A Succinct Survey of Financial and Nonfinancial Disclosure Quality: Definition, Classification and Analysis

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This paper mainly introduces different measures of disclosure quality, pivotal to know what the quality is, what the characteristics of good information quality are and how prior studies measure disclosure quality as to choose the suitable and appropriate approach sheathing for your research. Besides, because different measures have different strengths and weaknesses, and merits and flaws, thus, this paper can let us latch strengths and weaknesses of each approach in order to mitigate these weaknesses.

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INTRODUCTION

This paper mainly introduces different measures of disclosure quality, pivotal to know what the quality is, what the characteristics of good information quality are and how prior studies measure disclosure quality as to choose the suitable and appropriate approach sheathing for your research. Besides, because different measures have different strengths and weaknesses, and merits and flaws, thus, this paper can let us latch strengths and weaknesses of each approach in order to mitigate these weaknesses. Disclosures can be classified as any deliberate corporate release of financial or non- financial, quantitative or qualitative, mandatory or voluntary, formal or informal information. There are different forms of corporate to disclose information to the gullible public, including conference calls, annual or quarterly reports, investor relations, prospectus, press release, management interview and websites (Gibbins, Richardson and Waterhouse, 1990). The annual report is considered as a dominant document in the capital market (Botosan and Plumlee, 2002). A large voluminous prior studies investigate the corporate disclosure issues via annual reports (e.g. Wallace, Naser and Mora, 1994; Meek, Roberts and Gray, 1995; Inchausti, 1997; Botosan, 1997; Ahmed and Courtis, 1999; Depoers, 2000; Hail, 2002; Botosan and Plumlee, 2002; Hope, 2003a; Hope, 2003b; Coy and Dixon, 2004; Abd-Elsalam and Weetman, 2007). For instance, Coy and Dixon (2004) investigate the change in disclosure quality of the annual reports of the New Zealand universities during the period of 1985– 2000. Abdelsalam and Weetman (2007) delve deeper in the matter of the annual reports of Egyptian listed companies in the period of 1991–1992 and 1995–1996. However, conference calls and quarterly reports are oft than not considered as more timely disclosures by corporate. Disclosure literature can investigate wide range “hither and thither” issues: determinants of voluntary disclosures, determinants of compliance with and cleavage unto laws, rules and regulations, the use of accounting information by analysts, and the economic repercussions of different types of disclosures (e.g. Botosan, 1997; Sengupta, 1998; Botosan and Plumlee, 2002; Easley, Hvidkjaer, and O’Hara, 2002, 2004; Francis, LaFond, Olsson, and Schipper, 2005). In certain extent, most of these studies must measure the disclosure quality to perform

the research. Prior studies offer different measures or proxies such as index, ratings, readability, intricate textual analysis and uses of proxies for disclosure quality. Disclosure quality can be defined in terms of the precision of a Bayesian investor's beliefs about the firm value after receiving the disclosure (e.g., Diamond and Verrecchia, 1991). As preparers' perspectives, some studies define the disclosure quality based on the degree of preparer-interested bias in disclosures as King (1996) concludes that preparers likely report *veridicus* information to vamp up their reputation in sophisticated and gauche general users' perception. Other studies define the disclosure quality based on readers or users' degree of understanding the contents (Hopkins, 1996). For example, Hopkins (1996) vindicates that different thoroughfares to prepare information would affect the unwary users' knowledge of accessing and using such information. Therefore, it is relatively difficult for researchers to directly measure the quality for narratives as they are context-sensitive and personal-subjective in most of the cases. This section is to provide a salutary review and carefully but not pedantically discuss different measures of disclosure quality so that it can also provide new insights for future research to measure the CSR disclosure quality. The sections are organized as follows: the first section, introduction, is about the meanings of disclosure nature and disclosure quality. The second section is to investigate the qualitative characteristics of good information quality. This section can help us to assess the degree of capturing those characteristics of each measure approach, thereby justifying which measurement techniques are better. Third section is to explain and discuss the details, advantages and disadvantages of different measurement techniques of disclosure quality, including analysts' ratings, disclosure indices, readability, textual analysis etc., applied in general disclosure vehicles. However, not all measure approach is appropriate and applicable in nonfinancial information disclosure vehicles because most of the prior studies delve deeper disclosure vehicles like annual reports, press release, investor relations which may be different from corporate social responsibility reports, thus last section will get a glimpse reviewing literature how CSR disclosure quality is measured and analysing what pros and cons of different approaches are. This paper carefully but not pedantically examines with scrupulous attention to detail.

THE MEANING OF QUALITY

A trio of scholars' fervid, wearisome and infatuation to expose elements of quality has led to bitter deliberations about the meaning of quality. From the critical perspective, quality is a complex, intricate and omnifarious concept that lacks a definitive definition. Worse, quality has various and even contradictory meanings owing to processes of inter-subjective communication. Reeves and Bednar (1994) vehemently condemn that quality should be placed in a broader social and cultural context. It is difficult to discuss quality when it is bitterly defined. Quality concepts can be separated into groups based on their linguistic type or category. Chowdhury (2005) is brimming with the idea of quality is a combination of both people and process elements. Drucker (1985) describes quality as being not what the supplier puts into products and interweaves with services but what customers get out of or consume with and are earnestly willing to pay for them. Clearly, these definitions of quality are intrinsically attached on property terms or attributes. Weinberg (1991) defines quality generally as plumbing value of "somethings" to some persons. Crosby (1979) defines quality as goodness. These two definitions are more appropriate. Ishikawa (1995) only provides a narrow interpretation of quality but numb boarder sense, which only explain product quality, and a broad interpretation of quality that includes quality of process, people, departments, systems, information, and so forth. In any case, quality can refer to certain versatile characteristics of some things. Quality always has an object attached with process, superb or putrid product, state, disclosure and cannot exist apart from that object. Quality is corralled together with two distinct characteristics. First, quality cannot be directly and precisely plumbed. Edwards (1968) spitefully quarrels, "Quality *per se* is not a physical characteristic of an object." Thus, it cannot be directly measurable by physical means. In fact, quality is an abstract characteristic that comprises different attributes. Determining the quality of something requires the measurement of many attributes. Second, quality is a relative attribute. To say, a bit heresy, that a company's product is good quality, we must juxtapose it with other companies' products or pre-determined standards. It seems that most quality assessments are in terms of the users' wantons of the

