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Extending the Knowledge of Earnings Quality Using the AHP- an applied study

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Abstract:

This paper seeks to understand earnings quality as interpreted by UAE investment analysts, and then tests this interpretation against its actual usage in analysts' processes in determining earnings quality. Earnings quality concluded that the importance of accounting quality and earnings, based on the information relating to the source of environmental earnings quality, is more important than it seems, and exerts a significant influence on the analysis and recommendations in analysts' prospective. The purpose of this study is to demonstrate how Analytical Hierarchy Process (AHP) can be employed to determine earnings quality. Overall, the results presented from the paramorphic model under AHP are meant to be descriptive for the decision process of nine investment analysts, equities investment analysts of fund manager and work for various institutional types. The study's results offer valuable insights into how a small population of investment analysts decided the relative importance of various earnings quality dimensions.

Keywords: earnings quality, investment analysts, AHP, pair-wise comparison.

1. Introduction:

The issue of earnings quality has gained prominence over the past two decades. This issue was highlighted by the Securities and Exchange Commission (SEC) during the 1990s and by the Treadway Commission on October 1987. In this respect, the common knowledge of investors often adjusts reported earnings in order to account for quality deficiencies. This fact has been apparently considered until the 1990s but was ignored by accounting researchers (Kalbers, 2009). Furthermore, in both theory and practice, earnings quality is difficult to define and even more difficult to measure precisely (McVay, 2006). The Panel on Audit Effectiveness (2000, p. 77) stated that it "is not aware of a single accepted definition of the term earnings quality". In general, a common understanding of earnings quality includes some level of deception, usually to influence some outcomes (Healy & Wahlen, 1999; Becker, et al., 1998; Schipper, 1989). Moreover, many studies made by Siegel (1982), Nelson, et al. (2003), and Nigrini (2005) have showed an increasing interest in the study of earnings quality for organisations. These studies in general involved participants of accountants, security analysts, and financial managers who were all surveyed in order to gain insights into the factors affecting earnings quality. The questionnaire encompassed some areas related to earnings quality, moving from general questions to more specific questions. One of the questions assessed was whether respondents were familiar with the term 'earnings quality'. Most of the respondents were familiar with the concept and all security analysts indicated that they were familiar with the concept and found it to be meaningful and useful. According to the elements of earnings quality, it was apparent that the participants viewed quality of earnings as a multidimensional concept. Overall, the results of these studies indicated that there is general consensus on many aspects of earnings quality, particularly earnings-based compensation plans and reward management performance according to accounting numbers.

While research into earnings quality in the context of market-based accounting is important, there are other factors motivating this study. Relatively, little is known about the cognitive processes of the users of financial information, and the present study addresses this issue regarding, arguably, one of the most important groups of financial statement users –

investment analysts. Therefore, while extending knowledge on the nature of earnings quality, this study also addresses the decision activities of a group of individuals who are regarded as extremely important to accounting research.

It has been indicated by Nelson, et al. (2003) that earnings quality is a potential explanation for the weak earnings relation which has been documented since the 1970s. In addition to this, due to the growing interest in the concept of earnings quality, as Schipper and Vincent (2003) highlighted, some research works were conducted before the 1970s (Dechow & Skinner, 2000; Comiskey, 1978). Therefore, it is necessary to identify the notion of earnings quality (Schipper & Vincent, 2003; Ewert and Wagenhofer, 2015).

In relation to accounting practices, Nigrini (2005) and Ewert and Wagenhofer (2015) noted that earnings quality would be directly influenced by the conservatism of the chosen methods. Nigrini (2005) also argued that the quality of earnings relates to the persistence of earning and to the likelihood of cash realisation on reported earnings. Fabozzi (1978), Healy and Wahlen (1999) and Barker and Imam (2008) highlighted that quality of earnings would partly depend upon the degree of conservatism used. For instance, liberal accounting methods indicated poor quality earnings. Barker and Imam (2008) also argued that high earnings quality is positively related to the extent of disclosure in accounts and the degree of earnings persistence. Further, Ewert and Wagenhofer (2016) indicated that the concept of earnings quality is both accounting-based (relating to notions of core or cash components of earnings, and accounting policies) and non-accounting-based (relating to information drawn from outside the financial statements).

In addition to the above paragraph, there are three-nested definitions of accounting quality advanced by Imhoff and Thomas (1994) which are: a) valuation quality – this definition implies that higher quality of earnings leads to higher price/earnings ratio. This definition of quality was tested by Fabozzi (1978) who found that companies with low quality of earnings did indeed exhibit a correspondingly lower price/earnings ratio; b) quality of accounting practices – which implies that quality will result from the use of conservative accounting methods and fuller disclosure; and c) disclosure

earnings quality – which is the narrowest of the three advanced by and relates only to the uncertainty in the accounting signals.

This study seeks first to understand earnings quality as interpreted by analysts, and it then tests this interpretation against its actual usage in analysts' research reports. This study also discusses the need to gain a deeper understanding of earnings quality dimensions by using AHP in determining accounting methods choices of nine investment analysts involved in the UAE equities research. This study is organised in five sections. First, the research motivations and questions of the study are outlined. This is followed by a review of related literature to discuss earnings management quality, earnings management quality theory, and earnings management quality and organisational performances which is followed by a brief review of AHP. Then, it discusses the research instruments and data collection methods. After that, it discusses the results of AHP application. Finally, the paper concludes, highlighting some limitations and the direction for further research.

2. Research motivations and questions:

This study is motivated by the need to gain a deeper understanding of the concept of earnings quality. Specifically, the construction of a paramorphic model, which resembles the judgements of an important group of users of accounting information as they determine relative earnings quality, is the purpose of this research study. However, this study is also motivated to obtain insights into the concept of earnings quality and the relative importance of established quality dimensions. Overall, research into all aspects of quality is required in order to help resolve the low returns/ earnings relation documented and reported by many previous studies, as mentioned above.

This subject area deals with the basis and nature of earnings quality using a paramorphic model of the UAE investment analysts' cognitive processes in the determination of earnings quality. A common understanding of earnings quality is difficult to define and even more difficult to measure precisely. However, the AHP technique can make analytical studies more effective, easier, and more applicable to companies to calculate the relative weights of each dimension (Saaty and Vargas, 1982; Saaty and Vargas,

2013; Kuhner and Pelger, 2015). In general, this study seeks to answer questions relevant to determination and structure of earnings quality under an AHP approach. The expected results may be descriptive of the decision process of nine investment analysts selected from seven different UAE organisations. The key questions are: 1) to what extent do the nine investment analysts of the UAE orgnisations, investigating the impact of earnings quality, use an AHP model?; 2) how can the practices of earnings quality be examined through a small population of investment analysts selected from different UAE organisations using AHP?; and 3) under what conditions can the present study examine earnings quality issues which involve decisions about the practice of earnings management quality within the seven UAE organisations? Part of these questions are discussed in the literature review and answered in the data analysis sections.

3. Related literature:

The literature review provides an opportunity to shed some light on the notion of earnings quality to bridge the gap that separates theoretical and empirical research on earnings quality. The analysis of previous researchers (Dechow, et. al., 2010; Schipper and Vincent, 2003, Ewert and Wagenhofer, 2015) implies that a general definition of earnings quality is elusive. As indicated by Beyer, et al. (2014) and Aljifri (2007), earnings quality captures the informativeness of reports by measuring the extent of uncertainty investors are left with after observing the history of reports issued by managers. In that sense, earnings quality is a well-defined measure of informativeness only if the researcher is able to identify investors' prior uncertainty. Consequently, this study addresses earnings quality from a user's perspective. It seeks, firstly, to understand earnings quality as interpreted by the UAE investment analysts' cognitive processes in determination of earnings quality.

