The Data Decision-Usefulness Theory: An Exploration of Post-1998 Reported Products and Services Segment Data Decision Usefulness

A Dissertation
Presented to
The Faculty of the C. T. Bauer College of Business
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In Partial Fulfilment
Of the Requirements for the Degree
Doctor of Philosophy

By
Cynthia Diane Tollerson
C. T. Bauer College of Business
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ABSTRACT

This study sets forth a conceptual theory–the Data Decision-Usefulness Theory–and explores it by surveying fundamental-equity analysts, to assay their decision-usefulness perceptions of post-1998 reported products and services segment data. Accordingly, a two-phased sequential exploratory mixed methods research design is employed.

The initial phase is qualitative in nature comprising theory generation and questionnaire and taxonomy development. The conceptual theory is generated by drawing on prior accounting literature and two paradigms: formal classical grounded theory and value-focused thinking. The former is the theory development methodology and the latter is the over arching abstract model. The mail questionnaire is developed with the aid of Dillman'sTailored Design Method. Our fundamental-equity analyst taxonomy is developed, by drawing on: the descriptive literature about investment professionals, the United States security exchange regulations, and a non-public database, as well as the grounded theory paradigm.

The second phase is quantitative in nature. One hundred and sixty-three questionnaire recipients mailed back their questionnaires (10% response rate). Fifty-five answered questions that measured their decision-usefulness perceptions. Overall, the measurement model findings for the questionnaire measures of the materiality and

decision-usefulness models are moderately to highly reliable, exhibit both convergent and discriminate validity, and each has predictive relevance. In comparing our results for the two models, our most significant finding is that Ease of Comparing is the most important predictor for both Materiality and Decision Usefulness. However, surprisingly the relative importance of Relevance and Reliability shifts dramatically. Our Materiality model predicts that Relevance is the second most important predictor and Reliability is the least important. In contrast, our Decision Usefulness model predicts just the opposite

Our results suggest that to have an impact on analysts' understanding of firms, relevant disclosures are more important than reliable disclosures. However, to increase analysts' understanding of firms, reliable information is more important than relevant information. Furthermore, the amount of post-1998 reported products and services segment data being disclosed is insufficient to improve analysts' understandings of firms. These findings seem to support the dissenting FASB board member's assertion that post-1998 reported segment disclosures are unlikely to facilitate better understanding firms' performance, better assessing their prospects for future net cash flows, and making more informed judgments about firms as a whole.

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CHAPTER 1

1.1 INTRODUCTION

The 2008 financial crisis rocked the world. Globally, seemingly, overnight financial market participants lost confidence. Some scrambled to sell-off their equity and debt securities. Others refused to provide the working capital firms, desperately, needed to fund day-to-day operations. Consequently, worldwide, governments–through their central banks–took actions, to enhance confidence in their financial markets (Bush 2008).

What precipitated this chain of events? The answers to that question are being investigated; history suggests we may never have a complete answer. However in the United States (U.S.), almost, immediately financial reporting and accounting standard setting were challenged (Scannell 2008; FASB and IASB 2008). Accordingly, Congress demanded enhanced accounting standard setting transparency and oversight. Presently, the U.S. Senate Banking, Housing, and Urban Affairs Subcommittee on Securities, Insurance, and Investment (The Senate Subcommittee), is examining the role of accountants, in helping to prevent another financial crisis (Seidman 2011, 1).

The Senate Subcommittee is monitoring, closely, the Financial Accounting Standards Board (FASB). Which is the organization that has received delegated authority, from the Securities and Exchange Commission (SEC), for U.S. accounting

standard setting. The FASB's financial accounting standards are recognized as authoritative. These standards comprise the generally accepted accounting principles (GAAP), to which U.S. firms must adhere, in order to issue securities, and to have the same sanctioned, by the SEC, for trading in U.S. financial markets (Seidman 2011, 1-2). Thus, GAAP is the fundament of U.S. financial reporting data.

Section 1.2 Nature of the Problem

The vitality and efficiency of U.S. financial markets depend on robust financial reporting data that are useful for decision making, and thus enhance financial market participants' confidence. This enhanced confidence level leads to greater financial and non-financial market activity, and therefore to U.S. economic growth (Seidman 2011, 1-2).

Financial market participants have expressed to the SEC, they could more confidently employ financial reporting data, if accounting standards were better (Schapiro 2011). Consequently, the FASB has re prioritized its work (Seidman 2011). Moreover, the SEC has enhanced its monitoring of firms' financial reporting data. Furthermore, it intends to share its findings with the FASB, to facilitate amending accounting standards (Schapiro 2011), and improving said data.

Notwithstanding the FASB's and the SEC's actions, several issues challenge the FASB's endeavors to develop better accounting standards. A primary challenging issue facing the FASB is: what are the accounting data qualites, accounting standard setters should consider, to advance decision-useful financial reporting? The FASB's employment of said qualities, should enhance U.S. accounting standard setting transparency and oversight; confidence in U.S. accounting standard setting; and financial reporting data decision usefulness.

The aforementioned issue is, also, the fundament of financial analysts' persistent discontent with firms' pre-1998 segment reporting data disclosures. Their principal concerns were that these financial reporting disclosures were not as understandable, relevant, reliable, detailed, or frequent as they desired (Knutson 1993). In response, in 1997, the FASB issued, Statement of Financial Accounting Standards Number 131 (SFAS No. 131), *Disclosures about Segments of an Enterprise and Related Information* (FASB 1997), to replace its predecessor, SFAS No. 14, *Financial Reporting for Segments of a Business Enterprise* (FASB 1976).

Segment reporting data decision usefulness is of particular interest to–one type of analyst–fundamental-equity analysts. The reason is, these–and only these–analysts, primarily, identify mispriced equity securities by comparatively analyzing financial reporting data, inclusive of segment data. Their mispriced equity analyses are supported by comparative cross-sectional, time series, and financial ratio analyses (AICPA 1994). Moreover, they derive products and services segment analyses, to support their long-term firm-wide market value forecasts (Boersema and Van Weelden 1992; AICPA 1994). The cruxes of fundamental-equity analysts' analyses are their understandings of firms–which segment reporting data facilitate (Boersema and Van Weelden 1992).

Whether fundamental-equity analysts perceive, firms' post-1998 reported products and services segment disclosures enhance their understandings of firms is an unanswered question. Prior researchers report post-1998 disclosures, compared to pre-1998 disclosures, reveal more segments, and more data about each segment (Herrmann and Thomas 2000; Street et al. 2000). Nevertheless, other researchers report, only, certain types of firms are disclosing more segments (Ettredge et al. 2000; Berger and Hann 2002;

Berger and Hann 2003). Still other researchers, report firms are releasing dissimilar segment profit measures (Street et al. 2000; Nichols et al. 2002). There is, however, no current accounting literature that explores fundamental-equity analysts' perceptions of post-1998 segment data decision usefulness. A survey study is an apt way to investigate, whether these analysts perceive that the FASB's regulatory response, and firms' responses thereto, are resulting in decision-useful segment data disclosures.

Section 1.3 Rationale for the Study

The purpose of this study is to identify the qualities that differentiate data from information and to employ them to explore the decision-usefulness of post-1998 reported products and services segment data. This is accomplished by developing and exploring a conceptual theory–The Data Decision-Usefulness Theory. The major premise of which is that five qualities (user information values) differentiate data from information: ease of comparison, relevance, reliability, sufficiency, and decision usefulness, and possibly a sixth–satiation.

This study employs a two-phased sequential exploratory mixed methods research design (Creswell 2009, 211-212; Morgan 1998; Plano Clark and Creswell 2008, 549-550). The initial phase is qualitative. Wherein the conceptual theory is developed, by drawing on prior accounting literature (FASB 1989; Snavely 1967; Sterling 1972, 1970; AICPA 1994a, 1994b; Staubus 2000; Boersema and Van Weelden 1992a, 1992b; FASB 1997) and two paradigms: formal classical grounded theory (Glaser 1978, 1998, 2007) and value-focused thinking (Keeney 1996). The former is the theory development methodology and the latter is the theoretical framework.

The first level of our conceptual theory is our middle range theory. The middle range theory addresses financial reporting data; it explicates the requisites accounting standard setters should consider to assess financial reporting data decision usefulness. It maintains decision-useful financial reporting data exhibit the aforesaid qualities and attributes. The second level of our conceptual theory is our practice theory. The practice theory addresses post-1998 reported products and services segment data; it explicates the requisites researchers should consider to assess the decision-usefulness of said data. It maintains, in the primary decision context in which fundamental-equity analysts employ segment reporting data, to better understand firms (Boersema and Van Weelden 1992a, 1992b), decision-useful segment data exhibit the aforesaid qualities and attributes.

Also included in the first phase of this study, is the development of the questionnaire which draws on an expression of social exchange theory, and Dillman's (2000) Tailored Design Method. Additionally, drawing on analyst literature and United States security exchange regulations, a fundamental-equity analyst taxonomy is developed.

The second phase, is quantitative in nature. This phase entails the surveying of said analysts using Dillman's (2000) mail survey administration procedures, and by employing partial least squares (Chin and Newsted 1999; Chin 1998; Wold 1985), the a priori specified practice theory, and competing variants are assayed (Chin 1998, xii).

Section 1.4 Research Questions

The specific research questions addressed in this study are based upon the conceptual theory developed and the testing of our practice theory. The following questions are raised with regard to our conceptual theory:

Middle Range Theory Level:

(1) How do financial reporting data differ from financial reporting information?

(2) What is the most apt a priori specified structural model of decision-useful financial reporting data?

(3) What is the most apt a priori specified structural model of the materiality of financial reporting data?

Practice Theory Level:

(1) How do reported products and services segment data differ from reported products and services segment information?

(2) What is the most apt a priori specified structural model of decision-useful post-1998 reported products and services segment data?

(3) What is the most apt a priori specified structural model of the materiality of post-1998 reported products and services segment data?

Section 1.5 Contributions of the Study

This exploratory study is significant for three reasons. First, its middle range theory responds to one standard-setter's call to identify the desirable qualitative characteristics of accounting information (Barth 2006, 124), and to a call for debating a comprehensive financial reporting quality model that goes beyond that of standard setters (Jonas and Blanchet 2000, 354). Hence, its middle range theory is put forward as an alternative to their characterizations of useful financial information (FASB 2010, 1989).

Second, its practice theory exploration responds to a call, to academics, to facilitate bringing a user-focus to financial reporting (Jonas and Young 1998, 154). Accordingly, the exploration examines products and services segment data decision usefulness and materiality. This is of importance because segment data decision usefulness is persistently of interest to fundamental-equity analysts (CFA Institute 2007, 14; Fleishman-Hillard Research 2000, 6; Knutson 1993, 88-89; Korn 1989, 1; Mautz 1968, 94-96). Thus, its practice theory, and its exploration thereof, show the utility of the middle range theory, by demonstrating how future researchers might augment the latter, to explore the decision-usefulness and materiality, of other data–financial or non-financial. Additionally, its taxonomy is set forth to facilitate the effort of future fundamental-equity analyst researchers. Their amendments of the taxonomy will ease future inter-study analyses.

Lastly, the study introduces, to the accounting literature, an explicit sequential exploratory mixed method research design (Morgan 1998; Johnson, Onwuegbuzie, and Turner 2007; Onwuegbuzie, Bustamante, and Nelson 2010). The adoption of these designs will facilitate accounting standard setting related research (Barth 2006), expedite

accounting theory development (Cluskey, Ehlen, and Rivers 2007; Coetsee 2010), and bring a user-focus to financial reporting (Jonas and Young 1998).

Section 1.6 Summary of the Study

The remainder of the study is organized as follows. Chapter 2 comprises the literature review. Therein, the literature concerning the historical development of the decision usefulness theory and related concepts are discussed. Additionally, the literatures concerning segment reporting and analysts' use of segment reported information will also be discussed. Chapter 3 comprises the research methods and design. Therein, value-focused thinking, our overarching theoretical model is discussed. Additionally, classical grounded theory, our theory generation method is set forth. Moreover, mixed methods research and the two-phased sequential exploratory research designs are defined. Further, we set forth the results of our first phase. This comprises our conceptual theory and our taxonomy of fundamental analysis investment decision-makers. Lastly, we set forth our questionnaire development and survey administration procedures. Chapter 4 comprises the partial least squares analyses and results. Chapter 5 comprises the summary and conclusions.

CHAPTER 2

Literature Review

Section 2.1 Introduction

The objectives of this literature review are: (1) to provide the foundation for the development of our data decision usefulness theory; (2) to provide an understanding of the accounting framework developed for the external reporting of segments and; (3) to provide a review of the accounting literature that has focused on financial analyst use of segmented reported information. Thus, this chapter is organized as follows; Section 2 provides an historical background and overview of the decision- usefulness theory developments particular to financial reporting. This section of the literature review will identify the attributes of accounting information along with their definition(s) that have been discussed in the accounting literature; Section 3 provides an historical background and overview of segmental reporting. This section will include a discussion of the major concerns that have been expressed regarding the deficiencies in contemporary financial reporting of segmented information; Section 4 reviews the research that has focused on financial analysts use of segmented reported information and; Section 5 provides a summary of the chapter.

Section 2.2.1 Historical background and Overview of Decision Usefulness Theory

The decision-usefulness theory is important because it is the underlying theoretical basis for the FASB's conceptual framework, and that of the conceptual frameworks of the other principal English-speaking countries: Australia, Canada, New Zealand, and the United Kingdom (Davies et al. 1997; and Staubus 2000 iii). Additionally, it is the fundament of the International Accounting Standards Committee's (ISAC) conceptual framework (Davies et al. 1997). Despite its significance, its name—the decision-usefulness theory—is not widely recognized, even among those interested in accounting theory (Staubus 2000).

The decision-usefulness theory "like most social science theories, . . . is made up of a mixture of normative and descriptive propositions" (Staubus 2000, p.v). The crux of the theory is the decision-usefulness objective: "The objective of accounting is to provide financial information regarding an enterprise for use in making decisions" (Staubus 2000, 5). The decision-usefulness objective "is the base on which a coherent, broad structure of ideas has been built. No other such structure of accounting ideas has been developed" (Staubus 2000, v). "It is probably fair to say[, however,] that . . . [the decision-usefulness] objective is not accepted by a majority of those in [either] the . . . [financial statement] preparer . . . [or the] management community" (Staubus 1995, p.195).

Because "the . . . [the decision-usefulness objective] is not generally accepted by . . . [enterprise management], the [decision-usefulness] theory can easily be viewed as normative" (Staubus 2000, v). Nevertheless, "it is substantially accurate as a general description of current accounting practice, and practice has slowly moved closer to agreement with the theory" (Staubus 2000, p.v). Without "a theory of generally accepted

accounting principles, no alternative to the decision-usefulness theory exists"(Staubus 2000,p. v).

The accounting literature does not comprehensively reflect the evolution of the decision-usefulness theory (Staubus 2000, iv). The principal reason is that "the major 'authoritative body' pronouncements that contributed so much to its acceptance . . . did not include a report of a literature search" (Staubus 2000, iv). Given the obscurity of its name and the paucity of its history, a sketch of the evolution of the decision-usefulness theory is warranted, and is presented next.

In 1954 George J. Staubus' dissertation, *An Accounting Concept of Revenue*, seminally presented "the essence of a specified body of knowledge or belief (a theory), in particular, one starting with the objective of providing financial information regarding an enterprise for use in making economic decisions" (Staubus 2000, iii). Staubus referred to that set of propositions as the theory of accounting to investors. His initial conceptualization of the theory is, also, given in his 1959 paper entitled *The Residual Equity Point of View of Accounting*, which was published in *The Accounting Review*. A more comprehensive version of the theory, however, is provided in his 1961 monograph entitled *A Theory of Accounting to Investors*.

Surprisingly, prior to 1954 "neither an accounting organization nor an individual author had . . . ever set forth *any* objective for accounting" (Staubus 1995, p.195). "It followed that no one had sought to build a theory, or conceptual framework, on that basis. Several writers had given attention to users or uses of information, but none tied his comments to the decision-usefulness objective or to a theory structure" (Staubus 2000, p.3).

Staubus' treatise entitled *Making Accounting Decisions*, which was published in 1977, reflects the most current and most complete exposition of what he now refers to as the *decision-usefulness theory of accounting to investors*. His most recent monograph, *The Decision-Usefulness Theory of Accounting: A Limited History*, evidences "how the theory started in a crude, poorly articulated, and incomplete form, then gradually . . . developed into a more complete and some what better" (Staubus 2000, iii) exposition. Therein, Staubus sets forth that the FASB's conceptual framework is an adaptation of the decision-usefulness theory. Further, he acknowledges that his discussions of the criteria of decision useful accounting information benefitted, significantly, from several works (Chambers 1960, Ijiri and Jaedicke 1966, AAA 1966, McDonald 1967, Snavely 1967, Sterling 1970, and AICPA 1970).

Two committee reports and one pronouncement greatly contributed to the evolution of the FASB's conceptual framework[1] and thereby to the evolution of the decision-usefulness theory. The first committee report is *A Statement of Basic Accounting Theory*, which was prepared and published in 1966 by a special purpose committee of the American Accounting Association (AAA). This publication maintained that the objectives of accounting are to provide information for four purposes: (1) making economic decisions about an organization, (2) managing an organization's resources, (3) maintaining and communicating on the custodianship of those resources, and (4) facilitating the operations of society for the welfare of all (AAA 1966, pp.4-5). Further, this document formulated four accounting standards and five guidelines by asking the

[1]See the following for more detailed discussions of the evolution of the conceptual framework: Staubus 2000, Zeff 1999, Davies et al. 1997, and Gore 1994.

following question, "What characteristics should accounting information have in order to be useful (AAA 1966, 3)?" The standards developed are: (1) relevance–the primary standard; (2) verifiability; (3) freedom from bias and; (4) quantifiability (pp.7-12). The guidelines are: (1) appropriateness to expected use; (2) disclosure of significant relationships; (3) inclusion of environmental information; (4) uniformity of practice within and among entities and; (5) consistency of practices through time (pp.12-18).

Snavely (1967) expanded the AAA (1966) analysis of the standards that should be considered to identify useful accounting information. He maintains that useful accounting information is characterized by a four level hierarchy of accounting criteria. The first level consists of just one concept: usefulness. The second level consists of six criteria: relevance, reliability, understandability, significance, sufficiency, and practicality. Level 3 is the definitions of all level 2 concepts except sufficiency. Level 4 is the operational definitions of verifiability and consistency, which are concepts employed to define reliability and understandability respectively. Snavely is of the opinion that each criterion is "mutually exclusive and singularly powerful". Hence, "information [which] does not meet any one [the] . . . criteria is not useful, even though it may comply perfectly with all others" (Snavely 1967, p.232).[2] Further, with regard to freedom from bias, and quantifiability his position is that information may be reliable even though it is not

[2]If information is not relevant, it is of no use even though it may be perfectly reliable, understandable, significant, sufficient, and practical. Of course, information can be relevant to decisions in different ways. Similarly, if information is not reliable, it is of no use, even where it is perfectly relevant, understandable, significant, sufficient, and practical. Ans so it is with each of the second-level criteria. However, the characteristic of being mutual exclusive and singularly powerful does not attach to all of the third-level criteria developed in Snavely"s analysis. This is particularly true of verifiability, freedom from bias, and quantifiability. Information may be reliable even though it is not absolutely verifiable or free from bias; and information can certainly be understandable even though it is not quantifiable (Snavely 1967, 232).

absolutely verifiable or free from bias; and information can certainly be understandable even though it is not quantifiable" (Snavely 1967, p.232).

The single pronouncement, which is entitled, *Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprises*, Statement of Accounting Principles No. 4, was a non-mandatory statement issued by the AICPA's Accounting Principles Board in 1970. This Statement maintains that there are seven qualities or characteristics that make financial information useful--.relevance, understandability, verifiability, neutrality, timeliness, comparability, and completeness. However, one quality: relevance is the primary quality. The relative importance of the other six qualities was not explicated. Instead, the AICPA asserted that determining the trade-offs requires judgment (AICPA 1970, para. 111). Further, this Committee report states that "providing information that has each of . . . [those] qualities is an objective of financial accounting." The qualities of useful accounting information "are related to the broad ethical goals of truth, justice, and fairness that are accepted as desirable by society as a whole" (AICPA 1970, para. 86). "To the extent that the . . . [qualities] are met, progress is made toward achieving the broad ethical goals as well as toward making financial information more useful" (AICPA 1970, para. 86). The qualities are, however, "less abstract than the ethical goals of truth, justice, and fairness and can therefore be applied more directly to financial accounting" (AICPA 1970, para. 86). This committee report does not include reliability as one of the qualities of useful accounting information. Instead, it asserts that the achievement of the qualities of useful accounting information enhances the reliability of financial statements.

" Reliability does not imply precision of the information in financial statements because financial accounting involves approximation and judgment" (AICPA 1970, para. 107). This committee report maintains that the preparation of reliable financial statements is a management responsibility. That responsibility is met when three conditions exist: (1) generally accepted accounting principles are applied in a manner that is appropriate to an enterprise's circumstances, (2) effective systems of accounts and internal control are maintained, and (3) adequate financial statements are prepared.

The second professional report by the AICPA is entitled, the *Objectives of Financial Statements*, Report of the Study Group on the Objectives of Financial Statements, which was published in 1973. This report maintains that the basic objective of financial statements is to provide information useful for economic decision making. In satisfying this basic objective, accounting should serve the goals of both the private and public sectors of the economy. Users of financial statements " seek to predict, compare, and evaluate the cash consequences of their economic decisions" (AICPA, p.61). Further, this committee report asserts that financial statement information should possess seven qualitative characteristics to satisfy users' needs: relevance and materiality, form and substance, freedom from bias, comparability, consistency, and understandability.

In a 2002 proposal concerning a principles-based approach to standard-setting, the FASB reaffirmed its commitment to the decision-usefulness theory (FASB 2002, p.1). However, therein, the FASB states "the framework has not provided all the requisite tools for resolving accounting and reporting problems"[3] (FASB 2002, 6). For example,

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[3]These publications also identify deficiencies in the FASB's conceptual framework: Agrawal 1987; Gore 1994; Staubus 1995; Davies 1997; Miller et al. 1998; and Storey and Storey 1998.

Concepts Statement No. 2 "does not provide conceptual guidance necessary for making tradeoffs among" (FASB 2002, 6) these criteria of decision-useful information: relevance and reliability and comparability and consistency. Because of the deficiencies of the conceptual framework the FASB foresees that it will "need to commit resources to a project to improve the . . . framework" (FASB 2002, 6).

In September 2010, the FASB issued Concepts Statement No. 8 to replace Concepts Statement No. 1, Objectives of Financial Reporting by Business Enterprises, and No. 2, Qualitative Characteristics of Financial Reporting Information. This new Concepts Statement was issued as a result of a joint research project by the FASB and the International Accounting Standards Board (IASB) to improve and converge their conceptual frameworks. As the FASB and the IASB complete additional phases of their joint project, new chapters will be added to the Concepts Statement. According to Concepts Statement No. 8, the objective of general purposes financial reporting is:

> to provide financial information about the reporting entity that is useful to existing and potential investors, lenders, and other creditors in making decisions about providing resources to the entity. Those decisions involve buying, selling, or holding equity and debt instruments and providing or settling loans and other forms of credit (Para. OB1).

Furthermore, existing and potential investors, lenders, and other creditors need information to help them assess the prospects for future net cash inflows to an entity(Para. OB3). It should be noted that the FASB is of the opinion that:"the objective of financial reporting acknowledges that users make resource allocation decisions as well as decisions as to whether management has made efficient and

effective use of the resources provided"(Para. BC1.28). Thus, their general objective not only satisfies providing information to decision-makers in their capacity as capital providers, but provides information regarding the stewardship of an entity's resources, as well.

According to Concepts Statement No. 8, the qualitative characteristics of useful financial information has two categories: fundamental qualitative characteristics, and enhancing qualitative characteristics--"if financial information is to be useful, it must be relevant and faithfully represent what it purports to represent. The usefulness of financial information is enhanced if it is comparable, verifiable, timely and understandable" (Para.QC4). Further, because "materiality is an entity-specific aspect of relevance" (para. QC11) it is also considered a fundamental qualitative characteristic.

Table 2.1 provides a summary of the attributes of financial accounting information and their definitions by source document.

Table 2.1
Summary of Financial Accounting Information Attributes and Definitions by Source

Source Document	Information Attribute and Definition
ASOBAT (1966)	**Relevance**- for information to meet the standard of relevance, it must bear upon or be usefully associated with the action it is designed to facilitate or the result it is desired to produce. This requires that either the information or the act of communicating it exert influence or have the potential for exerting influence on the designated actions. **Verifiability**- Information is verifiable if essentially similar measures or conclusions would be reached if two or more qualified persons examined the same data. **Freedom from bias**- Free from bias means that the facts have been impartially determined and reported. Free from bias means that techniques used in developing data should be free of built-in bias. **Quantifiability**- Quantifiability means that numbers are assigned to the

Source Document	Information Attribute and Definition
ASOBAT (1966) (Cont.)	information reported.
Snavely (1967)	**Usefulness**-Useful information is sufficient for action. **Relevance**- Relevant information is that which will assist in (1) valuing a firm, (2) evaluating management, or (3) valuating management's policies. **Reliability**-Reliability is that criterion which recognizes that for information to be useful, a user must be able to depend on it as a representation of what it purports to be. **Understandability**-Understandability focuses attention on the need for the users of information to be able to comprehend the message or messages being communicated. **Quantifiability**-Quantification enables events within and comprising a given venture to be brought into meaningful relationship with each other. **Consistency**-Consistency with user concepts' recognizes that, for information to be understandable, it must be in agreement–at least to some degree–with the existing ideas of statement users as to the meaning of the data being communicated. **Comparability**-The criterion of comparability recognizes that the accounting information in financial statements is more understandable when it is presented so that it can be compared with similar information concerning other firms and also other periods of the same firm. **Simplicity**-The criterion of simplicity recognizes the intellectual limitations of people. **Significance**- Significance is usually referred to as materiality. Materiality is defined in most instances as a combination of the criteria of significance and sufficiency. **Sufficiency**-The word *fairly* as it is employed in the standard short-form audit report appears to encompass these two criteria: sufficiency and reliability. **Practicality**-To be practical, information must be worth more than it costs to present, and second, it must be available on a timely basis. The net usefulness of information is destroyed if it cannot meet the criterion of practicality.

Source Document	Information Attribute and Definition
APB No. 4 (1970)	**Relevance**-Relevant accounting information bears on the economic decisions for which it is used. The objective of relevance helps in selecting methods of measuring and reporting in financial accounting that are most likely to assist users in making the types of economic decisions for which they use financial accounting data. **Understandability**- Requires that the users have some understanding of the complex economic activities of enterprises, the financial accounting process, and the technical terminology used in financial statements. **Verifiability-**Verifiability means that the attribute or attributes selected for measurement and the measurement methods used provide results that can be corroborated by independent measurers. **Neutrality**-Neutral financial accounting information is directed towards the common information needs of users and is independent of presumptions about particular needs and desires of specific users of the information. Neutral accounting measurements enhance the relevance of the information to common needs of users. **Timeliness**- Timely financial accounting information is communicated early enough to be used for the economic decisions which it might influence and to avoid delays in making those decisions. **Comparability**- Comparable financial accounting information presents similarities and differences that arise from basic similarities and differences in the enterprise or enterprises and their transactions and not merely from differences in financial accounting treatments. Comparable financial accounting information facilitates conclusions concerning relative financial strengths and weaknesses and relative success, both between periods and for a single enterprise and between two or more enterprises. **Completeness**-Financial information that meets the qualitative objectives of financial accounting also meets the reporting standard of adequate disclosure. Adequate disclosure relate particularly to objectives of relevance, neutrality, completeness, and understandability.
Objectives of Financial Statements (1973)	**Relevance**-Relevance is described as being inseparable from the concept of purposeful information . . . . Information that does not bear on the problems for which it is intended is not useful, regardless of its other qualities. **Materiality**- Materiality is defined as information that is likely to influence users' economic decisions. Materiality is characterized as a judgment concerning the significance of information and its impact on users'economic decisions**.**

Source Document	Information Attribute and Definition
Objectives of Financial Statements (1973) (Cont.)	**Freedom from bias**- Freedom from bias is characterized as neutrality and fairness. Avoidance of bias requires the careful application of conservatism, because conservatism may introduce bias. **Comparability**- Comparability means to have like things reported alike, and unlike things reported differently. **Consistency**- Consistency is a valuable adjunct to comparability. **Understandability**-Understandability requires that information be expressed as simply as permitted by the nature and circumstances of what is being communicated.
Staubus (2000)	**Understandability**-The quality of information that enables users to percieve its significance. Focuses accounting evaluators' attention on the receiving phase of the communication process. **Relevance**-Relevance is the primary criterion for evaluating accounting information. More specifically, it deals only with measurement methods. Relevance means that a particular number reflects a measure in which users are interested. **Reliability**-Reliability is that criterion which permits users of a datum to confidently depend on it as an accurate representation of the specific phenomenon it purports to represent. **Verifiability**-Verifiability means that financial accounting information provides results that would be substantially duplicated by independent measures using the same measurement methods. **Lack of Bias**- A state of mind that permits an observer to perceive phenomena and record his perceptions without influence either from his personal stake in the phenomena in question, or from how his record of those phenomena may be employed.

Source Document	Information Attribute and Definition
Staubus (2000) (Cont.)	**Comparability**-Relationships between accounting practices which contribute to the process of relating two or more financial data Staubus identifies six distinct types of comparability relationships: (1) interperiod comparability (the comparability of the financial information disclosed by a particular enterprise, and includes the consistent application of the enterprise's accounting methods), (2) ex ante-ex post comparability (this criterion is related to the requirement that firms disclose the effect of significant changes in their accounting policies), (3) intercompany comparability (concerns the comparability of an enterprise's financial information with that of other enterprises), (4) interline comparability (pertains to measuring unit comparability), (5) intraline comparability (components which comprise a disclosed sum should be of similar or of equivalent analytical interest to financial statement users), and (6) reporting period comparability (refers to the employment of identical reporting periods). **Consistency**- The application of similar accounting practices to similar events. .
FASB (2011) FASB (2011) (Cont.)	**Relevance**- Relevant financial information is capable of making a difference in the decisions made by users. Information may be capable of making a difference in a decision even if some users choose not to take advantage of it or already are aware of it from other sources. Financial information is capable of making a difference in decisions if it has predictive value, confirmatory value, or both. **Materiality**- Information is material if omitting it or misstating it could influence decisions that users make on the basis of the financial information of a specific reporting entity. In other words, materiality is an entity-specific aspect of relevance based on the nature or magnitude or both of the items to which the information relates in the context of an individual entity's financial report. **Faithful Representation**-To be a perfectly faithful representation, a depiction would have three characteristics. It would be complete, neutral, and free from error. **Enhancing Qualitative Characteristics** **Comparability**-Comparability is the qualitative characteristic that enables users to identify and understand similarities in, and differences among, items. Unlike the other qualitative characteristics, comparability does not relate to a single item. A comparison requires at least two items.

Source Document	Information Attribute and Definition
	Verifiability-Verifiability means that different knowledgeable and independent observers could reach consensus, although not necessarily complete agreement, that a particular depiction is a faithful representation. Quantified information need not be a single point estimate to be verifiable. A range of possible amounts and the related probabilities also can be verified. **Timeliness**-Timeliness means having information available to decision makers in time to be capable of influencing their decisions. **Understandability**- Classifying, characterizing, and presenting information clearly and concisely makes it understandable.

Section 2.3 Historical Background and Overview of Segmental Reporting

As early as 1937, the SEC required registrants to disclose major classes of gross sales. By 1965, if practicable, issuers of new securities (issuers) were required to disclose "the relative importance of each product or service or class of similar products or services which contributed 15% or more to the gross volume of business done during the last fiscal year" (Rappaport 1968, 5). Moreover, annually all registrants were required to report similar information. In addition, registrants which acquired assets of a "significant" amount were required to, promptly, disclose comprehensive financial and narrative information regarding the acquisition. Finally, issuers whose products and services revenues individually composed greater than ten percent of the firm's total revenues, were required to report the contribution of each to the firm's total gross income (Rappaport 1968, p.5).

Notably, the SEC did not require the disclosure of line of business profitability until 1969. Specifically, in 1969 issuers were required to disclose in their registration statements "but not necessarily in their annual reports, a five-year break down of

revenues and contribution to pretax profits by material line of business" (Pacter 1993, p.14). However, the SEC's guidance for determining a line of business gave firms considerable latitude, and the line of business materiality test imposed for large issuers differed from that for small issuers. Further, the SEC required issuers to provide narrative information concerning the following: (1) major customers, (2) foreign operations, and (3) inter-segment sales pricing and common cost allocation procedures. Nevertheless, the SEC's disclosures were not, necessarily, required to be a part of issuers' audited financial statements (Pacter 1993, p.14).

The segment information disclosures imposed by the SEC in 1969 were not mandated on its own initiative, but rather the disclosures were mandated because of Congressional prodding. Specifically, from 1965 through 1966 the Subcommittee on Anti-Trust and Monopoly of the U.S. Senate Committee on the Judiciary held hearings regarding the conglomerate merger wave of the late 1950's and early 1960's, and the resultant need for segment profit information. During those hearings witnesses gave two different, yet, related justifications for the disclosure of segment profitability (Rappaport 1968, pp.2-9).[4]

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[4]First, Dr. Willard F. Muellller, Director of the Federal Trade Commission's Bureau of Economics, "testified that segmented information was a necessity for free competition to be effective. He said that such disclosure would indicate to potential competition the desirability of competing in a given market" (Rappaport et al. 1968, 8-9). He suggested that such information would prevent an enterprise from overcharging its customers in one geographic area to subsidize its operations in a geographic area of more intense competition. Morever, he asserted that segmented profit information would preclude a firm from improperly using its economic power. Thus, his testimony established from an antitrust viewpoint the need for the disclosure of geographic profitability as well as product-line profitability or other types of segment profitability (Rappaport et al. 1968, 9).

Second, witnesses who addressed the concerns of investors asserted that the conglomerate merger wave resulted in the consolidation of a significant amount of previously disclosed income statement and balance sheet information about mergered business enterprises. Those witnesses maintained that "without product-line or otherwise segmented reporting it is impossible for the investor to make an intelligent investment decision with respect to a conglomerate" (Rappaport et al. 1968, 7). When the SEC Chairman Manuel F. Cohen initially appeared before the subcommittee he affirmed the SEC's power to mandate product-line or similar partial activity reporting. Nonetheless, he asserted that for a variety of reasons the SEC had refrained from requiring such disclosures (Rappaport 1968, 3).

Mainly, the Subcommittee on Anti-Trust and Monopoly's segment reporting inquiry concerned two questions. "To what extent is it necessary or desirable that additional disclosure be made" (Rappaport et al. 1968, p.7)? "To what extent can such disclosure be made meaningfully and helpfully" (Rappaport et al. 1968, p.7)? On September 20, 1966, at the conclusion of his appearance before the subcommittee, SEC Chairman Cohen asserted that it is evident that conglomerate mergers make it increasingly difficult for investors and others to reach sound judgments about both the affairs and the prospects of conglomerates and other companies. He stated, "While the problems facing us are not insurmountable they are difficult, and I do not believe we will find simple answers to them. Their difficulty suggests that we must proceed with deliberation and with a recognition that experience may prove to be our best guide in reaching the most appropriate solution" (Rappaport 1968, p.16). Furthermore, he announced that the SEC will reconsider its segment reporting requirements (Rappaport et al. 1968, p.23).

September 1967 the Accounting Principles Board of the AICPA, the predecessor of the FASB, issued Statement No. 2, *Disclosure of Supplemental Financial Information by Diversified Companies*. That non-binding statement urged diversified companies to voluntarily disclose supplemental industry segment financial information. Diversified companies were defined as companies that expand into different industry lines by acquisition, merger, internal development or a combination thereof (AICPA 1967, para. 11). To provide guidance, the statement identified the segment disclosures that some firms were voluntarily providing. Moreover, it asserted that "experience derived from

voluntary disclosure efforts, together with conclusions to be derived from research activities and further study should provide . . . a sound basis for making a definitive pronouncement in the future on the need for, and the extent of, disclosure of supplemental financial information by diversified companies" (AICPA 1967, para. 13). It is important to note that though the data gathered by the Accounting Principles Board showed an increasing trend toward the voluntary disclosure of segment profit (Horwitz and Kolodny 1982, p.54), hardly any previous research had addressed segmented information.

Interestingly, Accounting Principles Board Statement No. 2 was not the first voluntary segment information pronouncement issued by a private sector standard-setter. In 1939, the Committee on Accounting Procedures, the initial private sector standard-setter, issued Accounting Research Bulletin No. 4, *Foreign Operations and Foreign Exchange*. It urged U. S. enterprises "to follow the 'safe rule' of recognizing earnings from foreign operations only to the extent of actual cash remittances in light of the 'disturbed conditions abroad' (a euphemism for World War II)" (Pacter 1993, 8). In addition, it suggested that firms fully disclose the extent of foreign items included in their financial statements (Pacter 1993, p.8). "In 1953, Accounting Research Bulletin No. 4 was codified into Chapter 12 of Accounting Research Bulletin No. 43, *Restatement and Revision of Accounting Research Bulletins*. Chapter 12 eased off a bit on the safe rule of recognizing foreign earnings only when cash is remitted to the United States" (Pacter 1993, p.8). Instead, it proposed that firms recognize foreign earnings to the extent that unrestricted funds are available for transmission. Moreover, that pronouncement relaxed

guidance concerning the disclosure of foreign items. That is, it put forth that U. S. firms should fully disclose the extent to which financial statements include significant foreign items (Pacter 1993, p.8).

Although, Accounting Principles Board Statement No. 2 referred to future mandated segment reporting disclosures and substantiating research studies, the AICPA neither completed a follow-on segment reporting study, nor mandated segment reporting disclosures. However, when the Accounting Principles Board issued Statement No. 2, it was aware that a segment reporting study (Mautz 1968) had been undertaken by the Financial Executives Research Foundation, the Financial Executives Institute's research affiliate. Further, it was aware that in August 1966, representatives of both the Financial Executives Research Foundation and the Financial Executives Institute met with SEC representatives, jointly adumbrated a research proposal, and obtained the SEC's commitment to defer new segment reporting disclosure requirements until after the completion of the study. It is noteworthy that the Financial Analysts Foundation (now the Association of Investment Management Research) expressed support of the Financial Executives Research Foundation proposal (Zeff 1972, p.203).

In recognition of the SEC's intention to reconsider its segment reporting requirements, groups other than the Financial Executives Institute as well as individual researchers undertook segment reporting projects. The first completed effort, the Tulane Symposium on Public Reporting by Conglomerates, was held in November 1967. During a two day period, papers regarding the pros and cons of segment reporting were presented and discussed by government officials, corporate officers, certified public

accountants, stock exchange officers, security analysts, and academicians (Rappaport 1968,v). That timely comprehensive effort benefitted subsequently completed studies. Considering the correspondence between the SEC's 1969 and 1974 segment reporting mandates, no doubt, the most influential research was that published prior to 1969 (Horngreen 1955; Mautz 1968; Backer and McFarland 1968; and Cramer 1968). However, it is reasonable to presume that research studies published between 1969 and 1974 (Kinney 1971; Rappaport and Lerner 1972; and Kochanek 1974), influenced the SEC's 1974 mandate that registrants disclose segment line of business profitability in annual reports distributed to their stockholders.

Section 2.3.1 SFAS No. 14

In 1973, the FASB superseded the Accounting Principles Board, and placed segment reporting along with the development of a conceptual framework on its initial agenda. Significantly, that same year, the New York Stock Exchange issued a white paper recommending that stockholders receive annual reports which include segment disclosures at least as extensive as those in firms' annual reports to the SEC (FASB 1976, para. 45). To progress with its technical agenda, in May 1974, the FASB issued a segment reporting Discussion Memorandum and held related public hearings in August that same year (FASB 1976, para. 50). An Exposure Draft of the proposed standards was issued in September 1975 (FASB 1976, para. 51), and the final statement, SFAS No. 14, was issued in December 1976.

