filing Program issued by the American SEC. One country at the forefront of XBRL-filing is Sweden, where the Companies Registration Office allows the filing of XBRL reports without

an original, printed, version, something which is unique in the world according to Rydberg and Thilstedt (2010).

Below is a list of countries currently mandating or allowing XBRL filings. A study conducted by Doolin and Troshani (2007) is the main reference for this section, however SEC (2009) is used to describe the current usage in the United States and Kernan (2008) to describe the development in Asia.

- Europe: As of 2009, both Belgium and Spain mandate XBRL filing in the banking and business register sector, while countries such as Germany and France mandate the banking sector to file in XBRL and have voluntary programs for XBRL filing for the business register sector. There are several other voluntary programs for XBRL filing, examples include the U.K., Sweden, Denmark and the Netherlands (Secretary general of XBRL Europe 2009). A number of different country-specific taxonomies were developed in Europe, until the European Commission formally urged the different members to register the taxonomies with XBRL International. In 2008, XBRL Europe was formed to present a harmonized, comparable and unified view of XBRL in order to ease the implementation of XBRL in Europe.
- The Americas: In the United States, the SEC requires the largest public corporations to file their financial statements in XBRL as of June 2009 (SEC, 2008). In Canada there is a voluntary filing program in place, however most companies are waiting for IFRS to take effect before switching to XBRL reporting. In South America, the central banks are the main drivers for introducing XBRL.
- Asia: China was the first country to formally adopt XBRL filing for its public companies. Elsewhere in Asia, Japan mandates XBRL filing for public companies and has a voluntary program for financial institutions since 2008. In South Korea and Singapore, public companies are required to file financial statements in XBRL while India has a voluntary XBRL filing program in place (Kernan, 2008).
- Oceania: In Australia, the regulatory authority responsible for regulating banks require financial reporting to be done in XBRL format, while even a voluntary filing program is yet to be introduced for Australian non-financial institutions (Doolin and Troshani, 2007).

6.4. Costs and benefits of implementing and using XBRL

Actual and potential users of XBRL filed financial statements include individual organizations, investors, accountancy firms, stock exchanges, financial institutions such as banks, and governmental organizations. The reasons for using financial statements vary across the different users, and they benefit from XBRL in different ways (Doolin and Troshani, 2007).

In a survey conducted by Pinsker and Li (2008), some anticipated and experienced benefits of XBRL filing were evident: Companies experienced increased processing capability and decreased data redundancy, as well as identifying lowered costs as a result of increased efficiency. Adopting XBRL was also seen as a marketing tool to reach potential investors (Pinsker and Li 2008). Users such as investors are expected to experience reduced manual work such as transcribing manually company financial statements, and instead focus more on actual analyses of company statements and comparisons (XBRL.org, 2010).

A feared risky, and expensive, adoption phase proved to be non-existent or very low for the companies. The anticipated lengthy training period for employees was not experienced as the implementation process was far smoother than anticipated (Pinsker and Li, 2008).

6.5. Summary of the chapter

This chapter started with giving a general historical development oversight of XBRL, how it was first conceived and adopted by professional organizations to improve financial reporting. It was mentioned that the American SEC was among the first to allow XBRL filing in their VFP.

In the next section, Technical XBRL, it was described how an XBRL-document is built up by, and dependent on, different components such as elements as taxonomies, linkbases and instance documents. These components together form the context within to file financial statements in XBRL. An example of XBRL code processed into a fictitious financial statement was presented to give the reader some input into how the code looks like and how it translates into a financial statement. The following part, Global XBRL, presented where in the world, and at what stage, XBRL is being used and what projects are under way to facilitate its use around the world. Finally, a section on XBRL's proposed, and experienced, costs and benefits presented a "why use XBRL"-context.

7. XBRL and its implications on audit and assurance services

This chapter aims to address the effects the reporting in XBRL will have on audit and assurance services, including available frameworks and guidance to be used by the assurance providers, the nature and level of such assurance, and the process of how these services will be conducted.

7.1. Introduction

In this chapter we present the potential difficulties, issues and possibilities the practitioners may encounter when required or asked to provide assurance on XBRL tagged data. The chapter proceeds as follows. First, the authors discuss the basics of XBRL assurance, which ultimately depends on the scenario the use of XBRL might take. The stepping stone of this sub-chapter is the paper "Interactive Data: The Impact on Assurance. New Challenges for the Audit Profession" published by the Assurance Working Group of XBRL International (Trites *et al.,* 2006). Next a brief overview of research done on XBRL assurance is given. Further we continue with the description of guidance and frameworks, which are already published now to help the practitioners plan and design the assurance process on XBRL data. A short overview of the acknowledged potential and immediate XBRL issues with regard to assurance process is given. As indicated by many, these issues will need to be addressed in an urgent manner both by regulators and accounting profession as they represent potential risks to many stakeholders, who in one way or another have to rely on XBRL data. The chapter is concluded with a short summary.

Rapid advancements in information technologies, new business approaches and the pervasion of Internet have changed business practices and the process of recording and storing business transactions (Rezaee *et al.,* 2001). These technological advancements have also influenced the way in which financial reporting is done, communicated and audited.

XBRL, which is already used for financial reporting and governmental e-filings in a number of countries[2], has a potential to revolutionize the processing, reporting, and accessing

[2] Securities and Exchange Commission (SEC) in U.S., Canadian Securities Administrators (CSA), Danish Commerce and Company Agency (DCCA) and many other countries have adopted voluntary XBRL filing programs. See chapter 6 for a more extensive overview of current use in the world.

of business information and improve the quality of financial data for a variety of stakeholders. As anticipated by many, reporting in XBRL is likely to become over time the single standard (Boritz and No, 2009a; Elliott, 2002; Pinsker, 2003; Plumlee and Plumlee, 2008), and to use it will be "an operational and financial reporting necessity" (Ball 2006, 9). However, despite these promising predictions and growing participation and support of many countries, accounting standard setters, regulators, leading software producers and professionals (XBRL International 2010), XBRL reporting still seems to be in its infancy state. As there are still numerous unresolved issues about the subject, additional questions have been raised whether some of the claims about XBRL are exaggerated (Texeira, 2002).

XBRL is a complex and highly technical subject. Integrity of reporting in XBRL relies heavily both on reliability of the processes to create XBRL documents (e.g. the technical attributes and specifications related to the development and deployment of XBRL compliant tools and processes, such as sound software, policies, etc.) and the security measures taken to protect the data from tampering and falsification on Internet. Another potential problem can be the misuse (intended or otherwise) of XBRL elements representing taxonomy elements (Boritz and No, 2003).

While it is doubtless that to be useful any data must be reliable, it is unclear who and in which way should attest the reliability of XBRL documents. The authors make the assumption that this will be provided in form of assurance or related services.

Assurance is a fundamental part of any capital market system. Assurance engagement means an engagement in which a practitioner (professional accountant or auditor) expresses a conclusion based on measurement of the subject matter against identified criteria, which aims to enhance the degree of confidence the intended users other than responsible party will have about the subject matter (IFAC, 2005). In this way, assurance is the best way to define the potential service the auditors may provide on XBRL reporting since any other service provided (e.g. for internal use) would not be of value to investors.

Many questions have been raised regarding the potential assurance of XBRL filings. These questions include the nature and the level of such assurance (e.g. assurance of the instance document as a whole versus assurance of all XBRL related documents - instance document, extension taxonomy schema and linkbase files); and the concepts fundamental to a financial statement audit, including the meaning of an error and the nature of materiality (Gunn, 2007; Plumlee and Plumlee, 2008; Trites, 2002).

Integrity and reliability of the XBRL instance document and the data contained therein is a serious concern. Error-laden XBRL documents, published online can potentially negatively affect many stakeholders, and it is anticipated that once XBRL becomes mainstream and the primary way of financial reporting, these groups are likely to demand assurance on it (Plumlee and Plumlee, 2008). Therefore, it is important for these issues to be addressed.

7.2. XBRL's impact on assurance

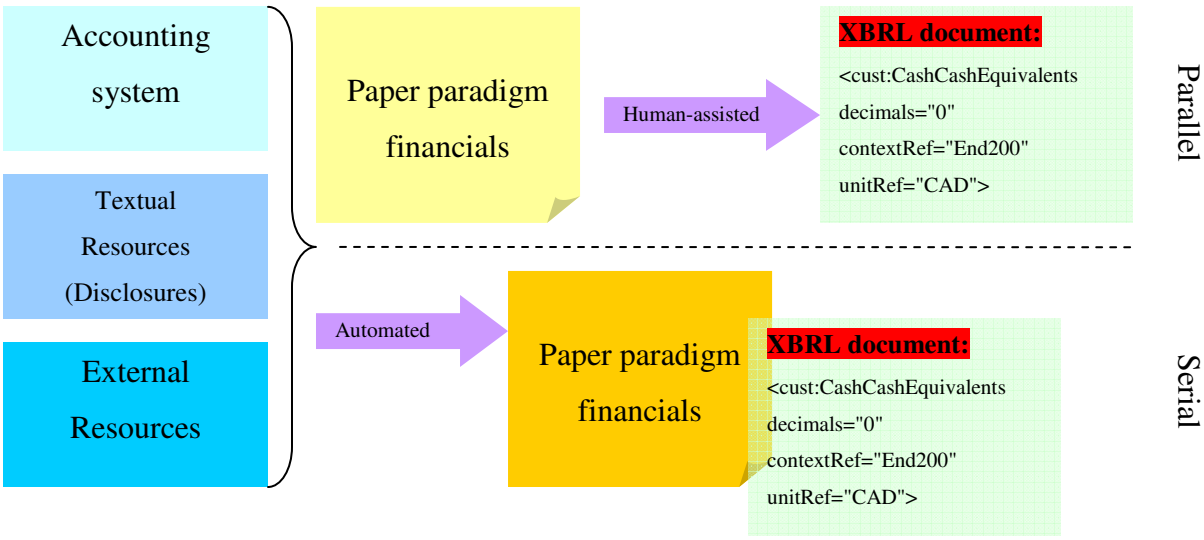
On November 15, 2006, at the World Congress of Accountants (WCOA) held in Istanbul, Turkey, the Assurance Working Group (AWG) of XBRL International Inc. presented the paper "Interactive Data: The Impact on Assurance. New Challenges for the Audit Profession" discussing the probable impact of XBRL on assurance policies and procedures (Trites *et al.* 2006). This paper acknowledged the change of paradigm, which will be triggered by the use of XBRL, the potential demand for assurance on XBRL data and the lack of coherent standards to support the provision thereof (*ibid.*).