3.1. Discussion of earnings management quality:

The historical background of earnings quality was seriously raised by the Treadway Commission in October 1987 and also by the SEC during the 1990s (SEC, 1999; Kalbers, 2009). The difficulty of identifying earnings quality, let alone fraud, is well documented (Hohenfels, 2016; Liu

& Li, 2013; SEC, 1999). However, ex post, financial frauds are typically defined as intentional material misstatements in financial reports. For research on public companies, this is usually measured by the existence of an investigation and enforcement action by the SEC (Elias, 2002). In general, published research supports the recommendations of the Treadway Commission (Kalbers, 2009). However, despite the Treadway Commission's recommendations and the major findings of research studies about financial fraud, regulators and self-regulatory organisations were slow to enforce the recommended changes for public companies and auditors. This section focuses on earnings quality and the research conducted on this topic. In this case, earnings quality may be thought of as ranging from 'high-quality' to 'fraudulent' (Kalbers, 2009; Elias, 2002).

Furthermore, the previous literature indicated that earnings quality is influenced by factors which are often intangible and immeasurable and, as such when assessing earnings quality, judgments will be largely subjective. Earnings quality, while related to accounting, is also affected by other factors such as the basis and nature of earnings. In addition to this, the issue of earnings quality has received much attention in the accounting literature (Healy and Wahlen, 1999; Barton, et al., 2002, Cheng and Warfield, 2005). Therefore, this study extends this line of literature that earnings management involves, selecting accounting estimates that result in reporting earnings which are advantageous to the company or its managers at the expense of external stakeholders.

3.2. Earnings management quality theory:

As indicated by Hohenfels (2016) that the definition of earnings of management describes reasonable and proper practices that are part of a well-managed business that delivers value to shareholders. Earnings quality is a central topic in both theoretical and empirical research in accounting. The existing theoretical literature on earnings quality has predominantly focused on settings in which firms make a single disclosure decision (Xu, et al., 2007; Beyer et al., 2014). Related, in the existing empirical literature, measures of earnings quality are, as Meek, et al., (2007) and Gerakos (2012) put it typically estimated in the cross section and therefore do not take into account the fact that earnings are best described by a dynamic process (Hong, et al., 2012; Kumari, et al, 2014). These techniques have

not significantly changed for more than 20 years. However, the existing measures of earnings quality have been critiqued for their inability to distinguish between the noise in the financial reporting due to the nature of the business and the fundamentals and the part that is due to reporting distortions (Beyer et al., 2014).

In addition to the theoretical literature, there exists a large body of empirical literature on earnings quality. In this respect, earnings measurement is central to the use of financial statements in evaluating historical performance, forecasting future performance and valuing equity (Ohlson, 1995; Bergstresser, et al., 2006; Dickey, et al., 2013; Beyer, et al., 2014). Yet, as noted by Schipper and Vincent (2003 and Ewert and Wagenhofer (2015), there is neither an agreed-upon meaning assigned to the phrase nor a generally accepted approach to measuring earnings quality although the phrase earnings quality is widely used. In both theory and practice, earnings management is difficult to define and even more difficult to measure precisely (Xie, et al., 2003; Bédard, et al., 2004). This imprecision involved in describing and measuring earnings quality necessarily makes it difficult to determine when management has moved along the continuum (Stolowy and Breton, 2004; Bédard, et al., 2004). Thus, researchers have used various measures in an attempt to address the level of earnings quality and sought to find conditions under which it is practiced.

3.3. Earnings management quality and organisational performance:

In an organisational context, the standard practices that are applied by managers in earnings quality management influence the transactions in the company's financial statements (Barton, et al., 2002; Burns and Kedia, 2006). Companies change the transaction processes to meet the needs of stakeholders regarding the earnings from business operations (Weber, 2006; Gong et al., 2008; Sarkar, et al., 2008). In this sense, management manipulates business earnings through the accounting transactions. The transactions are influenced to assist the company to achieve its preset earnings objectives. Examples of accounts that the management can control include the expenditures account and revenue account. These are the most common transactions that are related to corporate earnings (Kumari, et al., 2014; Al-Rassas and Kamardin 2016).

Moreover, some of the standard practices are explored by managers in manipulating business earnings. For instance, there are two revenue recognition techniques that can be applied when reporting for income; the cash-basis and accrual-basis (Francis, et al., 1999; Peasnell, et al., 2005; Gong et al., 2008; Barker, et al., 2008). The managers might decide to select one approach over the other, which might have an effect on the company's earnings. Another example is a selection of the most appropriate inventory valuation technique. Some of the techniques that can be explored are the LIFO and FIFO methods. Through these practices, corporate managers can influence the earnings; thus, affecting the financial performance.

Although there have been varied reactions to earnings management and its impact on financial performance, the majority of existing studies have failed to establish a positive relationship between the company's performance and earnings management (Teoh, et al., 1998; Klein, 2002; Burns, et al., 2006; Ahadiat & Hefzi, 2013; Choi and Lee, 2015). The studies have shown the practice as unacceptable among the users of financial statements as it does not reflect the actual financial position. Earnings management practices adopted by organisations negatively influence organisational performance. Ahadiat and Hefzi (2013) assert that the practices might not reflect the actual performance of an organisation. Such information is likely to mislead shareholders. According to Ebrahim (2007), Roychowdhury (2006), and Zang (2011), earnings management and practices and activities provide avenues through which the management can hide financial fraud in the organisation. As a result, it presents misleading information about the business.

4. Brief historical background of AHP

The Analytic Hierarchy Process (AHP) model has been introduced by Thomas Saaty (1980). The AHP is a theory of measurement through pairwise comparisons and relies on the judgments of experts to derive priority scales (Partovi, 1994; Phuong, et al., 2000; Kannan, 2010; Rajput and Shukla, 2014). AHP is a method of breaking down a complex situation into its component parts (Saaty, 1977) and arranging these parts or judgments on the relative importance of each variable and synthesizing the judgments to determine which variables have the highest priority and should be

acted upon to influence the outcome of the situation (Saaty, 1990a). It is a measurement theory that can deal with quantitative and qualitative criteria (Vargas, 1990; Saaty, 1994a; Kannan, 2010; Luthra et. Al., 2016).

AHP is a systematic procedure for representing the constituent elements of any problem hierarchically (Saaty & Kearns, 1985; Vaidya & Kumar, 2006; Kannan, 2010) and the hierarchical structure will normally have three to four levels. Level 1 reflects the overall goal or focus of the decision, Level 2 reflects the main dimensions for the decision, Level 3 contains sub-dimensions if any, and Level 4 contains the decision choices or specific sub-dimensions (Kannan, 2010; Nguyen, et al., 2010). Further, the bottom level of the hierarchy contains the options or alternatives. Therefore, each hierarchical level can be seen as being made up of elements (or criterion variables) that, in turn, are decomposed into sub-elements that make up the next level of the hierarchy (Saaty, 1994b; Chan, et al., 2006; Nguyen et al., 2010).