At the outset, SFAS No. 14 required the disclosure of both annual and interim period information pertaining to an enterprise's industry segments, geographic area of

operations, export sales, and major customers. Briefly, when promulgated SFAS No. 14 provided limited guidance concerning the determination of industry segments and geographic areas of operations. In addition, it required the disclosure of the following information by industry segment: types of products and services; external revenue; intersegment revenue; operating profit or loss; depreciation expense; capital expenditures; identifiable assets; equity in net income of, and investment in, investees accounted for by the equity method; and cumulative effects of changes in accounting principles. Further, SFAS No. 14 required the disclosure of the following geographic area information: external revenue; intersegment revenue; operating profit or loss, net income, or some other common measure of profitability between operating profit or loss and net income; and identifiable assets. SFAS No. 14, also, required the disclosure of certain quantitative information concerning both export sales and sales to major customers. Furthermore, SFAS No. 14 required a firm to reconcile certain information and to disclose its intersegment pricing basis(es) and the effect any changes thereto. Finally, the FASB's segment disclosures which were required to be included in the scope of an independent audit, were more extensive in come cases than the SEC's (FASB 1976; and Pacter 1993, pp.14-16).

Shortly after issuing SFAS No. 14, the FASB pronounced four amendments thereto. Specifically, SFAS No. 18, *Financial Reporting for Segments of a Business Enterprise—Interim Financial Statements* (1977), rescinded the requirement to report interim period segment information. SFAS No. 21, *Suspension of the Reporting of Earning per Share and Segment Information by Nonpublic Enterprises*, exempted

nonpublic firms from the requirements of SFAS No. 14 (FASB 1978). SFAS No. 24, *Reporting Segment Information in Financial Statements That are Presented in Another Enterprise's Financial Report* (FASB 1978), exempted reporting entities, whose consolidated financial statements included certain separable financial statements, from disclosing segment information about those separable financial statements. Lastly, SFAS No. 30, *Disclosure of Information about Major Customers (1979)*, amended the SFAS No. 14 provision concerning the determination of major customers (Pacter 1993, pp.17-18). Except for SFAS No. 18, the amendments did not, significantly, alter the mandated segment reporting information available to financial statement users. However, SFAS No. 18 did set the stage for financial analysts' future vehement criticisms regarding the lack of interim period segment information.

Although, the push to disclose line of business information began as an antitrust issue, the Federal Trade Commission did not find the SEC's segment reporting data useful. Hence, the Federal Trade Commission introduced its own line of business information program in August 1974. Federal Trade Commission personnel justified their program on the premise that the SEC's mandates gave firms too much flexibility in the determination of lines of business. Therefore, to enhance its inter-firm analyses of domestic manufacturing activities, the Federal Trade Commission required firms to report information by standard industrial code categories. Thus, the Federal Trade Commission's data were based on manufacturing processes and the raw materials employed therein, rather than on the economic markets in which firms operated. Comparatively, the data mandated under the Federal Trade Commission's program was

not as extensive as that mandated under the programs of either the SEC or the FASB. Further, though the Federal Trade Commission required reporting on an as ordered basis, reporting was only ordered annually. Lastly, unlike the data of the SEC or the FASB, the Federal Trade Commission's data did not come under the scope of an auditor's examination (Barefield and Holstrum May 1979, pp.108-111).

In December 1977, one year after the FASB's pronouncement of SFAS No. 14, the SEC issued Accounting Series Release No. 236 to announce the adoption of Regulation S-K, an integrated disclosure form. Regulation S-K was established primarily to integrate the FASB's SFAS No. 14 industry segment financial statement information requirements, with the SEC's registration statement, annual reports, proxy, and information statement requirements. Moreover, Regulation S-K set forth, for fiscal years beginning after December 15 1976, that registrants describe their business by focusing on their industry segments. Regulation S-K required registrants to present historical revenue, profit, and asset data concerning both industry segments and geographic areas of operation. (SEC 1997, Accounting Series Release No. 236 summary).

Because the FASB had rescinded its SFAS No. 14 interim period requirements, the SEC asserted it would be inappropriate to require the disclosure of such data, except under certain circumstances. Moreover, the SEC asserted that registrants need only discuss historical segment data which, in the opinion of management, would may not be indicative of either the current or the prospective operations of the segment. Furthermore, concerning interim period segment data, the SEC declared that "a more reasoned decision . . . will be assured by consideration of . . . an analysis of the experiences of registrants

and investors alike with . . . segment information (SEC 1977, Accounting Series Release No. 236).

In March 1978 the SEC issued Accounting Series Release No. 244 (now Financial Reporting Release No. 503.03) to provide additional guidance concerning the determination of industry segments. Mainly, Accounting Series Release No. 244 emphasized that firms should employ the segment identification procedures of SFAS No. 14. Moreover, the release pointed out that information on a less-than-total-enterprise basis is required to provide users with the information needed to evaluate risks and return on investment (SEC 1978, Accounting Series Release No. 244, para. A).

In 1980 the SEC augmented its earlier MD&A guidelines for narrative discussions and analyses of registrants' financial conditions and results of operations. In addition, the SEC set forth that MD&A guidelines are intentionally general, and reflect the view that a flexible approach, rather than a restricted approach, elicits more meaningful disclosures (SEC 1989, FRR No 36 interpretive rule para. I; also in C&L manual p.1055).

In 1986 as a result of observations made during its audits, Coopers & Lybrand submitted a proposal to the SEC recommending both increased MD&A business risk disclosures and the performance of specific related independent auditor review procedures. Shortly thereafter, a white paper, entitled *The Future Relevance, Reliability, and Credibility of Financial Information*, was issued by seven of the largest U.S. public accounting firms. It, too, called for increased risk disclosure but suggested that the

disclosures should be separate from the MD&A and subject to audit coverage (SEC 1989, FRR No 36 para. I; also in C&L manual pg 1055).

Accordingly, in response to auditors' business risk disclosure concerns, in 1987 the SEC formally requested comments about the adequacy of MD&A requirements and the proposals it had received. Not surprisingly, almost all of the 196 commentators opposed the increased disclosure requirements. Moreover, they put forward that either stricter enforcement and review or an additional interpretive guidance would improve compliance. Consequently, the SEC initiated a special review of MD&A disclosures. The aim of the project was fourfold: (1) to evaluate the adequacy of MD&A disclosures, (2) to determine widespread deficiencies, (3) to provide guidance regarding the MD&A requirements, and (4) to determine the need for revisions thereto. Based on the results of its review the SEC concurred with the majority of the commentators. Accordingly, the SEC did not amend its MD&A requirements, but in 1989 it issued an interpretive release (SEC 1989, FRR No 36 interpretive rule para. I; also in C&L manual p.1055).

In 1997, the Financial Accounting Standards Board (FASB) issued a new segment reporting standard: Statement of Financial Accounting Standard Number 131 (SFAS No. 131), *Disclosures about Segments of an Enterprise and Related Information* (the Standard) (FASB 1997). SFAS No. 131 was issued in response to analysts' discontent with SFAS No. 14 reported industry segment information. Analysts' principal concerns regarding SFAS No. 14 are explicated in the Association of Investment Management Research's (AMIR's) 1993 financial reporting position paper (Knutson 1993). Therein, the AIMR maintained that most financial analysts find SFAS No. 14 reported industry

segment disclosures to be helpful, yet inadequate. The AIMR observed that the SFAS No. 14 industry segment definition is broadly defined, and thus inherently problematic. The AIMR asserted that many financial statement preparers both recognized and exploited the flexibility of that definition. To support its assertion, the AIMR commented that one of the ten largest firms in the United States, consistently, reported just one very broadly defined industry segment. The AIMR acknowledged, however, that to develop an industry segment definition, which would be suitable for different firms, which operate under dissimilar circumstances, would be difficult (Knutson 1993).

Several factors other than the SFAS No. 14 industry segment definition also led analysts to express increased discontent with reported industry segment disclosures. First, analysts perceived that the understandability of reported industry segment information decreased, when firms implemented SFAS No. 94, *Consolidation of All Majority-Owned Subsidiaries*. Implementations of that standard consolidate subsidiaries whose business activities differ from those of their parent corporations. Hence, the consolidations obscure important previously disclosed information. Second, segment information has become more important because of widespread merger and acquisition activity, the ever increasing globalization of firms' production and marketing activities, and the deregulation of certain industries. Third, the relative importance of segment information has increased because institutional investors are more active in the equity markets and more analysts are using sophisticated financial modeling technology. Finally, because the relative importance of segment information has increased, analysts are dissatisfied with, merely, annual reported industry segment information (FASB and CICA 1993, summary;

Knutson 1993).

Besides the AIMR, the AICPA Special Committee on Financial Reporting (the AICPA Special Committee) also examined analysts' segment reporting information needs. The two groups' suggestions for improving segment disclosures were, generally, congruent and are as follows: (1) firms should report segment information annually and quarterly, (2) most firms should disclose more segments, (3) firms should reveal more information about each segment, (4) firms' bases of segmentation should correspond with that of their internal management reports, and (5) firms should provide reported segment information which is consistent with information disclosed in other parts of their annual reports (Knutson 1993; AICPA 1994; and FASB 1997). The AIMR, unlike the AICPA Special Committee, also suggested that firms should disclose internally employed segment information. The AIMR maintained that, if the such disclosures were mandated, analysts would "assume more responsibility for making meaningful comparisons of those data to the unlike data of other firms" (Knutson 1993, p.61).

In general firms employ reporting structures which reflect industry segments, or geographic areas of operations, or both. Nevertheless, most firms are organized by industry segment (AICPA 1994). Thus, the AIMR and the AICPA suggestions for improving reported segment disclosures, in effect, recommend that firms disclose more information about their industry business activities.

Section 2.3.2 SFAS No. 131

SFAS No. 131 is effective for annual financial statement periods beginning after December 15, 1997[5]. SFAS No. 131 specifies the provisions which public firms are to follow to report: (1) annual and interim period information about their disaggregated business activities and (2) annual firm-wide information about their products, their services, their geographic operations, and their major customers. SFAS No. 131 was issued to compel firms to release more useful segment information. Accordingly, the FASB made this assertion:

> The objective of requiring disclosures about segments of an enterprise and related information is to provide information about the different types of business activities in which an enterprise engages and the different economic environments in which it operates to help users of financial statements:
>
> a. Better understand the enterprise's performance
>
> b. Better assess its prospects for future net cash flows
>
> c. Make more informed judgments about the enterprise as a whole. (FASB 1997, para. 3)

To accomplish the FASB's objective for segment disclosures, SFAS No. 131 requires firms to use the *management approach* to determine which segments to report

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[5]SFAS No. 131 superseded SFAS No. 14, SFAS No. 18, *Financial Reporting for Segments of a Business Enterprise—Interim Financial Statements*, SFAS No. 24, *Reporting Segment Information in Financial Statements That Are Presented in Another Enterprise's Financial Report*, and SFAS No. 30, *Disclosure of Information about Major Customers*. In addition, it amended SFAS No. 94 to remove its special disclosure requirements for previously unconsolidated subsidiaries. Furthermore, it amended Accounting Principles Board Opinion No. 28, *Interim Financial Reporting*, to require the disclosure of certain segment information in the interim period financial reports issued to stockholders (FASB 1997, para. 2).

and what information to report about each segment (FASB 1997, para. 4). The management approach has two basic premises. The first, is that a firm's segments should be evident from its organizational structure. The second, is that the disaggregated information that a firm discloses should be derived from the information set that its *chief operating decision-maker* regularly employs to make resource allocation decisions and to assess firm performance (FASB 1997, para. 10).

The chief operating decision maker is defined as an activity which may be performed by a group of people, rather than by a manager with a specific title. The chief operating decision maker allocates resources to and assesses the performance of the *operating segments* of a firm (FASB 1997, para. 12). An operating segment is defined as a component of a firm's internal reporting structure which exhibits three attributes: (1) it operates business activities from which it may earn revenues and incur expenses, (2) discrete financial information is available for its business activities, and (3) its financial information is regularly reviewed by the chief operating decision-maker to make resource allocation decisions and to assess performance (FASB 1997, para. 10).

SFAS No. 131 requires firms to determine their disclosed or reported segments and the corresponding reported segment disclosures by employing the operating segment definition. A firm is permitted to voluntarily disclose all of its operating segments, but a limit of ten is suggested (FASB 1997, para. 24). Accordingly, using stipulated aggregation criteria and quantitative thresholds[6] a firm may aggregate the information of

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[6]SFAS No. 131 explicates two types of quantitative threshold tests: (1) a 10% test and (2) a 75% test. The purpose of the 10% test is to identify a firm's *significant operating segments* and to compel the firm to separately report the information pertaining to those operating segments. However, the purpose of the 75% test is to ensure that the information regarding an adequate number of operating segments is separately reported. See SFAS No. 131 paragraphs 18-24 for a detailed discussion of the quantitative thresholds and aggregation criteria.

certain operating segments. The components of a firm which do not meet the definition of an operating segment must be reported in an all other category. Post retirement benefit plans, inclusive of pension plans, are not operating segments (FASB 1997, para. 11).

SFAS No. 131 also requires a firm to disclose annually the following descriptive information about its reported segments: (1) the manner in which its segments are determined, (2) the products and services that are sold by its segments, (3) the differences between the measurements it uses for its segment disclosures and those it for its consolidated financial statements, and (4) the changes in the measurements it uses to determine segment information from period to period (FASB 1997, summary).

Moreover, SFAS No. 131 requires a firm to disclose annually the financial measures which are employed by its chief operating decision maker for operating decision making purposes. Specifically, for each reported segment, a firm is to disclose the following information: (1) a measure of segment profit or loss, (2) certain items included in that measure of segment profit or loss, (3) a measure of total assets, and (4) certain items included in that total asset measure (FASB 1997, para. 27). Although, segment cash flow information is not required, certain information associated with cash flows is to be disclosed.

Further, SFAS No. 131 requires a firm to disclose annual reconciliations of these items to the corresponding amounts in its consolidated financial statements: (1) total segment revenues, (2) total segment profit or loss, (3) total segment assets, and (4) every other significant total segment disclosure (FASB 1997, para. 32). In addition, significant reconciling items are to be separately identified and described.

If the firm changes its internal structure so that it, also, changes the composition of its reported segments, then unless it is impracticable, the firm is required to either: (1) restate the corresponding information for earlier reporting periods or (2) disclose segment information for both the old and the new bases of segmentation in the year in which the change occurs (FASB 1997, paras. 35-36).

Limited segment disclosures are also required on an interim period basis (FASB 1997, para. 33). However, it should be noted that both annual and interim period segment disclosures are intended to provide financial statement users with reliable information that can be employed for intra-firm analysis purposes (FASB 1997, para. 87).

To help financial statement users develop inter-firm comparative information, SFAS No. 131, also, requires a firm to disclose certain enterprise-wide information, if its segment disclosures do not provide it (FASB 1997, para. 7). That is, the firm is required to report enterprise-wide information regarding the following items: (1) its product and service (or groups of similar products and services) revenues, (2) the countries in which it earns revenues or holds long-lived assets, and (3) its major customers (FASB 1997, paras. 36-39).

In contrast with the required segment disclosures, a firm's enterprise-wide disclosures are to be reported even if that information is not employed by its chief operating decision maker. However, the firm is not required to disclose enterprise-wide information, which is not used internally, if reporting it would be impracticable (FASB 1997, paras. 37-38).

Section 3.3.2 A Comparison of SFAS No. 131 and SFAS No. 14

Several important issues differentiate SFAS No. 131 from SFAS No. 14. The first, is the manner in which firms disaggregate their business activities. The second, is the required reported segment disclosures. The third, is the required reporting frequency of reported segment information.

Under SFAS No. 131 firms disaggregate and determine what information to report by employing the management approach. The management approach requires the disclosure of just one basis of segmentation. That basis of segmentation is the basis that the chief operating decision-maker employs to make operating decisions and to assess firm performance. Under SFAS No. 14 firms were to disaggregate by employing the industry and geographic segment approach. Therefore, they were to reveal two bases of segmentation—their industries of operations and their geographic areas of operations. Unlike SFAS No. 131, SFAS No. 14 does not explicate procedures for identifying the segments that firms were to report. Instead, SFAS No. 14 provides a very general industry segment definition, however, it does not provide a geographic segment definition. Additionally SFAS No. 14, unlike SFAS No. 131, exempted firms from disclosing their vertically integrated operations. Although SFAS No. 14 and SFAS No. 131 include quantitative thresholds, those of SFAS No. 14 were of limited usefulness because of the vagueness of the industry segment definition.

Under the management approach, unlike under the industry and geographic segment approach, firms derive their reported segment financial measures from the information set that the chief operating decision-maker employs to make operating

decisions. Hence under SFAS No. 131, unlike under SFAS No. 14, a firm's reported segment financial measures are not required to be consistent with the generally accepted accounting principles which the firm employs to derive its consolidated financial measures. Additionally, firms are permitted to asymmetrically allocate expenses and assets to reported segments. Further, firms are not required to report the same reported segment financial measures that other firms report.

Under SFAS No. 14, unlike under SFAS No. 131, all firms were required to report geographic revenue, profit or loss, and identifiable asset information. Under SFAS No. 14, all firms were required to report country of domicile export sales in excess of 10 percent of consolidated firm revenue, but SFAS No. 131 does not require firms to disclose any export sales information. SFAS No. 131 and SFAS No. 14 require firms to disclose the same information concerning major customers. However, SFAS No. 131, unlike SFAS No. 14 explicates that the federal government, a state government, a local government, or a foreign government, are each to be considered a single customer (FASB 1997, para. 39).

The FASB maintains that several benefits should result from the application of the SFAS No. 131 management approach, rather than the SFAS No. 14 industry and geographic segment approach. First, "knowledge of the structure of an enterprise's internal organization is valuable in itself because it highlights the risks and opportunities that management believes are important" (FASB 1997, para. 59). Second, "an ability to see an enterprise 'through the eyes of management' enhances a [financial statement] users ability to predict actions or reactions of management that can significantly affect

the enterprise's prospects for future cash flows" (FASB 1997, para. 60). Third, firm's SFAS No. 14 industry segments were determined subjectively, however, "segments based on an existing internal structure should be less subjective" (FASB 1997, para. 60). Fourth, firms are likely to report more detailed information about their reported segments (FASB 1997, para. 59), and some firms will report a greater number of segments (FASB 1997, para. 113). Fifth, reported segments which correspond to the way that a firm is organized and managed should be consistently employed throughout the annual report and in other information releases of the firm (FASB 1997, paras. 61 and 113). Consequently, reported segment disclosures should be more useful.

Nevertheless, the FASB concedes that "segments based on the structure of an enterprise's internal organization may not be comparable between enterprises that engage in similar activities and may not be comparable from year to year for an individual enterprise" (FASB 1997, para. 62). The FASB also concedes that "comparability between enterprises and consistency in the application of methods over time increases the informational value of comparisons of relative economic opportunities or performance. The significance of information, especially quantitative information, depends to a great extent on the user's ability to relate it to some benchmark" (FASB 1980, Summary of Principal Conclusions).

The FASB observes, however, that "improving comparability may destroy or weaken relevance or reliability if to secure comparability between two measures, one of them has to be obtained by a method yielding less relevant or less reliable information. Historically, extreme examples of this have been provided in some European countries in

which the use of standardized charts of accounts has been made mandatory in the interest of inter-firm comparability but at the expense of relevance and often reliability as well. That kind of uniformity may even adversely affect comparability of information if it conceals real differences between enterprises" (FASB 1980, para. 116).

The FASB also emphasizes that when it issued SFAS No. 14 it was concerned that segments defined using the industry and geographic segment approach might be "of limited usefulness for comparing an industry segment of one enterprise with a similar industry segment of another enterprise (i.e., for inter-enterprise comparison). Inter-enterprise comparison of industry segments would require a fairly detailed prescription of the basis or bases of disaggregation to be followed by all enterprises, as well as specification of the basis of accounting for intersegment transfers and methods of allocating costs common to two or more segments" (FASB 1976, para. 76).

SFAS No. 14 expressed the FASB's concerns about developing a detailed prescription of the bases of disaggregation. Therein the FASB maintained that "differences among enterprises in the nature of their operations and in the extent to which components of the enterprise share common facilities, equipment, materials and supplies, or labor force make unworkable the prescription of highly detailed rules and procedures that must be followed by all enterprises. Moreover, . . . differences in the accounting systems of business enterprises are a practical constraint on the degree of specificity with which standards of financial accounting and reporting for disaggregated information can be established (FASB 1980, para. 74). "Those same considerations persuaded the . . . [FASB] not to adopt more specific requirements in . . . [SFAS No. 131]. Both relevance

and comparability will not be achievable in all cases, and relevance should be the overriding concern" (FASB 1997, para. 65).

Section 4 Analysts Use of Segmented Reported Information

Analysts' use of segment reporting information has been directly studied by employing several research methods: questionnaire/interview, protocol analysis, and content analysis.

The survey method was the first method used to study analysts' use of segment information. One of the earliest studies, Backer and Mc Farland (1968), employed an in-depth interview method to survey one hundred forty-three financial analysts and commercial bankers to determine their uses of segment information. The analysts gave the following principle reasons for using segment information: (1) to gain knowledge of the business a company is in and the relative size of its various components, (2) to forecast consolidated profits (to do so sales, contribution margin, and profits are needed), and (3) to evaluate the success of a firm's acquisitions (Backer and Mc Farland 1968, pp. 1-14). With regard to the first reason, analysts indicated that operating results are affected by both risk and prospects for future earnings growth. Thus, operating performance will differ significantly by industry (Radebaugh 1987 pp. 43-44).

Mautz (1968) employed a mail questionnaire to survey financial analysts and corporate executives. A principle purpose of the study was to identify the type of segment information need by analysts and that produced for internal use by firm management. Mautz found similarities between the two types of information (Mohr 1983).

Steedle (1983) interviewed twenty-two users of SFAS No. 14 segment data. All of the users indicated that they employ segment data to evaluate individual firms, to predict earnings, and to compare companies. Twenty of the users indicated that they employ segment information to compare like segments in different companies. Nineteen indicated that they employ the information to assess risk. Seventeen indicated that they employ segment data to compare firm data to industry data (42). The general finding of the study is that analysts percieve that segment data allow them to better understand a complex firm's financial statements (41).

Emmanuel and Garrod (1987) personally interviewed sixteen randomly selected investment analysts to determine how they use segment information. The employed analysts were a cross-section of London brokerage firms and institutional investment companies. The interviews were conducted between April-August 1985 and spanned between one and a half and three hours. The analysts were asked questions and were allowed to respond without interruption. Then additional prompting questions were offered to gain information about the frequency, reliance, and criticism of segment information (p.236). The analysts indicated that the primary reason for using segment information is to forecast firm earnings 12-24 months into the future (p. 236). All of the analysts indicated that they consult the segment disclosure for all of the firms that they follow. However, over 30% of the analysts perceive that 10-40% of the firms which disclose segment information, do not obey the spirit of the requirements and are attempting to disclose how components of the firm are performing.

A 1989 Financial Analysts Federation (FAF) mail survey concerning quarterly segment reporting information reported similar findings. That study reported that three hundred and ninety United States (351) and Canadian (39) investment professionals out of 1700 returned their questionnaires, for an overall response rate of 23%. The respondents were portfolio managers (42%), analysts (34%), portfolio manager/analysts (11%), and other investment professionals (13%). The study found that voluntarily disclosed quarterly segment data is used for comparison with industry and economic data. Further, the respondents indicated that such data is useful for the following purposes: (1) to make comparisons with other companies in comparable industries (Appendix, Question 12; 90% of the analysts; 54% frequently, 36% sometimes), (2) to evaluate past performance (Appendix, Question 13; 94% of the analysts; 61% frequently, 32% sometimes), (3) to assess future potential (Appendix, Question 14; 94% of the analysts; 62% frequently, 32% sometimes), and (4) to measure the degree and type of risk associated with a firm's business activities (Appendix, Question 15; 95% of the analysts; 58% frequently, 37% sometimes). The respondents percieve that quarterly segment information is necessary to understand the operating results of many firms. They maintain that the disclosure of quarterly segment information will save them time spent trying to gather or estimate the information. Further, they maintain that eight quarters of data are likely to reveal trend information which would be undetectable in two years of data. Notably, however, less than 20% of the respondents strongly agreed that earnings estimates developed for firms that provide quarterly segment information are more accurate than those developed for firms which do not provide such information.

Boersema and Van Weelden (1992) personally interviewed thirty-three Canadian financial analysts to determine among other issues their use of segment reporting information. The interviews were conducted in the summer of 1990 and averaged two hours. A mix of open-ended and objective questions were employed to give the analysts an opportunity to expand on the questions asked and to give the researchers the opportunity to explore rationale for the answers provided. Of the thirty-three interviewed analysts only one stated that she did not generally employ segment reporting information because of its questionable reliability. Each of the other analysts specified how they use the information. Ninety-four percent of the analysts indicated that they develop an overall dollar amount of a firm's earnings forecasts (p. 16).

An open-ended question was employed to determine the importance of the disclosure of segment information. The second most frequent response to that question was the prediction or forecasting of earnings. The most frequent response to the question was to "understanding the company". (pp. 17-18).

Eighty-eight percent of the analysts said that they either develop point or range forecasts of a firm's industry segment earnings (73% always or usually). However, that percentage probably understates the importance of segment forecasts. The reason is that one analyst stated that he always develops such a forecast for "the company's that count" and explained that he give less attention to the company's that trade infrequently. Three of the analysts stated that they would make segment forecasts more frequently if the requisite information were available (p. 18).

All of the analysts stated that they use industry segment disclosures to evaluate past segment performance prior to making their industry segment forecasts. One analyst commented that using segment information is “the only way an outsider can analyze the company’s prospects. The data are essential—otherwise you are just guessing. Lack of segment data deteriorates the forecast” (p.18).

Geographic data are not used as frequently as industry segment data to make forecasts. One analysts said that he used geographic data to understand the industry. However, he noted that by itself it is “not very useful stuff”. Nevertheless, 86% of the analysts reported that they use geographic data at least sometimes; thus it is important to most analysts (p. 18).

Before developing their industry or geographic segment forecast, at least some of the time, most analysts develop an overall forecast for the relevant industry or geographic region. Several analysts stated that the information required to develop an overall forecast is not always available or the information may not be directly comparable. Some analysts who stated that they “rarely” or “never” develop an overall forecast do develop general assessments of the industry outlook. They characterized the industry outlook as “more initiative”, rather than as a “forecast”(p.18).

Analysts ranked the following uses of segment reporting information in order of importance: accountability, risk assessment, comparison, and prediction. Sixty-one percent of the analysts ranked accountability first and 79% ranked it either first or second. Some of the analysts commented that the ranking was rather artificial. Several indicated that the other uses are part of the prediction process. To illustrate, one analysts

said “I use the other three to come to prediction” and “accountability and comparisons are steps in the process leading to prediction; then, I seek to gauge the risk associated with that prediction” (p. 18).

Boersema and Van Weelden found that analysts employ segment information for comparison purposes. They noted however that in response to an open-ended question, concerning the use of segment information, only one analyst mentioned comparison. They posit that others did not answer similarly because comparison is not an end purpose. Instead, it is a means for accomplishing other purposes, such as prediction. They found that most analysts (69%) compare the industry segment earnings of one firm with those of another firm at least sometimes (58% always or usually). However, less than half of the analysts (48%) ranked comparison as first or second in order of importance. Seven analysts indicated that if segment reporting data were more comparable or if there were a greater number of comparable firms then they would be inclined to make comparisons more frequently.

Boersema and Van Weelden employed an open-ended question to determine the aspects of segment disclosures that limit the usefulness of the information for comparison purposes. The most frequently mentioned limitation (12 times) concerned broad or no segment definitions. The second most frequently mentioned limitation (9 times) pertained to perceived variations in the definitions of operating income. The third (5 times) is that the segment income statement detail lacks sufficient detail. Thus, as Boersema and van Weelden observe, the second and third limitations are related. The lack of income

statement detail makes it difficult to assess the comparability of segment operating income (Boersema and van Weelden 1992, 21).

Differences concerning the following accounting policies were also mentioned as limitations: capitalization, deferred taxes, full costs versus successful efforts, corporate overhead allocations, and selling and administrative expenses (Boersema and van Weelden 1992, 21). It is of note however that six analysts made unprompted comments which stressed that in spite of the limitations segment reporting information is useful. For example, one analysts said, "it doesn't stop comparison; put in a long-term trend it becomes useful" (21). Another said, "everything I get is useful" (21). Still another, "I'm less concerned with not perfect compatible definitions; its never perfect—there are few 'pure plays'" (21). Yet another stated "I don't know what they are talking about; I know the differences in accounting treatment" (21). The last asserted that "comparisons are always meaningless" (21), but he said that he does "look at overall trends" (21).

Boersema and van Weelden assert that the limitations of segment reporting data may preclude analysts from making precise comparisons of the profitability of the segment of one firm with that of another. But the data are used by analysts for at least trend analysis purposes. Thus, the comparison made are usually relative rather than absolute (21).

Boersema and Van Weelden observe that Radebaugh's (1987) analysis of the international aspects of segment information view risk in three dimensions: (1) country specific, (2) industry specific, and (3) company specific. Thus, they assert that industry and geographic segment information should be useful for risk assessment (p. 22). Not

surprisingly, most of the analysts (69%) perceive that industry segment data are important for risk assessment. However, a slightly lower proportion (58%) consider geographic segment information important for risk assessment. Of the four uses of segment reporting information risk assessment was ranked either first or second in importance by 42% of the analysts (p.22).

Boersema and Van Weelden illustrate the importance and the use of industry segment information for risk assessment purposes by providing the following analyst comments:

(1) "want to know which industry segment is dominant—where the biggest risk is".
(2) "helps reduce error in the estimates; some segments are much more volatile than others".
(3) "want to know what percentage of revenue and earnings are from which segment and to be aware of possible developments in that segment; for example, if a large new competition affects that segment or if raw material is aluminum and a strike is coming. If 85 percent of revenue is from that business, you worry much more than if it is only 15 percent".
(4) "would adjust the multiple for individual segments to reflect the degree of risk".
(5) "really trying to see problem areas or areas of high potential" (p.23).

Boersema and Van Weelden observe that if industry segment information is to meet analysts' risk assessment needs then firm activities should be segmented based on risk (p.23).

Boersema and Van Weelden emphasize that though analysts indicated geographic risk assessment is of less importance than industry segment risk assessment, risk assessment is an important use of segment information. They stress that for two reasons Canadian analysts attribute less importance to geographic segment information. First,

most of the firms followed by the analysts operate primarily in Canada. Second, geographic disclosures are usually too broad to be useful. They maintain that for firms that operate internationally, geographic disclosures would be useful to analysts.

Protocol analysis is a technique that requires subjects to perform a task and to concurrently orally explain their thought processes. That technique divides the task into a set of subtasks or protocols. Protocol analysis has been used in several studies which examine analysts' decision-making processes and their use of accounting information, inclusive of segment reporting information. For example, Bouwman et al. (1995) employ the technique to determine the relevance of GAAP-based and non-GAAP based information in the investment screening decisions of twenty financial analysts.

Bouwman et al. (1995) assert that the investment screening decision is the first phase of a financial analysis. The objective of the screening decision is to observe financial analysts while they were formulating a decision. Financial analysts were asked to think out loud while evaluating the information. The resulting verbalizations, provide pictures of what the decision maker goes about the task. This study shows that the investment screening task consists of two rather distinct components: searching for reasons to reject the company, and assessing the future earnings potential. The results suggest that GAAP-based information plays a dominant role in eliminating unattractive investment candidates. Analysts take advantage of the standardized format and presentation of GAAP-based information to quickly review the company essentials.

Bouwman et al. (1995) assert that the second part of the screening decision involves assessing its future earnings potential. In this particular situation, GAAP-based

information plays a much less significant role. The assessment of earnings relies, for the most part, on qualitative information and on information about individual segments. The analysts evaluated the earnings potential of the company by assessing and accumulating the earnings potentials of the individual segments.

Frishkoff et al., (1984) employ the protocol analysis technique to analyze twelve buy-side analysts decision-making processes. They found that segment reporting information and information about competitors garnered much more attention than did any other type of information. They asserted that analysts spend more time analyzing segment reporting information than was suggested by early questionnaire survey studies of analysts' use of financial statement information (e.g. Buzby 1974; and Chandra 1974) . They concluded that the perceived importance and actual importance of accounting information, as measured by use may be different constructs. Relative to questionnaires and interviews, protocol analysis facilitates a more comprehensive description of the types of information employed by analysts. However, protocol analysis is an expensive time consuming methodology. Thus, the technique employs small sample sizes and the results are not generalizable (Rogers 1996).

Unlike questionnaires and protocol analysis, content analysis can be employed to systematically assess the actual information cited by analysts in their reports. Previts et al. (1994) employ content analysis to identify the most frequently cited information in 479 sell-side analysts' published reports. They found that on average analysts employed segment related phases 47.6 times per report. Income-statement-related phrases were the only other grouping of related word and phrases which were reported more frequently. In

addition, they found that analysts frequently disaggregated earnings information into a greater number of segments than specified by firms' segment disclosures. Moreover, they found that analysts frequently discuss the performance of significant products or individual locations. Furthermore, they found that when forecasting the results for each segment of a firm, some analysts consider the effects of the relevant industry, the economy, and the company as a whole (pp. 61-62).

Rogers and Grant (1997) seminally employ context-specific content analysis to identify the likely source of the annual report information reflected in 187 sell-side analyst reports. With regard to segment reporting information they found that analysts reported product, geographic area, and industry segments which differed from SFAS No. 14 required information. They also found that analysts often disaggregated the following information by segment or division: backlog, capacity, shipment, and volume (p.23). They conclude that analysts report an extensive amount of disaggregated information, but most of it is not reflected in the segment reporting disclosure note. Some of the information was available in the narrative sections of the annual report (primarily the management discussion and analysis section). However, the source of most of the information was not determinable (pp.25-26).

Main et al. (1997) employs the experimental method to directly examine the decision usefulness of two different types of segment definitions: segments defined by a firm's internal organizational structure and segments defined by grouping of similar products and services. They focus on how those types of segment definitions "affect

analysts' perceived reliability of segment disclosures, confidence in their earnings forecasts and stock valuations, and strength of their stock recommendations" (p. 2).

Main et al. (1997) provided 56 financial analysts with an average of five years of professional investment experience with two years of financial data for a hypothetical company which reported information for three operating divisions as two segments in its annual report" (p. 2). Two variables, congruence and similarity, were factorially crossed between subjects. To test the congruence factor the analysts were told that evidence indicates that the reported segments were either congruent or incongruent with those employed for management reporting purposes. To test the similarity factor the two aggregated divisions were either similar or dissimilar in terms of products, customers, and distribution channels. The materials were designed to obscure the below-industry-average performance of one division when it was combined with a division with dissimilar products. However, its true performance was revealed when the divisions with similar products were combined.

Maines et al. found that analysts percieve segment reporting to be more reliable when there is congruence between external and internal segments and when segments with similar products are combined. Their study provided the FASB with ex ante information about the decision usefulness of the disclosures proposed by the exposure draft that led to SFAS No. 14.

Section 5 Summary and Conclusions

The literature review has revealed that the decision-usefulness theory has not been extensively researched in the accounting literature. The FASB and Staubus have provided the accounting literature with the only full versions of the decision-usefulness theory. Both agree that the evaluation of whether the accounting objective is accomplished is only determinable by individual financial statement users.

The attributes of financial accounting information found in the literature review have focused on three major themes: relevance, reliability, usefulness. Relevance is also represented by timeliness. Reliability is represented by attributes such as freedom from bias, verification, neutrality. The usefulness attribute has been discussed in terms of the presentation of accounting information–consistency, and comparability; and the attributes of information needed in order for it to satisfy decision-maker's needs–understandability, sufficiency, simplicity, and completeness. The threshold for the information provided in financial statements is materiality.

There are five major benefits from the application of the SFAS No. 131 management approach, rather than the SFAS No. 14 industry and geographic segment approach: (1) knowledge of the structure of an enterprise's internal organization is provided thus highlighting the risks and opportunities that management believes are important, (2) an ability to see an entity through the eyes of management improves users ability to predict actions or reactions of management that can significantly affect the entity's prospects for future cash flows, (3) entity's segments are more objectively determined because they are based on an existing internal structure, (4) entity's are likely

to report more detailed information about their reported segments as well as a greater number of segments and, (5) reported segments which correspond to the way that a firm is organized and managed should be consistently employed throughout the annual report and in other information releases of the firm. Hence, reported segment disclosures should be more useful. However, the FASB concedes that segments based on the structure of an enterprise's internal organization may not be comparable between enterprises that engage in similar activities and may not be comparable from year to year for an individual enterprise. The FASB also concedes that comparability between enterprises and consistency in the application of methods over time increases the informational value of comparisons of relative economic opportunities or performance.

The research studies regarding the use of segment disclosures by analysts report that segment data allow them to better understand a complex firm's financial statements. This understanding facilitates: (1) using segment information to forecast firm earnings 12-24 months into the future; (3) making comparisons with other companies in comparable industries; (4) evaluating past performance; (5) assessing future potential; and (6) measuring the degree and type of risk associated with a firm's business activities.

CHAPTER 3

Research Methodology and Design

Section 3.1 Introduction

The objectives of this research and methodology are: (1) to provide an understanding of the two paradigms we employed to generate our conceptual theory: value focused thinking and classical grounded theory; (2) and to describe our research methodology. Thus, this chapter is organized as follows: Section 2 describes the Value-Focused Thinking Paradigm, the extent to which we employ it, provides its history, why we employ it, sets forth its framework, provides research examples, and discusses the advantages and disadvantages of employing it; Section 3 identifies the three types of classical grounded theories, identifies our rationale for employing the classical grounded theory methodology, provides a brief history of it, succinctly describes it, provides research examples, and discusses its strengths and limitations, and the challenges of employing it. Section 3 provides a brief history of the mixed methods research methodology, identifies the limitations of mixed methods studies, uses the mixed methods core characteristics definition to describe our study, and describes the two phases of our study.

Section 3.2.1 The Value-Focused Thinking Paradigm

In this section we describe the value-focused thinking paradigm. Further we identify the extent to which we use its concepts. We do this because, in this study, we generate an exploratory conceptual theory, which is best understood in the context of the value-focused thinking paradigm's decision frame. We stress, however, that our study is not a value-focused thinking analysis. Rather we use the concepts, of the paradigm, to facilitate conveying our theory. In keeping with the procedures of our theory generation method, classical grounded theory, we identified this paradigm as our overarching conceptual framework after we had generated our theory.

Section 3.2.2 A Description of the Value-Focused Thinking Paradigm

Value-Focused Thinking is a decision analysis paradigm. Therefore, like decision analysis, it is a philosophy and a methodology for analyzing complex decision problems (Keeney 1982, 806-807). A decision analysis comprises these steps: (1) structuring the decision problem, (2) identifying the alternatives, (3) specifying the decision-maker's preferences (values), (4) employing the articulated values to evaluate the alternatives, and (5) employing the articulated values to select an alternative (Keeney 1982, p.830). Utility theory is employed to quantify decision-maker's preferences for the alternatives (Keeney 1982, pp.806-807). Keeney (1992, p.iiiv) refers to this sequencing of steps as reactive. The reason is that alternatives are specified, before values are specified.

A decision analysis executed using the value-focused thinking paradigm, to examine a decision problem, shifts the initial focus from identifying alternatives to identifying values (desires). The intent is to have better decision consequences, rather

than better alternative evaluations. Thus this paradigm is proactive, rather than reactive (Keeney 1992, p.iiiv).

Although a complete value-focused thinking decision problem analysis comprises the aforementioned steps, a decision analyst need not employ each. A partial analyses that examines aspects of the overall problem where guidance is most needed is typically sufficient. Partial analyses often include one or more of the following steps: structuring the decision problem, articulating decision-makers' values, and clarifying the consequences of differing alternatives (Keeney 1982, pp.806-807).

Section 3.2.3 The Extent to which this Study Employs the Value-Focused Thinking Paradigm

We employ the value-focused thinking paradigm as the overarching theoretical model for the theory we generate. Specifically, we accept as given the framework this paradigm uses to articulate the logical connection between values, objectives, decisions, and factual information. Further, we employ the terms that describe this framework to convey our theory and taxonomy. Accordingly, we assert an alike framework articulates the logical connections among fundamental-equity analysts' segment disclosure information values, their objectives, their decision contexts, and segment reporting information.