There are several different scenarios in which XBRL is or will be used, and the assurance implications vary with those scenarios (*ibid.*).

The most pervasive scenario at the moment is the one, where traditional financial statements reported on paper (further on referred to as 'paper paradigm' financial statements)[3] are converted to XBRL manually, and both forms exist alongside each other (Trites *et al.* 2006). Three other scenarios indicated in the report are: instance XBRL documents used for regulatory or government filing, instance XBRL documents with a company's own style sheet or with one provided by a third party, and the scenario where instance XBRL document will be the only document provided by the companies and ideally will be generated automatically by the company's accounting system[4] (*ibid.*). The first scenario and the last one represent the shift from one paradigm to another (see Figure 3).

[3] Or the financial statements which replicate paper format (e.g. PDF and HTML formats). 'Paper paradigm' financial statements are meant to be read by a human in order to be processed. XBRL documents, on the other hand, represent 'interactive data' paradigm. These documents are meant to be read by information systems (i.e. rendered) before the human user can take advantage of it. (Trites *et al.* 2006).

[4] It must be noted that in this scenario paper paradigm financial statements may exist as well though not as the primary filings.



. **Figure 3: XBRL Assurance. Source: Boritz, 2006**

For traditional financial statement audits, the auditor expresses an opinion on financial statements, stating whether they are fairly presented in accordance with generally accepted accounting principles (e.g. IFRS or US GAAP) (Trites *et al.,* 2006). In such engagements, the financial statements are the subject of the engagement and generally accepted accounting principles is the criteria applied in determining whether the opinion can be expressed. Every assurance engagement must have a subject and appropriate criteria. With XBRL tagged data, both the subject matter and the criteria must change, as the subject matter may involve an XBRL instance document, and/or the underlying data and/or the tagging/coding that accompanies the data (*ibid.*).

In case of the first scenario, it is possible to accommodate assurance of XBRL tagged data under already present assurance standards (e.g. ISAE 3000 (International Standards on Assurance Engagements) or AT section 101 of the PCAOB (Public Company Accounting Oversight Board)'s interim attestation standards); the last scenario which is likely to develop soon, especially if XBRL gets mandated, will involve the whole new definition of the primary financial statements, both in form and content (Trites *et al.,* 2006). Under the new paradigm financial reporting, assurance may be needed not on the conversion of the paper paradigm

documents into XBRL, but directly on the process used to prepare the information in the XBRL filings (Boritz and No, 2009a).

7.3. Prior research on XBRL related assurance

Though many questions have been raised about XBRL related assurance, research conducted on the topic is not as vast as one may assume. Literature on XBRL assurance can be divided into three main directions: case studies and research on U.S. Securities and Exchange Commission (SEC)'s Voluntary Filing Program (VFP), conceptual research on XBRL assurance issues, and development of potential tools to assist auditors in provision of assurance on XBRL, including the research on continuous auditing.

In February 2005 U.S. Securities and Exchange Commission introduced its Voluntary Filing Program. Alongside plain-text, sequential disclosure documents reported in the HTML and ASCII formats to SEC's Electronic Data Gathering, Analysis and Retrieval system (EDGAR), VFP allowed companies to report their financial information using XBRL (US SEC Office of Interactive Disclosure, 2010). The primary purpose of the program was to assess XBRL technology of electronic data tagging by allowing companies to voluntarily furnish XBRL-tagged financial statements.

To encourage participation and spare the filers from the potential additional cost burden, SEC did not require (but allowed) the assurance of XBRL filings, making tagged data a subject to limited liability with status of "furnished" (i.e. secondary, unaudited) document (*ibid.*).

Despite the absence of legal liability for errors in XBRL documents filed in the VFP, fewer than 40 companies participated in 2006; and in 2008, only 125 companies participated (Bartley *et al.,* 2010). SEC collected comments and feedback from VFP participants and other parties involved in the process. This resulted in major improvements during the period of 2005-2008 (*ibid.*). Despite this fact, SEC never published any systematic analyses of XBRL data accuracy or its use by financial analysts' and investors (*ibid.*).

During the 14th International XBRL Conference in Philadelphia, USA, Kuo-hua Chou (2006) of Taiwan National Pingtung Institute of Commerce presented academic research "How Valid Are They? An Examination of XBRL Filing Documents with the SEC EDGAR

system". Having validated XBRL filings of 2005-2006 against their discoverable taxonomy set (DTS, i.e. extended and public taxonomy schemas and linkbases that come together to support an XBRL instance document), Chou (2006) discovered that 57.73% (i.e. 56 filings out of 97) were inconsistent with their DTS and contained numerous calculation errors (with the highest number of errors in one single filing being 68), pointing out the reliability problem of these filings and the potential need for external attestation. He further indicated that these errors resulted from three issues: the technical side of XBRL (i.e. misconceptions about summation-item relationships), the accounting side (misconceptions about the inherent relationships between accounting concepts), and the practical side (i.e. intentional omissions on phantom sub-total elements). He also noted that practically every VFP company built its own extension taxonomy (Chou, 2006).

Using the guidance developed by SEC's Public Company Accounting Oversight Board (US SEC, 2005) for assurance of XBRL documents, Boritz and No (2009a) performed a mock assurance on the XBRL-Related Documents (instance document, extension taxonomy schema and linkbase files) of United Technologies Corporation (UTC)'s 10-Q (annual report) for the third quarter of 2005 and repeated on its 10-Q for the third quarter of 2008 to identify the issues that companies and auditors might encounter if they are requested to provide assurance on XBRL-Related Documents. The assurance process altogether took them (with one of the co-authors being an XBRL expert) about 63 hours to complete, resulting in an opinion that the UTC's XBRL filings were a complete and accurate reflection of its paper paradigm financial statements (*ibid.*). They, however, were unable to conclude on the fairness of presentation of the XBRL-Related Documents in accordance with GAAP due to absence of assurance standards or guidelines to make such an assessment for various sections such as the MD&A, regulatory information, and the company's taxonomy extensions (*ibid.*). They also noted that less than 50 percent of UTC's XBRL filing was based on approved standard taxonomies and found a vast number of calculation errors, which represented inconsistencies between the XBRL instance document and suggested, though not mandatory, practices. They also found a number of redundant elements, inconsistent labels, missing totals, and misspellings (*ibid.*).

Boritz and No (2008) expanded their research by using XBRL validation software to evaluate 304 quarterly and annual reports XBRL filings furnished to the SEC's XBRL VFP for 74 companies from the inception of the VFP through December 31, 2007. They found that about 10 percent of the XBRL extension taxonomies furnished under the VFP contain validation exceptions, inconsistencies, and errors. About two-thirds of the filings contained

errors in the XBRL instance documents that were detected by validation software, which in its turn showed discrepancies and generated different error messages. Though many of these validation errors were legitimate management disclosure choices (such as not reporting all components of the net accounts receivable calculation), others represented inconsistencies that could confuse users (*ibid.*). Ultimately, Boritz and No (2008) concluded that the quality of XBRL filings had not improved but rather decreased since SEC launched the VFP in 2005 (*ibid.*).

Bartley *et al.* (2010) extended Boritz and No's work by conducting a side-by-side comparison of XBRL filings to SEC with the companies' original Form 10-K for fiscal years of 2006 and 2008. Using both software validation (to detect syntax errors) and manual validation (to identify other forms of errors including the selection of incorrect elements, errors in amounts, display errors, etc., which are undetectable by validation software), they recorded all differences between the XBRL rendered financial statements and the Form 10-K. They detected numerous errors in the XBRL filings of all 22 companies in 2006 and 10 of 11 companies in 2008, including missing financial statement elements, incorrect amounts, incorrect signs, duplicate elements, financial statement concepts not tagged with the appropriate elements, and inaccuracies in the display of the financial statements. Even though the number of systematic errors decreased, some errors persisted for companies with XBRL experience of over three years (*ibid.*).

Boritz and No (2008 and 2009a), Chou (2006), and Bartley *et al.* (2010), all point out that it might be meaningful, due to amount and significance of errors in XBRL filings, to require some sort of assurance on this data.

In their article "Assurance on XBRL for Financial Reporting", Plumlee and Plumlee (2008) discuss the issues revolving the assurance on XBRL instance documents. These issues include the meaning of error, materiality, statistical sampling, and control related issues. These issues are addressed (alongside the ones identified in Trites *et al.* 2006) in more detail in the next part of this chapter. Plumlee and Plumlee (2008) also touch upon current pervasive use of extension taxonomies, lack of guidance for assurance service providers and the focus of current frameworks on the paper paradigm financial statements, raising questions about their effectiveness or utility as the shift towards the XBRL-centric (i.e. interactive data centric) paradigm occurs.

Steps towards conceptualization of XBRL assurance process have been done by Boritz and No (2003 and 2009b) and Srivastava and Kogan (2009).

Boritz and No (2003) introduced the concept of Extensible Assurance Reporting Language (XARL), an XML-based extension of XBRL (similar to XBRL taxonomy), developed to enable assurance providers to report on the integrity of XBRL documents distributed over the Internet. XARL relies on accepted assurance processes and security techniques such as XML Encryption and XML Digital Signature, and is able to provide two levels of assurance – information level and document level, by using different types of assurance elements, indicating assurance type, assurance date, auditor's digital signature, system reliability, and so forth (Boritz and No, 2003). Though the concept of XARL might be a solution to address different level of assurance of XBRL filings, it does not address the actual assurance process and does not help the auditor to answer the main practical questions: what do I do and how do I do it?

To address these questions, Boritz and No (2009b) looked further at the issues the auditors might face with if asked to provide assurance on the XBRL filings, including the assurance objectives and corresponding assurance tasks. They introduce a prototype of an XBRL rendering tool ("XBRL Audit Assistant") aimed to support various tasks on XBRL filings to accomplish the identified assurance objectives. Based on their review of the presently available XBRL assurance guidelines (i.e. AICPA, 2003 and 2009; Trites *et al.,* 2006; US SEC, 2005), other literature discussing XBRL assurance issues (Plumlee and Plumlee, 2008) as well as their experience with performing mock assurance on United Technologies Corporation XBRL (Boritz and No, 2009a), they identify seven audit objectives related to XBRL: test the *internal control* over the creation of XBRL-Related Documents, test the *compliance* of the latter with the relevant XBRL specifications and regulatory requirements, determine the *suitability* of elements used to tag the underlying business facts in the official filing and the extension taxonomies, determine the *accuracy* of XBRL-Related Documents, in all material respects, to all business facts presented in the source documents or files, test the *completeness* of these facts, determine whether XBRL-Related Documents contain information that is not in the source documents or files (*occurrence*), and test the *consistency* of XBRL filings with the prior periods (Boritz and No, 2009b).