Over the years, many outstanding works have been published based on AHP in different fields such as planning, selecting the best alternative, resource allocation, resolving conflict, optimization, etc., and numerical extensions of AHP (Wikipedia 2014; OĞUZTİMUR, 2011; Nguyen et al., 2010; Kannan, 2010; Chan et al., 2006). Overall, since AHP's initial development by Thomas Saaty at the Wharton School of Business in the 1970s, AHP has been applied in a wide variety of decision areas, including those related to manufacturing systems. A review as well as suggestions for new applications is given by the Panel on Audit Effectiveness (2000), Partovi et al. (1990), Partovi (1994), and Vaidya and Kumar (2004).

4.1. Construction of AHP model hierarchy for earnings quality:

AHP is a decision-aiding tool for dealing with complex, unstructured, and multiple-attribute decisions (Partovi, 1994; Chan et al., 2006). AHP is a theory of measurement for dealing with tangible and intangible factors. It has been used for selection processes such as accounting and auditing (Hassell & Arrington, 1989; Arrington, Hillison, & Jensen, 1984), electric utility industry, medicine, business (Korpela, et. al., 1996; Golden & Wang, 1989), education (Bahurmoz, 2003), and evaluate barriers in adopting sustainable consumption and production (Luthra, et. al., 2016).

The structure of AHP consists of a hierarchy of criteria and sub-criteria cascading from the decision objective or goal (Chan et al., 2006; Saaty and Vargas, 2013). However, the most creative task in making a decision is to choose the criteria that are important for that decision, and in AHP, these criteria (or sub-criteria), once selected, are arranged in a hierarchic structure descending from an overall goal to criteria and decision choices in successive levels (Saaty, 1990b). This hierarchical structuring is the most important step in AHP, and it provides an overall view of the complex relationship inherent in the situation and in the judgment (Saaty, 1994b, 2008a).

In the present study, there are two dimensions, five sub-dimensions, and four specific sub-dimensions involved in the hierarchy (see Figure 1). This basic hierarchy used for the determination of earnings quality is based on the following major levels:

1. Determining the main dimensions of earnings quality: the dimensions in this level are used for the evaluation of the various activities including accounting quality and earnings, and the basis and nature of earnings quality. The two dimensions, which are associated with the determination of earnings quality, make up the second level of the hierarchy;
2. Earnings quality sub-dimensions (activities level): these include sets of sub-dimensions (measurement of earnings quality, disclosure of earnings quality, accountants control independent from management, persistent vs. transitory earnings, and development of earnings);
3. Earnings quality specific sub-dimensions: there are also sets of specific sub-dimensions at the low levels of this hierarchy (methods of inventory valuation, fixed assets and accounting depreciation, research development (R&D) expenses and accounting treatment, and goodwill and accounting treatment).

All of the above-mentioned dimensions, sub-dimensions, and specific sub-dimensions are presented in Figure 1 and identified in Table 1.

The decision hierarchy (Figure 1) was developed following a comprehensive literature review of earnings quality and a discussion with investment analysts or subjects. The determination of earnings quality is

the focus of the hierarchy as mentioned above. This main goal follows analysts' indication that an assessment of relative earnings quality is extremely important when evaluating equities. Also, an overview of the definitions of dimensions, sub-dimensions, and specific sub-dimensions at the hierarchy levels are presented in Figure 1 and identified in Table 1. Consequently, the relative weights of all elements are derived by using pair-wise comparison with respect to the selection goal of accounting quality or nature and source of earnings. With the relative weights of both dimensions and sub-dimensions, selection can be performed to find out the best earnings quality dimensions and sub-dimensions. Furthermore, an evaluation of all pair-wise comparisons (using the Saaty 9-point scale) is used. This involves many pair-wise matrices across the hierarchy levels.

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Figure 1. The decision hierarchy for earnings quality. Source: Elements within all levels in this hierarchy are developed by the author.

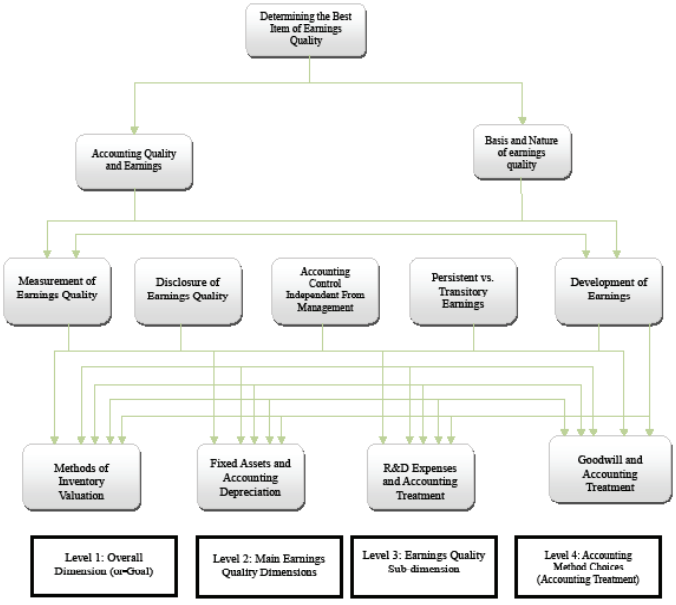

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Table (1) - Definition of Criteria, Sub-dimensions, and Specific Sub-dimensions for the Selection of Earnings Quality.

Element (goal and main dimensions)	Sub-dimension	Specific sub-dimension	Definition
Earnings quality (the main item of earning quality)			Earnings quality refers to the usefulness of the earnings figure as an aid to financial analysis.
Accounting quality and earnings			Accounting quality is determined by measurement quality, disclosure quality, and the accountants' independence from management.
Basis and nature of earnings quality			They relate to the economic processes that generate earnings. For example, the nature of earnings has to do with things like whether earnings derive from operating or non-operating activities.
	Measurement of earnings quality		Measurement quality suggests that management has not manipulated the accounting numbers.
	Disclosure of earnings quality		It relates to the extent and type of information disclosure in financial statements.

	Accountants control independent from management		It relates to the extent to which accountants are free to produce the financial statements without interference from management in relation to how data are measured and disclosed.
	Persistent vs. transitory earnings		Persistent earnings are those earnings which are expected to be maintained indefinitely into the future. Transitory earnings are those which are not expected to recur in the future.
	Development of earnings		The extent to which earnings are increasing, year on year, in a regular and stable fashion. Companies make accounting method choices in many areas. For the purposes of this study, we assume that there is a choice of method in only four areas, namely, inventory valuation, depreciation of fixed assets, treatment of R&D costs, and treatment of purchased goodwill.
		Methods of inventory valuation	There is a choice between last in first out (LIFO) and first in first out (FIFO) methods. LIFO is regarded as a conservative method since, during times of rising prices, LIFO produces lower earnings than does FIFO. FIFO is regarded as a liberal method.
		Fixed assets and accounting depreciation	The liberal choice is straight-line depreciation. It produces higher earnings than conservative choice, accelerated depreciation.

		Research Development (R&D) expenses and accounting treatment	The development expenditure meets the criteria which enable it to be either capitalized and expensed over a number of years or written off as an expense immediately. The first choice (capitalization) is deemed as liberal while the later choice (expense immediately) is deemed as conservative.
		Goodwill and accounting treatment	The company has purchased goodwill which it must account for. The conservative choice is to create a fixed asset that is then amortized as an expense through the profit and loss account over a period of several years. The liberal choice is to write off the purchased goodwill immediately against reserves.

Consequently, the relative weights of all elements are derived by using pair-wise comparison with respect to the selection goal of accounting quality or nature and source of earnings. With the relative weights of both dimensions and sub-dimensions, selection can be performed to find out the best earnings quality dimensions and sub-dimensions. Furthermore, an evaluation of all pair-wise comparisons (using the Saaty 9-point scale) is used. This involves many pair-wise matrices across the hierarchy levels.