Section 3.2.4 Brief History of the Value-Focused Thinking Paradigm

Discerning the history of value-focused thinking is difficult, because it is a decision analysis paradigm. Thus, its history is entwined with that of decision analysis. Complicating matters further, the decision analysis content and name have evolved over

a long time span (Keeney 1982, pp.825-827). Moreover, this literature has normative and descriptive origins, but is primarily prescriptive (Smith 2004). The following brief historical account begins with its normative origins and ends by succinctly differentiating value-focused thinking and decision analysis.

Subjective probability, utility and game theory, are the normative foundations of decision analysis. The earliest known papers concerning either subjective probability or utility were written in the 1700's. The first is a paper written by Bernoulli in 1738, which explored whether people employ expected value concepts when choosing among gambles, in particular when buying insurance. In so doing Bernoulli set forth a logarithmic expected utility function that explained observed deviations from the expected value model. The second, is one written by Bayes in 1763, which set forth a method for incorporating observations into probability functions. The result is what is now known as Bayes Theorem (Smith 2004).

Ramsey (1931) seminally explicated a theory of decision-making based on both subjective probability and utility. He demonstrated how these two concepts are expressed by preferences among gambles. DeFinette (1937) advanced key ideas that facilitate representing beliefs as subjective probabilities. In the 1940's von Neumann and Morgenstern (1944, 1947) began to use subjective probability and utility to explore economic issues. In so doing they developed the axioms of what is now known as the expected utility model. Moreover they laid the foundation for game theory (Smith 2004).

Wald (1950) employed game theory and an expected-loss criterion, instead of utility theory, in his classic work on statistical decision problems. In doing so, Wald

emphasized an important problem: how to consider informal information about specific states of the world. Other statisticians and decision theorists built on Wald's work and advocated using judgmental probabilities to address his statistical decision problems (Keeney 1982, pp.825-827). Importantly, Savage (1954) provided a philosophical basis and axiomatic framework for integrating utilities and subjective probabilities into Wald's statistical decision problems framework (Keeney 1982, 825-827). Savages's work led to what is now known as the subjective expected utility model (Smith 2004).

In the 1960's the study of decision-making took a descriptive turn. This was advanced by the work of a psychologist, Edwards (1954). Bell reviewed the economics and statistics literature concerning utility concepts. As a result, psychologists began studying behavioral decision-making, by employing subjective expected utility as their baseline and explored observed deviations. This led to the study of biases and heuristics in judgment and decision-making (Smith 2004).

In the 1960's decision analysis took a prescriptive turn. This occurred when researchers, especially those at Harvard (Howard Raiffa, Robert Schlaifer, and John Pratt) and Stanford (Ronald Howard), began to apply statistical decision theory to examine business problems involving uncertainty (Schlaifer 1959; Raiffa and Schlaifer 1961; Pratt 1964; Pratt et al. 1964, 1965; Howard 1965). Given its applied nature, initially, this body of work became known as applied statistical decision theory. However to emphasize its broad nature Howard (1966) coined the term decision analysis (Smith 2004).

Keeney and Raiffa (1976) is the first endeavor to set forth analytical tools to explore the value aspects of decision problems. They introduce two concepts: preferential and utility independence. Keeney (1992) stresses the importance of values and objectives in analyzing problems. Hammond, Keeney, and Raffia (2000) argue that decision analysis has broad applicability and includes value analysis. They emphasize value oriented problem identification and formation (Raffia 2002, p.185).

Keeney views value-focused thinking as a field of practice distinct from decision analysis (Raffia 2002, 185; Keeney 1992 pp.iiv-ix). He maintains that value-focused thinking differs from decision analysis in three important ways. First, an endeavor is made to articulate the values of decision-makers. Second, value articulation precedes all other activities. Third, articulated values are clearly employed to identify potential decision opportunities, rather than to evaluate the alternatives of a quantitative objective function (Keeney 1992).

Section 3.2.5 Why We Employ the Value-Focused Thinking Paradigm

As was previously stated the value-focused thinking paradigm is our over arching theoretical model. This paradigm is a prescriptive approach for improving and understanding complex decision-making. Our study generates and explores a conceptual theory. We do not seek to both improve and understand complex decision-making. Therefore, ours study is not a value-focused thinking analysis. Rather, we use concepts of this paradigm to facilitate our aims.

We searched various literatures (accounting, information systems, economics, psychology, mathematics, library and information science, and decision sciences) for an

explicit definition of information. We did this to enhance our understanding of the relation between decision-makers, decision-making, and information. Surprisingly we were not able to locate one, even in the value-focused thinking literature. The value-focused thinking literature does, however, examine the relations among factual information, values, objectives, decision contexts, and decision-makers.

We explore the information qualities that decision-makers desire. In value-focused thinking terminology, we endeavor to understand decision-makers' information values. Consequently, we employ the value-focus thinking paradigm to better convey the relations among reported segment disclosures, the decision usefulness value judgments thereof, decision contexts and the objectives of fundamental-equity analysts.

Section 3.2.6 An Explication of the Value-Focused Thinking Framework

We use the concepts of the value-focused thinking paradigm to better convey the concerns of fundamental-equity analysts who employ segment reporting information to better understand firms. An analytical tool of this paradigm, the *Value-Focused Thinking Framework with Flow of Information Indicated* (Keeney 1992, p.46), facilitates abstracting our theory. We accept as given the underlying assumptions of this framework, because it articulates the logical connection between decisions, objectives, values, and information. These assumptions, however, are central to better appreciating the universality of our theory. Therefore, the terms used to convey these concepts are defined next.

Value-Focused Thinking Framework with Flow of Information Indicated is a decision frame. A *decision frame* is the basis upon which a decision is made. A decision

is framed by the alternatives and the values that the decision-maker considers to make a decision. Jointly, the decision context and the fundamental objectives constitute the decision frame (Keeney 1992, pp.30-33).

A decision situation is framed when the alternatives and the objectives correspond. Correspondence is evidenced by objectives that are adequate to evaluate the considered alternatives, and when the alternatives are adequate to describe the ways in which the objectives can be achieved. The purpose of explicating the decision frame is to, clearly, differentiate issues germane to the decision under consideration, from other decisions facing the decision-maker (Keeney 1992, pp.30-33).

Decisions, decision-makers, decision contexts, and values are central to a decision frame. A *decision* is defined as the act of allocating one or more resources (Keeney 1992). The resource can be of any type. This includes time, money, property, etc. Decisions are made by decision-makers.

A *decision-maker* is defined as any decision-making entity. Thus, a decision-maker could be a person, an organization, or a society. Decision-makers make decisions to further at least one objective. An *objective* is a statement that identifies a specified thing that one hopes to achieve, by allocating the resource. An objective has three distinguishing attributes: (1) a decision context, (2) an object, and (3) a direction of preference (Keeney 1992, pp.34-40)

The *decision context* is the contemplated activity. The alternatives follow directly from that activity. A decision context could be an alternative in a broader decision context (Keeney 1992, p.35).

Values are defined as the things germane to a decision and about which the decision maker cares (Keeney 1992, p.3). Values are used to evaluate the actual or potential consequences of an alternative or decision (Keeney 1992, p.7). Some values are tangible; others are intangible. To increase monetary wealth is a tangible value. To better understand data is an intangible value. To obtain relevant information is an intangible value.

Values are made explicit when they are expressed in writing. Values that are useful for decision-making are those whose meanings are precisely stated. A well articulated value definition will include the value's distinguishing attribute(s) and its objective(s). A qualitative value definition may also be augmented with quantitative value judgments (Keeney 1992, p.7).

There are fundamental and means objectives–both are dependent on the decision context (Keeney 1992, pp.34 and 41). The *fundamental objectives* are the pressing reasons for considering a decision (Keeney 1992, p.33). Fundamental objectives delineate both the values of concern in the decision context and the set of consequences about which the decision-maker is concerned. The fundamental objectives are the end objectives, rather than the means objectives. The decision context and the fundamental objectives are mutually dependent–thus they must be compatible (Keeney 1992, p.30).

A *means objective* is only of interest because of its implications for the extent to which a more fundamental objective may be achieved. Means objectives may facilitate analysis and identifying alternatives. However, fundamental objectives are the crucial objectives (Keeney 1992, p.34).

A *strategic decision context* is the most general decision context facing a decision-maker (Keeney 1992, p.40). It is the complete set of alternatives available to the decision-maker. The fundamental objectives of the strategic decision context are the decision-makers eventual end objectives. These eventual end objectives are defined to be the strategic objectives. Objectives other than the strategic objectives are merely means to achieve the strategic objectives (Keeney 1992, pp.40-41).

All decision-makers have strategic objectives, whether or not they are explicated. These objectives are intended to guide all decision-making. *Strategic decisions* are made over time and are the way in which strategic objectives are pursued. Well articulated strategic objectives increase the likelihood that decision-makers will make decisions over time that move them closer to achieving their strategic decisions (Keeney 1992, p.41).

In **Figure 3.2**, the Value-Focused Thinking Strategic Fundamental Analysis Decision Context Framework, factual information and values link the strategic objectives to the specific objectives of the other decisions facing the decision-maker. Factual information is essential for perceiving the logical association between alternatives and objectives. It is useful to conceive of facts as exogenous, and therefore the result of other decision situations. In this conceptualization, facts come through the upper, lower, and side walls of the specific decision frame.

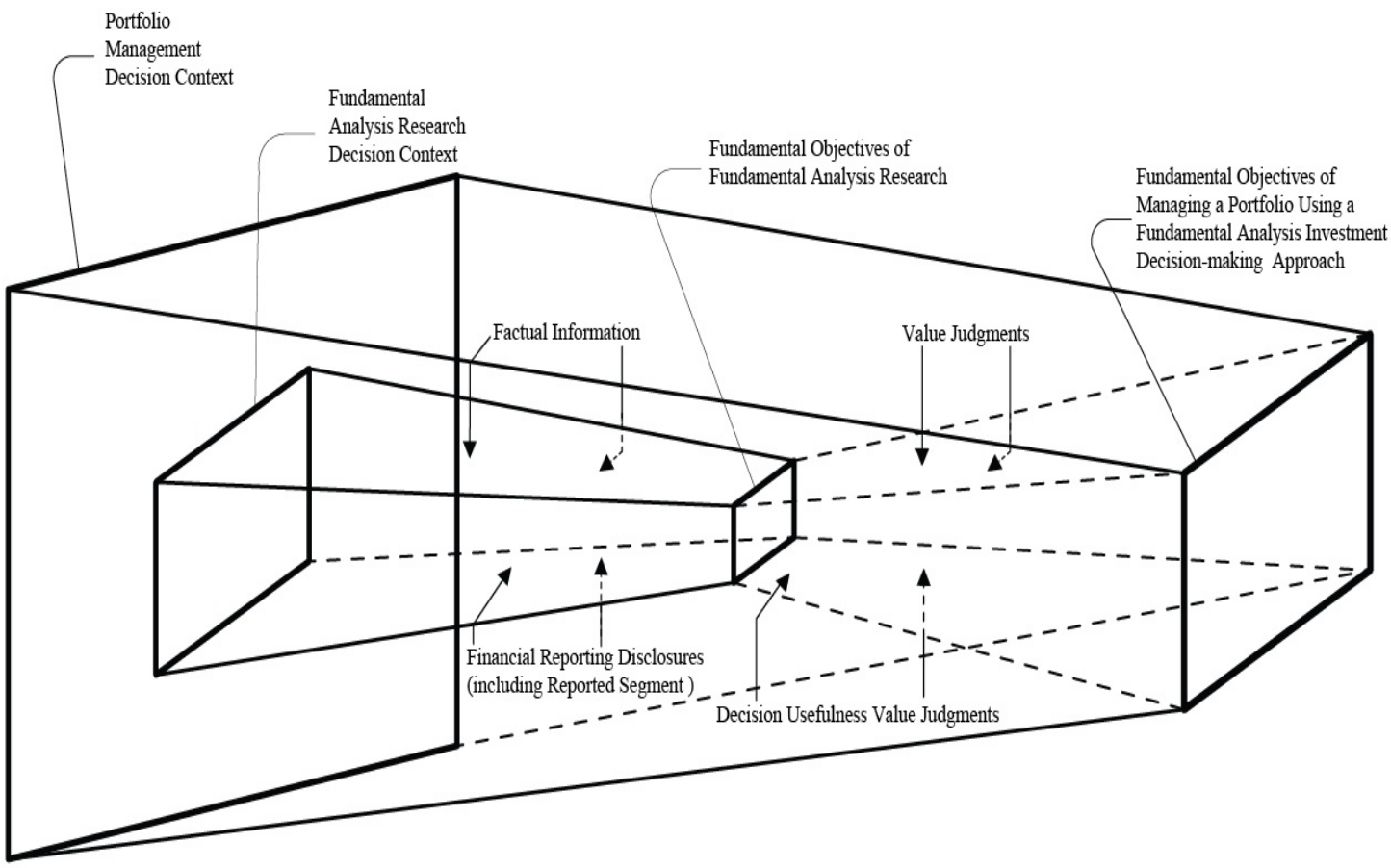

Figure 3.2. Value-Focused Thinking Fundamental Analysis Portfolio Management Framework. *Adapted from:* Keeney (1996) page 46.

Values, expressed as value judgements, are the links between the fundamental objectives of the specific decision situation and the strategic objectives of the decision-maker. Like facts, it is useful to conceive of values as exogenous to the specific decision situation (Keeney 1992,p. 47). Unlike values, the value-focused thinking literature does not explicitly define factual information.

Section 3.2.7 Research Examples of the Value-Focused Thinking Paradigm

Value-Focused thinking analyses like other forms of decision analysis are generally proposed by those who provide decision analyses services. Accordingly, most analyses are guided by consulting firm decision analysts. Generally, these analyses entail classified or confidential data and thus are not published (Edwards 1984, p.10).

Although we searched, in the accounting literature, we were not able to locate any value-focused thinking studies. Nevertheless, we did locate a number of representations in other literatures. What follows is a description of a full value-focused thinking analysis and a few examples of studies that report either a full or partial analysis (Keeney 1982, pp.806-807). These are intended to demonstrate similarities and differences among published analyses. Moreover, they evidence the attributes of studies that employ value-focused thinking as their theoretical models. They illustrate the complexity of the examined decisions.

A full value-focused thinking analysis develops a value model and possibly a means-ends model. A facilitator generally oversees the development process, which starts with identifying the values or issues of concern in the decision situation. Once identified these values are employed to identify the decision situation objectives. The

objectives are specified by individuals interested in and knowledgeable about the situation. These need not be specified by the decision-makers. This makes possible analyses involving complex decisions, in which neither the decision-makers, nor their decision processes are apparent (Keeney 1992, p.56).

The initial objectives, once identified, are classified as either fundamental or means objectives. Next, the set of fundamental objectives are specified. This entails decomposing each objective into its logical parts. The specified fundamental objectives are then structured into an objectives hierarchy. Each part of a fundamental objective should be mutually exclusive. As a set, the parts of each fundamental objective should be exhaustive. The values hierarchy is employed to devise a quantitative value model (Keeney 1992, pp.56-69).

The set of means objectives, on the other hand, are then examined to identify their relationships with each other. Some of these objectives are the ways (means) in which other objectives are achieved. Therefore, the means and ends objectives are differentiated and examined. Next, the network of relationships among the means and ends objectives is specified. This network constitutes the means-ends network (Keeney 1992, pp.56-69).

Structuring the value hierarchy and the means-end network facilitates identifying and adding missing objectives. These two types of objective structures are the foundation for devising two distinct types of quantitative models. The fundamental objectives structure is employed to devise a value model, which facilitates assessing the consequences of specified objectives. The means-ends objective structure is employed to

a devise means-ends model, which facilitates jointly assessing specified objectives, alternatives, and consequences (Keeney 1992, pp.56-69).

The aforementioned description of a full value-focused thinking analyses succinctly describes a set of qualitative and quantitative procedures performed to devise quantitative models that facilitate making complex decisions. Qualitative research methods are employed to obtain the data needed to devise the quantitative models. For example, Keeney (1992) is a case study involving British Columbia Hydro and Power Authority, which is a publically owned utility company. Therein a value model (utility function) is devised that conceptualizes the firm's strategic plan. This value model sets forth the firm's strategic objectives and its corresponding value trade-offs. The primary expected benefit is that future decision-making will be guided by the firm's articulated values. Hence, the following are expected to improve: (1) economic opportunity identification, (2) intra-organization communication, (3) stakeholder input, and (4) regulatory reviews.

Parnell et al. (1998), another case study, develops a strategic value model for ensuring U.S. air and space dominance. This model was devised on behalf of the U.S. Air Force Chief of Staff. Its development involved the participation of better than 200 military experts. A value hierarchy and value model were devised.

Hamill (2005) develops and integrates three distinct value models into a strategic value model. Moreover a set of software tools that facilitate sensitivity analyses were also devised. The decision problem is to attain–at an acceptable cost and minimal operational impact–satisfactory information assurance. Information assurance is defined

as protecting, defending, and correcting information and information systems to ensure the following: (1) that they are available when decision-makers need them, (2) that control over them is maintained, (3) that information is accurate and complete as possible, and (4) that if control is lost it will be detected and regained and the information system will be restored to its prior state. The strategic objective is attaining information assurance. These are the objectives of the three valuation functions: (1) protecting information and information systems, (2) detecting loss of information or information systems, and (3) reacting to regain control over and restore information and information systems to their prior states. A literature review of Department of Defense (DOD) and non-DOD documents was performed to identify the strategy objective and those of the three valuation functions. Experts assessed the valuation framework and supporting software tools, during their development.

Keeney (2007) analytically illustrates how the U.S. government might devise value models for anti-terrorist activities. This is accomplished by devising an alike model for a single terrorist's theft and misappropriation of plutonium. Accordingly judgments about the terrorist's objectives were assessed by working with scientists at Lawrence Livermore Laboratory. Moreover, these scientists identified attributes that were intended to measure the extent to which these objectives were attained. Additionally, they identified a numeric range for each attribute in order to consider a range of potential theft targets. The preference ranking is specified from the terrorist's viewpoint. Two value model forms (additive and multiplicative) are specified and rationalized.

Keeney (2007) asserts that it is in the national interest of U.S. citizens to expend the resources necessary to clearly specify national values and choice alternatives. Furthermore, these should be used to guide the crucial decisions associated with terrorism and its aftermath. He points out that only one value model is needed to guide both identifying and assessing the alternatives.

Partial value-focused thinking analyses stop short of developing quantitative value models or quantitative means-ends models. Nevertheless, like full analyses, these studies examine complex decision contexts. For example, Keeney (1999) is a survey study that puts forward in general equation form the value proposition, from a customer's standpoint, of online purchasing. This value proposition is defined as the net value of the benefits and costs of the both the product and processes costs associated with the purchase. Processes costs include finding, ordering, and receiving the product.

Keeney (1999) opportunistically identified and surveyed a sample of 100 people. Some were surveyed individually; others were surveyed in groups. The study participants were from more than 20 countries, and were at least 18 years old (approximately 75% were under 35. Some had used the internet; others had not. Some were connected to the internet others were not.

Keeney's (1999) general equation value model was devised by interviewing the participants to determine their online purchase product and processes costs desires. These values were then converted into objectives and categorized as either fundamental or means objectives. Finally, the relationships among the categorized objectives were depicted in a means-ends network. Maximization of customer satisfaction is the overall

fundamental objective. Keeney asserts that the value proposition of an online purchase could be articulated to potential customers by explaining the components of the fundamental objective. Moreover, the means objectives represent the diverse ways in which a firm could alter the value proposition.

Merrick et al. (2005) devise an objectives hierarchy and proposed corresponding attribute measures; they do not set forth a valuation model. The strategic decision context is organizational safety, within the U.S. oil tanker operations of a undisclosed multinational firm. This firm generates, distributes, and transports energy. Its strategic objective was to prevent catastrophes. A framework identifying the following three decision contexts and their corresponding fundamental objectives was devised: (1) individual safety, (2) operational vessel safety, and (3) organizational safety. Moreover, the attributes that could be employed to measure the attainment of these objectives were specified, but not validated.

Thirteen firm personnel representing four distinct groups (vessel crew, health and safety, vetting personnel, and top management) were interviewed to obtain the information needed to devise the framework. Each group consisted of three to four individuals. On average these individuals had worked within their domain of expertise for 19.5 years, with the firm for 19 years, and had both on and offshore experience. The non-top management interviews spanned three hours. However, top management access was limited. Consequently, these interviews were just 90 minutes (Merrick et al. 2005).

A final example of a partial analysis is Dhillon and Torkzadeh (2006). They examine the strategic decision context of maximizing information system security within

organizations. They identify fundamental and means objectives, but do not devise a value hierarchy or value model. They limit their examination to threats within, rather than external to the organization. They interviewed 103 managers to discern their values concerning managing information system security. They identified and classified 86 objectives into nine fundamental objectives and 16 means objectives.

Dhillon and Torkzadeh (2006) employed an expert panel of seven information security experts to validate their objectives and classifications. They assert that most information system security research is technical, rather than socio-organizational. They suggest that their objectives classifications could be employed to devise a model for measuring intra information system security. Moreover, they indicate it could be employed to facilitate theory development.

Section 3.2.8 Advantages and Disadvantages of Employing the Value-Focused Thinking Paradigm

Employing the value-focused thinking paradigm, as a means for examining decision problems has advantages and disadvantages. One important advantage is that, frequently, the essence of the problem is more clearly understood (Keeney 1982, p.822). Another important advantage is that this paradigm explicitly sets forth, prioritizes, and processes value judgments in order to enhance decision-making. Subjective judgments are an integral part of most decision-making and especially of public policy decision-making.

With a value-focused approach, value judgments are employed to prioritize facilitating the desired outcome, rather than to prioritize choosing from a set of alternatives. Hence both the reality and the perception of achieving the desired aim are

improved (Keeney 1982, p.829). A related advantage is that the value-focused thinking framework provides a mechanism that facilitates independently checking important decision problem elements (Keeney 1982, p.822).

Yet another advantage is that this paradigm can increase the productivity of multiple-stakeholder teams engaged in addressing decision problems. The reason is that by making values explicit, stakeholders discussions will make evident disagreements about likely consequences verus disagreements about the relative desirability of these consequences. These discussions facilitate conflict identification and reduction (Keeney 1992, p.25).

The most common disadvantage of employing the value-focused thinking paradigm is that users will claim that the analysis solved the problem. The analysis is employed to better understand the 'big picture.' However users must understand that it is not designed to solve the problem, rather it is designed to produce insight and further creativity. Like all analyses, value-focused thinking analyses only focus on an aspect of a problem (Keeney 1982, p.823). Other problems include poor analysis, decision analysis team members who have poor interpersonal skills (Keeney 1982, p.823), and effective but non-implemented analyses (von Winterfeldt and Edwards 1987, pp.527-529).

Section 3.3.1 Classical Grounded Theory

In this section we identify the three types of classical grounded theories, discuss our rationale for employing the classical grounded theory methodology, provide a brief history of it, succinctly describe it, provide research examples, and discuss its strengths and limitations, and the challenges of employing it.

Section 3.3.2 The Three Types of Classical Grounded Theories

There are three distinct types of classical grounded theories: substantive, formal, and general substantive. Substantive grounded theories are theories grounded in data pertaining to a particular substantive area. These theories are generated using the classical grounded theory methodology, which is characterized by a distinct constant comparison process. As a consequence, the generated hypotheses pertain to a particular substantive area (Glaser 1978, 1998).

The abstraction level of substantive theory hypotheses is a function of the substantive data employed and what these data convey to the researcher. Substantive data, are data of any type, that pertain to a specific substantive area (Glaser 1978, p.52). In the context of the accounting discipline, each of the following are examples of a substantive area: (1) a retail location, (2) a manufacturing facility, (3) an overhead function (personnel, accounting, finance, marketing etc.) of a firm, (4) a stakeholder of a firm, and (5) a firm's financial statements.

Substantive theories range from being delineative to very abstract. They address real world concerns, and for that reason are of interest to both researchers and practitioners. Classical substantive grounded theories have been generated by social science researchers publishing in disciplines such as health care, political science, business, sociology, education, and economics (Glaser 1978, 1998).

Classical formal grounded theories, like classical substantive grounded theories, are generated using the classical grounded theory methodology. The formal theory generation process is initiated by identifying an important concern (core variable) of a

substantive area. However, the data employed to generate these theories are selected from both the original substantive area and other substantive areas (Glaser 2007, pp.1-4). For example, in the accounting discipline context, these substantive data would reflect multiple entities. Moreover, these data might pertain to any of the following or combinations thereof: (1) retail locations, (2) manufacturing facilities, (3) overhead functions (personnel, accounting, finance, marketing etc.), (4) stakeholders, (5) financial reporting information, (6) government regulations, and (7) accounting authoritative pronouncements.

To generate a formal theory a substantive theory is first generated, in whole or in part. Then the most important variable (core variable) of the substantive theory is further examined using data from multiple substantive areas. These data are used to discern the most important implications of the core variable. The result is a theory composed of conceptual generalizations that are broadly applicable and context neutral. To employ formal theories, in a particular context, one merely modifies the hypotheses to reflect the context. As with substantive theories, the level of abstraction of these hypotheses is a function of the data employed and what these data convey to the researcher. Few true formal grounded theories have been published (Glaser 2007, 1-4).

Substantive general grounded theories are theories that are more general than substantive theories, yet not as broadly applicable as formal theories. These theories are generated using data from a broadly specified area (Glaser 1978, p.52). In an accounting context, such an area might be U.S. industry specific financial accounting, managerial accounting, or auditing practices.

All classical grounded theories are, merely, a set of identified, named, and interrelated hypothesized concepts. These hypotheses are grounded in empirical data, because they are generated using the classical grounded theory methodology, in whole or in part. The extent to which the essence of this methodology is grasped and executed has implications for how likely the generated theory will convey real world phenomena. These theories are not scientific laws, rather they are empirically generated conceptualizations of social phenomena. These conceptualizations are intended to be modified, as necessary, should new empirical data indicate modifications are warranted (Glaser and Strauss 1967; Glaser 1978, 1998, 2007).

Section 3.3.3 Our Rationale for Employing the Classical Grounded Theory Methodology

We selected the classical grounded theory methodology because it sets forth procedures for generating relevant and modifiable theory, which fits the real world. These procedures foster examining data for their conceptual, rather than descriptive, import. Employing these procedures, in whole or in part, facilitates generating integrated concepts, indicators, and hypotheses from data of any type–qualitative, quantitative, or a combination thereof (Glaser 1998, 4; Glaser 2003, p.91; Glaser and Holton 2005, p.16). Hence, the classical grounded theory methodology is apt for both empirically generating and exploring a theory that has real world applicability.

We employ the classical grounded theory methodology to generate a formal grounded theory, the Data Decision-Usefulness Theory. We modify our formal theory

and use it to explore fundamental-equity analysts' perceptions of the decision usefulness of post-1998 reported segment disclosures[7].

We also employ the classical grounded theory methodology to devise a taxonomy, the fundamental-equity analysts taxonomy. Our taxonomy explicates the differentiating criteria of investment professionals who employ both the fundamental analysis approach and financial reporting information to make equity investment decisions, pertaining to U.S. domiciled firms. Therefore, our taxonomy is a contextual typology. A typology is a theory, which sets forth differentiating criteria. A typology developed using the classical grounded theory methodology is a special class of grounded theory (Glaser 1978, p.65).

Section 3.3.4 Brief History of Classical Grounded Theory

The Discovery of Grounded Theory, which was written by Glaser and Strauss (1967), is the first full description of the classical grounded theory methodology. The seed of this methodology, however, is a published paper: Constant Comparative Method of Qualitative Analysis (Glaser 1965); it was reprinted verbatim in The Discovery of Grounded Theory. Theoretical Sensitivity, (Glaser 1978), further develops the methodology. Doing Formal Grounded Theory, (Glaser 2007), expounds on procedures for generating a formal theory. Glaser's works subsequent to 1967, and we have mentioned but a few, were published with the aim of clarifying both the methodology and its rationale (Glaser 1998, 1992, 2003, 2007).

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[7]We also modify our formal theory to specify several other contexts. These modifications are set forth in **Appendix 3.0**. These modifications illustrate how future qualitative or quantitative researchers could employ our formal theory in their investigations.

Glaser (1998, 2007), asserts that his thinking was heavily influenced by his exposure to Paul Lazarsfeld and Robert Merton. Exposure to the former helped him develop flexible techniques for constantly comparing data (qualitative, quantitative, or both) to perceive latent conceptual relations (Glaser 2007,11). Exposure to the latter helped him appreciate that the best way to convey conceptual theories, is to think about them abstractly but to write them up using concrete concepts. Consequently, Glaser stresses that grounded theories should be both substantively and theoretically coded and exhibit parsimony and scope (Glaser 1998, p.30).

Glaser and Strauss (1967) was written because colleagues read their earlier works, which were grounded theories, and asked how they were generated. For that reason, its intended audience is primarily sociologists. Its aim is to facilitate closing the gap between theory and empirical research. It explicates procedures for generating, rather than verifying, theory. Nevertheless, it asserts that both are necessary scientific pursuits (pp.vii-x). Today the grounded theory methodology is used by researchers in a multitude of disciplines including management, marketing, information systems, psychology, education, and healthcare. Glaser (2007) asserts that he has made no significant amendments to his perspective of the methodology, since Theoretical Sensitivity.

While The Discovery of Grounded Theory represents a collaboration between Glaser and Strauss, Strauss' subsequent works indicate that their ideas about how to generate a grounded theory differ. These works include: Qualitative Analysis for Social Scientists (Strauss 1987); Grounded Theory Research: Procedures, Canons and

Evaluative Criteria (Corbin and Strauss 1990); and Basics of Qualitative Research: Grounded Theory Procedures and Techniques (Strauss and Corbin 1990).

Many non-sociologists find the jargon in The Discovery of Grounded Theory confusing. Some of the uninitiated, in frustration, just give up trying to execute the methodology. Others, however, make up their own variants. As a consequence, in addition to Strauss's work, there now several grounded theory variants (Stern and Porr 2011, pp.13-20).

Some grounded theory variants are more structured than others. Glaser asserts that all have added to the confusion; his later works are intended to further explicate the methodology (Glaser 1978, 1992, 1998, 2003, 2005). He also has established an institute, which is devoted to helping people learn and improve their classical grounded theory skills.

The classical grounded theory methodology was introduced as a methodology for generating conceptual theories using either qualitative data, or quantitative data, or both. However, it is primarily used by qualitative researchers. Its purpose is to generate theories. Glaser asserts that some researchers have successfully executed the methodology, while others have generated rich descriptions. He does not question the merit of descriptive works, rather he stresses they are not classical grounded theories (Glaser 1978, 1992, 1998, 2003, 2005).

Section 3.3.5 The Classical Grounded Theory Methodology

The reader is referred to Glaser (1978, 1992, 1998, 2003, 2005) for an explication of the classical grounded theory methodology. What follows is a succinct description of it. First, we provide an overview of the theory generating process. Then, we differentiate the data employed to generate a grounded theory. As a consequence, we describe the results and aim(s) of the two coding processes: substantive coding and theoretical coding. We, also, identify the principle questions one should ponder while generating the theory. Lastly, we summarize the methodology and its intended output.

Section 3.3.5.1 An Overview of the Theory Generation Process

The classical grounded theory methodology is a set of procedures for generating theories that are grounded in data. Such a theory is generated by constantly comparing and systematically coding data. This systematic process is called the constant comparison process. It includes a set of questions, rules, and suggested flexible documentation procedures (Glaser 1978, 1998).

The generated theory may be conveyed diagrammatically, in written form, or a combination thereof. Theories in narrative form tend to be richer and are recommended (Glaser 1978; Glaser 2005, 33). The diagrammatic form, however, best suits our purposes, and will be employed herein.

The constant comparison process starts from the beginning of the theory generation process. It is non-linear, and parts are guided by the discerned answers to

specific questions. It ends, only, when the theory is finally explicated (Glaser 1978, 1998).

Section 3.3.5.2 The Four Sets of Data

Four sets of data are used in the constant comparison process: initially collected data, substantively coded data, theoretically coded data, and memos. Initial data are collected as needed. All data, except for initially collected data, are researcher generated. Memos, which document insights, are generated when inspired. Memos are sorted during the theory write-up. Memo sorting facilitates developing an outline. Sorting also facilitates better understanding the implications of the theoretical concepts. Substantively coded data, theoretically coded data, memos, and the generated theory are outputs of the constant comparison process (Glaser 1978, 1998).

Section 3.3.5.3 Initially Collected Data

Initially collected data are collected as needed. They are collected because they are thought to express problems or issues of concern and the resolutions thereof. These data are coded using the constant comparison process to discern the following: (1) the population(s) to which these data pertain, (2) their problems, (3) their concerns, and (4) how the population goes about resolving either or both. The generated theory is grounded in these data. Hence, the abstraction level of the generated theory is a function the abstraction found therein (Glaser 1978, 1998).

The type of data initially collected is dependent on the type of theory being generated. If a substantive theory is being generated then the data will reflect one substantive area. If a formal theory is being generated then the data will reflect a

multitude of substantive areas. If a general substantive theory is being generated, the data will reflect representations from a broadly defined area (Glaser 2007, 4-5; Glaser 1978, 52).

Initially collected data play a special role in the classical grounded theory methodology. Unlike other research methodologies, this methodology begins without an a priori specified research problem. Rather, the research problem is identified by the constant comparison of the initially collected data. An important problem or concern expressed in these data becomes the research problem. Until this main concern is identified all initially collected data is considered to be of equal import (Glaser 1978, 1998).

Initial data are collected as needed, to discern the answers to three kinds questions. These questions guide the initial data constant comparison process. The answers to these questions are discerned by executing that comparison process. Furthermore, these answers facilitate determining what additional initial data are need and where these initial data might be found. This type of data collection process is called theoretical sampling. Its purpose is to better understand the research problem and its resolution (Glaser 1978, 1998).

Section 3.3.5.4 Substantively Coded Data and The Substantive Coding Process

Initially collected data are fractured and substantively coded using the substantive coding constant comparison process. Fracturing the data facilitates identifying their conceptual similarities and differences. These similarities and differences are used to

classify initial data into categories. The fracturing process differs depending on whether a substantive, formal, or general substantive theory is being generated.

For each category of import, the data therein are further examined to conceptualize the category attributes. These attributes represent the category properties. If necessary, more data are collected to more fully characterize the categories. Categorized data are conceptually named and conceptually explicitly specified. If necessary, more initial data are collected to identify more categories. The purpose of collecting more initial data is to more fully characterize (saturate) the categories and their properties. The substantive coding process is an inductive reasoning activity (Glaser 1978, 1998).

The process of constant comparison for the purpose of generating conceptual categories and conceptual properties is called substantive coding. The categories and their properties are latent patterns[8]. Collectively, these latent patterns are called substantive codes. These latent patterns have the special property of being induced through the constant comparison process. Thus, both correspond to the substantive world. The aim of substantive coding is conceptual correspondence, not descriptive correspondence (Glaser 2005, pp.11-12; Glaser 2003, p.82).

The purpose of substantive coding is to discern and to fully generate the core category. The core category is the latent pattern that reflects the most important discerned

[8]It is of note that in the context of structural equation modeling, the categories would be referred to as latent variables, and their properties would be referred to as latent variable indicators. Moreover, properties that conceptually describe a category would be referred to as formative indicators. While properties that conceptually reflect a category would be referred to as reflective indicators.

problem or concern of the population being studied. The core category is identified by evaluating eleven specific criteria (Glaser 1978, pp.95-96).

A fully generated core category exhibits four characteristics: (1) fit, (2) relevance, (3) workability, and (4) modifiability. Fit means the core category is an ideation generated from the initially collected data. Relevance means the core category is an ideation associated with an issue of import. Workability means the core category is an ideation that is capable of being true without contradiction. Hence a category that works does the following, with regard to the happenings in the area of inquiry: (1) explains, (2) predicts, and (3) interprets. Modifiability means the core category is an ideation that is capable of being changed should new data question its workability or relevance. These four characteristics enable the researcher to perceive how the concepts of the generated theory transcend the area of inquiry. As a consequence, a fully generated core category of a substantive theory, will have formal or general substantive theory implications (Glaser 1978, pp.4-5).

A fully generated core category is rich, full, and complete. Therefore, the resulting theory makes sense and does not have gaps. When these conditions are discerned the core category is considered saturated (Morse 1995; Glaser 1978, pp.94-96).

There are ranges of saturation. The more saturated the core category, the more comprehensive the theory. The substantive coding process stops when enough substantive codes have been discerned to generate a comprehensive and convincing theory. The substantive coding process is guided by the answers to three kinds of questions (Glaser 1978,p. 57).

Section 3.3.5.5 The Substantive Coding Questions

During the substantive coding constant comparison process researchers ask themselves three kinds of questions. The first kind, reminds them that the theory is to be grounded in the initially collected data, not in their preconceived notions. Moreover, it is intended to help them become and remain receptive to what the data convey. There is one question of this kind: "What is this data the study of"?

The second kind, is intended to help researchers perceive and refine substantive codes and to help them perceive the relations among these codes. There is one question of this kind, however, it has two forms: short and long. This is the short form: "What category does this incident indicate" ? This is the long form: "What category or property of a category, of what part of the emerging theory, does this incident indicate"?

The third kind, is intended to help researchers generate a core category. There are four questions of this kind , however only the following two are directly related to this study. "What accounts for the basic problem and process" ? "What is actually happening in the data" (Glaser 1978, p.57)?

By continually asking themselves the aforementioned three kinds of questions, researchers both focus and delimit their studies. The answer to the first question identifies the research question(s). The answers to the second, facilitates assessing when to stop theorizing. The answers to the third facilitate generating the theory (Glaser, 1978, p.57).

Section 3.3.5.6 Theoretical Codes and the Theoretical Coding Process

Theoretical codes are concepts (abstract models), which illuminate hypothesized systems. Theoretical codes exist in all literatures. However, the classical grounded theory literature explicitly identifies more than 30 theoretical coding families. These coding families are not mutually exclusive (Glaser 1978, pp.72-82; Glaser 1998, pp.163-175; Glaser 2005, pp.5 and 21-30).

Perhaps the most familiar theoretical code is the independent-dependent variable model; it is a member of the 'Six C's' theoretical code family. Another family, the theoretical family, facilitates characterizing the generated theory. This family includes codes like parsimony, scope, integration, fit, relevance, conceptual level, relationship to other theory, and explanatory and predictive power. Hence, it can be employed to assay other theory–whether or not they were generated using the classical grounded theory methodology (Glaser 1978, p.78).

The theoretical coding process is the process of examining the substantive code to explicate the relations among the substantive categories. This is accomplished by analyzing these relations to discern whether they reflect one or more theoretical codes. It is during this deductive process, that the substantive core category is coded as the core variable. The purpose of theoretical coding is to conceptually integrate the substantive code (Glaser 2005, pp.10-15).

Theoretical coding is a conceptual modeling process. If the relation among a set of substantive categories is not discerned, then a theoretical code is not specified. Theoretical coding facilitates abstracting the theory. Theoretical coding can occur, or be

amended, or both, after at least two substantive categories have been discerned (Glaser 2005, pp.10-15).

The theoretical coding process is a deductive reasoning activity that enhances the substantive code. The reason is that theoretical codes are an implicit attribute of all theories. Discerning these codes from the substantive codes, and explicating them, makes evident the multivariate nature of the theory. As a consequence, the structure of the theory is easier to understand. Furthermore, the theory is more likely to be perceived as plausible, relevant, and modifiable (Glaser 2005, pp.10-14).

Section 3.3.5.7 Summary

In short, the classical grounded theory methodology is both an inductive and deductive theory generation process. If the essence of the methodology has been grasped and executed, the result is a classical grounded theory. This theory will be a set of integrated parsimonious hypotheses generated by conceptualizing data of a specified scope. Its hypotheses will explain, predict, and interpret a problem or concern and its resolution. The expectation is that these hypotheses will be modified, when and if it is learned that they do not sufficiently convey real social phenomena. These hypotheses are non-quantitative probability statements about the relations among concepts. Furthermore, they will facilitate initiating other studies.