The rendering tool they introduce includes four main features aimed to facilitate an auditor's work in an XBRL context, that is:

- graphically represent a systematic structure of the XBRL instance document such as logical ordering of contexts, segments, and elements in order to auditors understand reporting period, units, the elements used in the instance document;

- graphically represent XBRL elements to discriminate between those from official XBRL taxonomies and those from companies' own taxonomy extensions (to help the auditors understand taxonomies used to create the instance document and the sources of the XBRL elements);
- render XBRL instance documents to enable visual review and detailed checking of XBRL instance documents to original financial statements (to help auditors assess that the data elements in the instance document reflect the same information as the corresponding financial facts in the official financial statements); and
- generate style sheets to enable the auditors render the XBRL instance document (Boritz and No, 2009b).

Financial statement assertions are assertions by management, explicit or otherwise, that are embodied in the financial statements. Management assertions help auditor set the assurance objectives and, further on, gather and test evidence to prove these assertions well-grounded (Hayes *et al.,* 2005).

Srivastava and Kogan (2009) aggregate and systemize the data deficiencies in the XBRL filings. These deficiencies include: completeness, existence, and accuracy of data elements and attributes in the instance document; deficiencies of XBRL mark-up (e.g. erroneous tagging that violates either XBRL schema rules or XML syntax rules and inappropriate choice of elements for tagging); and, finally, the faulty choice of taxonomies and their linkbases. Similar to the conventional audits of financial statements and based on the risks of those deficiencies, they further develop a conceptual framework of assertions for providing assurance on XBRL instance documents on three different levels:

- assertions about business facts in XBRL instance document
    - *completeness*: meaning that the XBRL instance document has no omissions of relevant facts or data from the traditional format document;
    - *existence*: that there are no insertions of facts or data, which are not present in the traditional format document;
    - *accuracy*: the facts in the traditional format document are accurately represented by the element values and attribute values (such as context, unit, etc.).
- assertions about meta-data in XBRL instance document
    - *well-formedness* of the XBRL instance document in terms of XML syntax rules;

- *validity* of the XBRL instance document in terms of suitable rules and referenced XBRL taxonomies;
- *proper representation* of facts in the traditional format document through tagging in the instance document.

- assertions about meta-data external to XBRL instance document (i.e. proper taxonomies, valid taxonomy extensions, proper extension elements, and proper linkbases) (*ibid.*).

Assertions framework and determining the assurance objectives is essential to the provision of such service. So far, little has been done by the authorities in respect to this matter.

7.4. XBRL assurance issues

As mentioned before, there are many unresolved potential issues regarding the assurance of XBRL. These issues include instance document as whole versus assurance of all XBRL related documents dichotomy, lack of guidance (especially in regard towards the assurance process) and standards, nature of materiality and the meaning of an error, statistical techniques and sampling (Gunn, 2007; Plumlee and Plumlee, 2008; Trites, 2002). These issues are discussed step by step.

7.4.1. Current guidance and frameworks

There are four guidelines currently available to auditing practitioners that address the provision of assurance on the XBRL data: AICPA's (American Institute of Certified Public Accountant) Interpretation No. 5 (AICPA, 2003), PCAOB's Staff Q&A (PCAOB, 2005), XBRL International Assurance Working Group (AWG) paper (Trites *et al.* 2006) and AICPA's Statement of Position 09-1 (AICPA, 2009).

PCAOB Staff Q&A (2005) addresses potential assurance of the XBRL-Related Documents. According to PCAOB (2005), that engagement should be performed under AT section 101 of the PCAOB's interim attestation standards, Attest Engagements ("AT section 101"). The guidance intended to provide guidance for auditors engaged in reporting on whether the data contained in the XBRL-Related Documents accurately reflect the corresponding information shown in the official EDGAR filings and should be performed by an auditor "having adequate knowledge of the subject matter" (PCAOB, 2005). PCAOB's

guidance also addresses the criteria[5], independence and the objectives of the assurance procedure (*ibid.*).

Interpretation No. 5 "Attest Engagements on Financial Information Included in XBRL Instance Documents" issued by the AICPA (2003) also provides guidance on auditors' engagements to examine and report on whether an XBRL instance document accurately reflects the related client financial information. The guidance identifies the XBRL taxonomies and XBRL International's Specification document as suitable measurement criteria and contains examples both of procedures to consider and of examination reports (*ibid.*). This Interpretation is not part of the standards adopted by the PCAOB (*ibid.*).

The Assurance Working Group (AWG) of XBRL International has proposed an assurance framework for electronic business reporting based on ISAE 3000 principles (Trites *et al.,* 2006). This paper addresses both how the XBRL reporting works and the impact it may have on assurance standards. Trites *et al.* (2006) touch upon the assurance process from acceptance phase, terms of engagement, understanding of the subject matter, planning, assessing the suitability of the criteria, the meaning of risk and materiality, obtaining of evidence, using the work of an expert, management representations and reporting.

In 2009 the AICPA issued Statement of Position (SOP) 09-1 (AICPA, 2009). The SOP provides CPAs with guidance on performing and reporting on agreed-upon procedures engagements, performed under AT section 201, that address the completeness, accuracy, or consistency of XBRL-tagged data. It also includes recommendations that assist CPAs in applying certain aspects of AT section 201 to the subject matter of XBRL.

It can be noted that all of the current frameworks are mainly *paper-paradigm centric* (audit objective is constituted by the fact that data represented in XBRL-filings corresponds to and is a complete, accurate, valid, and consistent translation of the data in the source documents, i.e. official financial statements) (Plumlee and Plumlee, 2008). However, the mere agreement between the rendered XBRL document and the source document does not imply that the financial items within the statements are appropriately tagged (*ibid.*). Thus, more attention should be paid to the tagging process itself.

[5] PCAOB suggests that US GAAP Version 2.1 based taxonomies, Stand Alone Add-on taxonomies, and XBRL Specification Version 2.1 should be considered suitable and available criteria, since it was developed by a panel of widely recognized experts following due process procedures (PCAOB 2005). Company extensions of taxonomies normally do not go through the same development processes; thus, the auditor should evaluate whether company extensions represent suitable and available criteria as described in AT section 101 (*ibid*.).

Ultimately, the paradigm shift from a paper-centric to XBRL data-centric focus raises questions about the effectiveness or utility of current guidance *per se* (Plumlee and Plumlee, 2008).

7.4.2. Assurance process related issues

Assurance is a systematic process, which follows a structured, documented plan, of objectively obtaining and evaluating evidence regarding management assertions about a subject matter and communicating the results to interested users (Hayes *et al.,* 2005). This process represents a four phase model based on the scientific empirical cycle, which starts with client's request for a service and auditor's acceptance of the engagement, is followed by a plan of the assurance and tests of evidence, culminating in a judgment or opinion (Hayes *et al.,* 2005). Reporting in XBRL does not change the way the financial accounting is done, only the way it is presented. Thus, the XBRL assurance process will likely follow the same four steps. Trites *et al.* (2006) report addresses most of these steps in great detail. Boritz and No (2009a) follow the four step model when performing the mock assurance on United Technologies Corporation XBRL filings. In this part a brief overview of the four phases and the issues related to them is given.

During the first phase of the model, *acceptance*, terms of the engagement need to be addressed, including the type of assurance service, the characteristics of the subject matter, the identified criteria, the process architecture and the possible sources of evidence. Acceptance also requires a preliminary risk assessment, identification of interested parties, personnel and expertise requirements, etc. (Trites *et al.,* 2006). The main concern of the auditor in this phase is the assessment of riskiness of the engagement and complexities which may arise with it.

To be able to accept the engagement to provide assurance on the XBRL filings, the auditor must have sufficient understanding and knowledge of both the engaging party and XBRL, including the process of instance document generation, custom taxonomy extension creation, and other elements of the filing process. Auditors will face additional risks of engagement acceptance related both to the novelty of XBRL and the nature of XBRL reporting process and distribution of information online (Boritz and No, 2009b).

In the second phase of the assurance process, *planning*, the auditor develops a general strategy and a detailed approach for the expected nature, timing and extent of the engagement (Hayes *et al.,* 2005). The auditor obtains the understanding about the company and its

accounting and control systems. Within this phase, the auditor also considers the subject matter, evaluates the suitability of criteria, sets materiality, assesses the audit risk, and determines how much evidence is required and which audit procedures should be performed (*ibid.*).

During phase three, *testing and evidence gathering,* the auditor performs tests and analyses (i.e. tests of controls; substantive tests of transactions; analytical procedures and tests of details of balances). These tests would ordinarily include obtaining evidence through inquiry of personnel, inspection of documents and reports, observation of the application of the control, and re-performance of the control (Hayes *et al,*. 2005).

The last phase is the *evaluation and reporting phase*, which culminates in an assurance report issued by the auditor based on the results of the assurance engagement. This phase includes procedures of evidence aggregation and evaluation, as well as testing this evidence for sufficiency. Analytical procedures and other reviews are re-performed to assist the auditor in assessing his or her conclusions and for evaluating overall financial statement presentations. Many other procedures and tasks are performed including: procedures to identify subsequent events, wrap-up procedures, report to the board of directors, etc. (*ibid.*).

Though XBRL assurance process will follow the same steps, additional procedures will need to be included (e.g. use of the correct taxonomy, correctness and completeness of the tagging/mapping, technical validity of the XBRL instance document, completeness and correctness of the XBRL instance document, completeness of data, etc.).

Materiality

Assessment and testing, whether statistical or judgmental, must consider the concept of materiality (Plumlee and Plumlee, 2008). ISA 320 (IAASB, 2009) says that misstatements, including omissions, are considered to be material if they, individually or in the aggregate, could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements. Materiality can be applied through the size of the item, its nature (qualitative characteristics), the circumstances of its occurrence, etc (Hayes *et al.,* 2005).

The ISAs refer to both “materiality for the financial statements as a whole” and “materiality level or levels for particular classes of transactions, account balances or disclosures”. Together with auditors’ risk assessment, materiality impacts audit planning, decisions where to allocate audit effort, and the opinion formation phase.