4.2. Process of pair-wise comparison matrices

Once the hierarchy has been constructed and finalized, elements in each level are compared pair-wise with respect to their importance to an element in the next higher level and, starting at the top of the hierarchy and working down, a number of square matrices called preference matrices are created in the process of comparing elements at a given level by each of the nine investment analysts.

Moreover, the nine investment analysts or subjects can express their preferences between every two elements verbally as equally important, moderately more important, strongly more important, very strongly more

important, or extremely more important. These descriptive preferences would then be translated into numerical ratings 1, 3, 5, 7, and 9, respectively, with 2, 4, 6, and 8 as intermediate values for compromises between two successive qualitative judgments. The nominal scale used in AHP enables the decision maker to incorporate experience and knowledge in an intuitive and natural way (Yaghoobi and Haddadi, 2016; Rajput and Shukla, 2014; Saaty, 1980; Salo & Hamalainen, 1997; Partovi, 1994).

After forming the preference matrices, the relative weights of elements of each level with respect to elements in the next higher level are computed as the components of the normalized eigenvector associated with the largest eigenvalue of their comparison matrices (Lee, et al., 2002; Salo & Hamalainen, 1997). The composite weights of nine investment analysts are then determined by aggregating the weights throughout the hierarchy. Further, the evaluation model used for this study was suggested by Saaty (1990a; 1995) for determining the dimensions, sub-dimensions, and specific sub-dimensions to be selected within each of the nine investment analysts. The following formula developed by Saaty (1980; 1995) could be applied for this pair-wise comparison:

$$AW = \lambda_{max} W$$

where A is the pair-wise comparisons matrix, W is the normalized weight vector, and λmax (lambda max) is the maximum eigenvalue of matrix A. The maximum eigenvalue can be used to estimate consistency in a matrix, as reflected in the proportionality of preferences (Saaty, 1980, 1995). Specifically, the closer λmax is to the number of elements n in the matrix A, the more consistent the matrix will be. However, the deviations from consistency are expressed by the following equation, and the measure of inconsistency is called the consistency index (CI) (Saaty, 2008b; Lee et al., 2002; Saaty, 1995; Chalupkova and Franek, 2014):

$$CI = (\lambda_{max} - n)/(n-1)$$

Generally, if the CI is less than 0.10, the consistency of the decision maker is considered as satisfactory. But if CI exceeds 0.10, some revisions of judgment may be required (Lee et al., 2002). In order to control the

results of the methods, the consistency ratio (CR) is also used to estimate directly the consistency of pair-wise comparisons. This measure allows the five investment analysts to detect inadvertent misjudgments in comparisons under investigations. Not only does this reduce careless errors, but it can reveal to the investment analysts their own unsuspected bias or exaggeration concerning one or more of the comparisons. The CR is computed by dividing the CI by a value obtained from a table of Random Consistency Index (RCI) as shown below (Dalalah, et al., 2010; Lee et al., 2002; Saaty, 1980, 1995):

$$CR = CI / RCI = (\lambda_{max} - n)/(n-1)/RCI$$

where λmax is the maximum eigenvalue of the priority matrix, n is the number of elements in the matrix, and RIC is computed for matrices of order n. In addition to this, different-order random matrices are given by Lee et al. (2002) and Saaty (1995) as shown in Table 2.

Table (2) - Average Consistencies for Different-Order Random Matrices

Size of matrix (or n)	1	2	3	4	5	6	7	8	9	10
RCI	0.00	0.00	0.52	0.89	1.11	1.25	1.35	1.40	1.45	1.49

5. Research Instruments and data collection

5.1. Research Instruments

The research methodology of this study AHP requires a decision hierarchy by which evaluators may weigh multiple attributes when considering a complex decision. In this case, nine investment analysts or subjects (e.g., fund manager-UAE equities, deputy manager-UAE insurance, investment analyst-UAE insurance, general manager-UAE insurance, expert in the field of investments, financial director-UAE equities, director of UAE investment trust, chief investment officer, general analyst-UAE researchers) were chosen as the experts, and the decision hierarchy was structured following a comprehensive review of earnings quality and AHP literature and discussion with several subjects. The nine investment analysts who took part in this study were well educated, highly

qualified individuals, with significant experience in investment analysis and occupying senior positions within their organisations. Thus, the goal of the decision hierarchy is the determination of earnings quality by the analysts, and through intermediate levels, the ultimate goal is to illustrate the relative importance which analysts assign to four accounting method choices (as shown in Figure 1).

Besides illustrating the decision hierarchy, this documents the construction of the research instrument to provide a complete framework in the determination of the main element of earnings quality by nine investment analysts from seven selected UAE organisations (e.g., three types of general insurance companies, one type of international investment company, three types of investment banks). Consequently, priorities of dimensions, sub-dimensions, and specific sub-dimensions are derived by using questionnaires based on a pair-wise comparison with respect to the goal using a 9-point scale.

The overview and definitions of all dimensions shown in the hierarchy are explained as listed in Table 1 to increase awareness and knowledge of readers and potential users. All these dimensions are mainly divided into two dimensions: accounting quality and earnings, and the source and environmental of earnings quality. For each dimension, it is further decomposed into sub-dimensions (measurement of earnings quality, disclosure of earnings quality, accountants control independent from management, persistent vs. transitory earnings, and development of earnings) and specific sub-dimensions (methods of inventory valuation, fixed assets and accounting depreciation, research development expenses and accounting treatment, and goodwill and accounting treatment). The performance level of the earnings quality company and its nine investment analysts are measured against the criteria and sub-criteria as defined in order to determine earnings quality within the company.

5.2. Data collection instruments

The data collection instrument is a questionnaire designed to measure priorities of nine investment analysts about the importance of different value dimensions and their evaluation to determine earnings quality's main dimensions, sub-dimensions, and specific sub-dimensions. The data

collection instrument indicates that the population for this study consists of nine investment analysts from different types of organisations who were in the process of determining the earnings quality at the time of this study. As a condition of obtaining access for data collection, this study was unable to mention the real names of the organisations under investigation related to each of the nine investment analysts. This is because of sensitivity of data collection from these organisation. Accordingly, the researcher was only able to mention the types of organisations that each of the nine investment analysts belong to.

Moreover, the data for this study were collected using a questionnaire and semi-structured interviews. The semi-structured interviews were conducted with the nine analysts (or subjects) to obtain general information about the companies. The nine analysts were contacted by telephone prior to the sending of the questionnaire, and they were informed about the nature of the study. All analysts who agreed to participate are experienced UAE equities investment analysts or fund managers and work for a variety of institutions. Three analyst managers were selected from insurance companies and one analyst was selected from an international investment company. Of the remaining five analysts, one is a fund manager-the UAE equities of a medium organisation, another one is a chief investment officer of a small organisation, and three analysts managers of investments banks.

The subjects selection process is based on their experiences in UAE equities investment and research, their level of education, and highly qualified individuals. In this sense, the selection of the nine subjects was not random, and this, combined with small size, will limit the generalisability of the results. Consequently, this study is largely descriptive of the cognitive processing of the nine analysts. However, as this type of study has never been conducted before, it should provide useful insights into the decision process of analysts with respect to their determination of earning quality.