Section 3.3.6 Grounded Theory Research Examples

Gurd (2008) identifies and analyzes 24 accounting ground theory studies to determine whether they exhibit the distinguishing grounded theory attributes. He finds that, only, four refer to the classical grounded theory methodology. However, none of these papers exhibited the four grounded theory attributes he expected to find: (1) a coding and theory building process, (2) an iterative data collection process, (3) the use of theoretical sampling, and (4) a comparative analysis.

Gurd (2008) finds that the other 20 studies employed one of four other grounded theory methodologies (Strauss 1987; Strauss and Corbin 1990; Locke 2000; Orton 1997). However, just one of these studies exhibits all four of the aforementioned attributes. He questions whether any of the 24 studies are true grounded theory studies.

Joannides and Berland (2008) review the same studies, but assert that the attributes Gurd (2008) sought are merely points of reference not demarcations. For that reason they assert that each of the 24 studies is in fact a grounded theory study.

We observe, however, that a close reading of Glaser (1978, 1992, 1998, 2003, and 2005) supports Gurd's rationale for specifying grounded theory attributes. Moreover, we maintain that Gurd should have included at least three other attributes–a core variable, memos, and saturation[9].

[9]We have not, however, examined these studies and thus make no evaluation as to whether or not they are true grounded theory studies.

Section 3.3.7 Strengths of Classical Grounded Theory

As a theory generation methodology, grounded theory is apt for exploring new concepts and for re-examining previously studied concepts to gain new insights. For exploratory studies, grounded theory is most fitting when the unidentified variables of interest are thought to be salient. The reason is that salient variables are more quickly identified than non-salient variables. Thus, the theory generation task will require less time.

For re-examining mature research areas, grounded theory is most fitting when used to better understand important practical problems. The reason is that, in these situations, the requisite data will be readily available. Moreover, the researcher is likely to find multiple salient variables that have not been previously examined, or new relationships among previously identified variables (Stern 1980, p.20).

Section 3.3.8 Limitations of Classical Grounded Theory

Suddaby (2006) provides his perceptions of the shortcomings of grounded theory papers submitted for review to the Academy of Management Journal. He maintains that grounded theory is apt for making new discoveries or for providing fresh insights about familiar issues. However, authors' submissions reveal apparent misconceptions about the grounded theory methodology. He discusses the six most common misconceptions, and provides clarification.

Suddaby (2006) advocates the classical grounded theory methodology for executing a grounded theory study. He warns however, that ". . . the genius of Glaser and Strauss's original methodology is that it outlines a procedure by which formerly tacit

processes are made explicit. The simplicity of grounded theory research, however, creates the misperception that it is easy. . .“ (640).

Suddaby’s (2006) points out that authors should contemplate their intent before deciding to conduct a grounded theory study. He declares that some research endeavors, using this methodology, are more likely to be successful than others. Moreover, the most suited endeavors are those in which the researcher aims to better understand how people construct meaning from their societal experiences. The least suited endeavors are those in which the researcher aims to better understand how people construct meaning from objective reality.

Suddaby (2006) asserts that the successful execution of the classical grounded theory methodology requires that the researcher make a commitment to both gaining the skills necessary to successfully execute it and gaining considerable exposure to the research subject area. He maintains that a successful execution requires both a knowledge of what constitutes grounded theory and what constitutes the research area. He acknowledges, however, that the more prior exposure researchers have to the research area, the more difficult it will be for them to perceive what the data convey rather than what they expect the data to convey. He cites Isabella (1990) and Sutton (1987) as exemplars; both generate a conceptual model of a social process. We observe that Isabella (1990) presents a substantive grounded theory, while Sutton (1987) presents a general substantive grounded theory.

Section 3.3.9 Challenges of Employing Classical Grounded Theory

"Grounded theory has been increasingly adopted as the preferred qualitative approach in accounting field study environments" (Smith 2003, p.139). Nevertheless Smith observes, that like researchers in other disciplines, accounting researchers, have had difficulty executing and publishing classical grounded theory studies.

Smith (2003) asserts that Glaser and Strauss (1967), the seminal explication of the grounded theory methodology, ". . . emphasizes an individual approach and personal style" (p.139). Further, this seminal work ". . . has caused confusion over the meaning of terms . . . and their implications for acceptable procedures"(Smith 2003, p.139. At least one other accounting publication has made a similar observation (von Alberti-Alhtaybat and Al-Htaybat 2010).

This confusion has led others to advocate alternative forms of grounded theory. Nevertheless all forms of grounded theory are questioned by positivists. Their primary reason has been a perceived lack of external validity. The result has been that few accounting journals have published explicit grounded theory papers (Smith 2003, p.139).

Gurd (2008) observes that some accounting journals may be re-evaluating their resistance to non-positivist research. However, future researchers need to explicate their procedures. He argues that whatever grounded theory variant researchers choose to use, they should make their procedures transparent and they should execute that variant appropriately. He contends that, in general, prior researchers have not provided adequate transparency.

Elharidy et. al. (2008) is a theoretical paper that discusses grounded theory and interpretive management accounting research. They assert that grounded theory can facilitate the development of theory pertaining to real world management accounting problems, however, the grounded theory literature does not provide "a simple 'recipe book' which, if followed rigorously, will result in high-quality research" (p.139). Nevertheless, they state that grounded theory guidelines can provide a way for interpretive researchers to improve the quality of their research.

Gurd (2008) remarks that grounded theory studies are often re-labeled during the review and publication process. He cites examples of working and conference papers that described grounded theory investigations (Bruggeman and Slagmulder 1995; Greenhalgh 2000), but in published form these papers were labeled as something different.

Smith (2003) comments that in the management accounting literature there are other examples of studies that appear, based on their content, to be re-labeled grounded theory investigations. He declares that the confusion, about what a grounded theory study really is, has led reviewers and editors to reject papers because of their labels, rather than because their lack of merit. Consequently, some grounded theory researchers have chosen to not label their work as grounded theory.

We maintain as have others (Suddaby 2006; Stern 1980) that the primary reason researchers have had difficulty executing classical grounded theory studies is that Glaser and Strauss (1967), the first comprehensive explication of the methodology, does not fully explain certain aspects of the substantive and the theoretical coding processes. Moreover, we observe that this seminal work does not indicate that there are three types

of grounded theories: substantive, formal, and general substantive. While substantive and formal theories are discussed, the guidance for generating a formal theory is insufficient. Further, most of the initially collected data examples are unfamiliar to non-sociologists. Glaser has recognized these problems and has attempted to correct them.

Section 3.4.1 Mixed Methods Research

State-of-the-art in mixed methods research guidelines are set forth in Creswell and Plano Clark (2011). For that reason, we employ the mixed methods research definition and terminology they advocate to describe our methods.

Accordingly, using the core characteristics definition of mixed methods research, we define mixed methods research as having three orientations: research design, methods, and philosophy. The research design component states that mixed method research joins procedures in a manner that represents specific research designs (plans). The methods component states that mixed method addresses research questions by both collecting and analyzing two types of data: qualitative and quantitative. Moreover, mixed methods researchers mix (or integrate or link) these data in one of three ways: (1) by combining (or merging them) concurrently, (2) by building one on the other sequentially, or (3) by embedding one within the other. Further, they prioritize (emphasize) one or both data forms in the procedures they employ to execute these: (1) a single study or (2) the multiples phases of a long-run research program. They employ their research designs to facilitate making research decisions. The philosophical component states that researchers construct their research procedures based on their philosophical worldviews and theoretical orientations.

Section 3.4.2 Mixed Methods Research History

The mixed methods research methodology is evolving. From the late 1980s thru the early 1990s researchers working in various disciplines, including sociology (Brewer and Hunter 1989); Fielding and Fielding 1986), evaluation (Greene, Caracelli, and Graham 1989), management (Bryman 1988), nursing (Morse 1991), and education (Creswell 1994) began to explicitly explore ways of combining or linking qualitative and quantitative data collection and data analyses procedures. Some devised and named specific research designs. Morse (1991) first developed a notation system. As one might expect, philosophical debates ensued (Reichardt and Rallis 1994). Bryman (2006) reviews the work from that time period. Creswell and Plano Clark (2007) classified the types of research designs.

The ideas behind mixed methods have roots in much earlier work. For example, Campbell and Fiske (1959) discuss using multiple quantitative data sources to validate psychological traits. Moreover, others called for using qualitative and quantitative data in experimental studies (Denzin 1978; Campbell 1974; Cronbach 1975). Patton (1980) suggested mixing experimental and naturalistic designs and set forth diagrams to clarify his procedures. Today, mixed methods research is becoming much more systematic and it is increasingly recognized as a distinct research approach (Creswell and Plano Clark 2011).

Our literature review did not locate an explicit mixed method study, in the accounting literature. Others have had the same result (Grafton, Lillis and Mahama 2011, p.14), when searching for “accounting” and “mixed methods” or “multiple method”.

There do exist, however, accounting studies that use both qualitative and quantitative data. Most of these studies are survey studies that include open-ended responses or experiments that include manipulation check questionnaires (Grafton, Lillis and Mahama 2011, p.14). Still others are longitudinal studies (Malina, Norrelkit, and Selto 2011) or case studies and surveys (Modell 2007). Most are found in the management accounting literature.

Section 3.4.3 Core Characteristics Mixed Methods Definitional Description of Our Study

Following Creswell and Plano Clark (2011, p.5) we describe our study as having three orientations: research design, methods, and philosophical. Our research design is a two-phased exploratory sequential mixed methods research design. Researchers generally employ this design in studies that develop these: (1) research instruments, or (2) theories, or (3) both. Accordingly this design is also known as the instrument development design and the quantitative follow-up design.

We employ our two-phased exploratory sequential mixed methods research design to execute research methods that collect and analyze both qualitative and quantitative data. Our design comprises sequential qualitative and quantitative phases During the first phase data (text) are collected as needed and analyzed using formal classical grounded theory procedures. A formal theory is set forth and contextualized. The value-focused thinking decision frame is the overarching theoretical model. Corresponding concept measures are also generated and a mail questionnaire is developed using Dillman's Tailored Design Method.

In addition during the qualitative phase a taxonomy is developed based on the population that our contextualized theory addresses. Moreover, this taxonomy is the basis for developing our survey sample frame. Thus, data (text) including a non-public data base are collected and analyzed. It is of note that a taxonomy is contextualized typology. Further, a typology is a special case of a substantive grounded theory.

During the quantitative phase, both the questionnaire and the taxonomy are employed to administer a mail survey. During this phase the contextualized formal theory is explored. The questionnaire is employed to collect the requisite measures (numeric) and the sample frame is employed to select a stratified random sample of 1,600 potential survey participants.

We selected the two-phased exploratory sequential mixed methods research design, because it is congruous with the purpose of our study. Specifically, it facilitates exploring the utility of these that we develop herein: (1) the Data Decision-Usefulness Theory, (2) the questionnaire measures of its contextualized constructs, and (3) the corresponding population taxonomy and sample frame.

The philosophical component of our study comprises a worldview and an overarching theoretical model. Following Creswell and Plano Clark (2011) we explicitly state our philosophical component. We do so recognizing that most qualitative research methodologists and mixed methods research methodologists advocate explicit philosophical discussions, but quantitative methodologists do not (Creswell and Plano Clark 2011, p.279).

We employ a multiple worldview orientation. The reason is that our study is exploratory, in nature. Moreover, we give greater emphasis (priority) to the qualitative phase (strand) of our study, than to the quantitative phase. Consequently, we prioritize the explication of our emergent theory and the development of its measures and supporting taxonomy. During each phase we adopt a worldview that is appropriate for the corresponding research objective(s).

During the qualitative strand of our study, an effort was made to work from a pragmatic worldview. Researchers who employ this worldview focus on the importance of the research question. They employ the research methodology and data collection methods that facilitate identifying and resolving the research problem (Creswell and Plano Clark 2011, p.40). This worldview facilitates developing and exploring grounded theories.

We employ the value-focused thinking paradigm as the overarching theoretical model for the theory we generate. Specifically, we accept as given the framework this paradigm uses to articulate the logical connection between values, objectives, decisions, and factual information. Earlier in this chapter, we set forth the framework and explicated the corresponding terminology. Later, we structure an alike framework to articulate the logical connection between fundamental-equity analysts' values, their objectives, their decisions, and segment reporting information.

Section 3.4.4 Phase 1–Qualitative

The first phase of our study is qualitative. During this phase we generated our conceptual theory and taxonomy using the procedures of classical grounded theory.

During the process of generating our theory, we also, developed an initial set of questionnaire questions. We discuss the questionnaire in Phase 2. The classical grounded theory section of this chapter sets forth the general procedures we employed to develop our theory. Here we summarize the specifics of our study.

Section 3.4.4.1 Conceptual Theory

We employed the classical grounded theory procedures described earlier in this chapter, for generating a formal theory and for contextualizing it to address the concerns of fundamental-equity analysts who follow U.S. domiciled firms. As a check on our contextualized definitions we conducted eight talk aloud interviews (five with accounting professors, one with a marketing professor, one with an accounting PhD. student, and one with a decision sciences PhD. student). Each interviewee was given a set of concept definitions and the corresponding model. They were asked to express their views, which were documented with handwritten notes. Where clarifications were indicated, the definitions were amended.

Our formal theory generation process first required that we devise a substantive theory of fundamental-equity analysts' segment reporting concerns. As a result of that process we came to understand that the primary reason that these analysts employ segment reporting disclosures is to improve their understandings of firms. Accordingly, the use of reported products and services segment disclosures to improve fundamental-equity analysts' understandings of firms is the core variable of our contextualized theory.

Fundamental-equity analysts are investment professionals who employ the fundamental analysis approach to make investment decisions. The key principle of

fundamental analysis is that the true value of a firm is related to its financial attributes–its growth prospects, risk profile, and cash flows. A equity security is either under-priced or over-price, if its market price differs from its true value. Fundamental analysis is a long-term investment strategy and valuation is its central focus.

We identified the value-focused thinking paradigm as our overarching theoretical model. We contemplated that fundamental-equity analysts' objectives for wanting to better understand firms differ based on distinct decision contexts. We generated our taxonomy, based on information gathered during our formal theory. That process enabled us to flush out their decision contexts.

Using value focused-thinking paradigm terminology, we assert that the act of employing segment reporting disclosures to better understand firms is an allocation of resources or a decision. Fundamental-equity analysts are investment professionals that employ the fundamental analysis approach to make equity investment decisions. Thus, individually and as a group they are decision-makers. These decision-makers make the decision to employ segment reporting disclosures, to better understand firms, to further at least one objective. Their objective has at least one decision context, or contemplated activity.

Figure 3.3, Six Decision Contexts for Managing a Portfolio Using a Value-Focused Thinking Fundamental Analysis Investment Decision-making Approach, depicts fundamental-equity analysts' six decision contexts: fundamental analysis research, equity valuations, equity selections, equity allocations, portfolio strategy, and portfolio management. The fundamental analysis research decision context is the core decision context. However, the portfolio management decision context is the strategic one; it is the most general decision context facing fundamental-equity analysts.

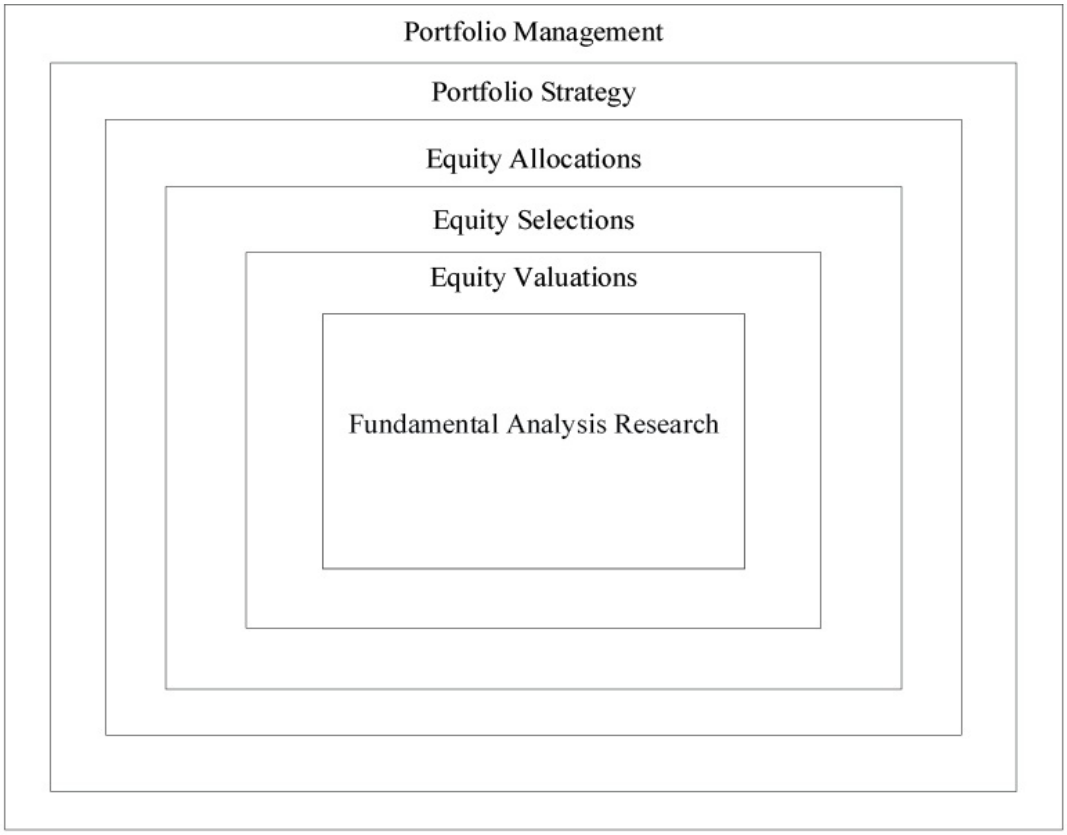

Figure 3.3. Six Decision Contexts for Managing a Portfolio Using a Value-Focused Thinking Fundamental Analysis Investment Decision-making Approach. *Adapted from:* Keeney (1996) pages 30-32.

We have several competing versions of our conceptual theory, which explores the information qualities that information users desire. These qualities are their information values. These value are the things germane to fundamental-equity analysts' decisions to employ segment reporting disclosures to better understand firms. These values are used to evaluate the actual or potential consequences of using these disclosures to better understand firms.

Appendix 3.0 sets forth the competing variants in model form. Here we describe two variants: decision usefulness and materiality. Both variants share the same core concepts, or nomological network. For that reason, we first set forth the concepts of our decision usefulness model and then we merely set forth our materiality concept. **Figure 3.4** depicts our decision usefulness model.

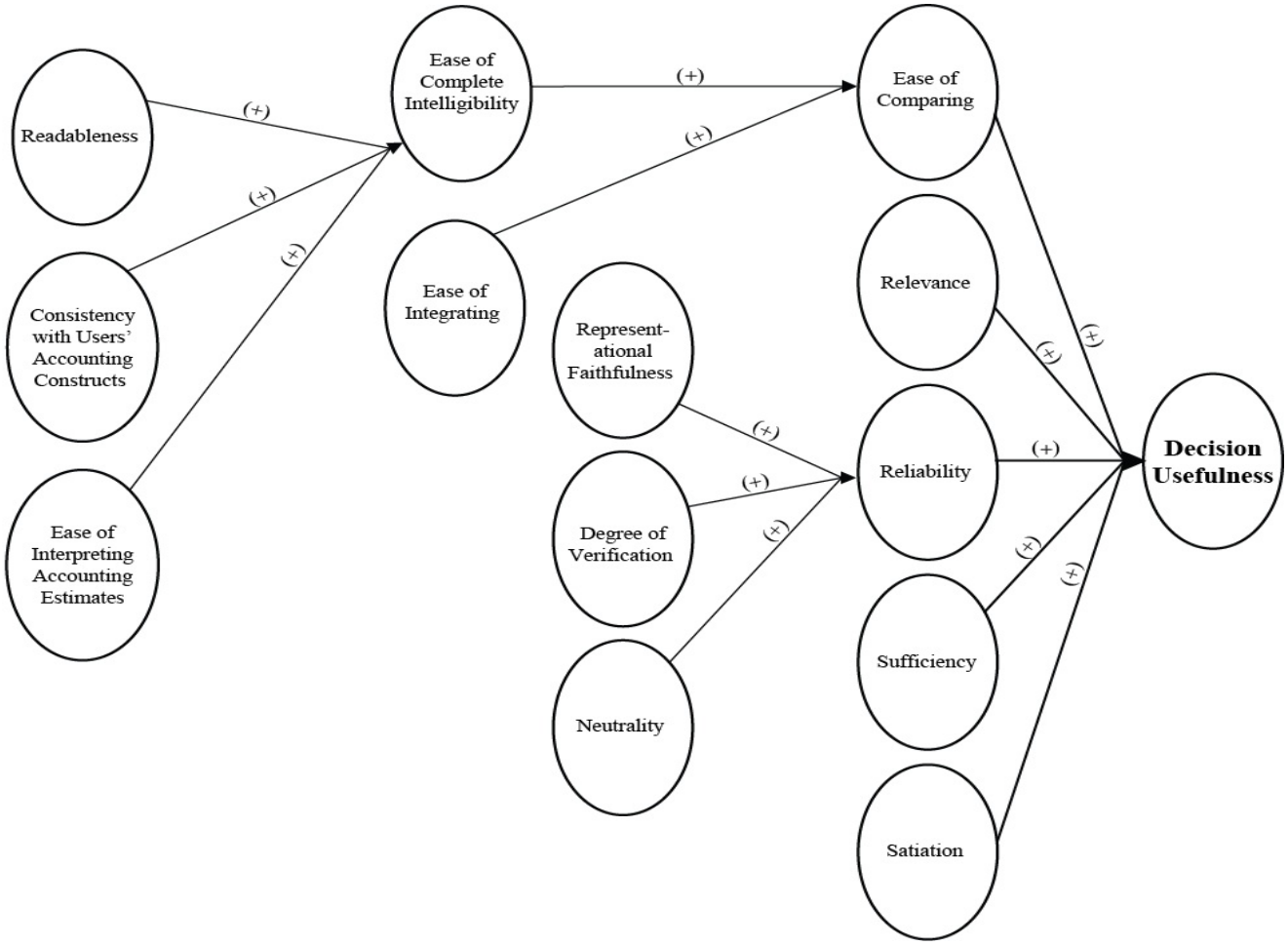

Figure 3.4. Decision Usefulness Structural Model.

We assert that data are not always information. Moreover, data that exhibit four characteristics: ease of comparison, relevance, reliability, sufficiency, and possibly satiation are decision useful. Moreover, these data are information.

Section 3.4.4.1.1 Decision Usefulness

In general, we define decision usefulness as a judgment deduced when considering whether to utilize knowledge received about a particular fact or circumstance, to make one or more specific determinations. In an accounting context, decision usefulness is a judgment deduced by financial reporting disclosure users when considering whether to use the disclosures for one or more specific determinations. For the purpose of our theory exploration, decision usefulness is a judgment deduced by analysts to assess whether reported products and services segment disclosures improve their understandings of firms.

Below are the six measures we employed to explore decision usefulness. As indicated, we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
Q36. Post-1998 reported segment disclosures _____ my understanding of firms.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q36a. hinder	
Q36b. impede	
Q36c. prevent	

	Scale Description
Q36. Post-1998 reported segment disclosures _____ my understanding of firms.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q36h. better	
Q36i. improve	
Q36j. increase	

Section 3.4.4.1.2 Ease of Comparing

In general, ease of comparing is the state or quality of facilitating a comparison. That which facilitates a comparison makes the comparison easier. A comparison is an act of comparing. In an accounting context, ease of comparing is the quality of financial reporting disclosures that makes them facilitate users' comparisons (Random House 2001). For the purpose of our theory exploration, ease of comparing is the extent to which analysts percieve that reported products and services segment disclosures make their comparisons easy.

Below are the three measures we employed to explore ease of comparing. As indicated we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q25. Post-1998 reported segment disclosures are easy for me to compare.	
Q26. I readily compare post-1998 reported segment disclosures.	
Q27. Post-1998 reported segment disclosures facilitate my comparisons.	

Section 3.4.4.1.3 Relevance

In general, relevance is the state or quality of being relevant. Relevant means that any two facts to which it is applied are so related to each other that, according to some common course of events, one taken either by itself or in connection with other facts proves or renders probable the past, present, or future existence or nonexistence of the other (Garner 1999).

Knowledge is an organized body of facts (information), or the comprehension and understanding consequent on having acquired and organized a body of facts. Knowledge and information are terms for human acquirements through reading, study, and practical experience (Random House 2001).

Thus, relevant facts have a bearing on one's knowledge, only, if one has previous knowledge of related information. If one has knowledge of related information, newly disclosed relevant facts increases one's knowledge. However, disclosure of relevant facts that one is already aware of, merely, confirms one's knowledge. While knowledge of relevant facts that contradict one's knowledge creates incongruity.

In an accounting context, relevance is the quality of being relevant. Relevant means that any two financial reporting disclosures are so related to each other that, according to common analysis practices, one taken either by itself or in connection with the other, proves or renders probable the past, present, or future existence or nonexistence of the other. Relevant financial reporting disclosures have a bearing on one's knowledge of a firm. For the purpose of our theory exploration, relevance is the extent to which analysts perceive that reported products and services segment disclosures have a bearing on their knowledge of firms.

Below are the three measures we employed to explore relevance. As indicated we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
Q9. I believe post-1998 reported segment disclosures _____ my knowledge of firms.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q9a. have a bearing on	
Q9b. are relevant to	
Q9c. are pertinent to	

Section 3.4.4.1.4 Reliability

In general, reliability is the state or quality of being reliable. Reliable means dependable in achievement, accuracy, honesty, etc. That which is dependable is worthy of trust. Reliable connotes consistent dependence (Random House 2001). In an

accounting context, reliability is the quality of financial reporting disclosures that makes them suitable for users to depend on them, for one or more specific purposes. For the purpose of our theory exploration, reliability is the extent to which analysts perceive that reported products and services segment disclosures are suitable to depend on, to improve their understandings of firms.

Below are the four measures we employed to explore reliability. As indicated we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
Q30. Post-1998 reported segment disclosures are _____ for improving my understanding of firms.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q30a. dependable	
Q30b. reliable	
Q30c. trustworthy	
Q30d. credible	

Section 3.4.4.1.5 Sufficiency

In general, sufficiency is the condition or fact of being sufficient. Sufficient means to be adequate, that is, to be as much or as good as necessary for some requirement or purpose. To be sufficient is to be of such quality, number, force, or value as is necessary for a given purpose (Random House 2001). In an accounting context, sufficiency is the condition of financial reporting disclosures that makes them adequate

for users to use them, for one or more specific decisions. For the purpose of our theory exploration, sufficiency is the extent to which analysts perceive that reported products and services segment disclosures provide adequate reported segment disclosures for improving their understandings of firms.

Below are the three measures we employed to explore sufficiency. As indicated we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
Q34. Post-1998 reported segment disclosures _____ meet my minimum requirements for improving my understanding of firms.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q34a. adequately	
Q34b. sufficiently	
Q34c. satisfactorily	

Section 3.4.4.1.6 Satiation

In general satiation is the quality of being able to satiate. That which is satiated is satisfied to the full or lacks nothing desired for one or more purposes (Random House 2001). In an accounting context, satiation is the quality of financial reporting disclosures that makes them capable of revealing all disclosures users desire for one or more specific decisions. For the purpose of our theory exploration, satiation is the extent to which analysts perceive that reported products and services segment disclosures reveal all the reported segment disclosures they desire for improving their understandings of firms.

Below are the three measures we employed to explore satiation. As indicated we employed a nine point -4 to +4 semantic differential scale; each measure has a distinct set of anchors.

Nine Point Semantic Differential Scale Questions

Q29. For improving my understanding of firms, post-1998 reported segment disclosures are_____ what I want.

about

far less than -4 -3 -2 -1 0 1 2 3 4 far more than

Q32. For improving my understanding of firms, post-1998 reported segment disclosures are_____ what I desire.

Q32a. far less about far more

comprehensive than -4 -3 -2 -1 0 1 2 3 4 comprehensive than

Q32b. far less about far more

complete than -4 -3 -2 -1 0 1 2 3 4 complete than

Section 3.4.4.1.7 Antecedent Concepts of Ease of Comparing

Ease of comparing is formed by two concepts: ease of complete intelligibility, and ease of integrating. We next discuss these.

Section 3.4.4.1.7.1 Ease of Complete Intelligibility

In general, ease of complete intelligibility is the quality or condition facilitating complete intelligibility. Complete intelligibility is the quality or condition of lucidity (Random House 2001).

In a general accounting context, ease of complete intelligibility is the quality of financial reporting disclosures that makes them capable of being lucid. For the purpose of

our theory exploration, ease of complete intelligibility is the extent to which analysts perceive that reported products and services segment disclosures are lucid.

Below are the three measures we employed to explore ease of complete intelligibility. As indicated, we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
Q13. For me, post-1998 reported segment disclosures are _____.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q13b. clear	
Q13c. comprehensible	
Q13d. lucid	

Section 3.4.4.1.7.2 Ease of Integrating

Ease of integrating is the state or quality of facilitating integration. That which facilitates integration makes integration easier. Integration is the act of combining parts into a complete whole. To integrate is to incorporate.

In an accounting context, ease of integrating is the quality of financial reporting disclosures that makes them easy to integrate into users' systems of understanding firms. For the purpose of our theory exploration, ease of integrating is the extent to which analysts perceive that reported products and services segment disclosures are easy to integrate into their system of understanding firms.

Below are the two measures we employed to explore ease of integrating. As indicated, we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
Q22. I _____ incorporate post-1998 reported segment disclosures into my procedures for analyzing disclosures.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q22a. easily	
Q22b. readily	

Section 3.4.4.1.8 Antecedent Concepts Ease of Complete Intelligibility

Ease of complete intelligibility is formed by three concepts: readableness, consistency with users' accounting constructs, and ease of interpreting accounting estimates. We next discuss these.

Section 3.4.4.1.8.1 Readableness

In general, readableness is the state or quality of being readable. That which is readable is easy or interesting to read (Random House 2001). In an accounting context, readableness is the quality of financial reporting disclosures that makes them easy for users to read. For the purpose of our theory exploration, readableness is the extent to which analysts perceive that reported products and services segment disclosures are easy for them to read.

Below are the three measures we employed to explore readableness. As indicated, we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
Q12. I _____ read post-1998 reported segment disclosures.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q12a. easily	
Q12b.readily	

	Scale Description
Q13. For me, post-1998 reported segment disclosures are _____ .	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q13a. readable	

Section 3.4.4.1.8.2 Consistency with Users' Accounting Constructs

In general, consistency with users' accounting constructs is the degree of agreement, between a sender's accounting representation (a word or a symbol) and a receiver's image (construct) or directly conceived or intuited object of thought (concept) (Random House 2001). That which has a high degree of agreement is equivalent in function; it corresponds; it is similar; it is analogous. In an accounting context, consistency with users' accounting constructs is the quality of financial reporting disclosures which enables users to see that the accounting concepts therein, are

equivalent in function with users' accounting concepts. For the purpose of our theory exploration, consistency with users accounting constructs is the extent to which analysts perceive that reported products and services segment disclosure accounting concepts are equivalent in function to their accounting concepts.

Below are the three measures we employed to explore consistency with users' accounting constructs. As indicated we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
Q10. I believe the accounting concepts used to determine post-1998 reported segment disclosures are _____ to my accounting concepts. These concepts focus on how firms determine their reported segments and what they report about them.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q10a. equivalent in function	
Q10b. similar	
Q10c. analogous	

Section 3.4.4.1.8.3 Ease of Interpreting Accounting Estimates

In general, ease of interpreting accounting estimates is the state or quality of facilitating the interpretations of accounting estimates. That which facilitates the interpretations of accounting estimates makes the estimates easier to interpret. To interpret accounting estimates is provide their meanings, to make their meanings lucid or clear, to render the estimates understandable or intelligible (Random House 2001). In an accounting context, ease of interpreting accounting estimates is the quality of financial

reporting disclosures that makes them facilitate users' interpretations of accounting estimates. For the purpose of our theory exploration, ease of interpreting accounting estimates is the extent to which analysts perceive that reported products and services segment disclosure estimates are easy for them to interpret.

Below are the three measures we employed to explore ease of interpreting accounting estimates. As indicated we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
Q11. For me, post-1998 reported segment disclosure accounting estimates are easy to _____.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q11a. interpret	
Q11b. comprehend	
Q11c. understand	

Section 3.4.4.1.9 Antecedent Concepts Reliability

Reliability is formed by three concepts: representational faithfulness, degree of verification, and neutrality. We next discuss these.

Section 3.4.4.1.9.1 Representational Faithfulness

In general, representational faithfulness is the quality of adhering to a rule, which is used as the basis for a judgement, to accurately describe an object, so that it is

identifiable from knowledge of its appearance or characteristics. In an accounting context, representational faithfulness is the quality of financial reporting disclosures that makes them correspond with the phenomenon they purport to represent. For the purpose of our theory exploration, representational faithfulness is the extent to which analysts perceive that reported products ans services segment disclosures correspond with the phenomenon the disclosures claim to describe.

Below are the three measures we employed to explore representational faithfulness. As indicated we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
Q14. I believe post-1998 reported segment disclosures correspond with the segment _____ they claim to describe.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q14a. phenomena	
Q14b. facts	
Q14c. events	

Section 3.4.4.1.9.2 Degree of Verification

In general, degree of verification is the quality of being verified to an extent. That which is verified is substantiated. That which is substantiated is established by proof or by adequate evidence. In an accounting context, degree of verification is the quality of financial reporting disclosures that makes it possible to establish the extent to which they are supported by adequate evidence. For the purpose of our theory exploration, degree of

verification is the extent to which analysts perceive that reported products and services segment disclosures are supported by adequate evidence.

Below are the three measures we employed to explore degree of verification. As indicated we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
Q15. I believe post-1998 reported segment disclosures are _____ by firms' independent auditors.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q15a. substantiated	
Q15b. verified	
Q15c. checked	

Section 3.4.4.1.9.3 Neutrality

In general neutrality is the state of being neutral. That which is neutral, is not aligned with or supportive of any side or position in a debate. In an accounting context, neutrality is the ideal state of a regulatory environment under which a financial reporting standard is issued. Such a regulatory environment issue financial reporting standards which are not unduly influenced by any particular regulatory constituency. The resultant financial reporting standards require firms to disclose information which is not unduly supportive of a position in a financial reporting disclosure debate. For the purpose of our

theory exploration, neutrality is the extent to which analysts perceive that reported products and services segment disclosures are not unduly supportive of a particular position in the segment reporting disclosure debate.

Below are the two measures we employed to explore neutrality. As indicated we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
Q17. I believe post-1998 reported segment disclosures are _____ .	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q17a. biased	
Q17b. neutral	

Section 3.4.4.1.10 Materiality

As previously mentioned, our decision usefulness and materiality models both share the same core concepts, or nomological network. For that reason, except for

decision usefulness, the concepts we just set forth also pertain to our materiality model. **Figure 3.5** depicts our materiality model.

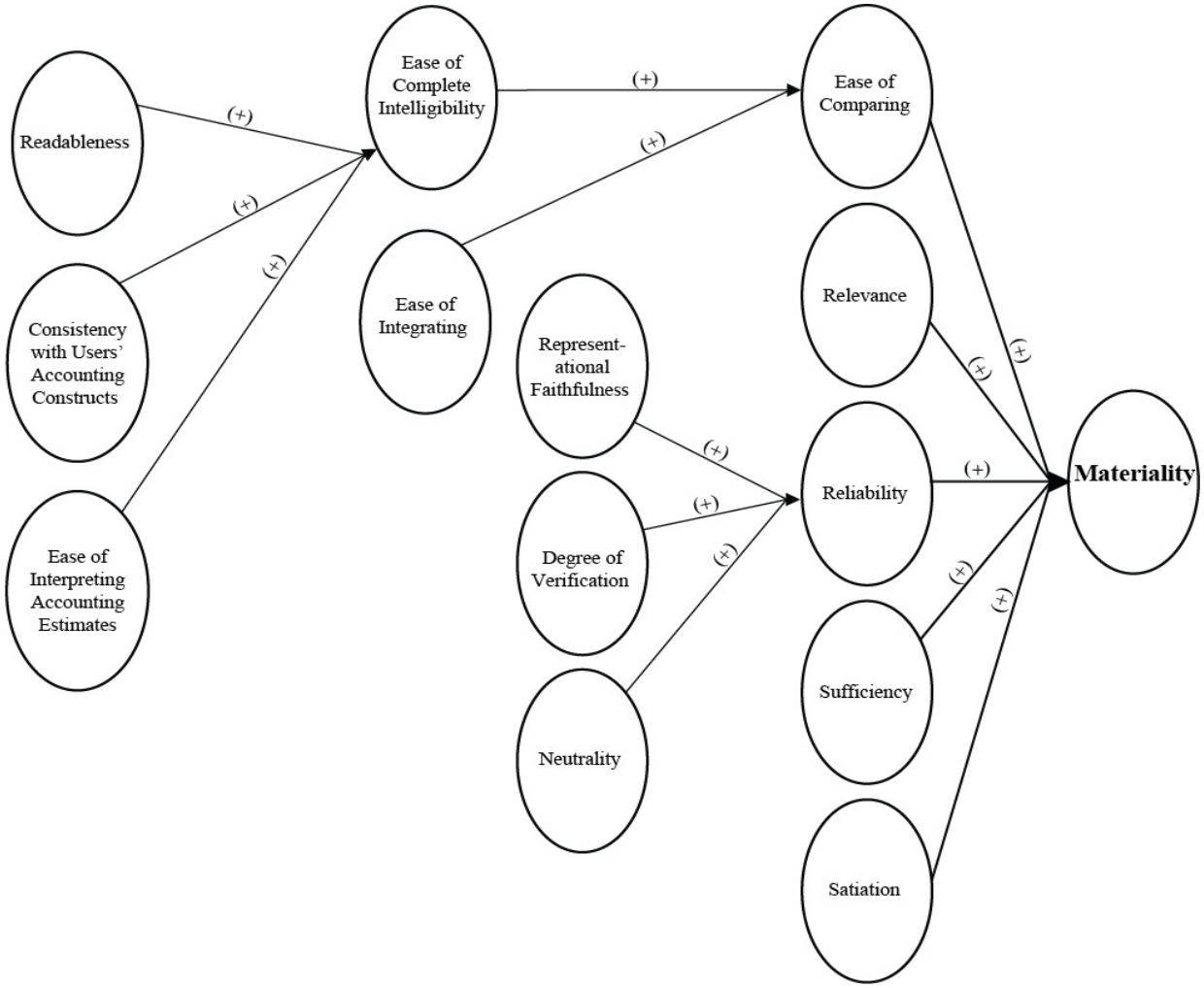

Figure 3.5. Materiality Structural Model.

With our materiality model, we assert that data that are not decision useful may influence users' decisions. Moreover, such data exhibit materiality and have four characteristics: ease of comparison, relevance, reliability, sufficiency, and possibly satiation.

In general materiality is the quality of being material. Material means to be likely to influence one or more determinations. In an accounting context, materiality is the quality of financial reporting disclosures that makes them capable of influencing users' decisions. For the purpose of our theory exploration, materiality is the extent to which analysts perceive that their acquired knowledge of reported.

Below are the three measures we employed to explore materiality. As indicated we employed a seven point -3 to +3 Likert scale. Our scale labels were strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree, and strongly agree.

	Scale Description
Q35. I believe my acquired knowledge from post-1998 reported segment disclosures_____ my understanding of firms.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Q35a. influences	
Q35b. affects	
Q35c. is material to	

Section 3.4.4.2 Taxonomy

Our population of interest (target population) is fundamental analysis investment decision-makers who employ U.S. domiciled firms' post-1998 reported products and services segment disclosures to improve their understandings of firms. Our target population comprises investment decision-makers who: (1) are members of a top 15 membership group; (2) are either a qualified investor or an investment adviser; (3) make equity investment decisions; (4) are employed in these types of occupations: analysts, portfolio managers, analysts or portfolio managers related; or a combination thereof; and (5) make decisions pertaining to U.S. domiciled firms. **Figure 3.6**, Target Population Taxonomy, depicts our taxonomy.