Many questions regarding the materiality in an XBRL context have been raised (Gunn, 2007; Plumlee and Plumlee, 2008; Trites, 2002; Trites *et al.,* 2006). What is material in the XBRL world? The mistagging of data might be material if it influences the analysis of reported information. In XBRL the risk of material mistagging is unrelated to the size of the item, with a single inappropriate or missing tag potentially able to make the financial statements "taken as a whole" materially misstated. Given this fact, in planning an XBRL audit it is not apparent how auditors should define materiality or allocate planning materiality to account balances or classes of transactions (Plumlee and Plumlee, 2008). The issue of materiality has been identified by various authors; however, no guidance so far exists to address it. Given the many forms the XBRL assurance might take, materiality in XBRL context will certainly depend on the subject matter, which, hypothetically, can be both an XBRL instance document; an XBRL style sheet, or a human-readable report rendered from an XBRL document (Trites *et al.,* 2006), or the processes or controls over the preparation of these XBRL documents (i.e. move from content assurance to process assurance).

Assessing the appropriateness of extended XBRL taxonomies

Another problem related to the process of XBRL assurance is the criteria to be used to assess the appropriateness of extended taxonomies.

To assess whether the extended taxonomy is in conformity with applicable regulatory requirements, one needs to examine its reference linkbase and rely on one's own experience, as well as the authority, history and purpose of that taxonomy (Trites *et al.,* 2006). Performing the mock assurance on United Technologies Corporation, Boritz and No (2009a) faced a problem that most elements in UTC's taxonomy extensions did not have reference links.

Lack of any standard or guidance with respect to this matter will leave the assurance provider baffled.

Components of audit risk, statistical techniques and sampling

Audit risk is the risk that an auditor may give an inappropriate audit opinion on financial statements, e.g. an unqualified audit opinion on financial statements that are materially misstated (Hayes *et al.,* 2005). In a traditional audit, risk assessment depends on the concept of materiality, which deals with the tolerance for errors, or, stated in another way, with the

inaccuracy the auditor accepts in his or her audit. Taken together, audit risk and materiality are the determinants of the type and amount of evidence the auditor has to accumulate and hence the audit procedures he or she has to perform (Hayes *et al.,* 2005).

Risk in auditing means that the auditor accepts some level of uncertainty in performing the audit function, i.e. uncertainty about the competence of evidence, about the effectiveness of a client's internal control structure and, eventually, whether the financial statements are fairly presented (*ibid.*). The components of audit risk are inherent risk, control risk, analytical procedures risk, and detection risk (Plumlee and Plumlee, 2008).

Inherent risk is the risk that an account balance or class of transactions contains a material misstatement, assuming no related internal controls exist (Hayes *et al,.* 2005). As mentioned before, it is unclear how this will translate to XBRL filings (Plumlee and Plumlee, 2008; Gunn, 2007). Srivastava and Kogan (2009) differentiate between two levels of risks regarding the structure of XBRL instance documents – the risk of data deficiencies (i.e. deficiencies of the facts that are marked up in XBRL) and the risk of meta-data deficiencies (deficiencies of the mark-up itself and deficiencies of the XBRL taxonomies). The former refers to the possible up in the XBRL instance document, while the latter refers to the possible deficiencies of the mark-up itself, including both the deficiencies of the mark-up in the instance document and deficiencies of the XBRL taxonomies. An important part of XBRL's inherent risk also plays the technological side of XBRL tagging process and software in use (*ibid.*).

Auditors will need to assess whether the instance document and extension taxonomies comply with XBRL Specification v2.1, FRIS (Financial Reporting Instance Standards), and FRTA (Financial Reporting Taxonomies Architecture). FRIS were developed to facilitate the analysis and comparison of data in XBRL instance documents. FRIS provide guidelines for creating high quality, interoperable instance documents under XBRL Specification v2.1 (XBRL International, 2010). FRTA, on the other hand, specifies a recommended design architecture and establishes rules and conventions which help make taxonomies more usable and efficient (*ibid.*). The compliance check with these specifications is performed through the validation process with help of validation software. A validation tool is essential to check the XBRL codes because this task is too tedious for an auditor to perform effectively manually (Plumlee and Plumlee, 2008), and the auditors will have to rely on the correct functioning of this software. Boritz and No (2008 and 2009a) discovered that different software (in their case, Fujitsu's Instance Creator Version 42 and DecisionSoft's True North Personal Validator

2006 Version 2.3.3) generates different error messages, which may confuse the assurance provider.

The way the XBRL filings are represented will depend on the rendering software. A rendering tool converts XBRL code into a presentation that can be visually inspected by a human (Boritz and No, 2009b). Once an XBRL document is rendered, that version can be visually compared to the original source document (*ibid.*). Correct functioning of rendering tools is essential both for the end users of XBRL filings and the assurance provider.

Another issue to consider is the control risk, particularly since in case of an XBRL engagement control risk is larger than the internal controls over the accounting processes (Plumlee and Plumlee, 2008; Gunn, 2007) and includes the processes used for preparing the XBRL filings, including the basic underlying raw data, accounting systems, taxonomy selection, taxonomy extension creation/amendment, the tagging process, and the company's related internal controls (Boritz and No, 2009a).

Sampling in traditional audits has evolved techniques that link dollar amounts to selection probability; however, it is not clear that the amounts of the errors are systematically associated with the number of errors in the tagging process (Plumlee and Plumlee, 2008). As mentioned before, a single XBRL mistagging may result in a material misstatement, while numerous mistaggings may aggregate to an immaterial amount of error. No advice on what should be a tolerable error or tolerable deviation rate and a desired reliability in providing assurance on XBRL data exists so far.

Srivastava and Kogan (2009) argue that it does not make sense to use statistical techniques to check whether business facts on the traditional format documents are properly tagged due to due to the different nature of errors and different characteristics of these facts.

Anyhow, without any idea on the meaning of error and materiality, it is very hard for an auditor to plan the audit or decide on the nature of substantive procedures to be applied. If issues regarding sampling are not resolved, the alternatives suggested may include 100 percent testing, which may be more expensive than investors, regulators, and other users are willing to pay, or new techniques, i.e. continuous auditing (Plumlee and Plumlee, 2008).

Continuous auditing and importance of internal controls

As mentioned before, the full shift towards the new paradigm of financial reporting in XBRL will trigger more drastic changes in the assurance process than the process of merely manual conversion of financial statements into XBRL.

The new paradigm will demand new, embedded, real-time accounting systems, which will generate XBRL tagged reports automatically without any need of human interruption. This advancement, undoubtedly, will increase the importance of internal controls, which is pivotal in changing the conventional 'content assurance' towards the 'process assurance'.

Internal controls are all processes and policies adopted by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of effectiveness and efficiency of operations, reliability of financial reporting, compliance with applicable laws, etc. (Hayes *et al.,* 2005). Both manually converted XBRL financial statements and anticipated, automatically generated ones are subject to internal controls.

Unlike conventional tests of control and substantive procedures, continuous auditing means automatically performing control and risk assessments on a more frequent basis. Simply put, continuous auditing is a system of automated processes, procedures, and specialized analytical tools to assist the assurance provider in performing his or her task and quickly identifying significant risks and control deficiencies (Rezaee *et al.*, 2001). Many benefits are attributed to this approach, including the data integrity enhancement, quick identification of data errors, risk and earlier detection of fraud (*ibid.*).

7.5. Summary of the chapter and further implications

In this chapter we discussed which effects the reporting in XBRL might have on assurance services. A brief overview of prior research on the topic has been given and the main issues and questions, which need to be addressed by the regulators and practitioners, have been identified.

In December 2008, the Securities and Exchange Commission adopted Interactive Data to Improve Financial Reporting (US SEC, 2009) mandating the phase-in of supplemental filings of financial statements using XBRL during the 2009-2011 period. Under the final rule for XBRL reporting, published on January 30th 2009 and effective from April 13th 2009, XBRL filings no longer will be a subject to limited liability and will bear the same liability (starting

2014 at the latest) as the traditional financial statements (*ibid.*). Company's auditor will also have to evaluate the controls over XBRL tagging process and report on it in connection to the Section 404 of the Sarbanes-Oxley Act (US SEC, 2009). What the implications of this move will be is not yet known. Some critique has already emerged. In an examination of controls over the preparation of XBRL-tagged data, the auditor expresses an opinion on the effectiveness of the controls; thus, such an examination performed without other services (e.g. examination of or agreed-upon procedures applied to the XBRL-tagged data itself) does not really address whether the underlying financial statements have been appropriately tagged (Center for Audit Quality, 2009). Nonetheless, it seems to be an important step towards inclusion of XBRL filings in the scope of audit.

It is unclear yet whether third party assurance on XBRL data will be required by regulators or requested by preparers, or by investors or other financial statement users in the future (IAASB, 2010).

Nonetheless, for investors, the XBRL "version" of the financial statements will most likely become the version they will rely upon, even with a provisional note of reference to the paper paradigm documents. The lack of guidance on how to provide assurance over XBRL, including what constitutes an error, materiality, and risk in XBRL settings, as well as other over-arching matters related to the scope of the engagement and the identification of suitable criteria, puts assurance providers in a difficult situation.

8. Empirical data presentation

This chapter presents and summarizes the replies sent by the respondents in the survey, the questionnaire complete with the introduction sent to the respondents is available in the appendix section. The persons chosen to participate in the survey are all knowledgeable with XBRL and its impact on the assurance process, either through practical experience, by researching XBRL's effect on the assurance process, or by taking part in the process of implementing assurance directive through professional organizations.

The way we present the answers is as follows: The answers are divided into categories of one question each, where we present a general opinion (if such an opinion exists) of the respondents and characteristic quotes for each question, along with any answers that do not fit a general opinion if deemed to be of value for the analytical process. The structure of this chapter generally follows the structure of the questionnaire, which we consider to be the best way to pedagogically guide the reader through the replies and get a general idea of answers received.

As accounted for in chapter 4.2.1, the questionnaire was distributed to a total of 41 persons, out of whom 10 replied in full to the questions and an additional 17 replied stating they were either not knowledgeable enough or had too limited experience to be able to fully reply in a satisfying manner. Out of the 10 who replied in full 6 wished to remain anonymous, either completely or by not mentioning their names in the thesis. The total reply rate was 65%, and the reply rate with full answers was 24%. While the questionnaire was distributed to auditors, researchers and people within professional organizations the only ones who replied were practicing auditors.