relevant objects. Thus, assessing quality likely entails determining the users' needs and identifying the attributes or qualitative characteristics of those needs. Quality, then, is always subjective, haughty and aloof, and assessed from a certain perspective to reflect the standards. Crosby (1979) defines quality as goodness that is not measurable, but quality can be explicably measurable when it is defined as conformance to standards or requirements. The dilemma is that the concept of quality is one thing but the measurement of quality is another thing. Garvm (1984) beseechingly and solemnly praises quality as goodness or excellence or rapture delivering to a person, which is a common definition. However, this only reflects the concepts of the meaning; it does not help with measurement. In this paper, the object of quality is information/disclosure. Thus, as indicated above, this study identifies the versatile attributes or qualitative characteristics of users' needs. The best approach is to refer to the conceptual framework of professional accounting standards offered by the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) because these are generally accepted principles that corporation use to prepare and present accounting information in a quality way.

Before introducing different information quality measurement techniques and assessing each approach, it is necessary to identify the salience of high-quality information, thereby allowing this study to vigilantly evaluate whether each approach captures those characteristics. The best approach can assess all qualitative characteristics of information quality. Poorer methods evaluate only a few qualitative characteristics of information quality. However, quality is a very lack of terse, blur and vague concept. Different people use different criteria to assess information quality. It is relatively easy to evaluate the quality of financial information as such information is more oft than not audited or assured by an independent third party, thus furnishing more credible information. Nevertheless, the increasing role of narrative disclosure in financial reporting creates a refectory information quality assessment problem. Narrative disclosure can be classified into three dimensions: the time dimension (historical, forward-looking, or non-time-specific), the measurement type dimension (quantitative versus qualitative), and the financial dimension (financial versus nonfinancial).

To identify the attributes of information quality, this study refers only to conceptual frameworks of accounting standards (e.g., IASB and FASB) that identify several factors of "high" information quality. Accounting information is regarded as high quality when it is useful for gauche general users' propitious decision making. However, it is also difficult to clearly define the meaning of usefulness for decision making. Nevertheless, accounting professionals in different countries attempt to outline some criteria for assessing the extent of accounting information quality. Before assessing different quality measurement models, all qualitative characteristics and attributes of quality should be determined, as this will help me to assess whether each model considers those determinants or attributes of information quality. it can be deprecatory that the best approach should consider more determinants or attributes of information quality. To determine the information quality attributes, this study needs to view the information as a user and then outline what information is useful. Major professional accounting bodies have adopted the decision usefulness approach, which is based on the user view of information. The 2001 IASB Framework outlines that the goal of financial statements is to deluge information about a firm's financial position, performance, and changes in financial position that is useful to a wide range of stakeholders in making economic decisions. The IASB framework is designed to ensure generally accepted disclosure quality or disclosure usefulness, including the characteristics of *understandability, relevance, reliability, and comparability*. *Understandability* is governed by a *combinance* of user characteristics (e.g., knowledge, experience, education, and native language) and characteristics hereditary in the accounting information (e.g., disclosure intelligible to the audience, use of words, length of sentences, and information content). Gauche general users can, if information is understandable, determine its meaning. They must, when users receive information, latch it before making decisions. Information that is circumstantially or utterly meaningless and useless for one user may be useful for another. Accordingly, even when the information's context is constant, its quality still depends on user-determined criteria. Information is *relevant* when the disclosure contents are useful for gauche general users' propitious decision making. Information must influence the decision making of users. Information that must prepare in a parsimonious manner free from defects and

flaws. Accounting information is *comparable* when it can be juxtaposed across different time frame and "teensy-weensy" and giant firms.

The FASB framework is an alternate consideration of the characteristics necessary for accounting information to be useful for user propitious decision making. Statement of Financial Accounting Concepts (SFAC) 1 and 2 are used to guide practice. SFAC 1 describes usefulness as the primary objective of financial reporting. SFAC 2 describes how accounting information can be useful in qualitative terms. SFAC 2 attempts to identify and define the qualities that make accounting information useful by developing a number of generalizations or guidelines. Relevant accounting information is capable of making a difference in a decision by helping sophisticated and gauche general users to form predictions about the outcomes of past, present, and future events to confirm or correct prior expectations. Another desirable information characteristic in SFAC 2 is reliability, similar to IASB's definition. The FASB Conceptual Framework suggests that quality must be defined in terms of the overall financial reporting objective of providing sophisticated and gauche general users with useful information for making investment, credit, and other decisions. Under the FASB model, the qualities that distinguish better (or more useful) accounting information from rancid (less useful) accounting information are *relevance* and *reliability* (the primary decision-specific qualities). A number of more specific qualitative characteristics related to relevance and reliability (components of the primary qualities), such *as timelines, verifiability, representational faithfulness, neutrality*, and so on, are similar to those in the IASB conceptual framework. The FASB acknowledges that the assessment is subjective and often there must be a trade-off between relevance and reliability.