We generated our taxonomy using a non-public database and descriptive information about investment professionals. We employed only data for the largest 15 membership groups. The data included: industry of employment, occupational titles (up to two), and industry specialties (up to three). There were 15 industries of employment, 45 occupational titles, and 52 industry specialties.

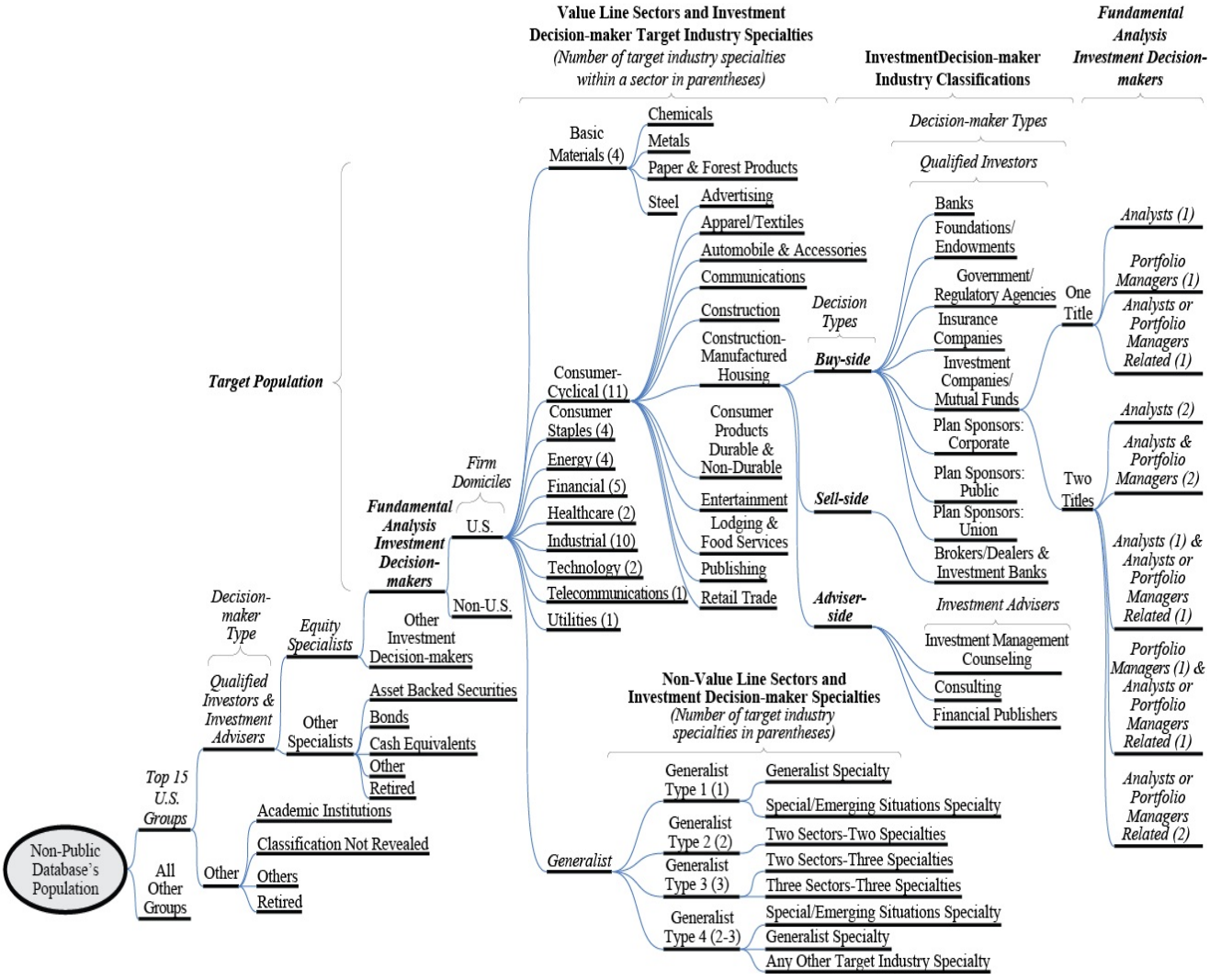

Figure 3.6. Target Population Taxonomy

We identified two target population decision-maker type classifications: qualified investors and investment advisers. We did so by comparing the industries of employment data and several U.S. laws (Security Exchange Act of 1934, the Investment Company Act of 1940, the Investment Advisers Act of 1940, U.S. Code Title 29, Chapter 18). Industries of employment that do not fall into these two categories are classified as other and are not part of the target population.

Table 3.1, Industry of Employment Classifications and Corresponding Definitions per U.S. Securities Laws, sets forth the definitions for the industry of employment classifications impacted by U.S. securities laws. It also identifies the specific laws we employed to classify each industry of employment. Furthermore it identifies those that are regulated by the SEC, or have a fiduciary duty to their clients, or both.

TABLE 3.1 Industry of Employment Classifications and Corresponding Definitions per U.S. Securities Laws

#	Classifications	Security Investment Industry Laws			Security Exchange Commission Regulated?	Fiduciary Duty?
		Defined?	Citation	Definition		
1	Academic Institution	No	Not Applicable	Not Applicable	No	No
2	Bank (all)	Yes	Security Exchange Act of 1934-Section 3 (6)-Bank Security Exchange Act of 1934-Section 3. (a)(54) (A)-Qualified Investor (iii)	A bank is any company doing business, under the laws of any State or of the United States, as a banking institution. Banking institutions provide most or all of the following services: (1) receives demand and time deposits, honors instruments drawn on them, and pays interest on them; (2) discounts notes, makes loans, and invests in securities; (3) collects checks, drafts, and notes; (4) certifies depositor's checks; and (5) issues drafts and cashier's checks. A bank is a *qualified investor*.	No	Possibly

TABLE 3.1 Industry of Employment Classifications and Corresponding Definitions per U.S. Securities Laws

#	Classifications	Security Investment Industry Laws			Security Exchange Commission Regulated?	Fiduciary Duty?
		Defined?	Citation	Definition		
3	Broker-Dealer, Investment Banking	Yes	Security Exchange Act of 1934-Section 3 (4)(A)-Broker	A broker is "any person engaged in the business of effecting transactions in securities for the account of others."	Yes	No
			Security Exchange Act of 1934-Section 3 (5)(A)-Dealer	A dealer is "any person engaged in the business of buying and selling securities for such person's own account through a broker or otherwise."	Yes	No
			Investment Company Act of 1940-Section 2 (21)-Investment Banker	An investment banker is "any person engaged in the business of underwriting securities issued by other persons." While the following may underwrite securities issued by others, they are not investment bankers: (1) an investment company, (2) a person who acts as an underwriter in isolated transactions that are not part of a regular business, and (3) any person that acts as an underwriter for one or more investment companies.	Yes?	No?
			Security Exchange Act of 1934-Section 3. (a)(54) (A)-Qualified Investor (iii)	Brokers, dealers, and broker dealers are *qualified investors*.		
4	Consulting	No	Not Applicable	Not Applicable	No	No
5	Financial Publisher	indirectly	Investment Advisers Act of 1940-Section 202. (a)(11)-Investment Adviser	A financial publisher is a firm that employs a certain type of investment adviser. An *investment adviser* is any person who receives compensation for either or both of the following services: (1) providing advice directly or through publications or writings, about any of the following (a) the value of securities or (b) the advisability of investing in, purchasing, or selling securities; or (2) issuing or officially announcing analyses or reports about securities.	Yes	Yes

TABLE 3.1 Industry of Employment Classifications and Corresponding Definitions per U.S. Securities Laws

#	Classifications	Security Investment Industry Laws			Security Exchange Commission Regulated?	Fiduciary Duty?
		Defined?	Citation	Definition		
6	Foundation/ Endowment	Indirectly?	Security Exchange Act of 1934- Section 3. (a)(54) (A)-Qualified Investor (vi)	A foundation is an institution founded and supported by an endowment. An endowment is property donated to an institution as a source of income. Any trust whose security purchases are directed by one or more of the following qualified investors is considered a *qualified investor*: a bank, a broker-dealer, an insurance company, an investment company, or a plan sponsor.	No	No
7	Government/ Regulatory Agency	No	Not Applicable Security Exchange Act of 1934- Section 3. (a)(54) (A)-Qualified Investor (vi)	Any governmental agency or instrumentality that owns, and discretionarily invests, at least $50,000,000 is a *qualified investor.*	No	No
8	Insurance Company	Yes	Investment Company Act of 1940- Section 2 (a)(17)-Insurance Company Security Exchange Act of 1934- Section 3. (a)(54) (A)-Qualified Investor (iii)	An insurance company is a firm that has three attributes. First, it is organized as an insurance company. Second, its main business activity is writing insurance or reinsuring of risks underwritten by other insurance companies. Third, it is subject to the supervision of a state insurance commissioner or of a similar state official or state agency. An insurance company is a *qualified investor*.	No	No

TABLE 3.1 Industry of Employment Classifications and Corresponding Definitions per U.S. Securities Laws

#	Classifications	Security Investment Industry Laws			Security Exchange Commission Regulated?	Fiduciary Duty?
		Defined?	Citation	Definition		
9	Investment Company/ Mutual Fund	Yes	Investment Company Act of 1940- Section 3. (a)(1)-Investment Company Investment Company Act of 1940- Section 3. (a)(54) (A)-Qualified Investor (i)	An investment company is any issuer of securities that engages in at least one of the three activities. The first activity is to hold itself out as an firm that primarily engages or proposes to engage in the business of investing, reinvesting, or trading in securities. The second, is to engage or propose to engage in the business of issuing installment type face-amount certificates; or to have been engaged in that business and to have outstanding certificates. The third, is to have engaged or to propose to engage in the business of investing, reinvesting, owning, holding, or trading in securities and to own or propose to acquire investment securities valued at more than forty percent of the firm's total consolidated assets, excluding Government securities and cash items. An investment company is a *qualified investor*.	Yes	No
10	Investment Management Counseling	Indirectly	Investment Advisers Act of 1940- Section 202. (a)(11) Investment Adviser	An investment management counseling firm is a firm that employs a certain type of investment adviser. An *investment adviser* is any person who receives compensation for either or both of the following services: (1) providing advice directly or through publications or writings, about any of the following (a) the value of securities or (b) the advisability of investing in, purchasing, or selling securities; or (2) issuing or officially announcing analyses or reports about securities.	Yes	Yes
11	Other	No	Not Applicable	Not Applicable	No	No
12	Plan Sponsor: Corporate	Indirectly	U.S. Code Title 29, Chapter 18, Subchapter I, Subtitle A, Paragraph 1002	Plan means an employee welfare benefit plan or an employee pension benefit plan, or a plan which is both an employee	No	Yes

TABLE 3.1 Industry of Employment Classifications and Corresponding Definitions per U.S. Securities Laws

#	Classifications	Security Investment Industry Laws			Security Exchange Commission Regulated?	Fiduciary Duty?
		Defined?	Citation	Definition		
			(1)-(3) U.S. Code Title 29, Chapter 18, Subchapter I, Subtitle A, Paragraph 1002 (16)(B) Securities Exchange Act of 1934 Section 3. (a) (54)-Qualified Investor (v)	welfare benefit plan and an employee pension benefit plan. An employee welfare benefit plan provides benefits other than pensions on retirement or death, for its participants or their beneficiaries through the purchase of insurance or otherwise. An employee pension plan provides either retirement income to employees or provides for the deferral of employee income until the employee is terminated or thereafter. The plan sponsor is the employer that establishes or maintains an employee benefit plan. A corporation may be a plan sponsor. An employee benefit plan is a *qualified investor*, if the plan investment decisions are made by a plan fiduciary. A plan fiduciary may be a bank, a savings and loan association, an insurance company, or registered investment adviser.		
13	Plan Sponsor: Public	Indirectly	See corporate plan sponsor.	Same as corporate plan sponsor, except the plan is established by a public entity.	No	Yes
14	Plan Sponsor: Union	Indirectly	See corporate plan sponsor.	Same as corporate plan sponsor, except the plan is established by a union.	No	Yes
15	Retired	No	Not Applicable	Not Applicable	No	No

It is noteworthy that all investment advisers, except for those within the consulting industry of employment, are both regulated by the SEC and have a fiduciary duty to their clients. We included the consulting group in our investment advisers classification because the database indicated that these investment professionals facilitate their clients' aims by working with those in the investment management counseling group.

For qualified investors no such pattern is evident. Some are regulated by the SEC; some are not. Some have a fiduciary duty to their clients; some do not. No qualified investors are both regulated by the SEC and have a fiduciary duty to their clients.

Table 3.2, Investment Decision-Maker Industry Classifications, lists the aforementioned industries of employment. It also succinctly identifies those classified as target population members, whether they are qualified investors or investment advisers, and whether the decisions they make are buy-side, sell-side, or adviser-side.

TABLE 3.2 Investment Decision-Maker Industry Classifications				
Industry of Employment Classifications	Target or Non-Target Population Classification?	Target Population		
		# of Decision Types	Decision Type	Decision-maker Type
Not Disclosed	*Non-Target*	0	*Non-Target*	*Non-Target*
Academic Institution	*Non-Target*	0	*Non-Target*	*Non-Target*
Bank (all)	Target	1	Buy-side	Qualified Investors
Broker-Dealer, Investment Banking	Target	1	Sell-side	Qualified Investors
Consulting	Target	1	Adviser-side	Investment Advisers
Financial Publisher	Target	1	Adviser-side	Investment Advisers
Foundation/Endowment	Target	1	Buy-side	Qualified Investors
Government/Regulatory Agency	Target	1	Buy-side	Qualified Investors
Insurance Company	Target	1	Buy-side	Qualified Investors
Investment Company/Mutual Fund	Target	1	Buy-side	Qualified Investors
Investment Management Counseling	Target	1	Adviser-side	Investment Advisers
Other	*Non-Target*	0	*Non-Target*	*Non-Target*
Plan Sponsor: Corporate	Target	1	Buy-side	Qualified Investors
Plan Sponsor: Public	Target	1	Buy-side	Qualified Investors
Plan Sponsor: Union	Target	1	Buy-side	Qualified Investors
Retired	*Non-Target*	0	*Non-Target*	*Non-Target*

It is of note that we have three decision type classifications: buy-side, sell-side, and adviser-side. Traditionally, the accounting literature has only discussed two decision types: buy-side and sell-side. It appears that this literature has not examined investment advisers. We classify investment advisers as members of the adviser-side. We do so because investment advisers, with the exception of the consulting group, as mentioned afore, are regulated by the SEC and have a fiduciary duty to their clients. Thus, we assert that they constitute a distinct group.

We define the buy-side decision type as decisions made by investment professionals who are qualified investors with these industry of employment classifications: banks, foundations/endowments, government/regulatory agencies, insurance companies, investment companies/mutual funds, plan sponsors: corporate, plan sponsors: public, and plan sponsors: union. This classification is in keeping with prior accounting literature. We define the sell-side decision type as decisions made by investment professionals who are qualified investors with this industry of employment classification: broker/dealer & investment banks. This classification is in keeping with prior accounting literature. Lastly, we define the adviser-side decision type as decisions made by investment professionals who are investment advisers with these industry of employment classifications: investment management consulting, consulting, and financial publishers.

Our interest is in those that make equity investment decisions. We employed the industry specialties information and Value Line industry sector classifications as of

November 2006 to identify investment professionals that are equity specialists versus those that are not.

Table 3.3 Industry Specialities and Corresponding Value Line Industries and Target Population Sector Classifications identifies the equity and non-equity specialists. It also identifies the industry specialties and the corresponding with Value Line industries and sectors. Further, it identifies whether an industry speciality is classified as target or non-target population speciality. As evidenced by our taxonomy, these five industry specialities are not part of the target population: asset backed securities, bonds, cash equivalents, other, and retired.

Our interest is in only those investment professionals who follow U.S. equities. The industry speciality categories includes a generalist speciality, and a special/emerging situations specialty. The database generalist speciality identifies those who follow three or more industries. The specific specialities are not specified. We found, however, that some entries disclosed three industry specialities. These should have been classified as generalists, in the database.

TABLE 3.3 Industry Specialities and Corresponding Value Line Industries and Target Population Sector Classifications
(Each member may have up to three specialties. Each is discretely classified. Specialties are classified using the Value Line 11-2006 sector classification scheme.)

Industry Specialties	Value Line Industries	Target versus Non-Target Population Specialty	Target Population Sectors
Specialty A, or B, or C			
Specialty A, or B, or C Not Disclosed	*Specialty A, or B, or C Not Disclosed*	*Non-Target*	*Non-Target*
Advertising	Advertising	Target	Consumer-Cyclical
Aerospace	Aerospace/Defense	Target	Industrial
Apparel/Textiles	Apparel	Target	Consumer-Cyclical
Asset Backed Securities	*Not Applicable*	*Non-Target*	*Non-Target*
Automobile and Accessories	Auto Parts/ Auto & Truck	Target	Consumer-Cyclical
Banks	Bank/ Bank (Midwest)	Target	Financial
Beverages	Beverage (Alcoholic)/Beverage (Soft Drink)	Target	Consumer Staples
Bonds (all)	*Not Applicable*	*Non-Target*	*Non-Target*
Cash Equivalents	*Not Applicable*	*Non-Target*	*Non-Target*
Chemicals	Chemical (Basic), (Diversified) & (Specialty)	Target	Basic Materials
Communications (Newspaper/Periodicals/Radio/TV)	Cable TV & Newspaper,	Target	Consumer-Cyclical
Computers (Hardware/Software)	Computer & Peripherals, and Computer Software & Services	Target	Technology
Construction	Homebuilding	Target	Consumer-Cyclical
Construction-Building Material	Building Material	Target	Industrial
Construction-Manufactured Housing	Manufactured Housing/ Recreational Vehicle	Target	Consumer-Cyclical
Consulting	Information Services	Target	Industrial
Consumer Products (Durable/Non-Durable)	Furniture/Home Furnishing and Home Appliance	Target	Consumer-Cyclical

TABLE 3.3 Industry Specialities and Corresponding Value Line Industries and Target Population Sector Classifications
(Each member may have up to three specialties. Each is discretely classified. Specialties are classified using the Value Line 11-2006 sector classification scheme.)

Industry Specialties	Value Line Industries	Target versus Non-Target Population Specialty	Target Population Sectors
Containers	Packaging & Container	Target	Industrial
Cosmetics	Toiletries/Cosmetics	Target	Consumer Staples
Diversified Companies	Diversified Companies	Target	Industrial
Drugs	Drug	Target	Health Care
Electronics/Electrical Equipment	Electrical Equipment, Electronics	Target	Industrial
Energy: Natural Gas Pipeline	Natural Gas (Diversified)	Target	Energy
Energy: Nuclear and Solar	Not Applicable	Target	Energy
Energy: Oil and Gas Producers	Petroleum (Integrated) and Petroleum (Producing)	Target	Energy
Energy: Oil Services	Oilfield Services/ Equipment	Target	Energy
Entertainment	Recreation	Target	Consumer-Cyclical
Environmental Control	Environmental	Target	Industrial
Food Processing	Food Processing	Target	Consumer Staples
Generalist (follows 3 or more Industries)	Not Applicable	Target	Generalist Type 1
Health Care and Maintenance	Biotechnology, Health Information Services, Medical Services, Medical Supplies, and Pharmacy Services	Target	Health Care
Lodging and Food Services	Restaurant	Target	Consumer-Cyclical
Machinery	Machinery	Target	Industrial
Metals	Metal & Mining (Diversified)	Target	Basic Materials
Non-Bank Financial Institutions: Insurance	Insurance (Life) and Insurance (Property/Casualty)	Target	Financial

TABLE 3.3 Industry Specialities and Corresponding Value Line Industries and Target Population Sector Classifications
(Each member may have up to three specialties. Each is discretely classified. Specialties are classified using the Value Line 11-2006 sector classification scheme.)

Industry Specialties	Value Line Industries	Target versus Non-Target Population Specialty	Target Population Sectors
Non-Bank Financial Institutions: Savings and Loan	Thrift	Target	Financial
Non-Bank Financial Institutions: Security Brokerage	Securities Brokerage	Target	Financial
Non-U.S. Securities	*Canadian Energy and Investment Company (Foreign)*	*Non-Target*	*Non-Target*
Office Equipment	Office Equipment & Supplies	Target	Industrial
Other	*Not Applicable*	*Non-Target*	*Non-Target*
Paper and Forest Products	Paper and Forest Products	Target	Basic Materials
Publishing	Publishing	Target	Consumer-Cyclical
Real Estate	R.E.I.T	Target	Financial
Retail Trade	Retail Automotive, Retail Building Supply, Retail (Special Lines), and Retail Store	Target	Consumer-Cyclical
Retired	*Not applicable*	*Non-Target*	*Non-Target*
Special/Emerging Situations	Not applicable	Target	Generalist Type 1
Steel	Steel (General) and Steel (Integrated)	Target	Basic Materials
Technology	E-Commerce, Internet, Semiconductor, and Semiconductor (Capital Equipment)	Target	Technology
Telecommunications	Telecom Equipment, Telecom Services, and Wireless Networking	Target	Telecommunications
Tobacco	Tobacco	Target	Consumer Staples
Transportation (Common Carrier)	Maritime, Railroad, and Trucking/ Transportation Leasing	Target	Industrial

TABLE 3.3 Industry Specialities and Corresponding Value Line Industries and Target Population Sector Classifications
(Each member may have up to three specialties. Each is discretely classified. Specialties are classified using the Value Line 11-2006 sector classification scheme.)

Industry Specialties	Value Line Industries	Target versus Non-Target Population Specialty	Target Population Sectors
Utilities (all)	Electric Utility (Central), Electric Utility (East), Electric Utility (West), Natural Gas (Distributed), and Water Utility	Target	Utilities
Not a distinct industry specialty of target organization.	Coal	Target	Energy
Not a distinct industry specialty of target organization.	Educational Services	Target	Consumer-Cyclical
Not a distinct industry specialty of target organization.	Financial Services Diversified	Target	Financial
Not a distinct industry specialty of target organization.	Food Wholesalers	Target	Consumer Staples
Not a distinct industry specialty of target organization.	Grocery	Target	Consumer Staples
Not a distinct industry specialty of target organization.	Household Products	Target	Consumer Staples
Not a distinct industry specialty of target organization.	Investment Company	Target	Financial
Not a distinct industry specialty of target organization.	Metal Fabricating	Target	Industrial
Not a distinct industry specialty of target organization.	Power	Target	Industrial
Not a distinct industry specialty of target organization.	Precision Instrument	Target	Industrial
Not a distinct industry specialty of target organization.	Tire and Rubber	Target	Industrial

We classify our target population by Value Line sector. We do so because a close reading of financial publishers information, in particular Value Line print material, suggests that many investment professionals do not follow specific industries. Rather, they seem to follow sectors or groups thereof. For that reason, our taxonomy classifies investment professionals by Value Line sectors. Moreover, we identify four types of generalists: type one-four.

Generalists type one are investment professionals identified in the database as having either a generalist or special/emerging situations speciality. Generalists type two are investment professionals with two specialities, but these spanned two distinct Value Line sectors. Generalists type three are investment professionals with three specialities, however, these three spanned either two or three sectors. Generalists type four are those with two or three specialities that fall into combinations of these: special/emerging situations speciality, generalists speciality, any other target industry speciality.

Our interest is in investment professionals employed in these types of occupations: analysts, portfolio managers, analysts or portfolio managers related; or a combination thereof. We employed the occupational titles data and descriptive information about investment professionals to classify the occupational titles into these classifications. **Appendix 3.1** contains tables that identify our final determinations, list the occupational tiles and the corresponding fundamental analysis investment decision-maker types, and describe the work experiences that correspond.

In short, our target population comprises U.S. equity decision-makers. They are either sector specialists or generalists. They make one of these three types of decisions:

buy-side, sell-side, or adviser-side. They are qualified investors or investment advisers. As qualified investors they make buy-side or sell-side decisions. As investment advisers they make adviser-side decisions. Furthermore, they work in occupations that we classify as one of these: analysts; portfolio management; analysts or portfolio manager related; or a combination thereof.

We assert that our target population is likely to employ post-1998 reported products and services segment disclosures to improve their understandings of U.S. domiciled firms. **Figure 3.7**, Venn Diagram of the Target Population's Investment Decisions depicts the set of fundamental analysis investment decisions, fundamental analysis investment decision-makers, and U.S. domiciled Securities and Exchange Commission registrants' investment securities that comprise our target population.

The Venn diagram indicates that our target population makes sell-side, investment adviser-side, and buy-side decisions concerning U.S. domiciled Securities and Exchange Commission registrants' equity securities. Furthermore, these decisions are made in six decision contexts: fundamental analysis research, asset valuation, asset selection, portfolio strategy, asset allocation, and portfolio management.

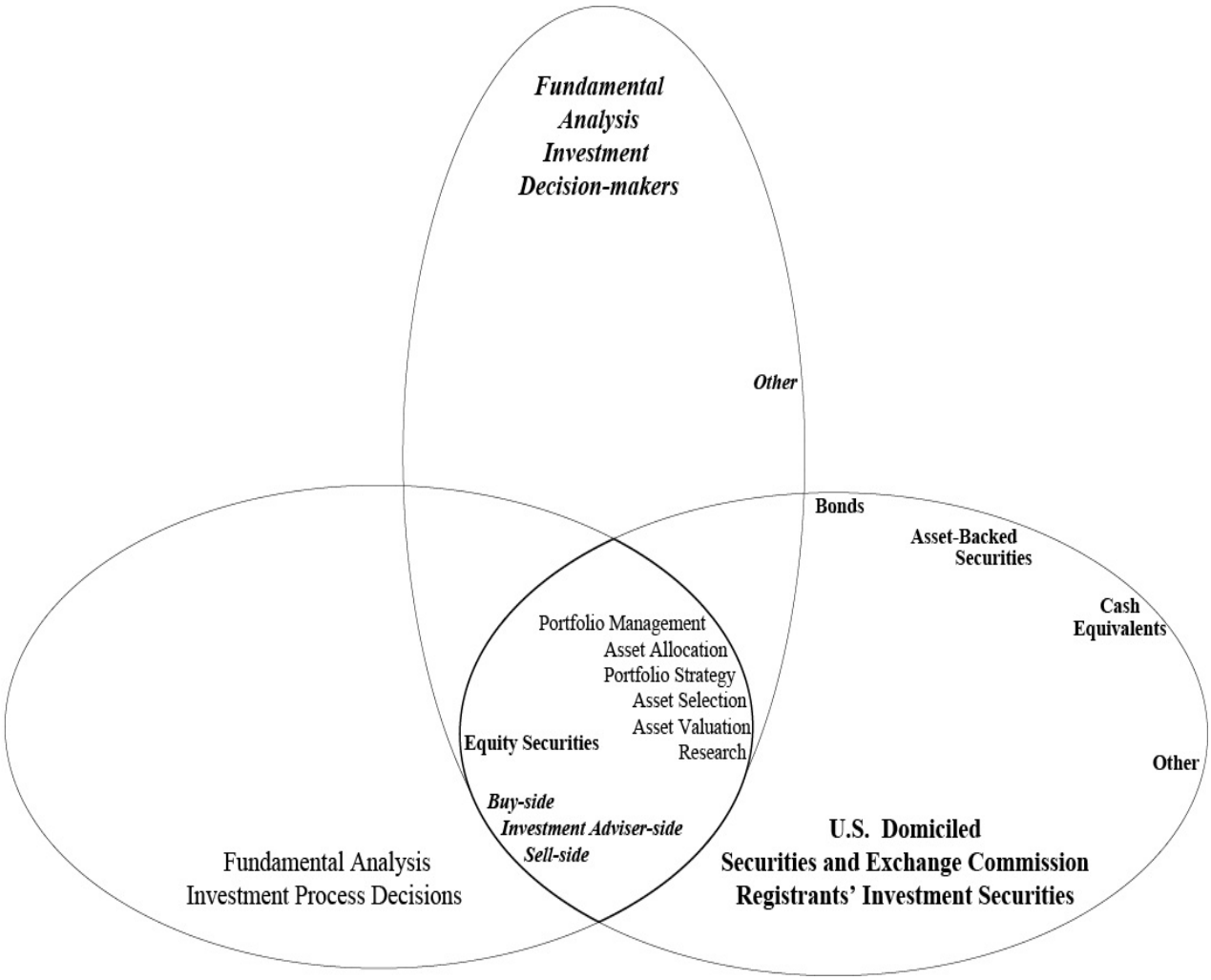

Figure 3.7. Venn Diagram of the Target Population's Investment Decisions.

Section 3.4.5 Phase 2–Quantitative Data

Section 3.4.5.1 Mail Survey Data Collection Method

A self administered mail survey was selected as our data collection method. The mail survey methodology was chosen because neither telephone or e-mail collection methods were viable because we conducted our survey with subject access restrictions. Our population of interest is investment professionals in particular those who employ the fundamental analysis method to make buy-side, sell-side, or adviser-side investment decisions, concerning U.S. domiciled firms that disclose reported products and services segments.

Our survey instrument is designed to measure the concepts that comprise our conceptual theory. These measures were designed concurrently with the development of our theory. All of the survey questions were developed in this study. Most of our questions are measured using a Likert scale with seven points (-3 to +3). However, we did employ some semantic differential scale questions. **Appendix 3.2** contains tables that reflect our construct definitions and the corresponding questionnaire measures. These measures were generated by considering the following nineteen points raised by Dillman (2000):

1) Choose simple over specialized words.
2) Choose as few words as possible to pose the question.
3) Use complete sentences to ask questions.
4) Avoid vague quantifiers when more precise estimates can be obtained.
5) Avoid specificity that exceeds the respondent's potential for having an accurate, ready-made answer.
6) Use equal numbers of positive and negative categories for scalar questions.
7) Distinguish undecided from neutral by placement at the end of the scale.

8) Avoid bias from unequal comparisons.
9) State both sides of attitude scales in the question stems.
10) Elimenate check-all-that-apply question formats to reduce primacy effects.
11) Develop response categories that are mutually exclusive.
12) Use cognitive design techniques to improve recall.
13) Provide appropriate time referents.
14) Be sure each question is technically accurate.
15) Choose question wordings that allow essential comparisons to be made with previously collected data.
16) Avoid asking respondents to say yes in order to mean no.
17) Avoid double-barreled questions.
18) Soften the impact of potentially objectionable questions.
19) Avoid asking repondents to make unnecessary calculations (pg. 51-77).

Section 3.4.5.2 Questionnaire and UH Mailing System Pretest Procedures

Dillman (2000) stressed that generally surveyors make no mention of their pre-test procedures or do not perform them. We pretested our questionnaire several times and we conducted two pre-tests of the UH mailing system.

The first pre-test of our questionnaire comprised having an investment professional review the sequential list of questions selected for inclusion in the questionnaire. Our tester employs SEC and non-SEC disclosures to make investment decisions on the behave of his employer and has done so for more than 10 years. He is a chartered financial analyst, the decisions he makes concern fixed income securities rather than equity securities. However, he had in the past made equity decisions and commented that his issues of concern at that time were similar to those that he has for fixed income securities. Hence, we felt that his professional experiences have provided him with the insight necessary to facilitate making the following appraisals: (1) whether or not the questions were appropriate for soliciting information about fundamental-equity analysts'

perceptions of U.S. domiciled firms' SEC disclosures; and (2) whether or not the majority of the potential survey participants who have followed or who continue to follow the industries about which he is knowledgeable (primarily oil and gas related) would be able to answer the questions. We also asked him to make comments concerning the cognitive and motivational aspects of our questions.

Our tester expressed no concerns about the appropriateness of our questions or the ability of survey participants to answer them. He did however, comment that our potential respondents are busy people. They have an interest in segment reporting and for that reason might consider responding. To increase that likelihood he suggested that we shorten the length of our instructions and ask the more interesting questions first. He pointed out that our font size was too small and the questionnaire was too bulky. He also suggested that we change the wording of several questions. We implemented our pre-tester's suggestions and revised our sequential list of questions.

Our second pretest, consisted of using our revised instructions and sequential list of questions to construct a questionnaire that incorporated navigational aids suggested by Dillman (2000). These aids were intended to reduce measurement and non-response error by making it easier to interpret our skip pattern intent. We asked two accounting professors to critique our questionnaire. After each critique the questionnaire was revised. Jointly, however, their comments concerned the wording of our instructions, questions, scales, and scale labels and the length of our questionnaire.

After incorporating the comments of our second set of pre-testers we designed our questionnaire. The purpose was to make the questionnaire more visually appealing and to

show regard to our potential survey participants. These individuals are busy people who make investment decisions concerning funds of substantial size. Dillman (2000) suggests giving a token financial incentive to potential participants. We decided against that given the income levels of our potential participants. Instead, we chose to show regard by employing a questionnaire that is visually appealing and thus less likely to be merely tossed aside.

Before creating the final version of the questionnaire, several earlier drafts were created. We asked the University of Houston Cougar Fund, MBA and MS students to answer and comment on one of the pre-final drafts. These students are studying to become investment professionals and employ SEC disclosures in the course of managing their multi-million dollare fund. Thus, they employ fundamental analysis techniques to identify undervalued equities. Therefore, they have knowledge of the issues about which we are concerned. Most of them answered their questionnaires in less than fifteen minutes. However, they did express concern about some of the instructions and some of the questions. They documented their concerns on their questionnaires. After reviewing their comments we revised the draft questionnaire. This comprised our third pre-test of the questionnaire.

We created a final version of our questionnaire, which we asked our investment professional to answer and to critique. He found it easy to answer and completed it in less than fifteen minutes. He commented that the potential survey participants would find the questionnaire itself interesting. He did caution though that the target population does not generally participate in surveys. However, given that this one being conducted by a

student, that may increase the likelihood of getting them to respond. This comprised our fourth pre-test of the questionnaire. Dillman (2000) indicates that often university mailing systems do not quickly process mail. For that reason, he suggests testing such a system before initiating a survey. We did not think that would be a problem for us. However, we did test the UH mailing system. We did so by mailing two questionnaires to two locations (Denver and San Antonio), and asked family members to mail them back. We found that it took more than 30 days for us to receive the mailed back questionnaires. For that reason we decided to conduct a more extensive pre-test of university mailing system.

We solicited the help of a public accounting firm, KPMG, to test the mail back time. KPMG asked fifteen of their employees located in the fifteen cities we identified to help us conduct our test. We provided the KPMG coordinator with a set of written instructions and two questionnaires for each employee. The instructions asked each tester to mail back one questionnaire from their business location and one questionnaire from their residential location. We asked this because our mailing list included both business and residential addresses. Our testers received their questionnaires through interoffice mail and were asked to mail them back within three business days. The questionnaires were placed in the KPMG interoffice mailing system on June 1, 2005. Each questionnaire was numbered for identification purposes.

We also solicited the assistance of the UH Manager of Postal Services, who contacted his counterpart at the Houston main post office. They worked together to ensure that our self-mailing business reply mail questionnaire was processed in the

normal course of business. Eleven of the fifteen employees mailed back the questionnaires. Hence we received 22 questionnaires. We received five questionnaires within seven days of the testers' receipt thereof. The remaining seventeen were received within eleven days. The median number of days was nine and the mode was ten. There was no discernable pattern based on geographic location or business or residential location. Our university postal manager stressed that during our actual survey administration period he would ensure that alike procedures would be followed to facilitate our timely receipt of participants' questionnaires.

Section 3.4.5.3 Sample Frame

This study surveyed 1,600 members of the population of interest. These potential survey participants were selected from our sample frame. Our sample frame information was compiled from a non-public database and is based on our population taxonomy. We modified the population information to take into consideration mailing address access restrictions. We were restricted to using 2003 addresses. To ensure that we, only, included in our sample frame those investment professionals with static addresses, we hand matched the 2003 addresses to a 2006 address database. We took no new addresses from the 2006 database. In the course of devising the taxonomy, duplicate memberships had been eliminated.

Further, the UH printing and postal services department subjected our preliminary sample frame to the address correction procedures approved by the United States Postal Service. This assured us that the addresses we employed were as current as possible. Following Dillman (2000), we also employed procedures to personalize the names by

adding gender specific courtesy titles (Ms. or Mr.) to our mailings. Our sample frame address currency and our personalization procedures were implemented to increase our survey response rate.

Section 3.4.5.4 Stratified Random Sampling Procedures

We selected our sample using stratified random sampling procedures. Our sample frame consisted of information pertaining to investment professionals. Our stratified random sampling plan was designed to match obtained responses by both decision type (buy-side, sell-side, and adviser-side) and breadth of experience (non-generalists and generalists). This was our ideal. We recognized that our ideal might not be possible. Our second option was to match responses by either decision type or breadth of experience (sector specialist or generalist). Our last option, was to not match responses, if an inadequate number of responses was obtained.

To increase the likelihood that enough responses would be received, to match responses by decision type and breadth of experience, our stratified random sampling plan took the following issues into consideration: (1) AIMR studies indicate that more adviser-side responses are received, than either sell-side or buy-side responses. (2) Our sample frame includes about 250% more generalists than non-generalists. (3) There are more buy-side generalists than either adviser-side or sell-side generalists. (4) Likewise, there are more buy-side non-generalists, than either adviser-side or sell-side non-generalists. (5) The adviser-side non-generalist group is the smallest non-generalist group.

Our stratified random sampling plan called for 1,600 survey participants. For the aforementioned reasons we sought to include as many sell-side participants and adviser-side non-generalists as possible in our sample. Hence, all of those observations in our sample frame were automatically included in our sample. We then randomly selected enough adviser-side generalists, buy-side non-generalists, and buy-side generalists to execute our ideal stratified sampling scheme. **Table 3.4.**,Stratified Random Sampling Plan, identifies our observation types, and the number of observations in our sample.

Table 3.4 Stratified Random Sampling Plan

Observation Type	Number of Observations in Sample
Sell-Side Non-Generalists	239
Sell-Side Generalists	181
Adviser-Side Non-Generalists	145
Adviser-Side Generalists	445
Buy-Side Non-Generalists	145
Buy-Side Generalists	445
# Total Observations	1600

Section 3.4.5.5 Survey Administration

We had planned to administer our survey during the fall of 2008. However, due to the 2008 financial crisis we delayed our survey until February 2009. We did so because we were concerned that our response rate would be lower than we had planned. Our survey administration period started February 16, 2009 and ended May 4, 2009.

The potential survey participants were not offered anonymity. However, they were told that their identities, will be kept confidential. To provide for that

confidentiality, each potential participant was assigned a unique identity code. Each identity code was printed on a separate label, the potential participant identity label, and affixed to the last page of each questionnaire. The location of the label and the researcher's intent to keep the respondents' identities confidential was mentioned in the questionnaire cover letters. In addition, each questionnaire bore a handwritten identification number on the front cover. This number personalized the questionnaire and made it easier to identify the respondent.

The survey correspondence was designed to be salient and to evoke goodwill. All of the correspondence, was delivered via first class stamped mail. We followed Dillman's (2000) recommendations concerning the assembly of and the time span between mailings. For that reason, the first three mailings were assembled at the same time. The first mailing, the prenotice letter, was mailed on February 16, 2009. One week later, the second mailing, a questionnaire was mailed. Approximately one week later, the third mailing, a thank you postcard was mailed. The final mailing, a replacement questionnaire was mailed to non-responders, on April 10, 2009. As previously mentioned the questionnaire itself is a self mailer, which means that respondent required no stamps or envelope to mail back the questionnaire. The answered questionnaire, merely, needed to be placed in the mail.

A sample of each survey correspondence is included in **Appendix 3.3**. Both of our questionnaire cover letters asked investment professionals to help with our survey, and stressed that should they prefer not to participate to kindly mail back the blank questionnaire. Moreover, both the cover letters and the questionnaire stressed that if the

financial disclosures of U.S. domiciled firms that disclose only products and services segments are not employed, then only the demographic section of the questionnaire should be answered. The questionnaire is included in **Appendix 3.3.**

Our potential survey respondents are investment professionals. We initially planned to execute our survey during fall 2008. However, the 2008 stock market crash caused us to delay our survey administration period until February 2009. We did so out of concern that the financial crisis, which led to a major downsizing in the number of employed investment professionals, might adversely impact our survey response rate. For that reason, we decided to contact a sample of the non-responders, by telephone, to urge them to respond or to mail back the questionnaire if they had no interest in participating in our study.