Pair-wise comparisons were made by nine investment analysts across all dimensions, shown at all levels. This study used the standard measurement scale developed by Saaty (1980) to determine priorities' weights across all elements for the purpose of determination of earnings quality. At this point, the study requires numerical or verbal answers by the nine investment analysts to a sequence of questions that compare two dimensions, two sub-dimensions, or

specific sub-dimensions. The numerical answers are given using a fundamental 1-9 scale. Table 3 shows Saaty's standard scale which respondents use in AHP. Further, the instrument continues until all 51 pair-wise comparisons made by each of the nine investment analysts are completed. These pair-wise comparisons are empirically demonstrated in the next section.

Table (3) - Election Technique Response Scales Which Can Be Used by Respondents in AHP

Intensity of Importance	Definition	Explanation
1	Equal importance	Two activities or items contribute equally to the objective.
3	Weak importance of one over another	Experience and judgement slightly favour one activity or item over another.
5	Essential or strong importance	Experience and judgement strongly favour one activity over another.
7	Demonstrated importance	An activity or item is strongly favoured and its dominance is demonstrated in practice.
9	Absolute importance	The evidence favouring one item over another is of the highest possible order of affirmation.
2, 4, 6, and 8	Intermediate values between the two adjacent judgements	When compromise is needed.

Note. Source: Saaty (1980; 1990a; 1995); Saaty and Vargas (1982).

Sample responses (or how to use the above table to answer the questionnaire) are as follows: ____7____ Measurement of earnings quality: Persistent vs. transitory earnings _____. _____ Methods of inventory valuation: Goodwill and accounting treatment ____9____

6. Results of AHP application and discussion

This section presents a discussion of nine investment analysts' responses to questions developed to investigate the evaluation of earning quality dimensions, sub-dimensions and specific sub-dimensions for

UAE's organisations. In this study, each one of the nine subjects was required to work through 51 paired comparisons of elements shown in four levels of the hierarchy. Specifically, each subject was required to work through one paired comparison of the main earnings quality dimensions, 20 paired comparisons of earnings quality sub-dimensions, and 30 paired comparisons specific sub-dimensions (or accounting method choices). As an example, a detailed computational method for one respondent of the nine subjects with author is available on request.

6.1. Priorities of determination of main earnings quality dimensions with respect to overall goals

Since the decision hierarchy depicts two distinct main dimensions of earnings quality (accounting quality and the basis and nature of earnings quality), the subject started by assessing the relative strength and influence of the two elements in shaping and directing the relative importance of the four accounting treatments. For example, subject 1 perceived accounting quality and earnings as having a priority of 0.833 with the basis and nature of earnings quality having a lower priority weight of 0.167. Subjects' priority responses for this particular level are dissimilar to the other subjects' responses in the sample as, across subjects. Table 4 reveals that the basis and nature of earnings quality was ranked more highly by seven subjects than was accounting quality and earnings. Across subjects, therefore, there was a general consensus that source and environmental of earnings quality are ranked more important than accounting quality and earnings in determining the quality of earnings.

Table (4) - Weightings and Ranks Given by Respondents to Main Dimensions Tested to Determination of the Best Earnings Quality (Goal)

Participants	Acounting quality and earnings	Basis and nature of earnings quality	Total
Subject 1	0.833 (1)	0.167 (2)	1.000
Subject 2	0.250 (2)	0.750 (1)	1.000
Subject 3	0.250 (2)	0.750 (1)	1.000
Subject 4	0.500 (1.5)	0.500 (1.5)	1.000

Subject 5	0.250 (2)	0.750 (1)	1.000
Subject 6	0.167 (2)	0.833 (1)	1.000
Subject 7	0.250 (2)	0.750 (1)	1.000
Subject 8	0.250 (2)	0.750 (1)	1.000
Subject 9	0.250 (2)	0.750 (1)	1.000
Arithmetic Mean	0.333 (2)	0.667 (1)	1.000
Mean Rank	1.833	1.167	NA

Notes. This table shows the arithmetic mean and average of the main ranking for each dimension. Figures in parentheses relate to the rank of earnings quality dimensions.

These findings indicate that assessing earnings quality the analysts are primarily concerned with earnings persistence and growth. This is consistent with the arguments of Lev and Thiagarajan (1993) who claimed that analysts are concerned with earnings persistence when discussing the quality of earnings. The results presented here are also interesting as most of the analysts do not appear to believe that accounting quality is overly important in determining earnings quality.

6.2. Priorities of determination of earnings quality sub-dimensions through all subjects

Subjects were required to work through ten paired comparisons of the five earnings quality subdimensions conditional on the assumption that they were concerned with determining accounting quality and earnings. Once this was accomplished, priorities were then derived from the point of view of determining the source and environmental of earnings. Further, these two views were integrated into one set of priorities by considering the relative strength of the earnings quality dimensions as reported in Table 4.

6.2.1. Priorities of earnings quality sub-dimensions when determining accounting earnings quality

The first step in deriving the priority structure for accounting earning quality is to assess the relative importance of the five earnings quality sub-dimensions mentioned in Table 5. The findings from the nine subjects are summarized here. Responses reveal a relatively high degree of consensus

across subjects. There was general agreement that persistence and development of earnings are relatively unimportant in determining the degree of accounting earning quality. With respect to the persistence of earnings and the development of earnings, eight of the nine respondents indicated that they ranked these subdimensions as the least or second least important, clearly behind measurement of earnings quality, disclosure of earnings quality, accountants control independent from management. However, the importance of the persistence of earnings, compared to the development of earnings, across subjects is unclear, but it was generally accepted that persistence and the development of earnings are relatively unimportant in determining accounting earnings quality. In determining the importance of accountants control independent from management, seven subjects believed that this was the third most important determinant, behind both that of measurement quality and disclosure of earnings quality. Also, the strength of priority for accountants control independent from management was relatively low when compared to measurement and disclosure of earnings quality. In determining the importance of measurement quality and disclosure of earnings quality, seven subjects believed that these were either the most important or second most important elements although, across subjects, the relative importance of measurement and disclosure of earnings quality is unclear.

The results suggest that in determining accounting earnings quality, the analysts under study believe that measurement and disclosure earnings quality are considerably more important than quality and accountants control independent from management. In turn, accountants control independent from management is seen as only slightly more important than the persistence and the development of earnings. The mean ranks confirm that disclosure of earnings quality was clearly considered as the most important criterion as shown in Table 5.

In relation to previous study, these findings are consistent with those of Imhoff & Thomas (1994) who studied observed characteristics of organisations rated by analysts with respect to their degree of accounting earnings quality. Their results indicated that similar to the findings of this study, analysts view accounting earnings quality as being related to the accounting practices used by organisations as Imhoff & Thomas highlighted

in their study that higher accounting earnings quality resulted from the use of conservative accounting methods and full disclosure. The findings of this study and Imhoff & Thomas added credence to the appropriateness of the definition of accounting earnings quality as being related to conservatism and disclosure.