The Swedish auditors expressed a wish to receive and answer the questionnaire in Swedish, which meant we had to translate the questions into Swedish and then translate the answers into English, the issues surrounding translating is accounted for in section 4.4.

8.1. Difference of an XBRL assurance compared to conventional one

The respondents were asked to give their personal view and opinion regarding what the perceived biggest changes were, when comparing the XBRL assurance to the conventional assurance. Overall, the respondents claimed the XBRL assurance process in itself is not vastly

different compared to the conventional assurance process. There is however a more technical focus regarding ensuring correct tagging and similar.

As one anonymous auditor from a Big four-firm in the Netherlands replied:

> *"I do not envisage any large differences except perhaps ensuring correct taxonomy usage and overall a more technical focus."*

This reply was supported by the other respondents; this is what a Swedish auditor at KPMG replied:

> *"No major differences as far as making sure item x in the XBRL-file corresponds to item y in the company's system. However, [I think there is] an extended process for signing XBRL and less support within the system to produce final accounts."*

One auditor at PricewaterhouseCoopers in Sweden was of the opinion that no individual procedure has changed, but rather a number of additional tasks have to be performed when comparing the conventional assurance process to that of XBRL:

> *"[…] In addition to what we conventionally do, we had to assure the taxonomy and file containing the annual report."*

No respondents put forward anything to contradict the statements above.

8.2. Whether XBRL will require a framework of its own

As written in section 7.4.1, there are several projects within professional organizations and regulators to provide guidance and frameworks for auditors when conducting assurance with XBRL. We asked the respondents whether they feel the need for additional guidance and/or frameworks when assuring with XBRL, compared to the conventional assurance process.

Generally, the auditors did not feel the need for additional external guidance and/or frameworks. They did feel the need for extra guidance from their own audit firm.

The auditor from the Netherlands replied:

> *"Generally no, I think the current frameworks provide enough guidance even for XBRL assurance."*

Similarly, an auditor of KPMG in Sweden replied:

> *"I feel there is enough guidance in the current frameworks and rules with which we work today. There will be additional guidance provided by the organization, that is something I will appreciate."*

8.3. How to ensure correct taxonomy usage

The taxonomy is a crucial building block in financial statements filed with XBRLand companies can in principle build their own individual taxonomy extensions as previously mentioned in chapter 6.2. We asked the respondents how an assurance would ensure the correct taxonomy usage, and the replies were differing and highly dependent on location of the auditor.

The Swedish auditors do not experience individual taxonomies at all since the Swedish Companies Registration Office (the government organization that collects financial statements from Swedish companies) only allows two certain taxonomies and no individual extensions. There is need to ensure that the taxonomy usage is indeed correct however, and one way of doing so is to recreate the XBRL file as a readable annual report. This is illuminated, and supported by all the other Swedish auditors who replied, by an auditor at PricewaterhouseCoopers:

> *"This is not an issue for us as [Swedish] auditors, because of the Companies Registration Office rules that require companies to use one of two specific taxonomies."*

The above statement is supported by the statement below by an auditor at KPMG, with a slight addition:

> *"The program used to create the XBRL file is continuously updated to correspond to the current appropriate taxonomy. Another important moment to ensure correct usage is to recreate the XBRL file as a readable annual report. That particular annual report is then examined based on*

relevant assurance rules. The Companies Registration Office's routine for filing XBRL-files has some additional checks which we as auditors use in the assurance process."

A reply from the Dutch auditor revealed the following:

"The way which we would go about it is to produce an annual report based on the XBRL file and examine it accordingly."

8.4. Ensuring the correctness of the XBRL file

The first question asked was very general in its formulation to capture a diversity of opinions and experiences; this question is far more narrow and specific. We asked the respondents how the process of ensuring the correctness in the XBRL-file is compared to ensuring the correct appearance in conventional financial statements.

As in the first question, the respondents mainly remarked on the increased technical approach compared to the conventional assurance process.

An auditor from a smaller audit firm in Sweden replied:

"Even though there is a lot more emphasis on the technical part, such as making sure tags are correct, I do not feel the process in itself is much different from a 'conventional' assurance process. Indeed there were some additional work to make sure I fully understood the tags and their corresponding items in financial statements."

This reply was consistent with the general view and replies. Two of the auditors, one from Sweden and the Dutch auditor did however differ slightly and stated there were no material differences for ensuring the correctness of the XBRL file.

8.5. Materiality considerations

As stated in chapter 7.4.2, materiality considerations are key to perform an adequate assurance. We asked the respondents to elaborate on this topic, whether an XBRL assurance is different compared to a conventional assurance when considering materiality.

The general opinion of the respondents is that materiality considerations are not different in an XBRL assurance, but that it could well change later on with more practical experience.

This is what an auditor from KPMG replied:

> *"Generally no, as of today anyway. I do however envision that there might be later on, with more experience in XBRL comes certain knowledge of when and where things can go wrong when auditing XBRL. This is a personal reflection and opinion of mine."*

An auditor from PricewaterhouseCoopers replied similarly:

> *"When I performed my XBRL assurance(s), I did not consider materiality any different from performing a conventional assurance. This can however change in the future*."

The Dutch auditor did present a different viewpoint, stating the following:

> *"Whether an item is material or not will not be dependent on XBRL."*

8.6. Risk assessment

Similarly to materiality considerations, the risk assessment done by the auditor is an important part when conducting assurance. This was written in chapter 7.4.2. We asked the respondents to elaborate on whether financial statements filed with XBRL in any way affects the risk assessment done.

The general response was that XBRL does not affect risk assessment in any material way, neither more nor less risk assessment. One auditor from PricewaterhouseCoopers of Sweden did however, express another opinion:

> *"XBRL financial statements affect in such a way that it is an added moment to the process of creating the annual report, which indeed adds to the adjudged risk."*

8.7. Internal control

In chapter 7.4.2 it was said that it is reasonable to assume an increased focus on companies' internal controls when conducting XBRL assurance. We asked the respondents to give their view on the importance of internal control when conducting an XBRL assurance, whether there is more or less focus on internal control with XBRL.

The general response was that as of today, there hasn't been any change regarding focus on internal control. The auditors do believe there may be increased focus with more companies filing with XBRL. This reply came from an anonymous Swedish auditor:

> *"There is nothing different today. This may change in the future, but probably not for the smallest companies whose internal control function is very limited or nonexistent."*

A Swedish KPMG auditor replied similarly, with an addition:

> *"Not as of today, but that can and will probably change with more companies filing in XBRL. My own experience with XBRL is only with small companies, companies where internal controls as a function is limited due to the firm's size. Today, usually accountancy and audit firms produce XBRL reports, thus a slight change in approach can be used when assessing internal controls compared to where the company itself produces the XBRL report."*

The Dutch auditor replied slightly different:

> *"In my opinion, there will be more focus on a company's internal controls but I cannot say how much more, I'm afraid."*

8.8. XBRL and the ability to perform continuous assurance

Continuous assurance has been tipped to grow immensely with interactive data such as XBRL available as written in chapter 7. We asked the respondents to give their view on continuous assurance, and whether XBRL facilitates the requirements such an assurance.

One thing is the same for all replies, the fact that everyone sees no need for continuous assurance other than for perhaps large public companies. It is also a general view that auditors themselves feel they do not possess enough knowledge and experience to perform continuous assurance as of today.

An auditor at PricewaterhouseCoopers replied the following:

> *"Yes, probably, but I do not see the need for it as it is today, except perhaps for public companies."*

Similarly, one anonymous auditor replied:

> *"When and if there is apparent need for it, then I believe so yes. However, I do not know, because my experience with XBRL is very limited."*

An auditor of PricewaterhouseCoopers did present a differing opinion:

> *"I do not believe that XBRL, as it is today, creates bigger opportunities to perform continuous assurance compared to other systems. In order for XBRL to facilitate this, it probably needs to become international standard to code assurance data. There are far too many systems today to make this possible."*

9. Analysis

This chapter analyzes the empirical data obtained from questionnaires with assurance practitioners experienced in XBRL regarding the assurance process on XBRL documents, and contrasts it with findings from the theoretical framework.

The assurance on XBRL documents was acknowledged as an important issue by many researchers. Nonetheless, due to limited experience of practitioners with it and lack of regulatory resources, this topic has been vastly neglected both by the auditing profession and the standard-setting bodies. Recent developments in the US, with SEC mandating XBRL filings under the same liability as the traditional financial statements, has bolstered up the research specifically on the topic of providing assurance on these filings. Among commonly identified issues by the academic researchers are: the assurance level (instance document as whole versus assurance of all XBRL related documents dichotomy), lack of guidance (especially in regard towards the assurance process), meaning of materiality and of an error, statistical techniques and sampling.

To learn more on the practical specifics of assurance process on XBRL documents and the opinions of knowledgeable assurance practitioners, we have conducted interviews in a form of a questionnaire which touched upon most of the issues, acknowledged by the academics.

The problems envisaged by the researchers are not felt yet by the practitioners due to their limited exposure and experience with assurance on XBRL documents.

Researchers claim the process of assurance of XBRL documents will differ from the conventional assurance process in the form of additional tasks and procedures to be performed, including the nature and technical specificity of these tasks. Overall, respondents did not feel or envision the need for drastic changes in the assurance process, except for the increased technical focus on XBRL attributes, e.g. ensuring the correct use of the taxonomies, correctness and completeness of the tagging/mapping, technical validity of the XBRL instance document, completeness and correctness of the XBRL instance document, etc.

It appeared that the assurance providers were not as knowledgeable of the potential problems regarding the assurance process of XBRL documents as we had assumed, nor had given any thought about it, possibly because their main current task is to ensure XBRL corresponds to paper paradigm financial statements and focuses on the rendered XBRL instance document. Given this fact, the questions regarding the meaning of materiality, which is considered essential to assurance process, were not identified as problematic. The lack of

criteria to evaluate the extended taxonomies did not seem to be an issue for the assurance providers either, partly because XBRL projects in both countries the majority of respondents come from - Sweden and Netherlands - are regulator driven. Regulators are not interested (nor allow) extended taxonomies because it is harder and takes more time and effort to compare and interpret data based on extensions. Also, the majority of the report sets in the Dutch and Swedish taxonomies are a more or less direct translation of the traditional paper filings and variables defined in those filings and, thus, are standardized.

The additional risks of XBRL were acknowledged, including technology risks, error-laden mapping, control risks and other external risks (e.g. hacking attempts), which may encompass the production of XBRL financial statements in the future. Under present conditions, however, no unique procedures considering the assessment of these risks were felt to be needed. The respondents were mainly concerned with meta-data deficiencies rather than the underlying data deficiencies since the latter is a part of the conventional audit scope.