During the April 23, 2009 thru May 4, 2009 time span, we attempted to contact by telephone 333 randomly selected non-responders The script we used during our telephone contacts is located in Appendix 3.3. We were unable to speak directly to 266 non-responders. Of the 67 with whom we were able to speak, the following are the comments they expressed in response to our appeal: SEC information is no longer used (12) , have questionnaire will respond (11), too busy (10), not interested (10), mail a replacement questionnaire (8), do not participate in surveys due to either company or personal policy (7), retired (6), questionnaire is too long (3), completed and mailed back the questionnaire (2). Two respondents made two comments, for that reason the comments tally sums to 69, rather than 67. Based on our telephone contacts we concluded that we would likely receive 21 additional responses.

In most cases (159), we were not to speak with our non-responders, but we were able to speak with individuals who worked for their firm. In 131 cases, we discerned that the mailing addresses we employed were those of the intended recipient. However 28 addresses were no longer valid. In addition, we were told that because of the financial crisis investment professionals had been counseled to not express their opinions to those outside of the industry, that companies were going out of business, and many investment professionals were losing their jobs. All three of these issues were reported in the financial press.

We employed the principles of Dillman's Tailored Design Method, because it has been shown to increase survey response rates. Similar studies have been conducted in the past by the Association of Investment Management Research (AIMR). The obtained response rates were in the range of 10-15%. For that reason, we planned for a 15% response rate.

We surveyed 1,600 investment professionals. We received responses from 163 (10.2%). Of the 1,600, 66 (4.1%) answered questions pertaining to the problem we examined: the decision usefulness of post-1998 reported products and services segment disclosures of U.S. domiciled firms. However, only 55 (3.4%) of those responses were useable for our analysis purposes. We asked those who were not impacted by our problem to, merely, answer our demographic questions; as a result, 52 (3.3%) do so. Another 37 (2.3%) mailed back their questionnaires, as we requested, to indicate that they declined to participate in our study. In addition 8 (0.5%) did not answer our questionnaire, but did indicate that they were no longer employed.

Of our 55 usable responses, 24 were received from individuals who are investment advisers. Moreover, 18 were received from individuals who provide sell-side investment services. Further 10 were received from individuals who provide buy-side investment services. The remaining 3were received from individual who indicated that they were either no longer employed or retired.

We examined the response dates of our 55 usable responses. We found that we had received 40 responses before, April 23, 2009, the date we initiated our telephone calls to non-responders. We consider the individuals who submitted these to be early responders. Of the 40 early responders, 19 are investment advisers, 11 are sell-side investment professionals, 7 are buy-side professionals, and the remaining 3 had recently retired. We consider the remaining 15, to be late responders. Of these, 5 are investment advisers, 7 are sell-side investment professionals, and the remaining 3 are buy-side professionals.

In short, we planned for a 15% response rate, however our obtained response rate is 10.2%. Which is at the low range of survey studies conducted by AIMR. Given the comments we heard during our telephone contacts, there is support for asserting that the 2008 financial crisis impacted the willingness of investment professionals to participate in our study.

CHAPTER 4

ANALYSIS OF RESULTS

In this chapter, we assess the adequacy of the measures and theoretical constructs described earlier. In particular, we describe the procedure for item level validity assessment using Partial Least Squares. Then we examine the results of the survey data on the relative impact of post 1998 reported products and services segment disclosures on analyst's perceptions of Materiality and Decision Usefulness.

Section 4.1 Partial Least Squares Analysis

For this dissertation, the decision was made to employ Partial Least Squares (PLS) for analyzing the adequacy of both the theoretical models as well as the measures developed for this study. PLS can be a powerful method of analysis because of the minimal demands on measurement scales, sample size, and residual distributions (Chin and Newsted, 1999). Although PLS can be used for theory confirmation, it can also be used to suggest where relationships might or might not exist and to suggest propositions for later testing.

As an alternative to the more widely known covariance fitting approach (exemplified by software such as LISREL, EQS, COSAN, AMOS, and SEPATH), the component-based PLS avoids two serious problems: inadmissible solutions and factor indeterminacy (Fornell and Bookstein, 1982). The philosophical distinction between these approaches is whether structural equation modeling is used for theory testing and development or for predictive applications. In situations where prior theory is strong and further testing and development is the goal, covariance based full-information estimation methods (e.g., using Maximum Likelihood or Generalized Least Squares) may be more appropriate. Yet, due to the indeterminacy of factor score estimations, there exists a loss of predictive accuracy. Chin (1995) framed the issues to be similar to that of deciding whether to use ML factor analysis versus principal components analysis.

For application and prediction, a PLS approach is often more suitable. Under this approach, it is assumed that all the measured variance is useful variance to be explained. PLS estimates the latent variables as exact linear combinations of the observed measures, which avoids the indeterminacy problem and provides an exact definition of component scores. Using an iterative estimation technique, the PLS approach provides a general model which encompasses, among other techniques, canonical correlation, redundancy analysis, multiple regression, multivariate analysis of variance, and principle components (Chin 1998).

Finally, PLS is considered better suited for explaining complex relationships (Chin 2010; Fornell and Bookstein, 1982). As stated by Wold (1985, p. 589), “PLS comes to the fore in larger models, when the importance shifts from individual variables

and parameters to packages of variables and aggregate parameters." Wold states later (p. 590), "In large, complex models with latent variables PLS is virtually without competition."

A side benefit of the partial nature of the PLS algorithm is that the sample size requirements when using PLS for complex models are likely much smaller than required for CBSEM (Chin and Newsted 1999). This can be ascertained as a first approximation by determining the specific portion of the model that has the largest number of predictors for a particular dependent variable and then applying Cohen's power tables (1988) relative to the effect sizes one wishes to detect. In other words, the researcher needs to determine which dependent variable (either at the structural level or item measure level) has the highest number of predictors (i.e., arrows directed). Since this represents the largest regression performed during the PLS iterative process, this would be the logical starting point for choosing an adequate sample to insure an adequate level of accuracy and statistical power. Ideally, if one wishes to customize the sample size estimation with specific effect sizes for the structural paths and include a certain amount of measurement error (normal or nonnormal), running a Monte Carlos simulation would be a better approach Majchrak, Beath, Lim, R., & Chin (2005) and helpful for their extreme situation of 26 variables and 17 cases.

In this study, the largest regression performed using the PLS algorithm uses 5 predictors. The study sample size of 55 represents a reasonable level, although ideally a larger size would be able to detect smaller effects. Descriptive statistics for item measures are provided in **Table 4.1.**

Section 4.2.1 Model Evaluation: Measurement Model Results

The first part in evaluating the adequacy of the theoretical model is to present what is termed the measurement model results. Here, we focus on the reliability and validity of the measures used to represent each construct in the nomological model. Ideally, we show that the measures we develop are accurate (i.e., reliable) and they also display convergent and discriminant validities. In other words, measures used to estimate a construct should be highly related and not with measures used for other constructs. One approach suggested by Chin (2010) to obtain the measurement results is to first draw all possible structural links among the constructs you plan to use and then set the PLS inner weighting option using the factorial scheme. This essentially ignores the directionality of the arrows among constructs and simply performs pairwise correlations to establish inner weights.

Section 4.2.2 Construct to Construct Overlap Check of Discriminant Validity

There are two sets of information that results from the preceding setup and are generally available from standard PLS software. Each set represent tests of discriminant validity (Chin, 1998b). The first group of results is meant to show that a construct is more strongly related to its own measures than with any other construct by examining the overlap in variance. Essentially, the argument is that if a specific construct is more correlated with another construct than with its own measures, there is the possibility that the two constructs share the same types of measures and are not conceptually distinct. Alternatively, it indicates that the two sets of items do a poor job of discriminating or differentiating the two underlying concepts you believe exists. To test for this, many

researchers have compared the square root of the average variance extracted (AVE) with the correlations among constructs.

AVE was originally proposed by Fornell and Larcker (1981). It attempts to measure the amount of variance that an estimated construct captures from its indicators relative to the amount due to measurement error. AVE is only applicable for mode A (outward-directed) blocks (Chin, 1998). The AVE is calculated as follows:

$$AVE = \frac{(\sum \lambda^2) \operatorname{var} F}{(\sum \lambda^2) \operatorname{var} F + \sum \Theta_{ii}}$$

where li, F, and Qii, are the factor loading, factor variance, and unique/error variance respectively.

Given that the item measure results are standardized, the AVE would be the same as the average of the communalities in the block of items used to estimate each construct. Fornell and Larcker (1981) suggested that this measure can also be interpreted as a measure of reliability for the LV component score and tends to be more conservative than composite reliability. Ideally, AVE should be greater than 0.50 meaning that 50% or more variance of the indicators are accounted for by the PLS estimated construct. As depicted in both **Tables 4.2** and **Table 4.3**, this was found to be true for all sets of measures used for each construct in the model.

While many researchers have compared the square root of AVE to construct correlations, Chin (2010) argued that we should ideally compare the average variance extracted with the squared correlations among constructs. It provides a more explicit

basis to see whether each construct is more highly related to its own measures than with other constructs. Chin notes that presenting AVE with squared correlations have two advantages. It provides a more intuitive interpretation since it represents the percentage overlap (i.e., shared variance) among constructs and construct to indicators and it is tends to be easier to distinguish the differences. **Table 4.3** provides this comparison and shows this to be true for the items developed for this research.

It is also normally suggested that researchers include the composite reliability measure, ρ_c , for each block of indicators. Composite reliability developed by Werts, Linn, and Jöreskog (1974) is a measure of internal consistency and is calculated as follows:

$$\rho_c = \frac{(\sum \lambda_i)^2 \text{ var } F}{(\sum \lambda_i)^2 \text{ var } F + \sum \Theta_{ii}}$$

where li, F, and Qii, are the factor loading, factor variance, and unique/error variance respectively.

In comparison to Cronbach's alpha, this measure does not assume tau equivalency among the measures with its assumption that all indicators are equally weighted. Therefore, while alpha tends to be a lower bound estimate of reliability, ρ_c is a closer approximation under the assumption that the parameter estimates are accurate. Finally, ρ_c like AVE is only applicable for LVs with reflective indicators (i.e., mode A blocks). In addition, for fuller contextual understanding, the means, standard deviations, skewness and kurtosis of the items are presented in **Table 4.1.**

Section 4.2.3 Item to Construct Loading and Cross Loadings Check of Convergent and Discriminant Validity

The second and more detailed set of information examines how each item measure relates to each construct. We first examine convergent validity which is defined as the extent to which blocks of items strongly agree (i.e., converge) in their representation of the underlying construct they were created to measure. In other words, how high are each of the loadings and are they more or less similar? Chin (2010) note that measures that are mixed and have a wide range (e.g., varying from 0.5 to 0.9 may raise concern about whether the measures are truly a homogenous set that primarily captures the phenomenon of interest. In contrast, higher average loadings and narrower range such as from 0.7 to 0.9 would provide greater confidence that all items help (i.e., converge) in estimating the underlying construct

Beyond that, not only should each measure be strongly related to the construct it attempts to reflect, but it should not have a stronger connection with another construct. Otherwise, such a situation would imply that the measure in question is unable to discriminate as to whether it belongs to the construct it was intended to measure or to another (ie., discriminant validity problem). **Table 4.5** allows us to compare correlations of each item to its intended construct (i.e., loadings) and to all other constructs (i.e., cross loadings). As Chin (2010) notes, going down a particular construct column, you should expect to see item loadings to be higher than the cross loadings. Similarly, if you scan across a particular item row, you should expect to see that any item be more strongly related to its construct column than any other construct column. If this is found to be the

case, the claim can be made for discriminant validity at the item level. Specifically, we can say that each item loads more highly on their own construct than on other constructs and that all constructs share more variance with their measures than with other constructs. This was found to be the case for the measures developed for this study.

Section 4.3 Model Evaluation: Structural Model Results

Having established the appropriateness of the measures, the next step is to provide evidence supporting the theoretical model. A major emphasis in PLS analysis is on variance explained as well as establishing the significance of all path estimates. Specifically, predictive power of the structural model as assessed by the R2 values of the endogenous constructs. Similar to its counterparts in OLS regression, PLS R2 results represent the amount of variance in the construct in question that is explained by the model.

Thus, for a given PLS model, we can start by looking at the R-squares for each dependent LV in the structural model provided by PLS. This is obtained because the case values of the LVs are determined by the weight relations. The corresponding standardized path estimates can also be examined and interpreted in the same manner. As to be discussed, our two models which consists of the same core nomological network of predictors leading to two separate outcomes (Decision Usefulness and Materiality) yielded reasonably high R-squares. Yet, the relative impact as well as significance among the predictors varied.

In assessing significance, the conventional wisdom since Chin (1998b) first introduced its use for PLS estimation is to apply bootstrapping. The bootstrap approach

represents a nonparametric approach for estimating the precision of the PLS estimates. N samples sets are created in order to obtain N estimates for each parameter in the PLS model. Each sample is obtained by sampling with replacement from the original data set (typically until the number of cases are identical to the original sample set). Various approaches for estimating confidence intervals have been developed (see Efron & Tibshirani, 1993, for more details). The simplest is a semi parametric approach that uses the N bootstrap estimates for each parameter of interest to calculate the standard error and associated t-test. But, as noted by Chin (1998), a percentile approach would be distribution free. We used this approach with a bootstrap resampling of 1000 samples. This allows us to estimate the p-value for each structural path to the third significant digit. **Figures 4.1** and **Table 4.2** provide the estimated structural paths, p-values, and R-squares for the two models tested: Materiality and Decision Usefulness.

We have two models for assessing the quality of reported products and services segment disclosures. Using the same set of quality predictors, we find differential impact on two summary evaluations: Materiality and Decision Usefulness. Each model has the same core nomological network. However, both the relative impact among and the significance of the predictors varied. The Materiality path analysis is depicted in **Figure 4.1**, and the Decision -Usefulness path analysis is depicted in **Figure 4.2.**

Table 4.4 Measurement Item to Construct Loadings and Cross Loadings.

Item	CwUAC	EoIAE	Read	EoCI	EoI	RF	Dov	Neu	EoC	Relev	Reli	Suf	Sat	Materi-ality	DU1
Q10a	0.786	0.351	0.455	0.562	0.474	0.332	0.148	0.139	0.145	0.395	0.352	0.209	0.321	0.147	0.229
Q10b	0.855	0.403	0.536	0.373	-0.008	0.228	0.348	-0.011	0.252	0.220	0.267	0.307	0.319	0.152	0.419
Q10c	0.840	0.366	0.423	0.419	0.097	0.399	0.195	-0.125	0.198	0.232	0.223	0.202	0.271	0.088	0.277
Q11a	0.404	0.904	0.463	0.337	0.067	0.600	0.249	0.240	0.357	0.394	0.391	0.404	0.417	0.259	0.295
Q11b	0.454	0.972	0.579	0.394	0.103	0.558	0.264	0.289	0.405	0.356	0.423	0.368	0.428	0.362	0.441
Q11c	0.413	0.939	0.537	0.399	0.260	0.369	0.298	0.346	0.462	0.415	0.425	0.452	0.440	0.457	0.493
Q12a	0.526	0.581	0.960	0.621	0.268	0.506	0.175	0.228	0.412	0.400	0.312	0.275	0.333	0.439	0.495
Q12b	0.541	0.462	0.930	0.510	0.189	0.449	0.139	0.175	0.446	0.409	0.351	0.344	0.369	0.453	0.429
Q13a	0.531	0.523	0.902	0.673	0.110	0.575	0.146	0.217	0.325	0.343	0.285	0.252	0.329	0.247	0.596
Q13b	0.472	0.261	0.605	0.919	0.499	0.338	-0.066	0.103	0.193	0.231	0.291	0.384	0.306	0.201	0.436
Q13c	0.545	0.484	0.676	0.883	0.380	0.494	0.214	0.171	0.292	0.215	0.386	0.412	0.451	0.240	0.579
Q13d	0.438	0.297	0.420	0.865	0.394	0.542	-0.031	-0.050	0.274	0.114	0.380	0.401	0.390	0.236	0.399
Q22a	0.185	0.165	0.201	0.477	0.970	0.059	0.049	0.038	0.189	0.223	0.247	0.144	0.216	0.309	0.212
Q22b	0.281	0.135	0.194	0.438	0.965	0.143	-0.009	-0.083	0.076	0.286	0.146	0.053	0.163	0.262	0.189
Q14a	0.196	0.379	0.354	0.324	0.058	0.855	0.102	0.067	0.160	0.286	0.372	0.225	0.368	0.177	0.177
Q14b	0.388	0.417	0.564	0.386	-0.072	0.745	0.080	0.138	0.203	0.371	0.328	0.187	0.311	0.177	0.397
Q14c	0.276	0.428	0.321	0.466	0.252	0.703	0.125	0.042	0.208	0.282	0.403	0.274	0.423	0.235	0.251
Q15a	0.181	0.196	-0.054	-0.088	0.095	0.142	0.834	0.107	0.177	0.152	0.327	0.139	0.324	0.146	0.064
Q15b	0.152	0.197	0.062	-0.005	-0.024	0.154	0.910	0.112	0.243	0.035	0.263	0.097	0.291	0.151	0.083
Q15c	0.337	0.321	0.318	0.170	-0.001	0.079	0.879	0.156	0.320	0.172	0.203	0.213	0.271	0.370	0.379
Q17a	0.296	-0.107	0.086	0.162	0.066	0.109	-0.133	-0.805	-0.120	-0.111	-0.167	-0.128	-0.167	-0.163	-0.037
Q17b	0.111	0.355	0.307	0.169	-0.004	0.174	0.142	0.980	0.180	0.375	0.260	0.253	0.259	0.232	0.180
Q25	0.101	0.261	0.290	0.092	-0.008	0.155	0.299	0.223	0.801	0.145	0.343	0.312	0.288	0.419	0.340
Q26	0.187	0.422	0.347	0.183	0.091	0.349	0.281	0.067	0.896	0.089	0.466	0.237	0.473	0.452	0.470
Q27	0.291	0.414	0.429	0.402	0.227	0.150	0.208	0.177	0.876	0.203	0.422	0.440	0.487	0.575	0.677

Table 4.4 Measurement Item to Construct Loadings and Cross Loadings.

Item	CwUAC	EoIAE	Read	EoCI	EoI	RF	Dov	Neu	EoC	Relev	Reli	Suf	Sat	Materi-ality	DU1
Q9a	0.101	0.261	0.291	-0.052	0.015	0.260	0.040	0.171	0.099	**0.620**	-0.037	-0.034	-0.103	0.360	0.095
Q9b	0.382	0.437	0.428	0.300	0.317	0.435	0.177	0.331	0.168	**0.967**	0.193	0.304	0.237	0.401	0.260
Q9c	0.339	0.356	0.351	0.188	0.253	0.360	0.130	0.323	0.173	**0.971**	0.175	0.315	0.206	0.389	0.256
Q30a	0.355	0.436	0.378	0.428	0.220	0.451	0.354	0.241	0.509	0.138	**0.937**	0.587	0.977	0.422	0.520
Q30b	0.366	0.455	0.341	0.422	0.164	0.488	0.296	0.251	0.465	0.213	**0.953**	0.618	0.976	0.361	0.438
Q30c	0.337	0.405	0.344	0.380	0.244	0.432	0.238	0.224	0.491	0.131	**0.946**	0.520	0.854	0.417	0.411
Q30d	0.171	0.306	0.139	0.193	0.113	0.404	0.144	0.216	0.270	0.086	**0.862**	0.386	0.731	0.272	0.246
Q34a	0.269	0.434	0.328	0.479	0.161	0.268	0.249	0.250	0.422	0.251	0.558	**0.939**	0.583	0.460	0.420
Q34b	0.303	0.434	0.291	0.442	0.082	0.276	0.168	0.219	0.355	0.234	0.554	**0.981**	0.589	0.349	0.302
Q34c	0.258	0.370	0.265	0.358	0.046	0.316	0.098	0.205	0.338	0.294	0.553	**0.939**	0.593	0.308	0.306
Q29	0.342	0.156	0.198	0.283	-0.052	0.275	-0.037	0.152	0.252	0.095	0.376	0.573	**0.924**	0.096	0.121
Q32a	0.355	0.436	0.378	0.428	0.220	0.451	0.354	0.241	0.509	0.138	0.937	0.587	**0.977**	0.422	0.520
Q32b	0.366	0.455	0.341	0.422	0.164	0.488	0.296	0.251	0.465	0.213	0.953	0.618	**0.976**	0.361	0.438
Q35a	0.019	0.202	0.321	0.080	0.238	0.172	0.086	0.181	0.392	0.354	0.210	0.087	0.157	**0.778**	0.451
Q35b	0.141	0.401	0.353	0.313	0.226	0.297	0.352	0.185	0.476	0.262	0.382	0.432	0.422	**0.886**	0.581
Q35c	0.207	0.344	0.365	0.215	0.291	0.179	0.235	0.218	0.566	0.483	0.400	0.407	0.387	**0.878**	0.483
Q36a	-0.177	-0.158	-0.323	-0.315	-0.086	-0.086	-0.018	0.022	-0.295	-0.090	-0.158	-0.246	-0.232	-0.205	**-0.728**
Q36b	-0.148	-0.122	-0.284	-0.282	-0.064	-0.078	-0.004	-0.006	-0.253	-0.089	-0.145	-0.237	-0.221	-0.170	**-0.695**
Q36c	-0.230	-0.295	-0.454	-0.367	-0.099	-0.233	-0.015	-0.080	-0.315	-0.174	-0.147	-0.119	-0.169	-0.296	**-0.769**
Q36h	0.345	0.449	0.470	0.548	0.209	0.383	0.283	0.191	0.644	0.172	0.543	0.431	0.558	0.646	**0.920**
Q36i	0.418	0.456	0.579	0.551	0.250	0.439	0.303	0.151	0.593	0.266	0.494	0.306	0.521	0.640	**0.950**
Q36j	0.395	0.494	0.531	0.510	0.213	0.389	0.306	0.206	0.656	0.350	0.469	0.379	0.508	0.670	**0.944**

Table 4.2 Construct Correlations versus Composite Reliability and Square Root of Average Variance Extracted.

Correlations of Latent Variables															
	CwUAC	EoIAE	Read	EoCI	EoI	RF	Dov	Neu	EoC	Relev	Reli	Suf	Sat	Materi-ality	DU1
CwUAC	1.000														
EoIAE	0.452	1.000													
Read	0.572	0.562	1.000												
EpCI	0.551	0.402	0.647	1.000											
EoI	0.239	0.156	0.204	0.474	1.000										
RF	0.384	0.537	0.548	0.518	0.103	1.000									
Dov	0.278	0.289	0.165	0.058	0.022	0.134	1.000								
Neu	0.010	0.313	0.223	0.092	-0.021	0.110	0.149	1.000							
EoC	0.239	0.437	0.423	0.288	0.139	0.252	0.297	0.177	1.000						
Relev	0.347	0.413	0.413	0.213	0.262	0.414	0.148	0.330	0.174	1.000					
Reli	0.344	0.440	0.339	0.399	0.205	0.481	0.290	0.253	0.482	0.159	1.000				
Suf	0.291	0.434	0.311	0.450	0.104	0.300	0.184	0.237	0.393	0.271	0.583	1.000			
Sat	0.369	0.456	0.369	0.436	0.197	0.480	0.333	0.252	0.499	0.179	0.968	0.617	1.000		
Materi-ality	0.158	0.386	0.408	0.255	0.296	0.259	0.283	0.229	0.571	0.430	0.405	0.395	0.402	1.000	
DU1	0.373	0.441	0.545	0.539	0.207	0.370	0.241	0.154	0.602	0.252	0.451	0.363	0.491	0.598	1.000
Square Root of Average Variance Extracted	0.827	0.939	0.931	0.889	0.967	0.770	0.871	0.899	0.858	0.869	0.925	0.953	0.952	0.849	0.841
Composite Reliability	0.867	0.957	0.951	0.919	0.967	0.813	0.907	0.891	0.894	0.899	0.96	0.967	0.976	0.885	0.934

Table 4.3 Shared Variance Among Constructs (squared correlations) versus Composite Reliability and Average Variance Extracted.

Squared Correlations of Latent Variables															
	CwUAC	EoIAE	Read	EoCI	EoI	RF	Dov	Neu	EoC	Relev	Reli	Suf	Sat	Materi-ality	DU1
CwUAC	1.000														
EoIAE	0.204	1.000													
Read	0.327	0.316	1.000												
EpCI	0.303	0.162	0.418	1.000											
EoI	0.057	0.024	0.042	0.225	1.000										
RF	0.148	0.289	0.300	0.269	0.011	1.000									
Dov	0.077	0.083	0.027	0.003	0.000	0.018	1.000								
Neu	0.000	0.098	0.050	0.008	0.000	0.012	0.022	1.000							
EoC	0.057	0.191	0.179	0.083	0.019	0.064	0.088	0.031	1.000						
Relev	0.120	0.171	0.170	0.045	0.069	0.171	0.022	0.109	0.030	1.000					
Reli	0.118	0.194	0.115	0.159	0.042	0.232	0.084	0.064	0.232	0.025	1.000				
Suf	0.084	0.189	0.097	0.203	0.011	0.090	0.034	0.056	0.154	0.074	0.340	1.000			
Sat	0.136	0.208	0.136	0.190	0.039	0.231	0.111	0.064	0.249	0.032	0.937	0.381	1.000		
Materiality	0.025	0.149	0.167	0.065	0.088	0.067	0.080	0.053	0.327	0.185	0.164	0.156	0.161	1.000	
DU1	0.139	0.194	0.297	0.290	0.043	0.137	0.058	0.024	0.363	0.064	0.203	0.132	0.241	0.358	1.000
Average Variance Extracted	0.6848	0.882	0.867	0.791	0.936	0.593	0.765	0.805	0.737	0.754	0.856	0.908	0.953	0.721	0.707
Composite Reliability	0.8668	0.957	0.951	0.919	0.967	0.813	0.907	0.891	0.894	0.899	0.96	0.967	0.976	0.885	0.934

Table 4.1 Item Measure Descriptive Statistics (n=55)

Item	Mean	Variance (n-1)	Standard deviation (n-1)	Skewness (Fisher)	Kurtosis (Fisher)	Item	Mean	Variance (n-1)	Standard Deviation (n-1)	Skewness (Fisher)	Kurtosis (Fisher)
Q10a	0.721	1.322	1.150	-0.183	-0.399	Q9c	2.067	0.871	0.933	-1.145	1.381
Q10b	1.122	0.966	0.983	-0.113	-0.676	Q25	1.207	1.052	1.025	-0.333	0.864
Q10c	0.782	1.347	1.161	-0.512	0.841	Q26	1.230	1.135	1.065	-0.111	-0.432
Q11a	1.185	1.040	1.020	-0.498	-0.289	Q27	1.541	0.990	0.995	0.116	-1.024
Q11b	1.291	0.896	0.947	-0.288	-0.369	Q29	-0.278	2.403	1.550	0.082	0.293
Q11c	1.309	1.056	1.028	-0.624	0.756	Q30a	1.069	0.798	0.893	-0.248	-0.492
Q12a	1.500	1.020	1.010	-0.519	0.092	Q30b	0.903	0.991	0.996	-0.363	-0.765
Q12b	1.400	1.207	1.099	-0.779	0.744	Q30c	0.793	1.042	1.021	-0.401	-0.347
Q13a	1.590	0.691	0.831	-1.020	1.520	Q30d	0.851	0.812	0.901	-0.225	-0.841
Q13b	1.140	1.277	1.130	-0.921	0.843	Q32a	-0.294	1.962	1.401	-0.198	0.696
Q13c	1.338	0.859	0.927	-0.720	0.618	Q32b	-0.371	1.893	1.376	-0.196	0.836
Q13d	0.743	1.425	1.194	-0.757	0.784	Q34a	1.016	1.400	1.183	-0.892	0.274
Q14a	0.712	1.030	1.015	-0.387	0.488	Q34b	0.710	1.392	1.180	-1.025	0.924
Q14b	1.162	0.916	0.957	-0.853	1.451	Q34c	0.668	1.328	1.152	-0.723	-0.294
Q14c	0.910	1.206	1.098	-0.967	1.670	Q35a	1.482	0.936	0.967	-1.202	2.361
Q15a	0.578	1.905	1.380	-0.638	0.440	Q35b	1.622	0.451	0.672	-0.473	0.355
Q15b	0.587	1.831	1.353	-0.540	0.667	Q35c	1.589	0.850	0.922	-0.550	0.085
Q15c	0.863	1.642	1.281	-0.564	0.781	Q36a	-1.760	1.092	1.045	0.713	0.181
Q16a	1.971	1.086	1.042	0.182	-0.630	Q36b	-1.739	1.214	1.102	1.009	1.451
Q16b	2.535	0.842	0.917	-0.105	-0.730	Q36c	-1.871	1.017	1.008	0.771	0.038
Q16c	2.405	0.813	0.902	-0.246	-0.132	Q36d	0.524	1.068	1.034	-0.349	-0.242
Q16d	1.811	1.050	1.025	0.161	-0.348	Q36e	0.685	0.993	0.996	-0.662	0.364
Q17a	-0.231	1.936	1.391	0.162	-0.260	Q36f	0.870	0.698	0.836	-0.743	1.357
Q17b	0.626	1.533	1.238	0.032	-0.630	Q36g	0.717	0.816	0.903	-0.799	1.409
Q22a	1.016	1.131	1.064	-0.808	0.848	Q36h	1.452	0.737	0.858	-0.164	-0.567
Q22b	1.051	1.339	1.157	-1.151	1.370	Q36i	1.584	0.579	0.761	-0.182	-0.169
Q9a	2.110	1.101	1.049	-1.631	4.227	Q36j	1.608	0.613	0.783	-0.145	-0.267
Q9b	2.073	0.809	0.900	-1.255	2.020						

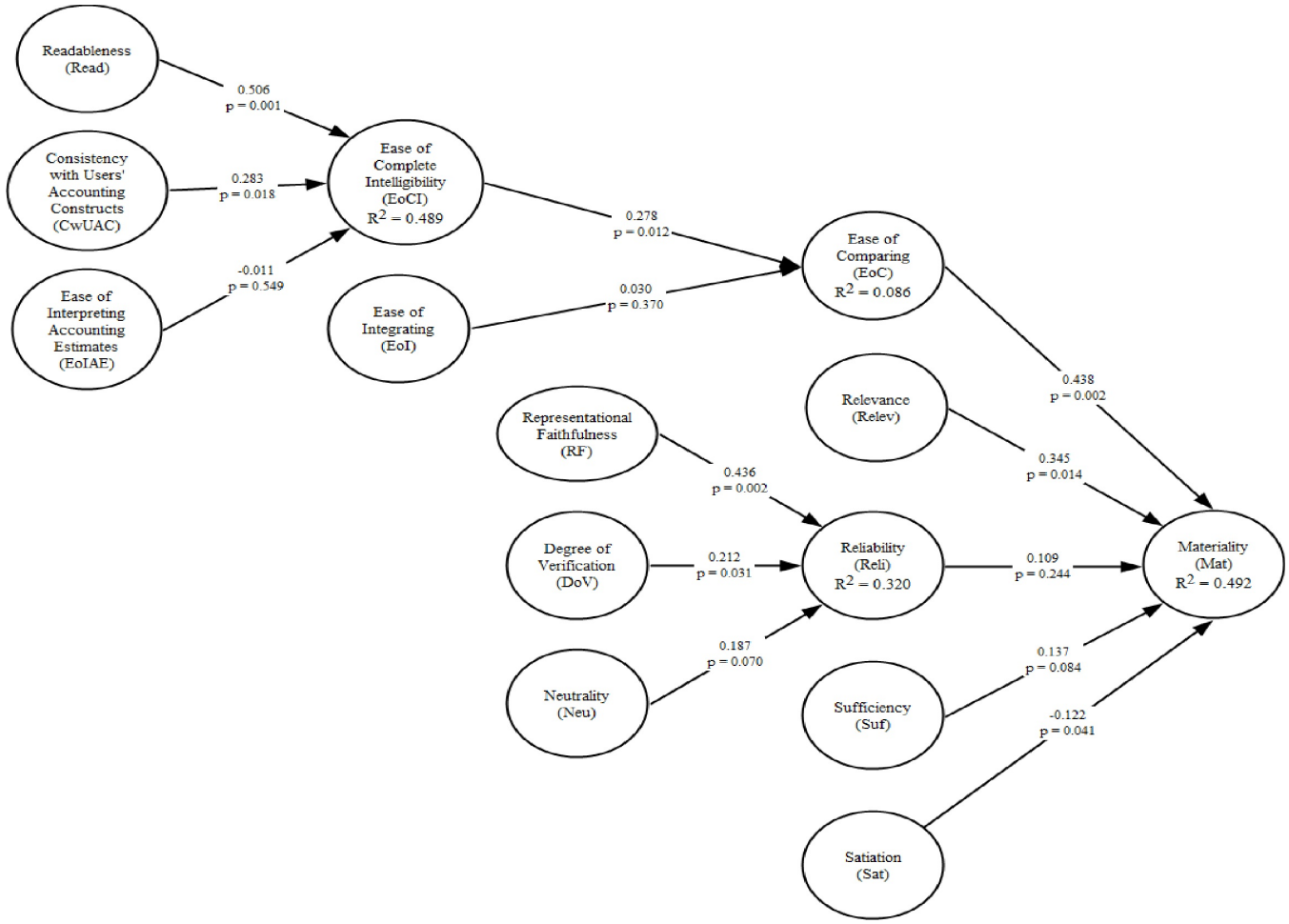

Figure 4.1. **Materiality Path Analysis**.

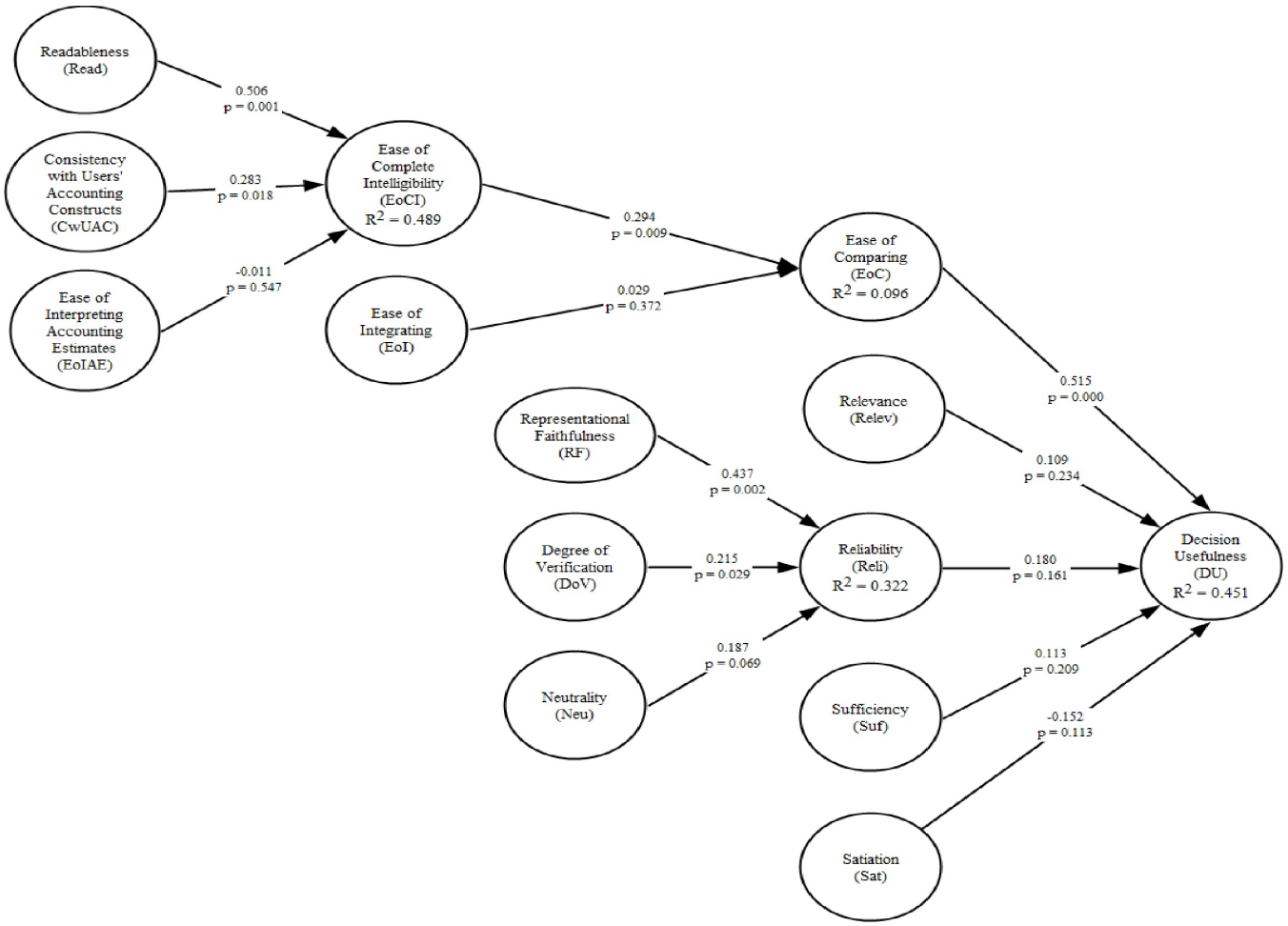

Figure 4.2 Decision Usefulness Path Analysis.

Chapter 5

Summary and Conclusions

Section 5.1 Introduction

This chapter commences with a discussion of the significant findings of the materiality and decision usefulness models, summarizes our conclusions, outlines the limitations and strengths of our study, and concludes with some suggestions regarding future research.

Section 5.2.1 Significant Findings

The first part in evaluating the adequacy of the theoretical model is to present the measurement model results. We focused on the reliability and validity of the measures used to represent each construct in the nomological model. We show that the measures we develop are accurate and they also display convergent and discriminant validity. Having established the appropriateness of the measures, the next step is to provide evidence supporting our theoretical model. We have two models for assessing the quality of products and services segment disclosure reports. Using the same set of quality predictors, we find differential impact on two summary evaluations: Materiality and Decision Usefulness. Each

model has the same core nomological network. However, both the relative impact among and the significance of the predictors varied. Below is a discussion of both models.

Section 5.2.2 Materiality Model

Based upon our theoretical model, the decision usefulness model has the following hypotheses:

H1: Fundamental equity analysis investment decision-makers' determination of materiality is positively influenced by ease of comparing

H1(a): Fundamental equity analysis investment decision-makers' determination of ease of comparing is positively influenced by ease of complete intelligibility

H1(a_1): Fundamental equity analysis investment decision-makers' determination of ease of complete intelligibility is positively influenced by readableness

H1 (b_2): Fundamental equity analysis investment decision-makers' determination of ease of complete intelligibility is positively influenced by consistency with users' accounting constructs

$_{Hi}$(c_3): Fundamental equity analysis investment decision-makers' determination of ease of complete intelligibility is positively influenced by ease of interpreting accounting estimates

H1(b): Fundamental equity analysis investment decision-makers' determination of ease of comparing is positively influenced by ease of integrating

H2: Fundamental equity analysis investment decision-makers' determination of materiality is positively influenced by relevance

H3: Fundamental equity analysis investment decision-makers' determination of materiality is positively influenced by reliability

H3(a): Fundamental equity analysis investment decision-makers' determination of reliability is positively influenced by representational faithfulness

H3(b): Fundamental equity analysis investment decision-makers' determination of reliability is positively influenced by degree of verification

H3(c): Fundamental equity analysis investment decision-makers' determination of reliability is positively influenced by neutrality

H4: Fundamental equity analysis investment decision-makers' determination of materiality is positively influenced by sufficiency

H5: Fundamental equity analysis investment decision-makers' determination of materiality is positively influenced by satiation

The Materiality model (R^2 of 0.492) indicate that five qualities of reported products and services segment disclosures influence fundamental-equity analysts' perceptions that these disclosures influence their knowledge of firms. We find that two of the five factors are the most important: Ease of Comparing (0.438 at the 0.002 level) and Relevance (0.345 at the 0.014 level). Respectively, in declining levels of importance, the remaining three qualities are Sufficiency (0.137 at the 0.084 level), Satiation (-0.122 at the 0.041 level), and Reliability (0.109 at the 0.244 level). Thus except for one of these qualities, Reliability, all are statistically significant at the 0.10 level.