Table (5) - Weightings and Ranks Given by Respondents to Sub-Dimensions Tested to Determination of Accounting Earnings Quality Elements

Participants	Measurement of earnings quality	Disclosure of earnings quality	Accountants control independent from management	Persistent vs. transitory earnings	Development of earnings	Total*
Subject 1	0.302 (2)	0.516 (1)	0.077 (3)	0. 056 (4)	0.049 (5)	1.000
Subject 2	0.296 (2)	0.408 (1)	0.168 (3)	0.048 (5)	0.084 (4)	1.004
Subject 3	0.404 (1)	0.268 (2)	0.164 (3)	0.064 (5)	0.104 (4)	1.004
Subject 4	0.390 (1)	0.278 (2)	0.244 (3)	0.046 (4)	0.042 (5)	1.000
Subject 5	0.120 (3)	0.100 (4)	0.048 (5)	0.344 (2)	0.388 (1)	1.000
Subject 6	0.480 (1)	0.294 (2)	0.132 (3)	0.054 (4)	0.036 (5)	0.996
Subject 7	0.224 (2.5)	0.352 (1)	0.224 (2.5)	0.116 (4)	0.088 (5)	1.004
Subject 8	0.424 (1)	0.303 (2)	0.164 (3)	0.052 (5)	0.059 (4)	1.002
Subject 9	0.500 (1)	0.288 (2)	0.109 (3)	0.052 (4.5)	0.052 (4.5)	1.001
Arithmetic Mean	0.349 (1)	0.312 (2)	0.148 (3)	0.093 (5)	0.096 (4)	0.998
Mean Rank	1.61	1.89	3.17	4.17	4.17	NA

Notes. This table shows the arithmetic mean and average of the main ranking for each dimension. Figures in parentheses relate to the rank of earnings quality dimensions. *Errors due to rounding

6.2.2. Priorities of earnings quality sub-dimensions when determining the basis and nature of earnings

This study is concerned in the analysis of the priorities of the five earnings

quality subdimensions under the determination of the basis and nature of earnings. Table 6 summarises the priority weights produced by the nine subjects. A majority of the subjects also believed that the development of earnings was the most important item in determining the basis and nature of earnings, while the remaining subjects rated development of earnings as the second most important factor. Three subjects rated persistent vs. transitory earnings as the most important factor and none of the nine subjects rated it lower than the third most important item. Across subjects, the rating of persistence was second only to development of earnings, and these two factors appear to be much more important in determining the basis and nature of earnings than measurement quality, measurement quality, disclosure of earnings quality, or accountants control independent from management. In general, the mean ranks confirm that the development of earnings was clearly considered as the most important criterion as shown in Table 6.

Table (6) - Weightings and Ranks Given by Respondents to Sub-Dimensions Tested to Determination of the Basis and Nature of Earnings Quality Elements

Participants	Measurement of earnings quality	Disclosure of earnings quality	Accountants control independent from management	Persistent vs. transitory earnings	Development of earnings	Total*
Subject 1	0.114 (4)	0.186 (3)	0.036 (5)	0.402 (1)	0.258 (2)	1.000
Subject 2	0.079 (4)	0.083 (3)	0.039 (5)	0.324 (2)	0.476 (1)	1.000
Subject 3	0.135 (3)	0.093 (4)	0.047 (5)	0.309 (2)	0.416 (1)	1.000
Subject 4	0.058 (4)	0.520 (1)	0.036 (5)	0.180 (3)	0.204 (2)	1.000
Subject 5	0.135 (3)	0.073 (4)	0.053 (5)	0.258 (2)	0. 481 (1)	1.000
Subject 6	0.052 (4.5)	0.109 (3)	0.052 (4.5)	0.500 (1)	0.288 (2)	1.000
Subject 7	0.303 (2)	0.059 (4)	0.052 (5)	0.164 (3)	0.424 (1)	1.000
Subject 8	0.059 (4)	0.164 (3)	0.052 (5)	0.303 (2)	0.424 (1)	1.002

Subject 9	0.052 (4.5)	0.052 (4.5)	0.109 (3)	0.500 (1)	0.288 (2)	1.001
Arithmetic Mean	0.110 (4)	0.149 (3)	0.053 (5)	0.327 (2)	0.362 (1)	1.00
Mean Rank	3.667	3.278	4.722	1.889	1.444	NA

Notes. This table shows the arithmetic mean and average of the main ranking for each dimension. *Errors due to rounding. Figures in parentheses relate to the rank of earnings quality dimensions.

With respect to measurement quality and disclosure of earnings quality, there was a general agreement among subjects that these two factors are much more important than accountants control independent from management but are considerably less important than the persistence or development of earnings when determining the basis and nature of earnings. Seven subjects rated measurement quality as third or fourth most important factor, while disclosure of earnings quality was considered third or fourth in terms of importance by all but one of the subjects. Generally, when determining the basis and nature of earnings, the analysts under study appeared to believe that the development of earnings is slightly more important than the persistence of earnings. In turn, the persistence of earnings is believed to be much more important than measurement quality, disclosure of earnings quality, and accountants control independent from management is considered relatively unimportant in determining the basis and nature of earnings. Overall, it appears that the subjects would be in agreement with this finding and potentially believe that accounts with low measurement and disclosure of earnings quality still enable analysts to assess earnings persistence and development of earnings.

6.3. Priorities of determination of earnings quality specific sub-dimensions (accounting method choices) through all subjects

This section describes the derivation of priorities associated with the determination of earnings quality specific sub-dimensions. In this sense, there are four sets of specific sub-dimensions or accounting method choices (methods of inventory valuation, fixed assets and accounting depreciation, research development expenses and accounting treatment, and goodwill and accounting treatment) with respect to their relation to the five sets of sub-dimensions (measurement of earnings quality, disclosure of earnings

quality, accountants control independent from management, persistent vs. transitory earnings, and development of earnings) used in this study as shown in Figure 1. However, the results of 30 paired comparisons of specific sub-dimensions (or accounting method choices) made by each subject participated in this study are presented in Table 7 and 8, along with a detailed discussion of the paired comparisons with respect to measurement of earnings quality and disclosure of earnings quality. This detailed discussion of pair-wise comparisons presented for the accounting method choices with respect to earnings quality sub-dimensions is followed by all four specific sub-dimensions with respect of all five sub-dimensions earnings quality used in this study. Therefore, subjects were required to decide the relative importance of the four accounting method choices with respect to the determination of measurement earnings quality and disclosure of earnings quality as shown below.

6.3.1. Priorities of accounting method choices with respect to determination of measurement quality

Responses of the nine subjects indicate that there is little consensus over the importance of accounting methods choices when determining measurement quality. Of the nine subjects, two believed that method of inventory valuation was most important, two believed fixed assets and accounting depreciation most important, two believed R&D expenses and accounting treatment was the most important, while one subject consider goodwill and accounting treatment the most important accounting choice. Further, it appears difficult to generalise about the subjects' responses, and in the case of determining measurement earnings quality, there appears little consensus, if any, over the relative importance of inventory valuation method, fixed assets and accounting depreciation, and goodwill and accounting treatment. However, a majority of the analyst(s) believe that the research development expenses and accounting treatment is the least important accounting choice when determining measurement earnings quality. This was confirmed by the mean ranks and arithmetic mean as shown in Table 7.

Table (7) - Weightings and Ranks Given by Respondents to Specific Sub-Dimensions Tested to Determination of Measurement of Earnings Quality Elements

Participants	Method of inventory valuation	Fixed assets and accounting depreciation	R&D expenses and accounting treatment	Goodwill and accounting treatment	Total*
Subject 1	0.194 (3)	0.353 (2)	0.361 (1)	0.087 (4)	0.995
Subject 2	0.559 (1)	0.119 (3)	0.051 (4)	0.271 (2)	1.000
Subject 3	0.100 (3)	0.050 (4)	0.297 (2)	0.545 (1)	0.992
Subject 4	0.308 (2)	0.179 (3)	0.364 (1)	0.149 (4)	1.000
Subject 5	0.178 (3)	0.465 (1)	0.089 (4)	0.277 (2)	1.009
Subject 6	0.163 (3)	0.488 (1)	0.063 (4)	0.288 (2)	1.002
Subject 7	0.449 (1)	0.110 (3)	0.044 (4)	0.396 (1)	0.999
Subject 8	0.505 (1)	0.143 (3)	0.066 (4)	0.286 (2)	1.000
Subject 9	0.489 (1)	0.159 (3)	0.125 (4)	0.227 (2)	1.000
Arithmetic Mean	0.327	0.230	0.162	0.281	0.988
Mean Rank	2.00	2.56	3.11	2.22	NA

Notes. This table shows the arithmetic mean and average of the main ranking for each dimension. *Errors due to Rounding. Figures in parentheses relate to the rank of earnings quality dimensions.