Over time, the new paradigm is expected to make XBRL financial statements the primary documents that investors will rely upon, and new, real-time accounting systems will generate XBRL tagged reports continuously without any need of human interruption. Many researchers believe that this step will trigger changes in assurance too, which will become increasingly automated and take form of continuous auditing. Continuous auditing involves the evaluation of transactions simultaneous to, or shortly after, their occurrence. When XBRL is used on a real-time basis, additional controls may be needed to ensure the integrity and accuracy of the tagged data. As a result, the assurance providers will need to shift their effort more towards assessment of these controls. At the moment, assurance providers did not identify it as problematic.

The need for more extensive regulatory support and guidance for practitioners, including assurance plans, has been identified as an important issue. Critique that the current frameworks offer guidance mainly to compare rendered XBRL instance document to the source document and even then do not address a lot of issues related to assurance process, has been voiced by Plumlee and Plumlee (2008) as well as Boritz and No (2009b). The respondents did not feel the need for additional guidance and/or frameworks when assuring with XBRL, compared to the conventional assurance process, and acknowledged current guidance can already be used as a framework for XBRL assurance. On the other hand, the respondents working in the audit industry did feel the need for some guidance from the firms

they were working at, especially task-focused guidance to address the technical attributes of XBRL (e.g. software and special techniques).

10. Conclusions

"Revolutionizing" financial reporting with the help of XBRL has been on agenda of many governments worldwide. There are numerous countries today that either allow or mandate XBRL-filing of financial statements for either taxation, governmental e-filing, or capital market purposes.

The reason for this trend are the numerous benefits of XBRL, e.g. increased processing capability and decreased data redundancy, as well as lowered costs as a result of increased efficiency. Financial information users are expected to experience reduced manual work such as manually transcribing company financial statements and easier, more convenient way of accessing and analyzing financial data.

Even approximately a decade later, XBRL is still a novel issue. A variety of inconsistencies and errors that limit usefulness of financial data still occur on regular basis in the XBRL reporting process. This has been documented by multiple authors researching SEC's VFP. Error-laden XBRL documents published online can potentially negatively affect many stakeholders. Therefore, to ensure the integrity and reliability of information reported in XBRL, it may be necessary that some degree of assurance is provided on XBRL data.

XBRL comprises of XBRL instance documents, taxonomies and linkbases. Together these documents are often referred to as XBRL related documents. The architecture of XBRL, as well as its potential development and change of financial reporting towards the interactive data paradigm as opposed to paper paradigm, enables to provide XBRL assurance on many different levels and in a variety of ways. Questions have been raised regarding which level of assurance is needed and whether there is a demand for it. To date, no jurisdiction mandates assurance conducted on XBRL filings, despite evidence of inadequacies in them.

The purpose of this master thesis was to investigate the issues surrounding the assurance of financial statements reported in XBRL and the way practitioners and other relevant parties envision differences, as experienced or as anticipated, in XBRL assurance process.

To fulfill the purpose of our thesis, we used a qualitative approach in a form of a semi-structured questionnaire with auditors, providing assurance on financial statements filed with XBRL; researchers involved in studying XBRL's impact on the assurance process; and other relevant parties actively taking part in a standard setting process within a professional organization. Due to the novelty of filing in XBRL, no official requirement for providing assurance on such filings, and few representatives of audit profession who possess experience

in the field, we faced difficulties in finding respondents and the scope is limited, both in selection and variation, especially geographically. Nonetheless we believe that due to respondents' affiliation with international audit firms and organizations, their answers are relevant and meaningful, and show at which current state the XBRL reporting and assurance are at the moment. Altogether questionnaires were sent out to a total of 41 persons, out of whom 10 (mainly Swedish assurance providers) replied fully and additional 17 replied stating they were either not knowledgeable enough or had too limited experience to be able to reply in a satisfying manner. We further contrasted our empirical findings with theoretical framework.

Since reporting in XBRL does not change the way the financial reporting is done, only the way it is presented, the XBRL assurance process will likely follow the same steps as conventional assurance process. However, to ensure the credibility and reliability of XBRL filings, additional procedures will need to be included. These changes, as envisioned by the academic research, entail potential problems which have not been addressed yet neither by the regulators and standard setters, nor by the audit profession.

The XBRL assurance issues are the level of assurance, lack of guidance, unclear nature of what constitutes error and materiality, as well as which statistical techniques are to be used.

We found, that the problems envisaged by the researchers are not felt yet by the assurance providers, we sent our questionnaire to. Overall, the respondents did not feel or envision any drastic changes in the assurance process, except for the increased technical focus on XBRL attributes. It appeared as if they had not given any thought about potential assurance issues of XBRL. This can be explained by the novelty of XBRL reporting and assurance and auditors' current task of mainly ensuring the correspondence of XBRL rendered instance document corresponds to paper paradigm financial statement. Given this fact, the questions regarding the meaning of materiality, error, sampling and control risk assessment were not identified as problematic. The main concern of the respondents was focused on meta-data deficiencies rather than the underlying data deficiencies of XBRL documents since the latter is a part of the conventional audit scope.

Also, interestingly enough, the respondents did not express any need for additional guidance or frameworks to support them within their process, something the academic research is keenly calling upon. They felt that the current guidance addresses all the relevant issues and can easily be used as a framework for XBRL assurance.

The state of XBRL reporting and assurance in different jurisdictions is different. Thus, the respondents are as much concerned with the issues of XBRL as they are legally required to be. Currently, XBRL for Swedish and Dutch auditors simply means technical check of rendered XBRL document and comparison with the primary financial statement. It is hard to judge in which way XBRL assurance will go, and the issues the assurance providers will find really problematic will certainly depend on that.

We conclude that, though currently the audit profession's exposure to assuring XBRL financial statements is limited to be able to generalize the findings, with current proliferation of Internet and regulatory efforts of some countries (e.g. the US), the XBRL "version" of the financial statements will most likely become the version investors will rely upon, with or without direct XBRL assurance. Further, the problems, which are currently envisioned by academic research, may in the future become a nuisance for the practitioners if not properly addressed on time.

10.1. Further research

The eXtensible Business Reporting Language (XBRL) is now being increasingly adopted in many countries both for governmental purposes, annual report filings, and within different industries. It is claimed to have great influence on data quality improvement and the effectiveness of data transfer and processing across different information systems.

XBRL's implications reach beyond just simply presenting the financial data in a different way. They include technological, IT-related advancements (e.g. rendering and validation software development), call for new standards (both accounting and IT-related, e.g. development of taxonomies) and regulations, assurance related implications, and other.

To be useful, financial data must be reliable, thus much emphasis has been put on the potential need for assurance of XBRL documents and the controls over their production. Though the idea of presenting financial information in the form of meta-tagged text has been around for more than a decade, and many authors have already addressed the issues of assurance process, including the development of conceptual assurance frameworks and tool prototypes, the research on the subject is still quite limited. Possibly this situation will change once XBRL gets mandated and there will be higher demand for ascertainment of financial facts in XBRL filings.

Over the course of conducting our work, we realized that the assurance process of XBRL is far too complex a subject to be addressed separately from the implications its mandatory acceptance may trigger in many areas.

We believe that the first and utmost issue that needs to be addressed is the potential demand for assurance process. Surveys, which have been conducted to date, generally indicate a positive attitude of financial statement users towards the provision of assurance on XBRL filings. The need for attitudinal research, especially the cost/benefit analysis of assurance provision to investors and other stakeholders, is essential for the future development of XBRL (e.g. its regulation).

Furthermore, research on what assurance can reasonably be provided and the opportunities of technological advancement (e.g. continuous auditing or automated assurance procedures) may be of great value both for practitioners and scholars.

Presently, much debate is going on about the very process of assurance and the issues related to it, including the meaning of error and materiality. Research and conceptual ideas regarding these issues may serve as stepping stone for standard-setters in providing the audit industry with necessary guidance. Reconsideration of assurance process may be needed, and the new risks regarding the issue may need to be assessed. Thus, comparative studies of current assurance process and the new process triggered by the adoption of XBRL might be interesting as well.

It is notable, that the respondents of our questionnaire did not envision drastic changes, nor problems related to the assurance process on financial statements filed in XBRL. This may be due to their limited experience with XBRL and lax, unclear standards or total lack thereof. Additional research on the attitude of the practitioners and their experience with assurance of financial statements filed in XBRL will certainly be valuable both for regulators, standard-setters and wider public.

List of references

American Institute of Certified Public Accountants (AICPA) (2003) Attest Engagements: Attest Engagements Interpretations of Section 101, Interpretation No 5. Attest Engagements on Financial Information Included in XBRL Instance Documents. Available at: http://www.aicpa.org/download/members/div/auditstd/AT-00101_9.PDF Accessed: 20/04/2010.

American Institute of Certified Public Accountants (AICPA) (2009) Performing Agreed-Upon Procedures Engagements That Address the Completeness, Accuracy, or Consistency of XBRL-Tagged Data SOP 09-1. New York: AICPA.

Ball, I. (2006) XBRL, Automation, and Enhancing the Credibility of Financial Reporting and Auditing, In The 14th International XBRL Conference. Philadelphia, PA. Available at http://www.xbrl.org/Philadelphia%20Presentations/Ball.pdf Accessed: 13/04/2010.

Bartley, J. W., Chen, Y., and Taylor, E. (2010) "A Comparison of XBRL Filings to Corporate 10-Ks - Evidence from the Voluntary Filing Program", Working Paper, February 18, 2010. Available at SSRN: http://ssrn.com/abstract=1397658 Accessed: 13/04/2010.

Boritz, J., and No, W. (2003) "Assurance Reporting for XBRL: XARL (eXtensible Assurance Reporting Language" in Roohani, S.J. (Ed.), Trust and Data Assurance in Capital Markets: The Role of Technology Solutions, pp.17-31, Smithfield, RI.

Boritz, E. (2006) XBRL and the Future of Web Reporting, Canadian Conference on IT Audit, Governance and Security, Toronto, March 28, 2006, slide 45, Available at: http://accounting.uwaterloo.ca/uwcisa/XBRL-XARL/Toronto%202006-04-31%20CICA%20IT%20Conference.pdf Accessed: 20/04/2010.

Boritz, J., and No, W. (2008) "The SEC's XBRL voluntary filing program on EDGAR: A case for quality assurance", *Current Issues in Auditing*, Vol.2 (2), pp.A36–A50.