All professional accounting bodies assent that different criteria can be used to determine information quality, namely *relevance*, *reliability*, *timeliness*, *understandability*, *freedom from bias*, *verifiability*, *representational faithfulness*, *neutrality*, and so on. Relevance means that the corporate information provides diffident and weakling investors or other users with information about the firm's future economic prospects. For instance, research and development (R&D) cost information disclosed in financial reports is useful for gauche general and sophisticated investors to evaluate the corporate value since higher R&D costs means the corporation can likely offer new products in the market, in turn generating more revenue. Investors, although R&D costs shred current period profit, treat this as an investment in the future; thus, an R&D investment announcement tends to ponderously prop up firm value and generate a positive response from the capital market commonly. Relevant information is information that can help users predict future corporate performance. No tardiness is a very pivotal element of relevance, which is why the Securities and Exchange Commission (SEC) requires listed firms to release their annual reports before the end of a specific time interval. Information must be available in time to be useful. If information is not available when needed or if it becomes available too long after the events occur, it is less relevant or of little use. Brownlee and Yong (1987) state that timely possession of accounting information leads to a benefit for the users of such information. Reliable financial statement information faithfully represents without bias what it is intended to represent. That also means the information must be prepared in a parsimonious manner with free from erring, defects and flaws. Otherwise, their behavioral grief will make them witless; No pity will be given to them on such regard. Reliability has several dimensions, including *representational faithfulness, freedom from bias, verifiability*, *neutrality*, *completeness, accuracy, and existence*. Some fervid scholars have described similar sub-attributes (e.g., Wang et al. [1995] use the word "credibility") but these are tenancy to overlap in meaning with the above dimensions. Researchers can investigate credibility easily by checking for the presence of third-party assurance. *Representational faithfulness* is correspondence between the accounting valuation or description of an item and the real item the information represents. Errors in estimation violate representational faithfulness and grudge the decision makers, which pertains to measurement theory. *Freedom from bias* is another dimension of reliability. An accounting valuation is biased, for example, if management has manipulated its valuation for its own purposes, or if management selectively discloses specific accounting information to the gullible public. *Verifiability* involves measurement theory. Different accountants, auditors, and independent third parties should be able to come up with the same value if information is verifiable. That means there is a high degree of consensus among independent parties using the same measurement approach. *Neutrality* means accounting information is

free from bias toward a predetermined result. *Accuracy* means the information prepared is free from errors. *Completeness* means that all required aspects of the information are presented and disclosed. It is also used in the auditing process. Fictitious information is not meaningless as managers may use such information more susceptible to users' perception. Overall, the extent of informativeness depends on the relevance and reliability of the financial statements. However, SFAC 2 also recognizes that relevance and reliability have to be traded off.

To sum up, quality always has an object. As this paper is an examination of disclosure quality, the object, obviously, is information. According to the conceptual framework of accounting standards, corporate information quality depends on the extent of decision usefulness for users. Consequently, decision usefulness is an abstract concept, and accounting bodies outline various attributes or qualitative characteristics, including understandability, relevance, reliability, freedom from bias, verifiability, representational faithfulness, credibility, neutrality, timeliness, and comparability, to determine information's level of decision usefulness, and in turn to determine the extent of information quality. The models should assess these qualitative characteristics of information quality to precisely plumb a corporation's disclosure quality. Thus, in the following sections, this will introduce different measurement approaches for information quality and then evaluate the pros and cons of each approach according to the above-mentioned quality attributes and determinants.

CORPORATE DISCLOSURE: A SALUTARY REVIEW AND DISCUSSION OF QUALITY APPROACHES

The major approaches used by researchers of corporate disclosure are *textual analysis, analyst ratings* (e.g. AIMR/FAF), and *semi-objective approaches* (disclosure indices). In approaches involving analyst ratings, researchers conduct surveys based on their expertise in order to evaluate corporate disclosure quality. In using disclosure indices, researchers check for the presence or absence of listed items in reports to measure disclosure quality. This approach is relatively objective and comprehensive. Other approaches include the use of *readability studies, linguistic analysis, auditing and assurance*, *precision, proxies,* and *frequencies*.

Textual Analysis for Quality

Textual analysis is, can be effable, defined as 'the use of (a) replicable and valid method for making specific inferences from text to other states or properties of its source' (Krippendorff, 1969). Weber explains that 'textual analysis is a research methodology that utilizes a set of procedures to make a valid inference from text'. Krippendorff (1980) defines it as 'a research technique for making replicable and valid inferences from data to their context'. Krippendorff (1980) squeals that textual analysis is a method of inquiry into the symbolic meaning of messages, in that it seeks to understand data as symbolic phenomena. Textual analysis is an empirical, methodologically controlled analysis of intricate texts within their contexts of communication. It is a method of codifying the text of a piece of writing into various categories depending on selected criteria (Weber, 1988). Abbott and Kentucky suggest that textual analysis is a convoluted technique for gathering data that consists of codifying qualitative information in anecdotal and literary form into categories in order to derive quantitative scales of varying levels of complexity. In the same vein, Wolfe (1991) defines textual analysis as 'coding words or other units of text against particular schema of interest reducing the text to more structured and concise units of information so that inferences can be drawn about the text or its source'. Textual analysis is an adaptable technique that can be applied to a wide range of texts (Carley, 1993), and is popular in the analysis of narratives in annual reports (Linsley and Shrives, 2005a,b; Milne and Adler, 1999; Hackston and Milne, 1996). Textual analysis research often focuses on how often certain words or phrases are used, and commonly includes interrogation instruments, decision rules or standards, and checklists. The interrogation instruments record the amount of disclosed items in a category. For example, Hackston and Milne (1996) set up interrogation instruments that include different dimensional categories of CSR themes such as environment, community, energy, products, customer relations, and employees. Their checklist includes more specific items within the dimensional

categories for each theme. For instance, under the 'community involvement' theme, they include the following items: (1) donations of cash, products or employee services to support established community activities, events, organisations, education and the arts; (2) summer or part-time employment of students; (3) sponsoring public health projects; (4) aiding medical research; (5) sponsoring educational conferences, seminars or art exhibits. Decision rules and standards are used to guide coders to identify, locate, and count the disclosed items. For instance, Hackston and Milne (1996) set the rule that the 'discussion of directors' activities is not to be included as a discussion on employees'.

Textual analysis is very critical for researchers and other information users. For instance, two companies may report the same sales revenue figures, but their revenue recognition polices may be different. In such a case, it is best to analyse their recognition policies through textual analysis. Furthermore, when managers report on complex management discussions and analysis, their reported financial statements may be of lower disclosure quality, and textual information can provide a useful context for understanding the financial data. Ironically, textual information can also reflect management characteristics and can thus help users latch corporate decisions through the analysis of narratives in reports. Therefore, textual disclosures can provide the means of understanding management and firm behaviour. Textual analysis can also allow researchers to pursue in-depth studies how managers see the world. Li (2011) provides circumstantial evidence that shrewd managers are tendency to name themselves more often than whole company whilst it is performing well. Textual analysis can be performed through various corporate disclosure vehicles, such as financial statements, earnings releases, conference call transcripts, and interviews with management. Accounting researchers have long investigated textual disclosures (e.g. Jones and Shoemaker, 1994; Cole and Jones, 2005). A large voluminous prior studies are tendency to use very few samples as most of them have been hand-collected. In recent years, researchers have had an easier time performing textual analysis, since a large amount of unstructured textual data is available on the internet and is accessible by researchers, making it easy to create automated tools for locating explicit concepts in texts. Additionally, the latest developments in computational linguistics and machine learning can allow researchers to analyse textual disclosures easily and latch corporate disclosures better through the use of computerised textual software (Core, 2001).