6.3.2. Priorities of accounting method choices with respect to determination of disclosure quality

In determining disclosure quality, there appears no consensus across the subjects regarding the four accounting method choices (See Table 8). In fact, one of the subjects (subject 6) indicated that he believed that each of the four accounting method choices was equally important when assessing the disclosure quality. Overall, while the preferences across the subjects are largely inconsistent, the method of inventory valuation and fixed assets and accounting depreciation appear to be regarded as slightly more important than R&D expenses and accounting treatment, and goodwill and accounting treatment. This was confirmed

by the mean ranks and arithmetic mean as shown in Table 8.

Table (8) - Weightings and Ranks Given by Respondents to Specific Sub-Dimensions Tested to Determination of Disclosure Earnings Quality Elements

Participants	Method of inventory valuation	Fixed assets and accounting depreciation	R&D expenses and accounting treatment	Goodwill and accounting treatment	Total*
Subject 1	0.205 (3)	0.363 (1)	0.342 (2)	0.091 (4)	1.001
Subject 2	0.490 (1)	0.343 (2)	0.078 (3.5)	0.078 (3.5)	0.989
Subject 3	0.571 (1)	0.114 (3)	0.257 (2)	0.057 (4)	0.999
Subject 4	0.143 (3)	0.286 (2)	0.066 (4)	0.505 (1)	1.000
Subject 5	0.127 (3)	0.273 (2)	0.073 (4)	0.527 (1)	1.000
Subject 6	0.250 (2.5)	0.250 (2.5)	0.250 (2.5)	0.250 (2.5)	1.000
Subject 7	0.227 (2)	0.159 (3)	0.489 (1)	0.125 (4)	1.000
Subject 8	0.488 (1)	0.288 (2)	0.063 (4)	0.163 (3)	1.002
Subject 9	0.449 (1)	0.396 (2)	0.044 (4)	0.110 (3)	0.999
Arithmetic Mean	0.328 (1)	0.275 (2)	0.185 (4)	0.212 (3)	1.000
Mean Rank	1.72	2.17	3.00	2.89	NA

Notes. This table shows the arithmetic mean and average of the main ranking for each dimension. *Errors due to rounding. Figures in parentheses relate to the rank of earnings quality dimensions.

6.4. Consistency Measurements for All Elements in the Hierarchy

This paper investigated the consistency analysis of all elements of earnings quality presented in Figure 1 of the hierarchy. The results of these analyses were tested through three consistency measurements (λmax, CI, and CR) with respect to the main earnings quality dimensions, sub-dimensions, and specific sub-dimensions as it shown in Tables 9, 10, and 11 respectively. In this respect, the results for λmax, CI, and CR indicate strong consistent measurements across nine investment analysts' responses in determining earnings quality's main dimensions. This means that the value of λmax

for both accounting earnings quality and the basis and nature of earnings quality is 2.00 for all subjects as it is the same dimension as n. Also, the overall consistency of subjects' judgements is high with respect to both main dimensions using C.I and C.R values are less than 0.10 as shown in Table 9.

Table (9) - The Consistency Measurements (λmax, CI, and CR) for Priorities of the Main Dimensions in the Hierarchy in Determining the Best Main Element of Earnings Quality

Participants			Subject (1)	Subject (2)	Subject (3)	Subject (4)	Subject (5)	Subject (6)	Subject (7)	Subject (8)	Subject (9)
Main Dimensions	Accounting quality and earnings	λmax	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
		C.I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		C.R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Source and Environment of Earnings Quality	λmax	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
		C.I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		C.R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

λmax (Lamda) = principle eigenvalue, C.I = consistency index, C.R = consistency ratio.

The results in Table 10 indicate a general consensus over earnings quality sub-dimensions when determining the accounting quality and the basis and nature of earnings. In this respect, we found that the eigenvalue (λmax) is ranged from 5.01 to 5.05 which is very close to n (number of elements in the matrix) for all sub-dimensions. This consistency is considered satisfactory, because the value of the CI and CR was less than 0.10 as shown in Table 10.

Moreover, it appears from the results of consistent matrices shown in Table 11 that there is a high consistency across nine investment analysts' responses in determining the importance of specific sub-dimensions (accounting method choices). In fact, the value of λmax is ranged from 4.01 to 4.05 which is close to n for specific sub-dimensions across all the nine subjects. The overall consistency measurement across nine investment analysts in relation to CI and CR is generally considered satisfactory in

determining earnings quality's specific sub-dimensions with respect to sub-dimensions of measurement of earnings quality, disclosure of earnings quality, accountants control independent from management, persistent vs. transitory earnings, and development of earnings.

Table (10) - The Consistency Measurements (λmax, CI, and CR) for Priorities of the Sub-Dimensions in the Hierarchy in Determining the Best Sub-Element of Earnings Quality

Participants			Subject (1)	Subject (2)	Subject (3)	Subject (4)	Subject (5)	Subject (6)	Subject (7)	Subject (8)	Subject (9)
Sub-dimensions	Measurement of earnings quality	λmax	5.01	5.02	5.01	5.01	5.02	5.01	5.01	5.02	5.01
		C.I	0.01	0.02	0.01	0.02	0.02	0.01	0.02	0.02	0.01
		C.R	0.01	0.01	0.02	0.02	0.02	0.01	0.02	0.01	0.01
	Disclosure of earnings quality	λmax	5.02	5.02	5.03	5.01	5.02	5.02	5.02	5.02	5.02
		C.I	0.02	0.01	0.02	0.02	0.03	0.03	0.03	0.01	0.02
		C.R	0.02	0.02	0.01	0.02	0.01	0.02	0.02	0.03	0.02
	Accountants control indepen from management	λmax	5.05	5.03	5.04	5.03	5.04	5.04	5.04	5.05	5.04
		C.I	0.04	0.03	0.04	0.04	0.03	0.04	0.03	0.04	0.03
		C.R	0.03	0.04	0.05	0.04	0.014	0.05	0.03	0.04	0.05
	Persistent vs. transitory earnings	λmax	5.05	5.05	5.04	5.05	5.04	5.05	5.04	5.03	5.05
		C.I	0.04	0.04	0.03	0.05	0.03	0.04	0.04	0.04	0.04
		C.R	0.02	0.03	0.04	0.03	0.04	0.03	0.04	0.04	0.04
	Development of earnings	λmax	5.03	5.03	5.03	5.04	5.04	5.03	5.04	5.03	5.04
		C.I	0.03	0.03	0.04	0.03	0.04	0.03	0.03	0.03	0.03
		C.R	0.04	0.04	0.03	0.02	0.04	0.03	0.03	0.02	0.03

λmax (Lamda) = principle eigenvalue, C.I = consistency index, C.R = consistency ratio.