Boritz, J., and No, W. (2009a) "Assurance on XBRL-Related Documents: The Case of United Technologies Corporation", *Journal of Information Systems*, Vol. 23 (2), pp. 49–78.

Boritz, J., and No, W. (2009b) "Computer-Assisted Tools for Auditing XBRL-Related Documents", Working paper, May 2009, University of Waterloo. Available at http://accounting.uwaterloo.ca/uwcisa/resources/XBRL-XARL/documents/AuditObjectivesandXBRLTool2009-06-04withoutApp.pdf Accessed: 20/04/2010.

Center for Audit Quality (2009) CAQ Alert #2009-55, Potential Audit Firm Service Implications Raised by the SEC Final Rule on XBRL. Available at: http://thecaq.org/members/alerts/CAQAlert2009_55_06012009.pdf Accessed: 20/04/2010.

Choi, V. Grant, G. and Luzi, D. (2008), Insights from the SEC's XBRL Voluntary Filing Program. The CPA Journal, December.

Chou, K-H. (2006) "How valid are they? An examination of XBRL voluntary filing documents with the SEC EDGAR system", In The 14th International XBRL Conference. Philadelphia, PA. Available at: http://www.xbrl.org/philadelphia%20presentations/ACD03%20HowValidAreThey_final_20061129.pdf Accessed: 20/04/2010.

Cohen, E. E., Lamberton, B., and S. Roohani (2003) "The implications of economic theories for data level assurances: Research opportunities". In Reporting Trust and Data Assurances in Capital Markets: The Role of Technology Solutions, pp.51–60. Sarasota, FL: American Accounting Association.

Deshmukh, A. (2004) "XBRL", Communications of the Association for Information Systems Vol. 13, Article 16, pp.196-219.

Doolin, B. and Troshani, I. (2007) "Organizational Adoption of XBRL", Electronic Markets, Vol.17 (3), pp.199-209.

Elliott, R. K. (2002) “Twenty-first century assurance”, *Auditing: A Journal of Practice & Theory*, Vol.21 (1), pp.139–146.

Gunn, J. (2007) XBRL: Opportunities and Challenges in Enhancing Financial Reporting and Assurance Processes, Current Issues in Auditing, Vol. 1 (1), pp.A36-A43.

Hayes, R., Dassen, R., Schilder, A., and Wallage, P. (2005) Principles of Auditing: An Introduction to International Standards on Auditing, 2nd Ed., Prentice Hall, Financial Times.

IAASB (2007) Proposed Strategy for 2009-2011, Consultation Paper, IFAC. Available at http://www.iasplus.com/ifac/0709iaasbstrategypaper.pdf Accessed: 13/04/2010.

IAASB (2009) International Standard on Auditing 320, Materiality in planning and performing an audit, IFAC. Available at http://web.ifac.org/download/a018-2010-iaasb-handbook-isa-320.pdf Accessed: 20/04/2010.

IAASB (2010) XBRL: The Emerging Landscape, Staff Questions and Answers, IFAC. Available at http://web.ifac.org/media/publications/0/xbrl-the-emerging-landscape/xbrl-the-emerging-landscape.pdf Accessed: 13/04/2010.

IFAC (2005) International Framework for Assurance Engagements, Handbook of International Auditing, Assurance and Ethics Pronouncements. Available at http://web.ifac.org/download/b003-2010-iaasb-handbook-framework.pdf Accessed 20/04/2010.

Johannessen, A and Tufte, P (2003), Introduktion till samhällsvetenskaplig metod, Liber

Kay, R (2009), eXtensible Business Reporting Language (XBRL). Computerworld, Issue 10, Available at: http://www.computerworld.com/s/article/342881/XBRL_Extensible_Business_Reporting_Language, Accessed: 08/04/2010.

Kernan, K. (2008), XBRL Around the World, A look beyond U. S. shores to put the SEC's interactive data initiative in a global context. Journal of Accountancy, Oct 2008.

Kumar, R. (2005), "Second Edition Research methodology: a step-by-step guide for beginners", Sage Publications, pp.123, 126.

Machiavelli, Nicolo (1515) The Prince.

Pinsker, R. (2003) "XBRL awareness in auditing: A sleeping giant?", *Managerial Auditing Journal*, Vol.18 (9), pp.732–736.

Pinsker, R. and Li, S. (2008), COSTS AND BENEFITS OF XBRL ADOPTION: EARLY EVIDENCE. Communications of the ACM, Vol.51 (3), pp.47-51.

Plumlee, D. and Plumlee, M. (2008) "Assurance on XBRL for Financial Reporting", *Accounting Horizons*, Vol.22 (3), pp.353-368.

Pollock, K. and Papiernik, J. (2001), "XBRL: A new common language for business information reporting", The Ohio CPA Journal, January-March.

Public Company Accounting Oversight Board (PCAOB) (2005) Staff Questions and Answers, Attest Engagements Regarding XBRL Financial Information Furnished Under the XBRL Voluntary Financial Reporting Program on the Edgar System. Washington, DC. Available at: http://pcaobus.org/Standards/QandA/05-25-2005.pdf Accessed: 13/04/2010.

Rezaee, Z., Elam, R., Sharbatoghlie, A. (2001) "Continuous auditing: the audit of the future", *Managerial Auditing Journal*, Vol.16 (3), pp.150-158.

Steinert-Threlkeld, T. (2009) "Will XBRL Filings Produce Reliable Data?" Securities Industry News, Vol.21 (5), p.2.

Srivastava, P., and Kogan, A. (2009) Assurance on XBRL Instance Document: A Conceptual Framework of Assertions, Working paper. Available at: http://ssrn.com/abstract=1289467 Accessed: 13/04/2010.

Trites, G. (2002) Audit & Control Implications of XBRL, Information Technology Advisory Committee, Canadian Institute of Chartered Accountants, Toronto, Canada: CICA.

Trites, G., Pasmooij, J., and Swirsky, B. (2006) "Interactive Data: The Impact on Assurance. New Challenges for the Audit Profession", Assurance Working Group of XBRL International, Laytonsville, Maryland, USA. Available at http://www.xbrl.org/Announcements/Interactive-Data-Assurance-2006-11-10.pdf Accessed: 13/04/2010.

Texeira, A. (2002) "A Commentary on the Business and Research Implications of XBRL" in New Dimensions of Business Reporting and XBRL (2007) (ed. Debreceny, R., Felden, C., Piechocki, M.), Deutscher Universitäts-Verlag I GWV Fachverlage GmbH, Wiesbaden.

US SEC (2005) XBRL Voluntary Financial Reporting Program on the EDGAR System, Final Rule Release No. 33-8529. Available at http://www.sec.gov/rules/final/33-8529.htm Accessed: 13/04/2010.

SEC (2008), Press release. SEC Approves Interactive Data for Financial Reporting by Public Companies, Mutual Funds.

US SEC (2009) Interactive Data to Improve Financial Reporting, Final Rule Release Nos. 33-9002, 34-59324. Available at http://www.sec.gov/rules/final/2009/33-9002.pdf Accessed: 13/04/2010.

US SEC Office of Interactive Disclosure (2010) Office of Interactive Disclosure: History. Available at: http://www.sec.gov/spotlight/xbrl/oid-history.shtml Accessed: 23/04/2010.

US SEC (2010) XBRL Glossary. Available at: http://www.sec.gov/spotlight/xbrl/glossary.shtml, Accessed: 20/04/2010.

XBRL International (2010), How XBRL Works. Available at: http://xbrl.org/HowXBRLWorks/, Accessed: 08/04/2010.

XBRL International (2010) Technical Support. Available at: http://www.xbrl.org/TechIndex/ , Accessed: 28/04/2010.

XBRL International (2010), Welcome to XBRL. Available at: http://xbrl.org/frontend.aspx?clk=LK&val=28, Accessed: 28/04/2010.

XBRL International (2010) XBRL Progress Reports. Available at: http://www.xbrl.org/ProgressReports/, Accessed: 20/04/2010.

XBRL International (2010), XBRL Taxonomies. Available at: http://www.xbrl.org/Taxonomies/, Accessed: 08/04/2010.

Appendix 1 – Introductory letter and replies received

The questions below were accompanied by an introductory letter presenting the authors and the research subject, kindly asking the respondent to answer the questions. The following letter was sent to all respondents (translated into Swedish for the Swedish respondents):

"Dear Mr/Ms [surname],
We are Alla Kvasnina and Patrik Larsson, taking part in a master program of accounting and auditing at Lund's University in Sweden. We are currently writing our master thesis, researching XBRL and its effect on the assurance process, and we are very interested in your experience and/or knowledge with this subject and hope to receive answers through a questionnaire accompanying this e-mail. We would appreciate your participation highly.

The questionnaire consists of 8 questions, we have deliberately kept the number of questions to a minimum to get a relatively high frequency of answers. We would be very grateful for any input you could provide. The questionnaire is estimated to take no more than 10 minutes.

As a token of our gratitude we will be happy to name you and thank you for your help in our thesis.

The questionnaire is attached in this e-mail, reply to it however you wish; either by filling out the blank space between the questions or simply by replying to them in an e-mail.

Best regards and thank you in advance,
Alla Kvasnina,
Patrik Larsson"

These are the questions that were sent to the respondents:

1. What, in your opinion, is the biggest difference when comparing an XBRL-assurance process compared to a conventional assurance engagement?
2. Will XBRL assurance engagement require a framework of its own to work within, or will the conventional audit framework(s) be appropriate?

3. How do you ensure correct taxonomy usage?
4. When ensuring that the XBRL-file is correct, is there anything in the assurance process that differs from a making sure that a conventional financial statement is correct?
5. Will an XBRL assurance engagement have different materiality considerations compared to the conventional assurance engagement?
    - If so, in what way will the XBRL assurance engagement be different regarding materiality decisions?
6. Do you think XBRL filed statements generally will require more or less focus on a company's internal controls? Why or why not?
7. In an American study it was discovered that virtually every company built its own taxonomy extension(s) to the XBRL schema. Do you think that such individual taxonomies will influence the general assurance process?
    - If so, how do you think it will influence the process?
8. Will such individual taxonomies influence the risk assessment done by the auditor?
    - If so, how do you think it will influence the risk assessment?

We received 10 replies in full, all are accounted for below. We have chosen to codify the respondents if they requested to be anonymous and only state which country they are currently practicing and which firm (if a Big four-firm) they are employed with. The replies are grouped together with the questions, to get a comparable result.