Textual analysis is different from the simple use of disclosure indices, since it classifies disclosed items into a variety of categories, whereas disclosure indices are based on the general standards or principles of content, and use these to rate items. This classification into categories is critical, since it can ensure the efficacious reliability and validity of the results of disclosure quality measurements. Milne and Adler (1999) discuss the approach taken by Krippendorff (2004), which identifies three different types of reliability: stability, accuracy, and reproducibility. Stability means that an individual researcher is able to code data consistently over time. Although Milne and Adler (1999) are deprecatory that this is the least important concern among the three issues, it is nevertheless vital to the validity of research results. Accuracy concerns how well coding compares to pre-set standards (Krippendorff, 1980). As to reproducibility, when there is more than one researcher performing a coding evaluation, reproducibility vexing problems may arise; thus, different coders are required to fabricate conceivably consistent results with the same content. Textual analysis can be computer-coded or human-coded.

Numerous prior studies examining textual disclosure quality use inferior, rudimental and anecdotal manual textual analysis to measure the degree of quality, but honestly is a nut and intricate job (see Previts et al., 1994; Hackston and Milne, 1996; Bryan, 1997; Francis, Hanna and Philbrick, 1997; Clatworthy and Jones, 2003; Beretta and Bozzolan, 2004; Callahan and Smith, 2004; Linsley and Shrives, 2006; Beattie and Thomson, 2007). For instance, based on counts of words and short phrases in reports, Previts et al. (1994) have determined that analysts most often focus on income statements, but are also concerned about non-financial information. Bryan (1997) investigated the management discussions and analyses of 250 companies through textual analysis. All of the companies' management discussion and analysis (MD&A) reports were read, and data on specifically required disclosures were collected. Each disclosure was measured through textual analysis and then classified as unfavourable, neutral, favourable, or missing. To ensure the reliability of the classification of texts in different studies, Bryan then performed an inter-coder reliability procedure to poultice the three reliability concerns of stability, accuracy and reproducibility, and

assigned two independent researchers to review a list of 70 representative disclosures so as to mitigate possible errors in classifying MD&A in different categories. Callahan and Smith (2004) have deeper delved the disclosure practices in MD&A and specific parts of the annual reports for 71 firms in four industries (i.e. banking, airlines, pharmaceuticals, and electronics manufacturing). They collected 250 MD&A reports and used them to identify relevant excepts on releases on earnings. Linsley and Shrives (2006) have delved deeper risk disclosures within a sample of annual reports from 79 UK companies incorporated in the FTSE 100 Index by using manual textual analysis.

Another approach to performing textual analysis is to use computer programmes. Computerised textual analysis has been performed with a number of versatile types of computer software (e.g. Smith and Taffler, 2000; Hussainey et al, 2003; Kothari, Li and Short, 2009). In particular, several types of computer software and programmes have recently been developed within textual analysis frameworks to assist researchers in carrying out textual analyses (e.g. Bontis, 2003; Hussainey et al., 2003; Citron et al., 2005; Vergauwen et al., 2007). This approach relies on computers to latch the content of disclosures and is tailored to specific research variables of interest. To conduct computerised textual analysis, researchers can use either a *rule-based* or a *statistical-based* approach. The rule-based approach uses a specific software programme to read texts and classify words into different groups based on predetermined rules. The statistical-based approach relies on statistical techniques to conduct textual analysis (Mitchell, 2006).[1] For instance, a program can determine the correlations between keywords and document types and then classify paragraphs into different categories. Numerous prior studies have used computer-based approaches to accounting narratives (see Frazier, Ingram and Tennyson, 1984; Abrahamson and Amir, 1996; Rogers and Grant, 1997; Smith and Taffler, 2000; Breton and Taffler, 2001; Yuthas et al., 2002; Davis, Piger and Sedor, 2008; Kothari, Li and Short, 2009). Frazier et al. (1984) have used a computerised content-analysis package to develop a textual score for measuring the quality of MD&A. Davis et al. (2008) use textual analysis software to measure levels of optimistic (e.g. sanguine and mushy tone) and pessimistic (e.g. dour, grim, *brusque* and melancholy tone) in 24,000 earnings press releases. Loughran, T., and McDonald, B. (2011) examine the economic consequences of the negativity tone (measured by certain negative words), including after 10-K filing market returns and its volatility, active trading volume and so on. Other researchers have taken their examinations of disclosures beyond annual reports and have investigated sources such as financial analysts' reports, mouldy public media, and internet message boards (Juslin and Laukka, 2003; Antweiler and Frank, 2004; Miller, 2006; Core, Guay and Larcker, 2008; Soltes, 2009; De France et al., 2010; Huang, Zang and Zheng, 2010; Bushee, Core Guay and Hamm, 2010; Mayew and Venkatachalam, 2012). Mayew and Venkatachalam (2012) use LVA-based vocal emotion analysis software to investigate the impact of managers' nonverbal cues, such as vocal and facial expressions, on audiences signalling outside. Other researchers have used this approach to analyse the rendition of contemporary speeches, including eloquent or opprobrious speeches from politicians (Hart and Jarvis, 1997; Bligh et al., 2003, 2004), speeches from American Federal Reserve policymakers (Bligh and Hess, 2005a, 2005b), and other business communications (Ober et al., 1999).