Table (11) - The Consistency Measurements (λmax, CI, and CR) for Priorities of the Specific Sub-Dimensions in the Hierarchy in Determining the Best Specific Sub-Element of Earnings Quality

Participants			Subject (1)	Subject (2)	Subject (3)	Subject (4)	Subject (5)	Subject (6)	Subject (7)	Subject (8)	Subject (9)
Specific sub-dimensions	Method of inventory valuation	λmax	4.01	4.01	4.02	4.01	4.02	4.02	4.01	4.01	4.01
		C.I	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.02
		C.R	0.01	0.02	0.01	0.01	0.02	0.01	0.02	0.01	0.01
	Fixed assets & accounting depreciation	λmax	4.03	4.02	4.02	4.03	4.02	4.03	4.03	4.03	4.03
		C.I	0.02	0.01	0.03	0.02	0.03	0.03	0.03	0.02	0.03
		C.R	0.01	0.02	0.02	0.03	0.02	0.02	0.02	0.01	0.02
	R&D expen. & accounting treatment	λmax	4.04	4.04	4.05	4.04	4.05	4.04	4.04	4.05	4.05
		C.I	0.03	0.04	0.04	0.03	0.04	0.03	0.03	0.04	0.04
		C.R	0.03	0.03	0.03	0.04	0.03	0.04	0.03	0.03	0.03
	Goodwill & accounting treatment	λmax	4.03	4.04	4.02	4.04	4.02	4.05	4.04	4.03	4.04
		C.I	0.03	0.04	0.03	0.04	0.03	0.03	0.04	0.03	0.03
		C.R	0.03	0.03	0.03	0.03	0.02	0.03	0.02	0.02	0.03

λmax (Lamda) = principle eigenvalue, C.I = consistency index, C.R = consistency ratio.

7. Conclusions, Limitations, and the Directions for Future Research:

This study investigated the issue of earnings quality through the paramorphic modelling of nine investment analysts' cognitive processes using AHP. This study was prompted by a lack of understanding of the cognitive process of users of financial information and desire to improve accounting researchers understanding of the concept of earnings quality.

The results provided in this study are specific to the nine subjects

under review in this study and, while they should not be considered as representative of larger groups of experts, important insights into investment analysts' judgements over the relative importance of various earnings quality dimensions, sub dimensions, and accounting treatments (accounting method choices) have been obtained. It is difficult to generalise over the result as there is little consensus among respondents over many aspects of earnings quality and accounting treatments. However, it is possible to highlight some areas where respondents seemed to hold the same belief. Similar to the findings of Siegel (1982), responses indicated that investment analysts are aware of the concept of earnings quality and believe it to be useful in their profession.

The results of the nine investment analysts indicated that they do believe accounting quality and earnings is less important than the basis and nature of earnings quality when determining earnings quality. It therefore appears that the analysts believed the potential for physical manipulation of reported earnings is relatively unimportant. Also, the determination of accounting quality and earnings, analysts generally agreed that persistence and development of earnings are relatively unimportant. The importance of measurement and disclosure of earnings quality was largely agreed but accountants control independent from management seems less important. This result is surprising given that analysts were given the impression that management have an incentive to manipulate earnings as they are rewarded by a bonus scheme related to the level of reported earnings.

Under AHP the responses of each subject were synthesised to produce priority weights for elements at lower levels of the decision hierarchy compared to upper levels. The overall result comparing Level four (accounting method choices) to Level one (determination of best earnings quality) again reinforced the finding that R&D expenses are considered relatively unimportant by analysts. Further, goodwill and accounting treatment and methods of inventory valuation were generally believed to be more important than the fixed assets and depreciation.

In relation to the above discussion, results of this study show very little consensus across subjects over the importance of the various elements of earnings quality and the four accounting method choices. There were also significant differences in subjects' importance scaling for each area

of analysis. In this respect, further research into this area may confirm this result, and the development of explanatory hypotheses is required in order to give accounting researchers a deeper understanding of earnings quality and the impact which it has upon the practices and beliefs of financial statement users. Research into earnings quality is still needed to have more attention, while AHP is not a simple route to accounting enlightenment, it surely offers a fresh approach to many problems in accounting research areas. A further direction for future research is that of determining whether analysts are correct in their beliefs over the importance of the four accounting treatments mentioned in Figure 1. In this respect, researchers may investigate this through a more complete understanding of analysts to financial statement figurers.

Finally, the results provided in this study, valuable insights into how a small population of investment analysts actually decides the relative importance of various earnings quality dimensions. In fact, the results presented from the paramorphic model produced under AHP are presumed to be descriptive of the decision processes of nine investment analysts. The small sample size used in this study limits the generalisability of the result but, nonetheless, valuable insights were gained into perceptions of the concept of earnings quality.

Overall, this study contributes to the knowledge and understanding of the nature of earnings quality in nine investment analysts. It also contributes to the notion that a decision support system, such as AHP, can be a viable approach to determining earnings quality dimensions as well as improving the quality of nine investment analysts' decisions towards earnings quality.

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Appendix: Questionnaire

(Only samples from questionnaire – full questionnaire is available with the authors in request)

The Pair-Wise Comparison Criteria of the nine investment analysts (or subjects)

1. Comparison of the importance of characteristics with respect to determination of the earnings quality made
   by each subject (Determining the best main criteria of earnings quality).

_____ Accounting quality and earnings: Source and environmental of earnings quality _____

2. Comparison of the importance of characteristics with respect to determination of Accounting quality and earnings (Determining the best sub-criteria of earnings quality).

_____ Measurement of earnings quality: Disclosure of earnings quality independent _____

_____ Measurement of earnings quality: Accounting control independent form management _____

_____ Measurement of earnings quality: Persistent vs. transitory earnings _____

_____ Measurement of earnings quality: Development of earnings _____

__ Disclosure of earnings quality independent: Acct control independent form management __

_____ Disclosure of earnings quality independent: Persistent vs. transitory earnings _____

_____ Disclosure of earnings quality independent: Development of earnings _____

_____ Accounting control independent form management: Persistent vs. transitory earnings _____

_____ Accounting control independent form management: Development of earnings _____

_____ Persistent vs. transitory earnings: Development of earnings _____

توسيع مفهوم جودة الأرباح باستخدام التحليل الهرمي

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ملخص البحث:

تسعى هذه الدراسة إلى فهم جودة الأرباح كما يفسرها مُحللو الاستثمار الإماراتيون، ثم تختبر هذا التحليل مقابل استخدامها الفعلي في عمليات التحليل في تحديد جودة الأرباح. وخلاصة جودة الأرباح يرجع إلى أن أهمية الجودة المحاسبية للأرباح، استناداً إلى المعلومات المتعلقة بمصدر جودة الأرباح البيئية، يكون أكثر أهمية مما يبدو، وتمارس تأثيراً كبيراً في التحليل وتوصيات المحللين في المستقبل. والغرض من هذه الدراسة هو توضيح إمكانية استخدام عملية التسلسل الهرمي التحليلي لتحديد نوعية الأرباح. وبشكل عام فإن النتائج المقدمة من نموذج التحليل الهرمي يهدف إلى أن تكون وصفية لعملية اتخاذ القرار من تسعة محللين في الاستثمار وفي الأسهم والتمويل من مختلف أنواع المؤسسات. ولقد أظهرت النتائج الأولية رؤية قيمة الأهمية النسبية لمختلف عوامل جودة الأرباح حول كيفية تحديد عدد معين من المحللين الاستثماريين.

الكلمات الدالة: جودة الأرباح، محللي الاستثمار، طريقة التحليل الهرمي، المقارنة المزدوجة.