1. What, in your opinion, are the biggest difference when comparing an XBRL-assurance engagement compared to a conventional assurance engagement?

Auditor 1 KPMG [SE] "No major differences as far as making sure item x in the XBRL-file corresponds to item y in the company's system. However, [I think there is] an extended process for signing XBRL and less support within the system to produce final accounts."

Auditor 2 KPMG [SE] "In my opinion there is not a huge difference. In the two companies I have audited XBRL, the accounts and annual reports are produced in a conventional way which then are converted into XBRL to file with Bolagsverket."

Auditor 1 PwC[6] [SE] "I think there will be more technical focus, i.e making sure that items have the correct tags and similar, but the audit process as such will be basically the same as today, making sure items in the annual reports correspond to the correct items."

Auditor 2 PwC [SE] "Overall the differences are rather limited. In addition to what we conventionally do, we had to assure the taxonomy and file containing the annual report."

*Auditor Parameter Revision [SE]: "*What i experience as the only major difference, is if i have something to add or want to change in the annual accounts. If I do have something I would like to change, it can be technically difficult for the client to change. I think the system is still in its infancy."

Anonymous auditor 1 [SE]: "In my opinion, no major differences."

Anonymous auditor 2 [SE]: "Considering my limited experience with XBRL I feel the differences are rather limited, except for ensuring correct tags perhaps."

Anonymous auditor 3 [SE]: "I'm of the opinion that there are no major differences. Any engagement has its own particular issues, of which XBRL can be one."

Anonymous auditor 4 [SE]: "I still have too limited experience with XBRL to fully feel the effects it could have on an assurance."

Anonymous auditor [Hol] "I do not envisage any large differences except perhaps ensuring correct taxonomy usage and overall a more technical focus."

2. Will an XBRL assurance engagement require a framework of its own to work within, or will the conventional assurance framework(s) be appropriate?

Auditor 1 KPMG [SE]: "I feel there is enough guidance in the current frameworks and rules with which we work today. There will be additional guidance provided by the organization, that is something I will appreciate."

[6] PricewaterhouseCoopers abbreviated

Auditor 2 KPMG [SE]: "In my opinion, the current frameworks suffice."

Auditor 1 PwC [SE]: "No, not the way I see it anyway."

Auditor 2 PwC [SE]: "I don't think I'm qualified to really answer that question."

Auditor Parameter Revision [SE]: "The current guidance frameworks are enough."

Anonymous auditor 1 [SE]: "I'm not sure I understand your question entirely, but current regulations are enough to assure financial statements filed with XBRL in my opinion. Besides, there will be additional guidance provided in our internal working procedures."

Anonymous auditor 2 [SE]: "Generally no, the current rules and frameworks are sufficient generally."

Anonymous auditor 3 [SE]: "I don't think there is a need for additional regulations, but our internal procedures will surely contain more guidance anyway."

Anonymous auditor 4 [SE]: "If you are referring to the frameworks distributed by FAR, they are sufficient I believe. We have some extra internal protocols and procedures for these kinds of engagements."

Anonymous auditor [Hol]: "Generally no, I think the current frameworks provide enough guidance even for XBRL assurance."

3. How do you ensure correct taxonomy usage?

Auditor 1 KPMG [SE] "By locking users to a certain standard, something greatly helped by the [Swedish] K2-rules"

Auditor 2 KPMG [SE] "Generally this is not an issue, the Companies Registration Office has a control to make sure the taxonomy corresponds with the one that is supposed to be used."

Auditor 1 PwC [SE] "This is not an issue for us as auditors, because of the Companies Registration Office's rules that require companies to use one of two specific taxonomies."

Auditor 2 PwC [SE]: "I'm not sure I understand this correctly, since it is only possible to file with Bolagsverket's own taxonomy."

Auditor Parameter Revision [SE]: "Did not answer."

Anonymous auditor 1 [SE] "I do not understand the question."

*Anonymous auditor 2 [SE]: "*The producers of financial statements are required to use the specified taxonomy set by the Companies Registration Office."

*Anonymous auditor 3 [SE]: "*This is something we can rely on the Companies Registration Office's automated system to ensure."

Anonymous auditor 4 [SE]: "Before submitting the annual report we ran an automated test to ensure it was the correct taxonomy."

Anonymous auditor [Hol] "I do not have the appropriate experience to answer this."

4. When ensuring that the XBRL-file is correct, is there anything in the assurance process which differs from a conventional assurance process?

Auditor 1 KPMG [SE] "No, nothing material. Like I said, it's making sure item x corresponds to item y."

*Auditor 2 KPMG [SE] "*In my opinion there is not really a material difference."

*Auditor 1 PwC [SE] "*Apart from making sure tags are correct, no."

*Auditor 2 PwC [SE] "*I'm not sure I understand this question, but besides the technical environment there were no major differences."

Auditor Parameter Revision [SE]: "If anything is different, it is like I said before. If I would like to change anything in the accounts, it is difficult to do so."

*Anonymous auditor 1 [SE] "*We make sure that items in the XBRL file corresponds to financial statements, so there are additional work done."

Anonymous auditor 2 [SE]: "Even though there is a lot more emphasis on the technical part, such as making sure tags are correct, I do not feel the process in itself is much different from a 'conventional' assurance process. Indeed there were some additional work to make sure I fully understood the tags and their corresponding items in financial statements."

Anonymous auditor 3 [SE]: "There is an added process of ensuring tags are correct."

Anonymous auditor 4 [SE]: "Yes, we are required to make ensure the correctness of tags in addition to what we normally do."

*Anonymous auditor [Hol] "*I do not believe there will be a great difference."

5. Will an XBRL assurance engagement have different materiality considerations compared to the conventional assurance engagement?

*Auditor 1 KPMG [SE] "*Generally no, as of today. I do however, envision that there might be later on, with more experience in XBRL comes a certain knowledge of when and where things can go wrong when auditing XBRL. This is a personal reflection and opinion of mine."

*Auditor 2 KPMG [SE] "*Not as we have audited XBRL, no. I do know there are discussions surrounding this, but as far as I know there are no changes regarding this."

Auditor 1 PwC [SE] "Perhaps later on, but not today."

Auditor 2 PwC [SE]: "When I performed my XBRL assurance(s), I did not consider materiality any different from performing a conventional assurance. This can however change in the future."

Auditor Parameter Revision [SE]: "No, the process itself is very similar to a conventional one."

Anonymous auditor 1 [SE] "I cannot answer that question because my experience is very limited."

Anonymous auditor 2 [SE]: "I do not think so, the way we test materiality will generally be the same I think. Perhaps with more experience this can change."

Anonymous auditor 3 [SE]: "I'm not sure whether we considered materiality different, but I don't think so."

Anonymous auditor 4 [SE]: "No, not in my opinion."

Anonymous auditor [Hol] "Generally no, whether an item is material or not will not be dependent on XBRL."

6 Does an XBRL assurance engagement affect the risk assessment done?

Auditor 1 KPMG [SE]: "No, I did not experience a need for that."

Auditor 2 KPMG [SE]: "Not as we conducted the assurance, I don't see the need for it either."

*Auditor 1 PwC [SE] "*XBRL financial statements affect in such a way that it is an added moment to the process of creating the annual report, which indeed adds to the adjudged risk."

Auditor 2 PwC [SE]: "The risk assessment is not different at all if one compares it to the conventional one."

Auditor Parameter Revision [SE]: See answer for question 5

Anonymous auditor 1 [SE]: "We considered risk as we always do."

*Anonymous auditor 2 [SE]: "*No."

*Anonymous auditor 3 [SE]: "*I'm not 100% sure, but I do not think we considered risk any differently from what we normally do."

Anonymous auditor 4 [SE]: "Cannot answer this question."

Anonymous auditor [Hol]: "Probably not, the process itself will be similar albeit with a more technical focus. Risk will not diminish or increase with the increased technical reliance in my opinion."

7. Do you think XBRL filed statements generally will require more or less focus on a company's internal controls?

Auditor 1 KPMG [SE] "Not as of today, but that can and will probably change with more companies filing in XBRL. My own experience with XBRL is only with small companies, companies where internal controls as a function is limited due to the firm's size. Today, usually accountancy and audit firms use XBRL reports, thus a slight change in approach can be used when assessing internal control compared to where the company itself produces the XBRL report."

Auditor 2 KPMG [SE] "Today: No difference, in the future: Probably, but not for the smallest companies who have a limited internal control function."

*Auditor 1 PwC [SE] "*For medium sized and larger companies, yes. For smaller companies, no."

Auditor 2 PwC [SE]: "I cannot answer that question because my experience [with XBRL] is very limited."

Auditor Parameter Revision [SE]: See answer to question 5

Anonymous auditor 1 [SE] "There is nothing different today. This may change in the future, but probably not for the smallest companies whose internal control function is very limited or nonexistent."

Anonymous auditor 2 [SE]: "I assure small companies almost exclusively, they normally don't have any (or very limited) internal controls. Therefore I cannot answer this question."

Anonymous auditor 3 [SE]: "I think this will be roughly the same as it is today."

Anonymous auditor 4 [SE]: "Perhaps for larger companies, but in general I don't think it will be different. We did not focus more on internal controls anyway."

Anonymous auditor [Hol] "In my opinion, there will be more focus on internal controls but I cannot say how much more I'm afraid."

8. Do you believe that XBRL facilitates the possibility to perfom continuous assurance?

Auditor 1 KPMG "I cannot answer that question, I have only performed audits on final accounts in XBRL."

Auditor 2 KPMG: "I do not know that, as my work with XBRL has been limited to a few companies."

Auditor 1 PwC [SE] "Yes, probably, but I do not see the need for it as it is today, except perhaps for public companies."

Auditor 2 PwC [SE]: "I do not believe that XBRL, as it is today, creates bigger opportunities to perform continuous assurance compared to other systems. In order for XBRL to facilitate this, it probably needs to become international standard to code assurance data. There are far too many systems today to make this possible."

Auditor Parameter Revision [SE]: Did not answer

Anonymous auditor 1 [SE] "I'm afraid I don't know the answer to this question."

Anonymous auditor 2 [SE] : "There has been

Anonymous auditor 3 [SE]: "When and if there is apparent need for it, then I believe so yes. However, I do not know, because my experience with XBRL is very limited."

Anonymous auditor 4 [SE] "I honestly don't know what that is."

Anonymous auditor [Hol] "Yes, when demanded by an external party."