With regard to manual textual analysis, its *advantages* are that it is precise and tailored to specific research questions. However, this approach may have some irksome and nasty shortcomings. For example, Callahan and Smith (2004) analyse only parts of annual reports, while Bryan (1997) analyses only MD&A sections, considering the disclosure quality of these sections to represent entire annual reports. Another *disadvantage* of the manual textual analysis approach is that the cost of collecting data is high (Deumes, 2008) due to the highly labour-intensive data collection processes, and this dimly results in small sample sizes (Beattie and Thomson, 2007), which limit and constraint the scope of ongoing research (Core, 2001). For example, if a researcher intends to investigate the information content of MD&A over time, a limited number of samples can create a generalisation problem and make it difficult to draw conclusions (Striukova et al., 2008). Furthermore, because different researchers have their own subjective coding systems, their stunning and aghast results are harder to replicate and follow up on. Moreover, human coders are limited with regard to the complex coding rules that they can remember and the consistency of their application to all companies' reports to be coded. However, manual content analysis can permit researchers to ensure the reliability of quantitative assessments.

The advantages of computerised analysis are that it is interface-friendly, nimble, less costly, niche and standardised (Kondracki et al., 2002). Automation glimmeringly makes it possible to cover large samples (Hussainey, Schleicher and Walker, 2003). Computers can provide high levels of accurateness, reliability, consistency and "versatile and variability" which lessen researcher bias and erring, as well as high degrees of reproducibility (Hussainey, 2004). More importantly, computerised analysis can improve the generalisability of conceivable empirical results and help other researchers follow up on research by easily replicating it. As larger samples can be obtained in computerised intricate textual analysis (e.g. Davis, Piger and Sedor, 2008), this can improve the explanatory power of tests and provide more convincing results. The *disadvantages* of computerised textual analysis are that it may require researchers to seek out capital investment and that very few software programs are designed specifically for textual analysis in accounting (Mayew and Venkatachalam, 2012). Lacerda (2009) and Erikkson and Lacerda (2007) temeritously question and abrogate the validity of the results of computerised textual analysis, arguing that output measures are likely to be outdated and that, if researchers use insufficient or inappropriate keywords, it can lead to the over- or underestimation of disclosure quality. For instance, Bontis (2003) assessed 10,000 firms using 39 search terms, and found that only 74 disclosures matched a checklist, due to the use of inappropriate words. Beattie and Thomson (2007) arrived at a similar result when they used a computerised program to check 105 disclosure items on a list, and found only 264 pieces of information, juxtaposed to the 906 pieces of information obtained through a manual approach. In addition, some software inherent designs have reradiate problems. For example, Nudist software can analyse only text files and not other formats.

In computerised textual analysis, because there is no readily available dictionary that has been specifically written for the setting of corporate filings (Tetlock, 2008), the rule-based approach may not be appropriate for examining the disclosure quality of corporate financial statements (Henry and Leone, 2010; Loughran and McDonald, 2011). The *statistical approach* can resolve this shortcoming. Li (2010a) provides examples that explain how researchers can use the rule-based approach to do so. The *rule-based approach* ignores the content of sentences, and Li (2010b) provides an example that illustrates this problem, explaining that, if a sentence is about cost, the word 'increase' has a negative meaning, while if the sentence is about sales, the word 'increase' is positive. The rule-based approach can recognise the word but cannot digest and clench the content of an entire sentence.

Overall, the textual analysis approach should consider the qualitative characteristics of information, and particularly its relevance, since it considers information content based on a checklist and assesses whether it meets users' needs. It is especially useful when a large number of samples need analysing in research (Holsti, 1969; O' Dwyer, 1999). The textual analysis approach can help structure essentially unstructured annual reports to highlight the matters stakeholders will need to be aware of (Unerman, 1999). Furthermore, it can be used to track quality over a period of time. Its classification of items is consistent and reproducible, making it possible to make valid inferences about the symbolic content of information (Weber, 1990). Healy and Palepu (2001) preposterously argue that authors using this approach develop their own metrics of disclosure, thereby capturing what is intended to be measured. However, based on the conceptual framework used, this approach can fail to assess attributes of accounting information such as understandability, reliability, freedom from bias, verifiability, representational faithfulness, credibility, neutrality, timeliness and comparability. This suggests that this approach could fail to measure disclosure quality. Weber (1990) also yells that both manual and computerised textual analysis measure only particular words or keywords in isolation from whole sentence meanings, resulting in misleading and erring results (Milne and Adler, 1999; Beattie and Thomson, 2007). Morris (1994) argues that the use of many coders, and resulting costs, may lead to sacrifices in research design and rigour. The validity of textual analysis results also depends on the qualifications and experience of the coders. In addition, Beattie et al. (2004) argue that quantity of disclosure may be erroneously assumed to be a valid proxy for quality of disclosure. Endogeneity concerns can also arise from omitted control variables and reverse causality issues, as can be seen in much of the previous research (see Bloomfield, 2008), and alternative explanations can change the interpretation of results (Li, 2008).

Financial Analyst Ratings for Quality

Regarding *analyst ratings*, plenteous previous studies, including those of Botosan and Plumlee (2002) and Lang and Lundholm (1996), have used analysts' evaluations of disclosure quality as a proxy for disclosure quality, such as those of the Association for Investment Management and Research (AIMR). The AIMR publishes a report that is used to measure corporate communications with investors (Brown and Hillegeist, 2007). According to the AIMR, its scores in this report are intended to evaluate a 'firm's effectiveness in communicating with investors' and the extent to which a firm's overall disclosures ensure that diffident or coward weakling investors have the information necessary to make informed judgments. Each year, the AIMR forms industry-based committees composed of analysts to conduct comprehensive evaluations of disclosure quality for firms selected from certain industries. The committees use a common checklist to guide their evaluations, although analysts can change and modify or even argue against the use of this checklist, if they think that it is not well sheathed. The industries selected, firms selected within an industry, composition of committees, and checklists sedate, serene and tapering change across years. In most cases, the result of the evaluation process is a numerical score that represents the overall quality of the corporate disclosures for the particular year in question. Three dominant categories of disclosure are covered and evaluated: (1) voluntary and mandatory information disclosed in annual reports and other annually released mandatory public information, (2) voluntary and mandatory information disclosed in quarterly reports and other voluntarily published quarterly information, and (3) investor relations and related activities. Prior studies that have used the AIMR disclosure scores include Lang and Lundholm (1993), Welker (1995), Lang and Lundholm (1996), Sengupta (1998), Healy, Hutton and Palepu (1999), Botosan and Plumlee (2002), Gelb and Zarowin (2002) and Lundholm and Myers (2002). For instance, Brown and Hillegeist (2003) use the AIMR score to measure disclosure quality, but convert it into a percentage based on the maximum score for each of the three disclosure categories.