The negative sign for the Satiation path coefficient may be suggestive of a suppresor effect. The correlation of Satiation and Materiality is positive, but shows up negative when used in conjunction with the other 4 predictors. In other words, Satiation helps to enhance the overall

predictive power of the model. As a alternate explanation, while analysts have persistently stressed that firms should be required to disclose more information, about their segments, than are required (FASB 1997, AMIR 1993), the negative path may also suggest a inverted U impact where more disclosure is initially deemed important, but at some point it reaches a peak and than more information becomes overload.

The Ease of Comparing (R^2 of 0.086) component of our Materiality model shows weak prediction by Ease of Complete Intelligibility (0.278 at the 0.012 level) and Ease of Integrating (0.030 at the 0.370 level) and suggest other factors may come into play in forming analysts' perceptions of how easy it is for them to compare reported products and services segment disclosures. Moreover, of these two disclosure qualities, only the former is statistically significant the 0.10 level.

Nevertheless, in terms of Ease of Complete Intelligibility (R^2 of 0.489) component of our Materiality model, we found good predictors in Readableness (0.506 at the 0.001 level), Consistency with Users' Accounting Constructs (0.283 at the 0.018 level), and Ease of Interpreting Accounting Estimates (-0.011 at the 0.549 level) form analysts' perceptions of reported products and services segment disclosure lucidity. The first two disclosure qualities are both substantive and statistically significant at the 0.01 level.

Even though it is not statistically significant, the Ease of Interpreting Accounting Estimates disclosure quality path coefficient is of note. The slight negative effect may suggest that analysts may be having difficulty interpreting the numerical segment reporting data provided by firms. This is of import because segment reporting regulations, currently, give firms wide latitude regarding how they derive their segment measures. These measures need only be those that firms employ internally for resource allocation and segment performance assessment purposes (FASB 1997, para. 10). This means that segment measures, unlike all other financial

statement measures need not be developed in accordance with GAAP (FASB 1997, para. 84). In fact, this latitude is a factor that caused one FASB board member to issue a dissenting opinion when the post-1998 segment disclosure standard was issued (FASB 1997, para. 40).

The Reliability (R^2 of 0.320) component of our Materiality model indicate that Representational Faithfulness (0.436 at the 0.002 level), Degree of Verification (0.212 at the 0.031 level), and Neutrality 0.187 at the 0.070 level) form fundamental-equity analysts' perceptions of reported products and services segment disclosures suitability. All of these disclosure qualities are statistically significant at the 0.10 level. However as previously mentioned, for our Materiality model, Reliability is the least important predictor of Materiality and shown not to be statistically significant.

Nevertheless, the just mentioned path coefficients indicate that Representational Faithfulness is the most important predictor of Reliability. This finding suggests fundamental-equity analysts perceive that firms' reported products and services segment reporting disclosures are corresponding with the non-financial reporting information to which these analysts have access. This is of import because a lack of representational faithfulness was one of analysts' primary criticisms of pre-1998 disclosures (AIMR 1993). Hence, the representational faithfulness of firms' post-1998 disclosures seem to be positively impacting analysts perceptions of their acquired knowledge of firms.

Likewise, Degree of Verification is the second most important predictor of Reliability. This finding indicates that analysts perceive that auditors are verifying firms' reported products and services segment disclosures. This too is of import because, unlike pre-1998 reported products and services segment disclosures, auditors are required to verify post-1998 disclosures. Moreover, post-1998 segment reporting regulations are structured to facilitate audit verification (FASB 1997, para. 87).

Lastly, Neutrality is the least important predictor of Reliability. This suggests that analysts perceive that firms' reported products and services disclosures are biased, in spite of audit verification. This finding is not surprising. Prior accounting researchers have found that firms opportunistically disclose and conceal segment reporting data (Botosan and Stanford 2005). Others find that firms are not transparently conveying data about their segments and that external auditors are facilitating this lack of transparency (Paul and Largay 2005).

In short, 49% of the variation in our Materiality model is explained by our five predictors: Ease of Comparing, Relevance, Reliability, Sufficiency, and Satiation. In addition our model has three endogenous components: Ease of Comparing, Ease of Complete Intelligibility, and Reliability. The predictors of the last two components respectively explain 48.9% and 32% of their total component variation. Each of these three variation percentages are moderate, for a PLS structural model (Chin 1998b). However, the predictors for the Ease of Comparing component only explain 8.6% of its total variation; this explained variation percentage is weak (Chin 1998b). Such a weak explained variation suggests that the Ease of Comparing component is a candidate for future amendment.

Eleven of the thirteen path coefficients in our Materiality model all are larger than 0.10, and thus merit notice (Urbach and Ahlemann 2010). Two do not: those pertaining to Ease of Interpreting Accounting Estimates, Ease of Integrating. Furthermore, ten of the thirteen path coefficients are statistically significant at the 0.10 level; however, three are not. These three include: the two low magnitude path coefficients, and that for Reliability. The insignificance of the Reliability path coefficient, and the fact that its magnitude is just above 0.10, suggest the possibility that had our sample size been larger, this path coefficient would have been statistically significant.

The magnitude and statistical significance of the path coefficients in our Materiality model suggest that, while Reliability is a predictor of Materiality, it is not nearly as important as the other four predictors. This finding is somewhat surprising because the guidance that the FASB used to develop the post-1998 reported products and services segment disclosures, the Qualitative Characteristics of Accounting Information (FASB 1989), gives a higher relative weight to issues of reliability than to issues of comparability. Moreover, issues associated with sufficiency and satiation are not explicitly mentioned.

Nevertheless, the FASB asserted in its post-1998 segment disclosure standard, that analysts are willing to trade-off reliability for relevance. Moreover, analysts would be willing to assume more responsibility for making the adjustments required to make intra- and inter-firm comparisons of segment data (FASB 1997, para. 86; AIMR 1993). Further, the FASB declared that its post-1998 standard meets its reliability objective (FASB 1997, para. 87), and most firms would report more segments and more information about each segment (FASB 1997, para. 113). Moreover, prior researchers' findings support this latter declaration. Our Materiality model results support asserting that fundamental-equity analysts perceive post-1998 reported products and services segment disclosures influence their understandings of firms, and in that respect both the FASB's and these analysts' objectives are being met.

Section 5.2.3 Decision Usefulness Model

Based upon our theoretical model, the decision usefulness model has the following hypotheses:

H1: Fundamental equity analysis investment decision-makers' determination of decision usefulness of data is positively influenced by ease of comparing

H1(a): Fundamental equity analysis investment decision-makers' determination of ease of comparing is positively influenced by ease of complete intelligibility

H1(a_1): Fundamental equity analysis investment decision-makers' determination of ease of complete intelligibility is positively influenced by readableness

H1 (b_2): Fundamental equity analysis investment decision-makers' determination of ease of complete intelligibility is positively influenced by consistency with users' accounting constructs

Hi(c_3): Fundamental equity analysis investment decision-makers' determination of ease of complete intelligibility is positively influenced by ease of interpreting accounting estimates

H1(b): Fundamental equity analysis investment decision-makers' determination of ease of comparing is positively influenced by ease of integrating

H2: Fundamental equity analysis investment decision-makers' determination of decision usefulness of data is positively influenced by relevance

H3: Fundamental equity analysis investment decision-makers' determination of decision usefulness of data is positively influenced by reliability

H3(a): Fundamental equity analysis investment decision-makers' determination of reliability is positively influenced by representational faithfulness

H3(b): Fundamental equity analysis investment decision-makers' determination of reliability is positively influenced by degree of verification

H3(c): Fundamental equity analysis investment decision-makers' determination of reliability is positively influenced by neutrality

H4: Fundamental equity analysis investment decision-makers' determination of decision usefulness of data is positively influenced by sufficiency

H5: Fundamental equity analysis investment decision-makers' determination of decision usefulness of data is positively influenced by satiation

The second model using Decision Usefulness (R^2 of 0.451) as the final outcome assesses how fundamental-equity analysts' judgments about whether reported products and segment disclosures improve their understandings of firms. This model, as previously mentioned, has the same core nomological predictor network as our Materiality model. Consequently, this model examines how analysts aggregated the same five disclosure qualities: Ease of Comparing (0.515 at the 0.000 level), Relevance (0.109 at the 0.234 level), Reliability (0.180 at the 0.161 level), Sufficiency (0.113 at the 0.209 level), and Satiation (-0.152 at the 0.113 level). The path coefficients of all of these five disclosure qualites are greater than 0.10 and thus merit notice, however, only that for Ease of Comparing is significant at the 0.10 level. In comparison, our Materiality model found four of these path coefficients being significant including Ease of Comparing.

Our Decision Usefulness model, like our Materiality model, has three endogenous components: Ease of Comparing, Ease of Complete Intelligibility, and Reliability. The explained variation of the Ease of Comparing (R^2 of 0.096 versus 0.086), and Reliability (R^2 of 0.322 versus 0.320) components are slightly higher for this model than for our Materiality model. Only the explained variation of the Ease of Complete Intelligibility (R^2 of 0.489) component did not vary. Consequently, as with our Materiality model, the explained variation of the Ease of Comparing component is weak, but that of the other two components is moderate (Chin 1998b). Nevertheless

for each of the three endogenous components, the relative impact of their predictors, and the significance of the coefficients are comparable to those of our Materiality model.

Section 5.3 Conclusions

In short, in comparing our results for the two models, our most significant finding is that Ease of Comparing is the most important predictor for both Materiality and Decision Usefulness. However, surprisingly the relative importance of Relevance and Reliability shifts dramatically. Our Materiality model predicts that Relevance is the second most important predictor and Reliability is the least important. In contrast, our Decision Usefulness model predicts just the opposite

Our results suggest that to have an impact on analysts' understanding of firms, relevant disclosures are more important than reliable disclosures. However, to increase analysts' understanding of firms, reliable information is more important than relevant information. Furthermore, the amount of post-1998 reported products and services segment data being disclosed is insufficient to improve analysts' understandings of firms. These findings seem to support the dissenting FASB board member's assertion that post-1998 reported segment disclosures are unlikely to facilitate better understanding firms' performance, better assessing their prospects for future net cash flows, and making more informed judgments about firms as a whole (FASB 1997, para. 40 and 10). As a consequence, we infer that post-1998 disclosures are merely data, not information.

Section 5.4 Limitations of the Study

Our study was limited to one group of analysts, fundamental-equity analysts. Further, because of the small number of respondents, fifty-five, care must be taken in generalizing the results. The survey questionnaire approach is not a longitudinal study, and thus is not free of subjectivity by the respondent.

The research in this study is being used to predict causal relationships between the constructs studied. Although PLS analysis provides strong support for the interpretation due to the fact that all of the relationships are tested simultaneously, conclusive statements about causality cannot be made since alternative explanations cannot be ignored.

Section 5.5 Future Extensions of Present Research

In this study, only one class of analysts was examined. The perceptions of other decision makers should be studied. The research design utilized in this dissertation can also be used to evaluate other reporting issues in financial accounting.

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Appendix 3.0

Additional Structural Equation Models

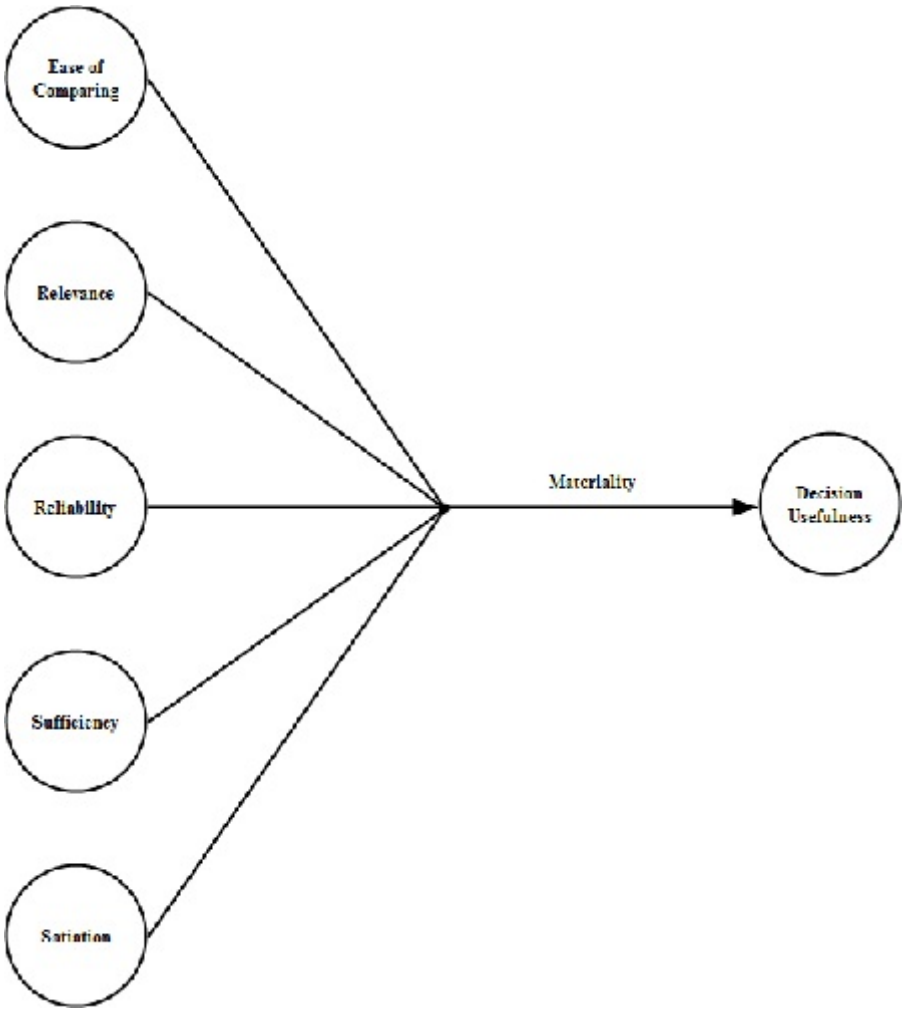

Figure 1. Decision Usefulness and Materiality Structural Model.

Figure 2. Alternative Decision Usefulness and Materiality Structural Model.

Figure 3. Decision Usefulness Without Materiality Structural Model.

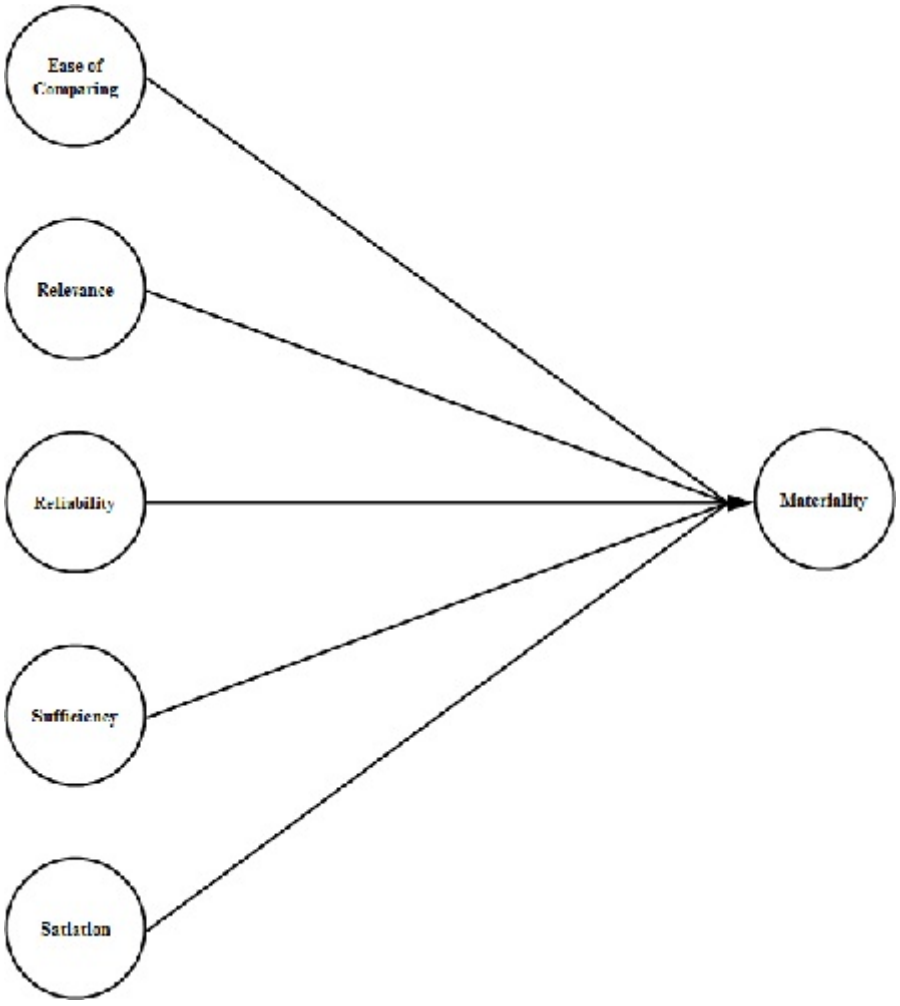

Figure 4. Alternative Materiality Structural Model.

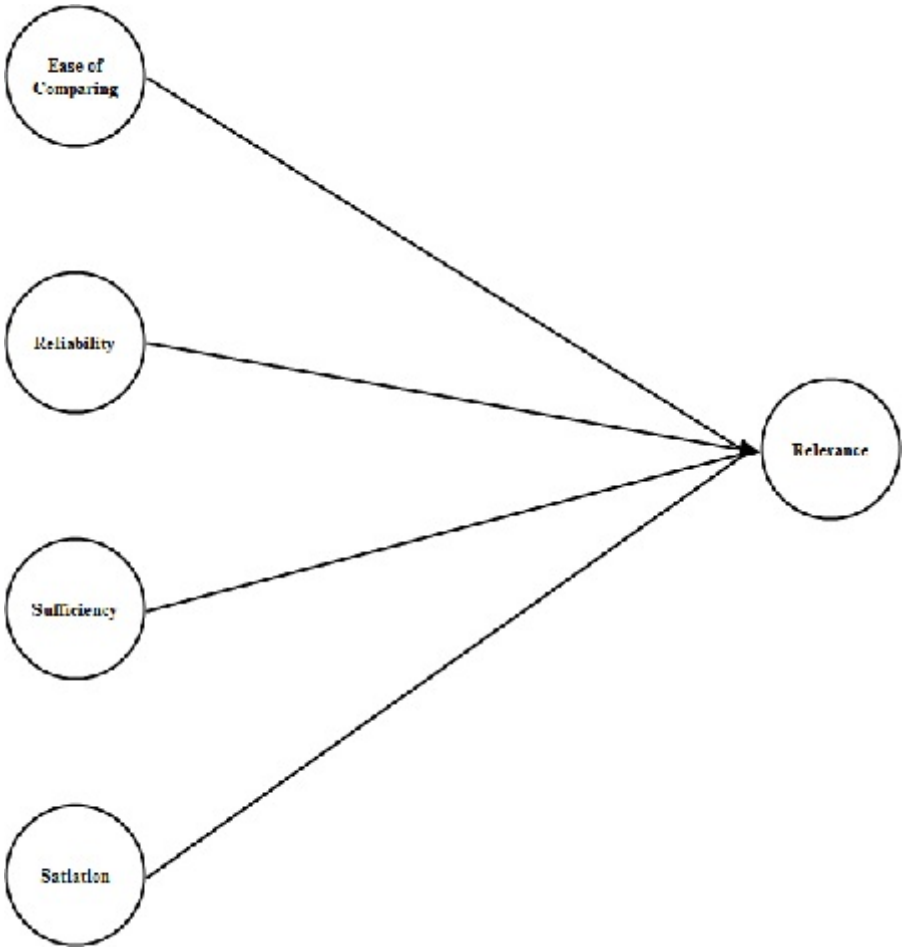

Figure 5. Alternative Relevance Structural Model.

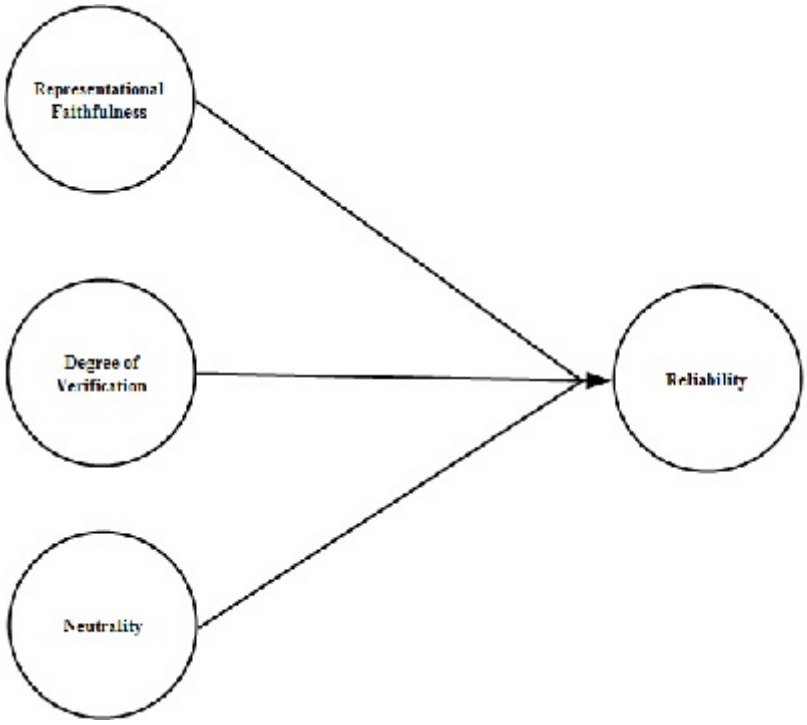

Figure 6. Reliability Structural Model.

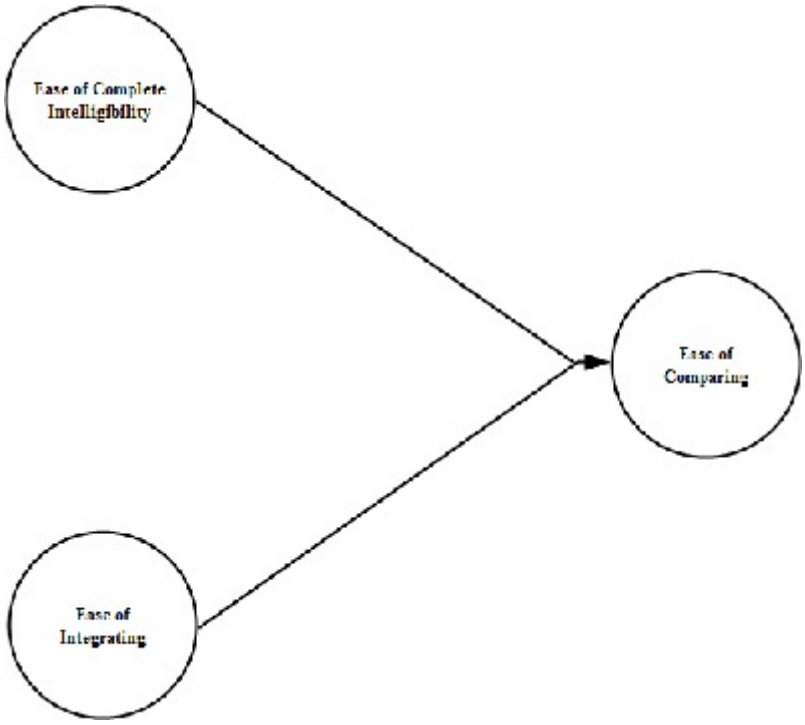

Figure 7. Comparing Structural Model.

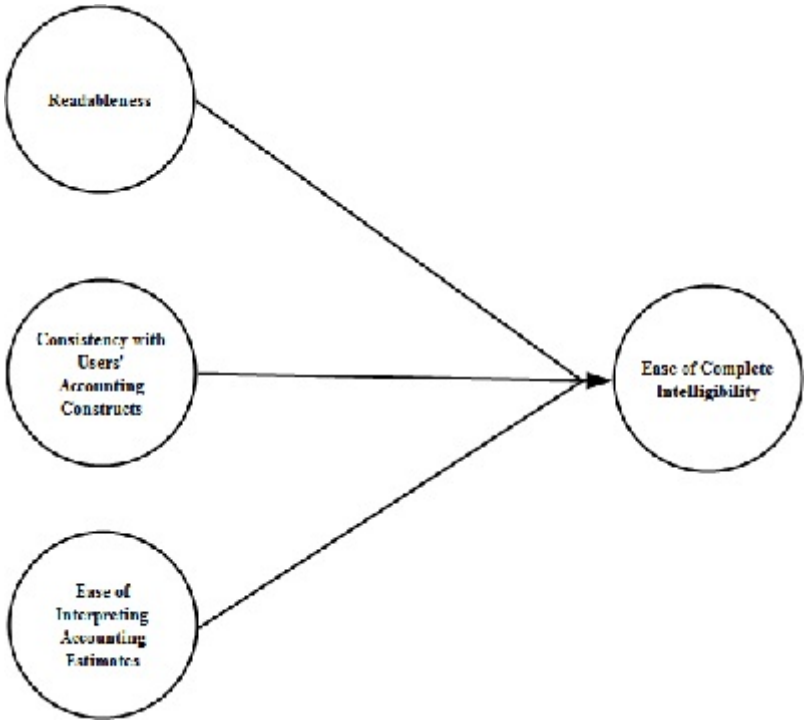

Figure 8. Ease of Complete Intelligibility Structural Model.

Figure 9. Post-1998 Reported Products and Services Decision Usefulness and Materiality Structural Model.

Appendix 3.1

Target Population Specification Related Tables

Table 1 Work Experiences and Occupational Titles with Corresponding Target Population Categories

Work Experiences			Occupational Titles					
						Likely to Regularly Make Fundamental Analysis Decisions, Using U.S. Domiciled SEC Registrant Filings?	Target Population	
#	Categories	Descriptions	#	Names	Decision Types		Include?	Categories
-	---	---	0	Occupational Title Not Disclosed	---	Indeterminable	No	---
15	Professor/ Instructor	Teaches investments, finance, and or economics as a full-time college or university professor or as an instructor.	1	Academic	Instructional	No	No	---
-	---	---	2	Accountant /Auditor	Security Investment	Yes	Yes	Analysts or Portfolio Managers Related
-	---	---	3	Actuary	Indeterminable	No	No	---
2	Valuator of Closely Held Businesses	Values firms whose stock is thinly traded (or privately held). Analyses financial statements, accounting methods, capital budget projects, acquisitions, and asset	4	Analyst: Closely Held Companies	Security Investment	No	No	---

Table 1 Work Experiences and Occupational Titles with Corresponding Target Population Categories

Work Experiences			**Occupational Titles**					
						Likely to Regularly Make Fundamental Analysis Decisions, Using U.S. Domiciled SEC Registrant Filings?	Target Population	
#	Categories	Descriptions	#	Names	Decision Types		Include?	Categories
		sales.						
3	*Security Investment Analyst*	*Analyses, values, and recommends* securities in one or more asset classes (*equity, fixed income*, alternative investments, or derivatives).	5	*Analyst: Credit*	*Security Investment*	No	No	---
3	Security Investment Analyst	Same as above	6	Analyst: Emerging Markets	Security Investment	No	No	---
3	Security Investment Analyst	Same as above	7	*Analyst: Equity*	*Security Investment*	*Yes*	**Yes**	Analysts
3	Security Investment Analyst	Same as above	8	*Analyst: Fixed Income*	*Security Investment*	No	No	---
3	Security Investment Analyst	Same as above	9	*Analyst: Mergers and*	*Security Investment*	*Yes*	**Yes**	Analysts

Table 1 Work Experiences and Occupational Titles with Corresponding Target Population Categories

Work Experiences			**Occupational Titles**					
						Likely to Regularly Make Fundamental Analysis Decisions, Using U.S. Domiciled SEC Registrant Filings?	Target Population	
#	Categories	Descriptions	#	Names	Decision Types		Include?	Categories
				Acquisition				
3	Security Investment Analyst	Same as above	10	Analyst: Options and Futures	Security Investment	No	No	---
4	Quantitative Investment or Risk Analyst	Conducts either quantitative research, or performance attribution analyses, or both to assist portfolio managers and traders with investment decisions and risk assessments. Supplies portfolio managers with portfolio management analytic tools.	11	Analyst: Quantitative Research	Security Investment	No	No	---
3	Security Investment Analyst	Same as above	12	*Analyst: Real Estate*	Real Estate and *Security Investment*	*Yes*	**Yes**	Analysts
5	*Venture Capital*	*Conducts market research and analyses* to	13	*Analyst: Venture*	*Security Investment*	No	No	---

Table 1 Work Experiences and Occupational Titles with Corresponding Target Population Categories

Work Experiences			**Occupational Titles**					
						Likely to Regularly Make Fundamental Analysis Decisions, Using U.S. Domiciled SEC Registrant Filings?	Target Population	
#	Categories	Descriptions	#	Names	Decision Types		Include?	Categories
	Analyst	solicit and/or collect investment funds *for*, any, of these purposes: *equity or debt financing, mergers*, capital leasing, *acquisitions, and divestitures*.		*Capital*				
-	---	---	14	Attorney	Indeterminable	No	No	---
-	---	---	15	Bank: Examiner/ Regulator	Regulatory	No	No	---
-	---	---	16	Bank: Trust Administrator	Indeterminable	No	No	---
--	---	---	17	Bank: Trust Investments	Indeterminable	No	No	---
-	---	---	18	*CEO/Chair/ Partner/*	*Managerial & Security*	*Yes*	**Yes**	Analysts or

Table 1 Work Experiences and Occupational Titles with Corresponding Target Population Categories

Work Experiences			**Occupational Titles**					
						Likely to Regularly Make Fundamental Analysis Decisions, Using U.S. Domiciled SEC Registrant Filings?	Target Population	
#	Categories	Descriptions	#	Names	Decision Types		Include?	Categories
				Principal	*Investment*			Portfolio Managers Related
-	---	---	19	*Chief Investment Officer*	*Managerial & Security Investment*	*Yes*	**Yes**	Analysts or Portfolio Managers Related
6	Compliance Analyst/ Officer	Ensures investment firm adherence to applicable laws, regulations, and professional practice standards.	20	Compliance Officer	Compliance	No	No	---
7	Investment Consultant	Provides investment consulting services, inclusive of developing investment policy statements, formulating and delivering investment reviews, conducting asset allocation studies,	21	Consultant: Management	Consultant	No	No	---

Table 1 Work Experiences and Occupational Titles with Corresponding Target Population Categories

Work Experiences			Occupational Titles					
						Likely to Regularly Make Fundamental Analysis Decisions, Using U.S. Domiciled SEC Registrant Filings?	Target Population	
#	Categories	Descriptions	#	Names	Decision Types		Include?	Categories
		managing client relationships, and monitoring investment performance.						
7	Investment Consultant	Same as above	22	Consultant: Pension	Consultant	No	No	---
8	*Corporate Chief Financial Officer*	Determines capital structure and funding needs, inclusive of equity, debt, and alternative investments. *Evaluates financial fundamentals*. Makes capital investment decisions.	23	*Corporate Financial Officer*	*Managerial & Capital Investment*	No	No	---
--	---	---	24	Corporate Pension Officer	Indeterminable	No	No	---
3	Security Investment Analyst	Analyses, values, and recommends securities in one or more asset classes	25	Derivatives Specialist	Security Investment	No	No	---

Table 1 Work Experiences and Occupational Titles with Corresponding Target Population Categories

Work Experiences			**Occupational Titles**					
						Likely to Regularly Make Fundamental Analysis Decisions, Using U.S. Domiciled SEC Registrant Filings?	Target Population	
#	Categories	Descriptions	#	Names	Decision Types		Include?	Categories
		(equity, fixed income, alternative investments, or derivatives).						
-	---	---	26	*Director of Research*	*Managerial & Security Investment*	*Yes*	**Yes**	Analysts or Portfolio Managers Related
9	Economist	Develops economic outlooks to be used to formulate investment strategies and portfolio structuring.	27	Economist	Economic Forecast	No	No	---
-	---	---	28	Financial Journalist	Indeterminable	No	No	---
-	---	---	29	Financial Planner	Indeterminable	No	No	---
-	---	---	30	Government	Indeterminable	No	No	---

Table 1 Work Experiences and Occupational Titles with Corresponding Target Population Categories

Work Experiences			**Occupational Titles**					
						Likely to Regularly Make Fundamental Analysis Decisions, Using U.S. Domiciled SEC Registrant Filings?	Target Population	
#	Categories	Descriptions	#	Names	Decision Types		Include?	Categories
-	---	---	31	Investment Administrator	Indeterminable	No	No	---
10	*Investment Banking Analyst*	*Analyzes and values securities for public offering; targets and values mergers and acquisitions for corporate clients.*	32	*Investment Banker*	*Security Investment*	*Yes*	**Yes**	Analysts
11	*Private Client Investment Advisor*	*Manages portfolios* of high net-worth clients. Identifies investors' objectives and develops investment policies. Manages client relationships.	33	*Investment Counselor*	*Security Investment*	*Yes*	**Yes**	Portfolio Managers
-	---	---	34	*Investment Firm Manager*	*Managerial & Security Investment*	*Yes*	**Yes**	Analysts or Portfolio Managers Related

Table 1 Work Experiences and Occupational Titles with Corresponding Target Population Categories

Work Experiences			Occupational Titles					
						Likely to Regularly Make Fundamental Analysis Decisions, Using U.S. Domiciled SEC Registrant Filings?	Target Population	
#	Categories	Descriptions	#	Names	Decision Types		Include?	Categories
-	---	---	35	Mutual Funds	Indeterminable	Indeterminable	No	---
-	---	---	36	Other	Indeterminable	Indeterminable	No	---
-	---	---	37	Performance Measurement Specialist	Indeterminable	No	No	---
12	*Portfolio Manager*	*Manages client investment portfolios. Makes investment decisions, inclusive of security selection, industry or sector selection, and portfolio construction.*	38	*Portfolio Manager*	*Security Investment*	*Yes*	**Yes**	Portfolio Managers
13	*Investment Strategist*	*Applies investment knowledge to develop and analyze investment strategies*. These strategies are designed to achieve investors' goals.	39	*Portfolio Strategist*	*Security Investment*	*Yes*	**Yes**	Analysts or Portfolio Managers Related

Table 1 Work Experiences and Occupational Titles with Corresponding Target Population Categories

Work Experiences			Occupational Titles					
						Likely to Regularly Make Fundamental Analysis Decisions, Using U.S. Domiciled SEC Registrant Filings?	Target Population	
#	Categories	Descriptions	#	Names	Decision Types		Include?	Categories
-	---	---	40	Retired	Indeterminable	No	No	---
14	Institutional Sales Professional/ Business Development (Buy and Sell Side)	Cultivates new business opportunities by marketing investment products to institutional investors. Executes trades and conveys research of securities and strategies to institutional investors.	41	Sales and Marketing: Institutional	Sales and Marketing	No	No	---
14	Institutional Sales Professional/ Business Development (Buy and Sell Side)	Same as above	42	Sales and Marketing: Investment Services	Sales and Marketing	No	No	---
15	Client Service Representative	Responsible for all activities related to servicing investment firm clients. These activities include communicating	43	Sales and Marketing: Retail	Client Service	No	No	---

Table 1 Work Experiences and Occupational Titles with Corresponding Target Population Categories

Work Experiences			Occupational Titles					
						Likely to Regularly Make Fundamental Analysis Decisions, Using U.S. Domiciled SEC Registrant Filings?	Target Population	
#	Categories	Descriptions	#	Names	Decision Types		Include?	Categories
	or Relationship Manager	investment performance and strategy to clients, and serving as the liaison between clients and portfolio managers.						
-	---	---	44	Student	Indeterminable	No	No	---
16	Securities Trader	Execute buy and sell investment security transactions. Develop for and disseminate to securities dealers and portfolio managers, information about markets and the trading environment.	45	Trader/ Securities and Other	Trading	No	No	---
17	Investment Firm Regulator/ Supervisor	Oversees legal/regulatory compliance matters. Performs due diligence and ensures firm compliance with all applicable federal	-	---	---	---	---	---

Table 1 Work Experiences and Occupational Titles with Corresponding Target Population Categories

Work Experiences			Occupational Titles					
						Likely to Regularly Make Fundamental Analysis Decisions, Using U.S. Domiciled SEC Registrant Filings?	Target Population	
#	Categories	Descriptions	#	Names	Decision Types		Include?	Categories
		securities laws, state statutes, investment laws, and regulatory agency requirements. Reviews and maintains investment contracts, registration statements, regulatory filings and documents.						
18	*Real Estate Investment Manager*	*Specializes in* managing *real estate investment securities.* Develops investment policies and monitors performance.	-	---	---	---	---	---

Table 2 Occupational Titles A and B Classifications: Target and Non-Target Population Fundamental Analysis Investment Decision-maker Classifications
(Each individual may have up to two occupational title classifications.)

Occupational Titles A and B Classifications		**# of Target Titles**	**Fundamental Analysis Investment Decision-maker Classifications**	
Title A Classifications	**Title B Classifications**		**Detailed**	**Aggregated**
Analysts	No Occupational Title B	1	Analysts	Analysts
Analysts	Analysts	2	Analysts	Analysts
Portfolio Managers	No Occupational Title B	1	Portfolio Managers	Portfolio Managers
Portfolio Managers	Portfolio Managers	2	Portfolio Managers	Portfolio Managers
Analysts	Portfolio Managers	2	Analysts & Portfolio Managers	Analysts & Portfolio Managers
Portfolio Managers	Analysts	2	Analysts & Portfolio Managers	Analysts & Portfolio Managers
Analysts or Portfolio Managers Related	No Occupational Title B	1	Analysts or Portfolio Managers Related	Analysts or Portfolio Managers Related
Analysts	Analysts or Portfolio Managers Related	2	Analysts & Analysts or Portfolio Managers Related	Analysts or Portfolio Managers Related
Analysts or Portfolio Managers Related	Analysts	2	Analysts & Analysts or Portfolio Managers Related	Analysts or Portfolio Managers Related
Analysts or Portfolio Managers Related	Portfolio Managers	2	Portfolio Managers & Analysts or Portfolio Managers Related	Analysts or Portfolio Managers Related
Portfolio Managers	Analysts or Portfolio Managers Related	2	Portfolio Managers & Analysts or Portfolio Managers Related	Analysts or Portfolio Managers Related
Analysts or Portfolio Managers Related	Analysts or Portfolio Managers Related	2	Analysts or Portfolio Managers Related	Analysts or Portfolio Managers Related
Non-Target	Non-Target	0	Non-Target	Non-Target
Non-Target	Any Occupational Title B other than Non-Target	0	Non-Target	Non-Target
Any Occupational Title A other than Non-Target	Non-Target	0	Non-Target	Non-Target

Table 3 Occupational Titles A and B: Fundamental Analysis Investment Decision-maker Classifications *(Each individual may have disclosed up to two occupational titles.)*		
Occupational Titles	Target or Non-Target Population Occupational Title?	Fundamental Analysis Investment Decision-maker Type
Occupational Title A		
Occupational Title A Not Disclosed	Non-Target	Non-Target
Academic	Non-Target	Non-Target
Accountant /Auditor	*Target*	*Analysts or Portfolio Managers Related*
Actuary	Non-Target	Non-Target
Analyst: Closely Held Companies	Non-Target	Non-Target
Analyst: Credit	Non-Target	Non-Target
Analyst: Emerging Markets	Non-Target	Non-Target
Analyst: Equity	*Target*	*Analysts*
Analyst: Fixed Income	Non-Target	Non-Target
Analyst: Mergers and Acquisition	*Target*	*Analysts*
Analyst: Options and Futures	Non-Target	Non-Target
Analyst: Quantitative Research	Non-Target	Non-Target
Analyst: Real Estate	*Target*	*Analysts*
Analyst: Venture Capital	Non-Target	Non-Target
Attorney	Non-Target	Non-Target
Bank: Examiner/Regulator	Non-Target	Non-Target
Bank: Trust Administrator	Non-Target	Non-Target
Bank: Trust Investments	Non-Target	Non-Target

Table 3 Occupational Titles A and B: Fundamental Analysis Investment Decision-maker Classifications
(Each individual may have disclosed up to two occupational titles.)