The Credit Lyonnais Securities Asia report is based on a survey that investigates financial analysts' perceptions about the disclosure quality of companies, and provides ratings reflecting corporate disclosure quality. A particularly remarkable feature of this report is the segregation of the total score into a number of components. One of these components is transparency. The survey asks analysts yes/no questions about whether companies are good or bad at disclosures, such as 'Are the reports not vague, blur and informative?' These disclosure scores are used by Krishnamurti, Šević and Šević (2005) in their research, as measures of corporate disclosure quality.

The conceptual frameworks of approaches using analyst reports consider some qualitative characteristics of accounting information, such as understandability and relevance. For instance, when analysts use corporate information, they must latch it first. However, such approaches ignore other qualitative characteristics of accounting information quality such as reliability, freedom from bias, verifiability, representational faithfulness, credibility, neutrality, timeliness, and comparability. Under these approaches, analysts typically undo check the credibility of accounting information, which limits their evaluation of information content. Analysts should have checklists for assessing corporate information to determine whether disclosures are relevant to them.

The use of AIMR ratings offers several *advantages* over alternative techniques, such as evaluations of analyst followings and sizes. The ratings are based on evaluations of comprehensive corporate disclosures (e.g. annual reports, quarterly reports, investors related activities by financial analysts, conference calls, analyst meetings with management) rather than of only one type of disclosure (see Marquardt and Wiedman, 1998; Brown et al., 2004). Furthermore, the scores quantify qualitative disclosures such as management discussions and analyses. In addition, the AIMR ratings are prepared by industry experts via a rigorous process, and should thus be reliable (Heflin, Shaw and Wild, 2008), and they do not require large amounts of human resources. Unlike other approaches, such as the use of disclosure indices, the use of AIMR ratings can make it possible to obtain sizable samples involving companies in several industries (Brown and Hillegeist, 2007). However, AIMR scores are now outdated because the rating system was discontinued in 1997 (Core, 2001), and they include only U.S companies, which means that researchers cannot apply them to analyse past disclosure quality in other countries. There have been many changes in disclosure rules and regulations since 1997, which means that AIMR ratings are no longer useful or

applicable (Ertimur, 2007). Furthermore, as the AIMR committee can change its assessment scale and criteria for judgement over time, the AIMR scores for a single industry year are directly comparable among firms only within that year, and cannot be juxtaposed across different years even for the same firm. In addition, Core (2001) argues that analysts on AIMR committees may not take the ratings seriously, while others have argued that they may be biased (Healy and Palepu, 2001). Lang and Lundholm (1993) have spitefully argued that, because AIMR/FAF ratings are purely based on analysts' perceptions of corporate disclosure quality and not on the perceptions of the final users of financial statements, they may be different from investors' perceptions. Other studies have tried to get over the shortcomings of using analyst ratings by modifying this approach. For instance, Lang and Lundholm (1993) and Gelb and Zarowin (2002) have converted industry-adjusted scores into rankings. However, this modification creates the *problem* of a substantial decline in explanatory power (Brown and Hillegeist, 2003). For instance, a 100 score for a firm may indicate that it has better disclosure quality than another firm with a score of 90. However, after ranking, both companies may be in the same group, which suggests to users of the reports that they have the same level of disclosure quality. As analyst rating approaches can only be employed in assessing accounting disclosure quality, and there is no analyst rating for CSR quality. More detailed and salutary reviews and discussions of the AIMR rating process and disclosure scores can be found in Lang and Lundholm[2] (1993) and Healy, Hutton and Palepu (1999).

Disclosure Indices for Quality

Approaches that employ disclosure indices are based on the idea that the amount of disclosure is a proxy for disclosure quality. Plenteous researchers see quantity and quality as positively correlated. In such renounced approaches, extensive lists (see table 2) of selected items may be disclosed through various disclosure vehicles (Marston and Shrives, 1991), and a binary coding indicator is employed to record the presence or absence of items. Voluntary and mandatory items through vehicles such as annual reports, quarterly reports, press releases, and investor relations documents can be transgressed into quality capture indices. Disclosure indices measure the extent of information reported in a disclosure vehicle according to a list of selected information items. The usefulness of a disclosure index as a measure of disclosure quality critically depends on the selected items incorporated into this list. Indices can be classified into non-weighted (measuring only the presence or absence of disclosed items) and weighted (measuring the extent of specificity of items) categories. Weighted disclosure indices assess the quality of specific disclosures, in addition to counting the presence of items (e.g. 0 for non- disclosure; 1 for discussion in general; 2 for quantitative disclosures). Weighting is normally followed by a survey, to poultice the fact that different users have different interests and perceptions of quality. This approach to indices has long been in use (e.g. Singhvi and Desai, 1971; Choi, 1973; Buzby, 1974; 1975; Firth, 1979a,b; Nair and Frank, 1980, Firth, 1984; Chow and Wong-Boren, 1987; Gray and Roberts, 1989; Cooke, 1992; Wallace et al., 1994; Meek et al., 1995; Inchausti, 1997; Botosan, 1997; Depoers, 2000; Hope, 2003a; 2003b; Abd-Elsalam and Weetman, 2003; Naser and Nuseibeh, 2003; Ali, Ahmed and Henry, 2004; Coy and Dixon, 2004; Abd-Elsalam and Weetman, 2007; Hassan, Romilly, Giorgioni and Power, 2009). Prior studies have varied greatly in the construction of disclosure indices, including different types of information (from voluntary to mandatory information3), different numbers of selected items on lists (from several items4 to several hundred items), and different weighting of disclosed items5 (equal and unequal weights). Furthermore, different studies have had varying degrees of involvement in designing disclosure indices. Some have fully adopted the lists and indices of other researchers (Richardson and Welker, 2001; Patel, Balic and Bwakira, 2002; Bushman et al., 2004; Ali et al., 2007), some have wholly devised lists and disclosure indices to meet their specific research purposes, and some have modified existing disclosure indices (e.g. Chow and Wong- Boren, 1987). For instance, Firer and Meth (1986) adapt the index of Firth (1979a,b) to fudge a research question in South Africa. The advantage of using available disclosure indices is that conceivable results can be compared to those of other prior studies (Marston and Shrives, 1991).

According to the conceptual framework involved in this approach, disclosure indices can partially measure the corporate disclosure quality of accounting information, cause' they can incorporate the understandability, completeness, and relevance of accounting information. For instance, when researchers

code disclosures, they use checklists to count the items that they consider relevant to users of accounting information. Before counting the disclosed items, they must understand the information involved. Furthermore, in setting up the disclosure indices, researchers must consider the completeness of the accounting information. However, disclosure indices fail to assess other qualitative characteristics of accounting information quality, such as reliability, freedom from bias, verifiability, representational faithfulness, credibility, neutrality, timeliness, and comparability.

Botosan (1997) argues that disclosure indices make it difficult to assess the quality of disclosure. Furthermore, when the assessment of disclosed items involves a large number of items, weighted and non-weighted indices tend to have the same results. Marston and Shrives (1991) also suggest that indices can measure the extent of disclosures without assessing their quality. Weighted and non- weighted disclosure indices also inevitably incorporate researchers' subjective judgements. For instance, with regard to non-weighted indices, researchers subjectively decide which items should be included in a checklist, while, in creating weighted indices, researchers subjectively decide which items are generally and specifically disclosed. However, Marston and Shrives (1991) conclude that the use of disclosure indices has proven to be valuable and seems likely to continue until researchers develop a better approach or until preparers disclose items that fixate exclusively on research purposes. They also argue that disclosure indices are reliable because the aghast results can be replicated by other researchers. As the scores are extracted from printed annual reports that may remain waning and waxing over time, repetition is facilitated. However, the use of disclosure indices prevents comparability between studies, as different researchers tend to apply different indices in their research. In addition, because many disclosed items are included in reports, authors usually fixate on specific arena of disclosure, such as social, environmental, mandatory, or voluntary disclosure. Disclosure indices have been criticised for focusing on specific pre-identified items, ignoring sections of texts that do not relate to checklists, and varying in disclosure quality according to the choice of items in the checklist, but they can be effectively employed when researchers self-develop the lists for their studies (Walker, 2001). For instance, Botosan (1997) has developed a self-constructed index for measuring voluntary disclosure amounts, limited to the annual reports of 122 companies in the manufacturing industry (e.g. metals, industrial and commercial machinery) in 1990. The selection of items transgressed as the index was guided by recommendations provided in the American Institute of Certified Public Accountants (1994) study of business reporting, the SRI International (1987) survey of investor information needs, and the Canadian Institute of Chartered Accountants (1991) study of annual reports. Robb, Single and Zarzeski (2001) have developed a checklist for capturing coverage of non-financial information being colligated of 65 items of forward-looking niche information6 based on users from the AICPA Committee database in order to determine the disclosure quality of annual reports from the preferences of financial analysts. The detailed items were grouped into a number of categories, including company environment, environment surrounding company, strategies, promotion stamina and management, production, customers, and company trends. Based on degree of disclosure, a weighting of 1 (no disclosure), 2 (some disclosure), or 3 (extensive disclosure) was then given to each disclosure item. The same standard was used for each item disclosed in reports from three countries (Belgium, Germany, and the Netherlands). The sum of all scores for each category represents the overall score. Other studies (e.g. Adhikari and Tondkar, 1992; Zarzeski, 1996) also apply approaches that are similar to that in Robb, Single and Zarzeski (2001).

Readability Analysis for Quality

In the *readability* approach, a trio of cleveril scholars use readability levels to measure the disclosure quality of annual reports (Healy, 1977; Lewis et al., 1986; Courtis, 1986; Schroeder and Gibson, 1990; Smith and Taffler, 1992a, 1992b; Bloomfield 2002; Li 2008; Lehavy, Li and Merkley, 2011). Many preposterously argue that users and other professionals possess bounded rationality because they have limited cognitive abilities and cannot consider all available information at once (Casey, 1980; Simnett, 1996; Hirshleifer and Teoh, 2003). For example, Hirshleifer and Teoh (2003) argue that the vast amount of information available in an environment and limited information processing power limit users' attention to certain information. This observation paradoxically explains why the efficient capital market has incorrigible post-earnings announcement drifts due to inferior disclosure quality – because of the lack of