Occupational Titles	Target or Non-Target Population Occupational Title?	Fundamental Analysis Investment Decision-maker Type
CEO/Chair/Partner/Principal	*Target*	*Analysts or Portfolio Managers Related*
Chief Investment Officer	*Target*	*Analysts or Portfolio Managers Related*
Compliance Officer	Non-Target	Non-Target
Consultant: Management	Non-Target	Non-Target
Consultant: Pension	Non-Target	Non-Target
Corporate Financial Officer	Non-Target	Non-Target
Corporate Pension Officer	Non-Target	Non-Target
Derivatives Specialist	Non-Target	Non-Target
Director of Research	*Target*	*Analysts or Portfolio Managers Related*
Economist	*Target*	*Analysts or Portfolio Managers Related*
Financial Journalist	Non-Target	Non-Target
Financial Planner	Non-Target	Non-Target
Government	Non-Target	Non-Target
Investment Administrator	Non-Target	Non-Target
Investment Banker	*Target*	*Analysts*
Investment Counselor	*Target*	*Portfolio Managers*
Investment Firm Manager	*Target*	*Analysts or Portfolio Managers Related*
Mutual Funds	Non-Target	Non-Target
Other	Non-Target	Non-Target

Table 3 Occupational Titles A and B: Fundamental Analysis Investment Decision-maker Classifications *(Each individual may have disclosed up to two occupational titles.)*		
Occupational Titles	Target or Non-Target Population Occupational Title?	Fundamental Analysis Investment Decision-maker Type
Performance Measurement Specialist	Non-Target	Non-Target
Portfolio Manager	*Target*	*Portfolio Managers*
Portfolio Strategist	*Target*	*Analysts or Portfolio Managers Related*
Retired	Non-Target	Non-Target
Sales and Marketing: Institutional	Non-Target	Non-Target
Sales and Marketing: Investment Services	Non-Target	Non-Target
Sales and Marketing: Retail	Non-Target	Non-Target
Student	Non-Target	Non-Target
Trader/Securities and Other	Non-Target	Non-Target
Occupational Title B		
Occupational Title B Not Disclosed	No Occptnl Ttl B	No Occptnl Ttl B
Academic	Non-Target	Non-Target
Accountant /Auditor	*Target*	*Analysts or Portfolio Managers Related*
Actuary	Non-Target	Non-Target
Analyst: Closely Held Companies	Non-Target	Non-Target
Analyst: Credit	Non-Target	Non-Target
Analyst: Emerging Markets	Non-Target	Non-Target
Analyst: Equity	*Target*	*Analysts*
Analyst: Fixed Income	Non-Target	Non-Target

Table 3 Occupational Titles A and B: Fundamental Analysis Investment Decision-maker Classifications
(Each individual may have disclosed up to two occupational titles.)

Occupational Titles	Target or Non-Target Population Occupational Title?	Fundamental Analysis Investment Decision-maker Type
Analyst: Mergers and Acquisition	*Target*	*Analysts*
Analyst: Options and Futures	Non-Target	Non-Target
Analyst: Quantitative Research	Non-Target	Non-Target
Analyst: Real Estate	*Target*	*Analysts*
Analyst: Venture Capital	Non-Target	Non-Target
Attorney	Non-Target	Non-Target
Bank: Examiner/Regulator	Non-Target	Non-Target
Bank: Trust Administrator	Non-Target	Non-Target
Bank: Trust Investments	Non-Target	Non-Target
CEO/Chair/Partner/Principal	*Target*	*Analysts or Portfolio Managers Related*
Chief Investment Officer	*Target*	*Analysts or Portfolio Managers Related*
Compliance Officer	Non-Target	Non-Target
Consultant: Management	Non-Target	Non-Target
Consultant: Pension	Non-Target	Non-Target
Corporate Financial Officer	Non-Target	Non-Target
Corporate Pension Officer	Non-Target	Non-Target
Derivatives Specialist	Non-Target	Non-Target
Director of Research	*Target*	*Analysts or Portfolio Managers Related*
Economist	*Target*	*Analysts or Portfolio Managers Related*

Table 3 Occupational Titles A and B: Fundamental Analysis Investment Decision-maker Classifications
(Each individual may have disclosed up to two occupational titles.)

Occupational Titles	Target or Non-Target Population Occupational Title?	Fundamental Analysis Investment Decision-maker Type
Financial Journalist	Non-Target	Non-Target
Financial Planner	Non-Target	Non-Target
Government	Non-Target	Non-Target
Investment Administrator	Non-Target	Non-Target
Investment Banker	*Target*	*Analysts*
Investment Counselor	*Target*	*Portfolio Managers*
Investment Firm Manager	*Target*	*Analysts or Portfolio Managers Related*
Mutual Funds	Non-Target	Non-Target
Other	Non-Target	Non-Target
Performance Measurement Specialist	Non-Target	Non-Target
Portfolio Manager	*Target*	*Portfolio Managers*
Portfolio Strategist	*Target*	*Analysts or Portfolio Managers Related*
Retired	Non-Target	Non-Target
Sales and Marketing: Institutional	Non-Target	Non-Target
Sales and Marketing: Investment Services	Non-Target	Non-Target
Sales and Marketing: Retail	Non-Target	Non-Target
Student	Non-Target	Non-Target
Trader/Securities and Other	Non-Target	Non-Target

Appendix 3.2

Post-1998 Construct Definitions and Corresponding Questionnaire Measures

Table xx.1 Decision Usefulness Construct: Definition and Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Decision usefulness is a judgement deduced by analysts to assess whether reported products and services segment disclosures improve their understandings of firms.	
		Scale Description
Indicators	Q36. Post-1998 reported segment disclosures _____ my understanding of firms.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
DU1	Q36a. hinder	
DU2	Q36b. impede	
DU3	Q36c. prevent	
DU4	Q36d. confirm	
DU5	Q36e. validate	
DU6	Q36f. alter	
DU7	Q36g. change	
DU8	Q36h. better	
DU9	Q36i. improve	
DU10	Q36. increase	

Table xx.2 Materiality Construct: Definition and Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Materiality is the extent to which analysts perceive that their acquired knowledge of reported products and services segment disclosures influences their understandings of firms.	
		Scale Description
Indicators	Q35. I believe my acquired knowledge from post-1998 reported segment disclosures_____ my understanding of firms.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Mat1	Q35a. influences	
Mat2	Q35b. affects	
Mat3	Q35c. is material to	

Table xx.3 Ease of Comparing Construct: Definition and Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Ease of comparing is the extent to which analysts perceive that reported products and services segment disclosures make their comparisons easy.	
		Scale Description
Indicators		Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
EoC1	Q25. Post-1998 reported segment disclosures are easy for me to compare.	
EoC2	Q26. I readily compare post-1998 reported segment disclosures.	
EoC3	Q27. Post-1998 reported segment disclosures facilitate my comparisons.	

Table xx.4 Relevance Construct: Definition and Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Relevance is the extent to which analysts perceive that reported products and services segment disclosures have a bearing on their knowledge of firms.	
		Scale Description
Indicators	Q9. I believe post-1998 reported segment disclosures _____ my knowledge of firms.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Relev1	Q9a. have a bearing on	
Relev2	Q9b. are relevant to	
Relev3	Q9c. are pertinent to	

Table xx.5 Reliability Construct: Definition and Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Reliability is the extent to which analysts perceive that reported products and services segment disclosures are suitable to depend on, to improve their understandings of firms.	
		Scale Description
Indicators	Q30. Post-1998 reported segment disclosures are _____ for improving my understanding of firms.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Reli1	Q30a. dependable	
Reli2	Q30b. reliable	
Reli3	Q30c. trustworthy	
Reli4	Q30d. credible	

Table xx.6 Sufficiency Construct: Definition and Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Sufficiency is the extent to which analysts perceive that reported products and services segment disclosures provide adequate reported segment disclosures for improving their understandings of firms.	
		Scale Description
Indicators	Q34. Post-1998 reported segment disclosures _____ meet my minimum requirements for improving my understanding of firms.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Suf1	Q34a. adequately	
Suf2	Q34b. sufficiently	
Suf3	Q34c. satisfactorily	

Table xx.7 Satiation Construct: Definition and Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Satiation is the extent to which analysts perceive that reported products and services segment disclosures reveal all the reported segment disclosures they desire for improving their understandings of firms.
Indicators	Nine Point Semantic Differential Scale Questions
Sat1	Q29. For improving my understanding of firms, post-1998 reported segment disclosures are_____ what I want. far less than -4 -3 -2 -1 about 0 1 2 3 4 far more than
	Q32. For improving my understanding of firms, post-1998 reported segment disclosures are_____ what I desire.
Sat2	Q32a. far less comprehensive than -4 -3 -2 -1 about 0 1 2 3 4 far more comprehensive than
Sat3	Q32b. far less complete than -4 -3 -2 -1 about 0 1 2 3 4 far more complete than

Table xx.8 Representational Faithfulness Construct: Definition and Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Representational faithfulness is the extent to which analysts perceive that reported products and services segment disclosures correspond with the phenomenon the disclosures claim to describe.	
		Scale Description
Indicators	Q14. I believe post-1998 reported segment disclosures correspond with the segment _____ they claim to describe.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
RF1	Q14a. phenomena	
RF2	Q14b. facts	
RF3	Q14c. events	

Table xx.9 Degree of Verification Construct: Definition and Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Degree of verification is the extent to which analysts perceive that reported products and services segment disclosures are supported by adequate evidence.	
		Scale Description
Indicators	Q15. I believe post-1998 reported segment disclosures are _____ by firms' independent auditors.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
DoV1	Q15a. substantiated	
DoV2	Q15b. verified	
DoV3	Q15c. checked	

Table xx.10 Neutrality Construct: Definition and Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Neutrality is the extent to which analysts perceive that reported products and services segment disclosures are not unduly supportive of a particular position in the segment reporting disclosure debate.	
		Scale Description
Indicators	Q16. What is your belief about how aligned post-1998 reported segment disclosures are with the interests of these firm stakeholders?	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Neu1F	Q16a. individual investors	
Neu2F	Q16b. management	
Neu3F	Q16c. professional investors	
Neu4F	Q16d. all other stakeholders	
		Scale Description
	Q17. I believe post-1998 reported segment disclosures are _____ .	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Neu1	Q17a. biased	
Neu2	Q17b. neutral	

Table xx.11 Ease of Complete Intelligibility Construct: Definition, Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Ease of complete intelligibility is the extent to which analysts perceive that reported products and services segment disclosures are lucid.	
		Scale Description
Indicators	Q13. For me, post-1998 reported segment disclosures are _____.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
EoCI1	Q13b. clear	
EoCI2	Q13c. comprehensible	
EoCI3	Q13d. lucid	

Table xx.12 Readableness Construct: Definition, Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Readableness is the extent to which analysts perceive that reported products and services segment disclosures are easy for them to read.	
		Scale Description
Indicators	Q12. I _____ read post-1998 reported segment disclosures.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Read1	Q12a. easily	
Read2	Q12b. readily	
		Scale Description
	Q13. For me, post-1998 reported segment disclosures are _____ .	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
Read3	Q13a. readable	

Table xx.13 Consistency with Users' Accounting Constructs Construct: Definition, Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Consistency with users' accounting constructs is the extent to which analysts perceive that reported products and services segment disclosure accounting concepts are equivalent in function to their accounting concepts.	
		Scale Description
Indicators	Q10. I believe the accounting concepts used to determine post-1998 reported segment disclosures are _____ to my accounting concepts. These concepts focus on how firms determine their reported segments and what they report about them.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
CwUAC1	Q10a. equivalent in function	
CwUAC2	Q10b. similar	
CwUAC3	Q10c. analogous	

Table xx.14 Ease of Interpreting Accounting Estimates Construct: Definition, Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Ease of interpreting accounting estimates is the extent to which analysts perceive that reported products and services segment disclosure accounting estimates are easy for them to interpret.	
		Scale Description
Indicators	Q11. For me, post-1998 reported segment disclosure accounting estimates are easy to _____.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
EoIAE1	Q11a. interpret	
EoIAE2	Q11b. comprehend	
EoIAE3	Q11c. understand	

Table xx.15 Ease of Integrating Construct: Definition, Post-1998 Measurement Model Indicators, and Questionnaire Questions and Scale Description

Definition	Ease of integrating is the extent to which analysts perceive that reported products and services segment disclosures are easy to integrate into their system of understanding firms.	
		Scale Description
Indicators	Q22. I _____ incorporate post-1998 reported segment disclosures into my procedures for analyzing disclosures.	Likert, 7 point, -3 to +3, Strongly Agree to Strongly Disagree
EoI1	Q22a. easily	
EoI2	Q22b. readily	

Appendix 3.3

Survey Letter and Questionnaire

February 16, 2009

Addressee
Company Name
Address Line 1
Address Line 2
City, State Zip Code

Dear Addressee:

In a few days, by mail, you'll receive a brief University of Houston questionnaire; it's the crux of a study regarding an issue important to investment professionals—the decision usefulness of financial reporting information—in particular, of segment reporting information.

Your participation is crucial. I'm writing in advance because we've found that many people like to know that they'll be contacted. If enough analysts volunteer their expertise, the information will interest the Financial Accounting Standards Board and the International Accounting Standards Board, which are jointly reexamining their respective financial reporting conceptual frameworks. The findings will, also, be of interest to the Chartered Financial Analysts Institute.

As a way of saying thank you—all respondents will be eligible to participate in a lottery. A findings summary will, also, be posted at www.bauer.uh.edu/acct/sr_survey.html.

Your participation in this study will help me to fulfill the final requirement of my doctoral program. Dr. George O. Gamble (713-743-4824), my faculty sponsor, is supervising this study. We both would appreciate your assistance.

Sincerely,

Cynthia Tollerson, Ph. D. Candidate

P.S. It's only with the support of seasoned investment professionals, such as you, that independent research focusing on analysts can be beneficial.

February 23, 2009

Addressee
Company Name
Address Line 1
Address Line 2
City, State Zip Code

Dear Addressee:

You recently received my letter asking for your help with an independent University of Houston study concerning the decision usefulness of segment reporting information. Enclosed is the "Analysts' Perceptions of Reported Segment Disclosures" questionnaire, which I mentioned. It's my understanding that you're an investment professional who uses segment reporting information. I've randomly selected 1,600 analysts, like you, to ask their opinions regarding the qualitative characteristics of U.S. domiciled firms' products and services segment disclosures. I'll use the study results to better understand analysts' conceptualizations of decision useful financial reporting information.

Your participation is crucial. The results will interest the Financial Accounting Standards Board and the International Accounting Standards Board, which are jointly reexamining their respective conceptual frameworks—to improve the decision usefulness of financial reporting information. The results will, also, be of interest to the Chartered Financial Analysts Institute.

Your answers to the fifteen minute questionnaire will be confidential; your identity will not be disclosed. If you don't examine the financial reporting disclosures of U.S. domiciled firms that disclose products and services segments answer section five, only. Should you prefer to not convey your insights, would you let me know by mailing back the blank questionnaire? It has an identification number, and it is stamped and self addressed.

To express my gratitude, the identification numbers of all returned questionnaires will be entered into a lottery. Two prizes will be awarded. Each will be a $250 donation, in the winner's name, to a nonprofit organization selected by the winner. The winners' questionnaire numbers and a findings summary will be posted at www.bauer.uh.edu/acct/sr_survey.html.

This project fulfills the final requirement of my doctoral program. It's supervised by my faculty sponsor, Dr. George O. Gamble (713-743-4824). The results may be published, or presented at professional conferences, or both. If you have questions or concerns about this study, feel free to contact either of us.

Sincerely,

Cynthia Tollerson, Ph. D. Candidate

March 3, 2009

Last week, I mailed to you a University of Houston questionnaire, which seeks your insights about the qualitative characteristics of U.S. domiciled firms' products and services segment disclosures.

If you've completed and returned the questionnaire, please accept my gratitude. If not, would you, kindly, do so today? It is only by asking professionals, like you, that we can collect information that will allow us to gain a better understanding of the attributes of decision useful financial reporting information.

If you didn't receive the questionnaire, or if it was misplaced, please call me at 713-743-4845 or email me at CTollerson@uh.edu. I'll mail another to you immediately.

This project is a requirement of my doctoral program and is supervised by my faculty sponsor, Dr. George O. Gamble (713-743-4824).

Cynthia Tollerson, Ph. D. Candidate

April 10, 2009

Addressee
Employer Name
Address Line 1
Address Line 2
City, State Zip Code

Dear Addressee:

About six weeks ago, I mailed to you a University of Houston questionnaire concerning the decision usefulness of segment information. I have not, yet, received your response. For that reason, I've mailed to you the enclosed replacement questionnaire.

This study is part of our long-range project to better understand the attributes composing decision usefulness. Consequently, this study will have a greater impact on the accounting standard-setting process, than the study of any issue currently in the press—*if enough* questionnaire recipients *respond*.

Some of your colleagues have responded. They've expressed varying views about segment information. Some have commented that several questions are alike. Others have observed that respondents' answers will differ, greatly, based on their data usage and on the firms they follow. Each issue is valid; each was considered in the questionnaire design. Furthermore—to achieve nontrivial results—the latter requires that we receive numerous responses.

Your response is vital. Our survey results can only be meaningful—to the financial and the accounting standard-setting communities—if nearly everyone, who received the questionnaire, responds.

Our target survey population is *investment professionals* who employ firms' annual reports, 10-K's, or 10-Q's and who follow U.S. domiciled firms that disclose products and services segments. Hence, the target population includes those who aren't research analysts.

If you're *not* a target population member—would you let me know by, only, completing questionnaire section five and returning the questionnaire? If you're a member—but would rather not convey your views—would you return the blank questionnaire? It is stamped and self-addressed.

Your questionnaire bears an identification number. When I receive your questionnaire, I'll use the number to remove your name from our mailing list. I'll also use it to protect the confidentiality of your responses—your identity will not be disclosed.

Your participation is voluntary. Ergo, to express my appreciation to the respondents, I'll enter their questionnaire numbers into a lottery. Two prizes will be awarded. Each will be a $250 donation, in the randomly selected winner's name, to a nonprofit organization chosen by the winner. The winners' questionnaire numbers and a findings summary will be posted at www.bauer.uh.edu/acct/sr_survey.html.

This project fulfills the final requirement of my doctoral program. The results may be published, or presented at professional conferences, or both. If you have questions or concerns about this study, E-mail me at CTollerson@uh.edu or telephone my faculty sponsor, Dr. George O. Gamble (713-743-4824).

Sincerely,

Cynthia Tollerson, Ph. D. Candidate

Telephone/Voice Mail Script

Hello. May I speak with [Courtesy Title, First-name, Last_Name]?

My name is Cynthia Tollerson. I'm a doctoral student at the University of Houston. On April 10, I mailed to you a questionnaire entitled " Analysts' Perceptions of Reported Segment Disclosures." It came in a white 6" by 9" envelope, which bears the University of Houston's red logo. The questionnaire has a blue hard cover.

I'm calling to determine if you've received the questionnaire and to answer questions that you may have about our study.

We've sent you four mailings. This is the last contact that I will initiate with you. If you're not interested or are unable to participate in our study, would you mail back the questionnaire? It's self addressed and stamped. Or call me on my cell phone, and leave a voice mail message that includes your name and either your company name or your telephone number, and just say you're not interested. My cell phone, the number is xxx-xxx-xxxx.

In terms of questions that you may have, the purpose of our study is to test a theoretical model that I developed, with the help of my dissertation committee. The model represents our conceptualization of the attributes of decision useful information. We're testing it in the context of investment professionals' perceptions of the segment reporting information disclosed by U.S. domiciled firms that disclose products and services segments.

The Financial Accounting Standards Board is currently revising its conceptual framework. It's chosen, however, to not revise it decision useful definition. We feel it should. Furthermore, the FASB has never devised a method for objectively measuring whether firms' financial reporting information is decision useful. We have. Your response to our survey will provide the empirical data needed to test our model and will help the investment and accounting communities.

If you have additional questions about our study, please call me on my cell phone. Again, that number is xxx-xxx-xxxx.

Thank you for your time.

Analysts' Perceptions of Reported Segment Disclosures

Start Here

Thank you for opening this questionnaire. The objective of our study is to solicit your opinions about segment reporting disclosures, **no matter your knowledge level**. Our interest, however, is in annual report, 10-K, and 10-Q disclosures of firms that you follow which are U.S. domiciled **and** which disclose products and services segments. *Therefore, if you do not follow such firms, skip now to question 51.*

Some of our questions are similar. Even so, for statistical analysis reasons, we need your answer for each question. *Kindly record your answers by **circling** the best one, unless other instructions are provided.*

SECTION 1

In this section, we ask about your use of fiscal year-end segment reporting disclosures, and your familiarity with those issued for fiscal year 1999 and beyond.

1. Thinking of all the ways you use fiscal year-end segment reporting disclosures, rate the importance of these uses to you. *(Rate every use independently on a scale of 0% to 100%; the sum should total no more than 500%.)*

USES	RATINGS
a. assessing a firm's risks	_____%
b. comparing firms	_____%
c. evaluating management's stewardship	_____%
d. forecasting a firm's earnings/cash flows	_____%
e. understanding a firm	_____%

2. Thinking of all the ways you use fiscal year-end segment reporting disclosures, rate the importance of these 10-K segment reporting related disclosures to you. *(Rate every disclosure independently on a scale of 0% to 100%; the sum should total no more than 500%.)*

DISCLOSURES	RATINGS
a. Description of Business	_____%
b. Financial Statements and Supplementary Data	_____%
c. Location of Properties	_____%
d. Management Discussion and Analysis	_____%
e. Quantitative and Qualitative Disclosures about Market Risk	_____%

3. Have you read these regulators' post-1997 segment reporting standards/rules?

a. the FASB's	Yes	No	I do not recall
b. the SEC's	Yes	No	I do not recall

4. Write the number of firms whose fiscal year-end segment reporting disclosures you believe you examined for any fiscal year-end falling within these time spans:

TIME SPANS	NUMBER OF FIRMS
a. 1999–2001	_____
b. 2002 *(the year the Sarbanes-Oxley Act became effective)*	_____
c. 2003 through today	_____

If your answer is 0 for all periods, skip to question 51.

5. Of the firms whose fiscal year-end segment reporting disclosures I examined for any fiscal year that fell between 2003 and today, I believe the following number belong in these groups:

GROUPS	NUMBER OF FIRMS
a. firms that disclosed both products and services segments and geographic segments	_____
b. firms that disclosed only products and services segments	_____

6. How knowledgeable are you of these regulators' segment reporting disclosure standards/rules?

	Not at all Knowledgeable	Somewhat Knowledgeable	Knowledgeable	Very Knowledgeable	Extremely Knowledgeable
a. the FASB's	0	1	2	3	4
b. the SEC's	0	1	2	3	4

7. I believe the firms whose fiscal year-end segment reporting disclosures I examined for any fiscal year-end falling within these time spans disclosed the required SEC segment reporting disclosures:

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
a. 1999–2001	-3	-2	-1	0	1	2	3
b. 2002 *(the year the Sarbanes-Oxley Act became effective)*	-3	-2	-1	0	1	2	3
c. 2003 through today	-3	-2	-1	0	1	2	3

SECTION 2

Our questions in this section focus on "post-1998" reported segment disclosures. We define these disclosures as the **products and services** segment disclosures reported subsequent to fiscal year 1998 in annual reports, 10-Ks, and 10-Qs of firms that you follow that disclosed –only– products and services segments.

Part A Relevance and Comprehensibility

8. How frequently do you use post-1998 reported segment disclosures to increase your knowledge of firms?

Never	Rarely	Sometimes	Usually	Always
0	1	2	3	4

Hereafter, you will see statements with a blank line. After each statement, you will also see several rows. A term or a phrase is on the left-hand side of each row; a set of possible answers is on the right-hand side. Kindly read the statement and mentally substitute the left-hand side row information into the blank line, then circle the best answer.

9. I believe post-1998 reported segment disclosures _____ my knowledge of firms.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
a. have a bearing on	-3	-2	-1	0	1	2	3
b. are relevant to	-3	-2	-1	0	1	2	3
c. are pertinent to	-3	-2	-1	0	1	2	3

10. I believe the accounting concepts used to determine post-1998 reported segment disclosures are _____ to my accounting concepts. These concepts focus on how firms determine their reported segments and what they report about them.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
a. equivalent in function	-3	-2	-1	0	1	2	3
b. similar	-3	-2	-1	0	1	2	3
c. analogous	-3	-2	-1	0	1	2	3

11. For me, post-1998 reported segment disclosure accounting estimates are easy to _____.

a. interpret	-3	-2	-1	0	1	2	3
b. comprehend	-3	-2	-1	0	1	2	3
c. understand	-3	-2	-1	0	1	2	3

12. I _____ read post-1998 reported segment disclosures.

a. easily	-3	-2	-1	0	1	2	3
b. readily	-3	-2	-1	0	1	2	3

13. For me, post-1998 reported segment disclosures are _____.

a. readable	-3	-2	-1	0	1	2	3
b. clear	-3	-2	-1	0	1	2	3
c. comprehensible	-3	-2	-1	0	1	2	3
d. lucid	-3	-2	-1	0	1	2	3

Part B
Representational Faithfulness, Degree of Verification, and Neutrality

14. I believe post-1998 reported segment disclosures correspond with the segment _____ they claim to describe.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
a. phenomena	-3	-2	-1	0	1	2	3
b. facts	-3	-2	-1	0	1	2	3
c. events	-3	-2	-1	0	1	2	3

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15. I believe post-1998 reported segment disclosures are _____ by firms' independent auditors.

a. substantiated	-3	-2	-1	0	1	2	3
b. verified	-3	-2	-1	0	1	2	3
c. checked	-3	-2	-1	0	1	2	3

16. What is your belief about how aligned post-1998 reported segment disclosures are with the interests of these firm stakeholders?

	Not Aligned	Somewhat Aligned	Moderately Aligned	Very Aligned	Almost Perfectly Aligned
a. individual investors	0	1	2	3	4
b. management	0	1	2	3	4
c. professional investors	0	1	2	3	4
d. all other stakeholders	0	1	2	3	4

17. I believe post-1998 reported segment disclosures are _____.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
a. biased	-3	-2	-1	0	1	2	3
b. neutral	-3	-2	-1	0	1	2	3

Part C Reported Segment Disclosure Adjustments

18. How frequently do you adjust post-1998 reported segment disclosures?

Never	Rarely	Sometimes	Usually	Always
0	1	2	3	4

If your answer is never, skip to question 21.

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19. List and rate the five most important adjustments that you make to reported segment disclosures. *(Use a 0% to 100% scale; your ratings should equal a total of 100%.)*

YOUR ADJUSTMENTS	RATINGS
a. _____	_____%
b. _____	_____%
c. _____	_____%
d. _____	_____%
e. _____	_____%
TOTAL	100%

20. When you adjust post-1998 reported segment disclosures, on average, how much _____?

	None	Not Much At All	Not Too Much	Much	Too Much
a. time do you spend	0	1	2	3	4
b. effort do you expend	0	1	2	3	4

Part D Ease of Incorporating

21. How frequently do you incorporate post-1998 reported segment disclosures into your procedures for analyzing disclosures?

Never	Rarely	Sometimes	Usually	Always
0	1	2	3	4

If your answer is never, skip to question 23.

22. I _____ incorporate post-1998 reported segment disclosures into my procedures for analyzing disclosures.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
a. easily	-3	-2	-1	0	1	2	3
b. readily	-3	-2	-1	0	1	2	3

Part E Ease of Comparing

23. How frequently do you use post-1998 reported segment disclosures to make comparisons?

Never	Rarely	Sometimes	Usually	Always
0	1	2	3	4

24. Post-1998 reported segment disclosures make my _____ comparisons easier.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree	Not Applicable
a. annual intra-firm	-3	-2	-1	0	1	2	3	4
b. annual cross-sectional	-3	-2	-1	0	1	2	3	4
c. annual inter-temporal	-3	-2	-1	0	1	2	3	4
d. quarterly	-3	-2	-1	0	1	2	3	4

25. Post-1998 reported segment disclosures are easy for me to compare.

-3 -2 -1 0 1 2 3 4

26. I readily compare post-1998 reported segment disclosures.

-3 -2 -1 0 1 2 3 4

27. Post-1998 reported segment disclosures facilitate my comparisons.

-3 -2 -1 0 1 2 3 4

SECTION 3

We ask in this section about the **impact** of post-1998 reported segment disclosures on your understanding of **firms**.

Part A Satisfaction and Reliability

28. I am satisfied with how well post-1998 reported segment disclosures have improved my understanding of firms.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
-3	-2	-1	0	1	2	3

p10

29. For improving my understanding of firms, post-1998 reported segment disclosures are _____ what I want.

					about					
far less than	-4	-3	-2	-1	0	1	2	3	4	far more than

30. Post-1998 reported segment disclosures are _____ for improving my understanding of firms.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
a. dependable	-3	-2	-1	0	1	2	3
b. reliable	-3	-2	-1	0	1	2	3
c. trustworthy	-3	-2	-1	0	1	2	3
d. credible	-3	-2	-1	0	1	2	3

31. Post-1998 reported segment disclosures disclose what I need to improve my understanding of firms.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
-3	-2	-1	0	1	2	3

32. For improving my understanding of firms, post-1998 reported segment disclosures are _____ what I desire.

					about					
far less comprehensive than	-4	-3	-2	-1	0	1	2	3	4	far more comprehensive than
					about					
much less complete than	-4	-3	-2	-1	0	1	2	3	4	much more complete than

p11

33. I am pleased with how well post-1998 reported segment disclosures have improved my understanding of firms.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
-3	-2	-1	0	1	2	3

34. Post-1998 reported segment disclosures _____ meet my minimum requirements for improving my understanding of firms.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
a. adequately	-3	-2	-1	0	1	2	3
b. sufficiently	-3	-2	-1	0	1	2	3
c. satisfactorily	-3	-2	-1	0	1	2	3

Part B Materiality and Usefulness

35. I believe my acquired knowledge from post-1998 reported segment disclosures _____ my understanding of firms.

p12

a. influences	-3	-2	-1	0	1	2	3
b. affects	-3	-2	-1	0	1	2	3
c. is material to	-3	-2	-1	0	1	2	3

36. Post-1998 reported segment disclosures _____ my understanding of firms.

a. hinder	-3	-2	-1	0	1	2	3
b. impede	-3	-2	-1	0	1	2	3
c. prevent	-3	-2	-1	0	1	2	3
d. confirm	-3	-2	-1	0	1	2	3
e. validate	-3	-2	-1	0	1	2	3
f. alter	-3	-2	-1	0	1	2	3
g. change	-3	-2	-1	0	1	2	3
h. better	-3	-2	-1	0	1	2	3
i. improve	-3	-2	-1	0	1	2	3
j. increase	-3	-2	-1	0	1	2	3

37. Post-1998 reported segment disclosures are useful for my understanding of firms.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
-3	-2	-1	0	1	2	3

p13

SECTION 4

We begin this section by asking about your familiarity with **1993-1997** segment reporting disclosures.

38. Write the number of firms whose fiscal year-end segment reporting disclosures you believe you examined for **any** fiscal year-end falling within these time spans:

TIME SPANS	NUMBER OF FIRMS
a. 1993–1995	_____
b. 1996–1997	_____

If your answer is 0 for all periods, skip to question 51.

p14

Now we focus on "post-1998" and "pre-1998" reported segment disclosures. Post-1998 disclosures are the **products and services** segment disclosures in the 1999 through the most recent annual reports, 10-Ks, and 10-Qs of firms that you follow that disclosed **only products and services segments**. Pre-1998 disclosures are the **industry** and the **geographic** segment disclosures in the 1993–1997 annual reports, 10-Ks, and 10-Qs of firms that you follow.

Part A Relevance and Comprehensibility

39. I believe post-1998 reported segment disclosures are more _____ to my knowledge of firms than were pre-1998 disclosures.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
a. relevant	-3	-2	-1	0	1	2	3
b. pertinent	-3	-2	-1	0	1	2	3

40. Compared with pre-1998 reported segment disclosures, I incorporate post-1998 disclosures more _____ into my procedures for analyzing disclosures.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
a. easily	-3	-2	-1	0	1	2	3
b. readily	-3	-2	-1	0	1	2	3

41. To me post-1998 reported segment disclosures are _____ than were pre-1998 disclosures.

a. clearer	-3	-2	-1	0	1	2	3
b. more lucid	-3	-2	-1	0	1	2	3
c. easier to compare	-3	-2	-1	0	1	2	3
d. more readily compared	-3	-2	-1	0	1	2	3

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42. I compare post-1998 reported segment disclosures more frequently than I compared pre-1998 reported segment disclosures.

-3	-2	-1	0	1	2	3

In the rest of this section, we ask about the **impact** of post-1998 reported segment disclosures **relative to** pre-1998 disclosures on your understanding of **firms**.

Part B Reliability and Satisfaction

43. Post-1998 reported segment disclosures are more _____ than were pre-1998 disclosures for improving my understanding of firms.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
a. dependable	-3	-2	-1	0	1	2	3
b. reliable	-3	-2	-1	0	1	2	3

44. Compared with pre-1998 reported segment disclosures, for improving my understanding of firms, post-1998 disclosures are _____.

				about the same						
much less timely	-4	-3	-2	-1	0	1	2	3	4	much more timely
				about the same						
of much worse quality	-4	-3	-2	-1	0	1	2	3	4	of much better quality
				about the same						
less helpful	-4	-3	-2	-1	0	1	2	3	4	more helpful

45. Overall, post-1998 reported segment disclosures, compared with pre-1998 reported segment disclosures, are _____ for improving my understanding of firms.

				about the same						
a giant step backward	-4	-3	-2	-1	0	1	2	3	4	a giant step forward

46. For improving my understanding of firms, post-1998 reported segment disclosures are _____ what I desire compared with pre-1998 disclosures.

				about the same as						
far less comprehensive than	-4	-3	-2	-1	0	1	2	3	4	far more comprehensive than
				about the same as						
much less complete than	-4	-3	-2	-1	0	1	2	3	4	much more complete than

Part C Materiality and Usefulness

47. I believe my acquired knowledge from post-1998 reported segment disclosures has _____ on my understanding of firms than did that of pre-1998 disclosures.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
a. more influence	-3	-2	-1	0	1	2	3
b. a greater effect	-3	-2	-1	0	1	2	3

48. I believe my acquired knowledge from post-1998 reported segment disclosures is more material to my understanding of firms than was that of pre-1998 disclosures.

p18

-3 -2 -1 0 1 2 3

49. Post-1998 reported segment disclosures _____ my understanding of firms to a greater extent than did pre-1998 disclosures.

a. improve	-3	-2	-1	0	1	2	3
b. increase	-3	-2	-1	0	1	2	3

50. Overall, post-1998 reported segment disclosures are more useful for my understanding of firms than were pre-1998 disclosures.

-3 -2 -1 0 1 2 3

SECTION 5

Your answers to the questions in this last section will help us better understand your background.

Part A Your Background–General

For these questions, if a set of answer choices is given, kindly circle the best answer; otherwise, please provide one.

51. What is your gender?

Male Female

52. What is your nationality?

_____

53. What is your ethnicity?

_____

54. What is your age?

p19

_____

55. What is your highest completed college degree?

_____

56. Have you taken the CFA exam?

Yes No

57. Have you passed a level of the CFA exam?

Yes No

If you have not passed a level of the CFA exam, skip to question 59.

58. What is the highest level of the CFA exam you have passed?

Level 1 Level 2 Level 3

59. Which professional designations have you held?

None CA CFA CFP CGA CIC CMA CPA Other

60. Which active licenses/charters do you hold?

None CA CFA CFP CGA CIC CMA CPA Other

61. Which professional memberships do you hold?

None AICPA CFAI

Others *(Specify by spelling out the names of the organizations.)* _____

_____

_____

_____

62. Have you ever been an officer of the CFAI, the AIMR, or of a member society/chapter?

Yes No

Part B
Your Investment Professional Experience and Analysis Approach

For these questions, if a set of answer choices is given, kindly circle the best answer; otherwise, please provide one.

63. How many years have you worked in these areas?

AREAS	NUMBER OF YEARS
a. in the investment profession	_____
b. on the buy-side	_____
c. on the sell-side	_____

64. Did you use at least one investment decision-making approach, at anytime, from 1999 through today?

Yes No

If your answer is no, skip to question 68.

65. When you used an investment decision-making approach from 1999 through today, what percent of the time did you use these approaches: *(Your total should equal 100%.)*

APPROACHES	PERCENTAGES
a. Anticipation	_____%
b. Fundamental	_____%
c. Index Fund	_____%
d. Technical	_____%
e. Others *(Specify)*_____	_____%
TOTAL	100%

66. How many firms are you **currently** following? _____

67. Currently, what investment decision-making approach are you **mainly** using?

_____

_____

_____

_____

_____

68. What is your current industry of employment? *Kindly circle one.*

Academic Institution
Commercial Banking
Broker-Dealer/Investment Banking
Consulting
Financial Publisher
Foundation Endowment
Government/Regulatory Agency
Insurance Company
Investment Company/Mutual Fund
Investment Management/Counseling
Plan Sponsor-Corporation
Plan Sponsor-Public
Plan Sponsor-Union
Retired
Other *(Specify)*_____
_____

69. What is your current occupational classification? *Kindly circle no more than two classifications. The classifications are listed in alphabetical order below.*

Academic
Accounting/Auditing
Actuary
Analyst-Closely Held Company
Analyst-Credit
Analyst-Emerging Markets
Analyst-Equity
Analyst-Fixed Income
Analyst-Mergers & Acquisitions
Analyst- Options & Futures
Analyst-Quantitative Research
Analyst- Real Estate
Analyst- Venture Capitol
Attorney
Bank-Examiner/Regulator
Bank-Trust Administrator
Bank-Trust Investments
CEO/Chair/Partner/Principal
Chief Investment Officer
Compliance Officer
Consultant-Management
Consultant-Pension
Corporate-Financial Officer
Corporate-Pension Officer
Derivatives Specialist
Director of Research
Economist
Financial Journalist
Financial Planner
Government
Investment-Administrator
Investment-Banker
Investment-Counselor
Investment-Firm Manager
Mutual Fund
Performance Measurement Specialist
Portfolio Manager
Portfolio Strategist
Retired
Sales & Marketing-Rep. Institutional
Sales & Marketing-Investment Services
Sales & Marketing-Retail
Student
Trader–Securities & Other
Other *(Specify)*_____
_____

70. Do you specialize in one or more industries?

Yes No

If your answer is no, skip to question 72.

71. In which industries do you specialize?

72. Is there anything else you would like to tell us about segment reporting disclosures, other financial reporting issues, or the accounting standard setting process? *If so, kindly use the below space. If you need it, there is space available on the next page.*

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE.
YOUR TIME IS APPRECIATED.

If we may contact you to resolve possible follow-up questions, print your e-mail address below:

_____

Kindly mail your answered questionnaire, which is stamped and self-addressed. To prepare the questionnaire for mailing, turn the page, fully open the back cover, close the questionnaire, then moisten, fold, and firmly press the back cover onto the title page. Firmly press the back cover again. The questionnaire is now ready to be mailed to:

UNIVERSITY OF HOUSTON
C.T. BAUER COLLEGE OF BUSINESS
DEPARTMENT OF ACCOUNTANCY AND TAXATION
334 MELCHER HALL
HOUSTON, TX 77204-6021

QUESTIONNAIRE # _____

Please do not mar your questionnaire number. We will use it to associate your name with your returned questionnaire; your identity, however, will be treated confidentially. Your questionnaire number is also a lottery number. We will use the numbers of all answered questionnaires to randomly select prize winners. In several months they will be notified by mail, and their questionnaire numbers, along with an executive summary of our report will be posted at www.bauer.uh.edu/acct/sr_survey.html.