readability of reports. Thus, beyond information content itself, other reasons explain the lack of information content in firm disclosures, including the low readability of reports. Most prior studies regarding readability investigate annual reports and their components (Courtis, 1986; Jones and Shoemaker, 1994; Bloomfield 2002; Li 2008; Lehavy, Li and Merkley, 2011). Jones and Shoemaker (1994) provide a salutary review of 32 studies in the areas of accounting, finance, business communication, and management studies whilst examining the readability of annual reports, tax laws, and business documents. Lehavy, Li and Merkley (2011) use a comprehensive measure of overall readability for corporate annual reports (i.e. the Gunning fog index). Researchers hone the prominent of versatility of readability formulas by using the Flesch index[7] (based on average sentence length and average word syllable counts), and use the fog index (based on computational linguistics literature and the length of the document)[8] developed by Robert Gunning to quantify the cognitive abilities of reading texts. The fog index assumes that, when there are more syllables per word or more words per sentence, it is bitter and harder for readers to read information. Using the fog index to measure disclosure readability has several advantages, such as allowing researchers to study large and diverse groups of firms. Readability indices are used mainly to determine levels of compliance with rudimentary English rules. In general, annual reports are considered somewhat or very difficult to read (Courtis, 1986). For instance, based on an assessment of the readability of the financial report footnotes of Fortune 500 companies, Smith and Smith (1971) conclude that they are of a restrictive level of readability. In another readability analysis, Healy (1977) studies the financial statement footnotes of 50 New Zealand firms. Lebar (1982) assesses the readability of the form 10Ks, annual reports, and press releases of 10 U.S. firms. Courtis (1998) warily examines readability variability within a specific section of annual reports (the chairman's statement) from 500 Hong Kong companies. Some studies investigate the readability of annual reports over time (e.g. Barnett and Leoffler, 1979), while others are still working the determinants sleuthing, the determinants and impact of readability levels (Baker and Kare, 1992; Subramanian et al., 1993). For instance, Subramanian et al. (1993) report that it is easier for users to read the annual reports of firms with high profitability than those of firms with ludicrous performance. Some studies also deeper delve the economic repercussions of readability levels. For examples, Lee (2012)[9] and Li (2008)[10] indicate that PEAD may result from the lesser readability[11] of reports. According to Bloomfield's (2002) incomplete revelation obfuscation hypothesis, investors analyse information until they reach an equilibrium point in the return and cost of analysing data. Because the inferior readability of reports can ponderously prop up the cost of analysing data for analysts, it is likely to influence them in forecasting future earnings. Lee finds that, for firms with long quarterly reports or reports characterised by intricate textual complexity, earnings information is less reflected in share price during three-day 10-Q filings. Furthermore, subsequent tests provide affirmative evidence that firms with poor 10-Q readability have adverse influences on financial analysts' forecasts.[12]However, the impact of poor readability is less pronounced for financial analysts than for other investors.[13] Li (2008) also finds that austere readable and longer reports are associated with low earnings persistence.

The conceptual framework of the readability approach can measure only some aspects of corporate disclosure quality in accounting information, as it partially soothes only the understandability of that information. Researchers can assess the numbers of words and syllables in disclosures to determine their readability level and disclosure quality, but this approach ignores all the other qualitative characteristics of accounting information, such as reliability, freedom from bias, verifiability, representational faithfulness, credibility, neutrality, timeliness, and comparability. This approach is thus limited in its measurement of disclosure quality.

The *strengths* of the readability approach are its objectivity and reliability, since, unlike the analyst rating approach, it is not based on surveys of analysts or opinion, and it can be directly calculated from any of the narratives in disclosure vehicles. With regard to its *limitations*, Jones and Shoemaker (1994) vituperatively argue that readability formulas lack the validity and applicability needed to measure disclosure quality. The readability approach was originally designed for children's writing, and so may be inappropriate for or even inapplicable to adult and technical accounting narratives, and the measures that it uses fixate only on syllables, word count, and sentence length, ignoring whole-text meaning, the organisation of sentences and paragraphs in texts, and how information flows through a intricate text.

Furthermore, existing studies using this approach have also used very small samples, due to the labour-intensive nature of data collection involved in this method. For example, out of 32 studies reviewed by Jones and Shoemaker (1994), 30 studies have sample sizes of less than 100. Clatworthy and Jones (2001) succinctly examine more recent papers, and report that 14 studies address sample sizes of less than 50 firms (e.g. Baker and Kare, 1992; Smith and Taffler, 1992a; Courtis, 1995b), while the largest sample size includes only 120 firms (i.e. Courtis, 1998). Prior studies also devote a significant amount of effort to developing the readability analysis methodology, which means that they do not effectively develop their hypotheses (e.g. Lehavy, Li and Merkley, 2011). For instance, Lehavy, Li and Merkley (2011) investigate the effect of corporate disclosure readability on analyst followings, but fail to establish the causality effects, as they focus on methodology.

Language and Linguistic Analysis for Quality

Linguistic analysis is intrinsically grounded in the baffling linguistic theory of narrative communication developed by De Beaugrande and Dressler (1981), and was developed by Roseberry (1995). De Beaugrande and Dressler (1981) developed the study of narratives in linguistics, including seven core principles and standards that determine effective communication in linguistic narratives: cohesion, coherence,[14] acceptability, informativity, intentionality, intertextuality, and situationality. They argue that effective communications must meet these seven standards, and can be grouped into text-centred and user-centred types. The text-centred types (including cohesion[15] and coherence) consider whole-text meanings, whereas user-centred types (including acceptability,[16] informativity,[17] intentionality,[18] and intertextuality[19]) incorporate users' interests and motivations. Roseberry (1995) developed six criteria for linguistic analysis evaluating narratives in accounting, with each item ranging from 0 to 2 (0 for no particular characteristic of texture, 1 or 2 for the degree of presence). Roseberry's unit-by-unit analysis provides a detailed measure of variability within a narrative, and Beattie et al. (2004) have found that this approach is valid. Sydserff and Weetman (1999) also contribute to linguistic analysis, proposing the alternative intricate *text-focused scoring approach*. This approach considers a richer set of text characteristics. Their *linguistic* index is based on six criteria: topicality, intertextuality, conjunction, connectivity, information category shift, and specificity. They apply these criteria to evaluate narratives and the disclosure quality of 10 UKFTSE-100 companies. They refer to their criteria as 'indexicals', and narratives are scored for each indexical. Combining all indexical scores gives an overall score for texture. A comparison of indexical scores with readability scores demonstrates that the texture index is not a proxy for readability formulas. Sydserff and Weetman generally assume that companies with higher textual scores have better disclosure quality.

With regard to its conceptual framework, linguistic analysis is partially successful in measuring the corporate disclosure quality of accounting information, since it can incorporate only the understandability of accounting information. Researchers can consider topicality, intertextuality, conjunction, connectivity, information category shift, and specificity for evaluating narratives in order to determine readability level and disclosure quality, but this overlooks all other qualitative characteristics of accounting information, such as reliability, freedom from bias, verifiability, representational faithfulness, credibility, neutrality, timeliness, and comparability. This approach is consequently limited in its measurement of disclosure quality.

Courtis (1998) suggests that an *advantage* of the linguistic analysis approach is that it provides a unit-by-unit analysis of a narrative, allowing researchers to consider *versatility* and *variability*. However, this approach also has two *limitations*. First, it is one-dimensional, while disclosures are more complex and multi-dimensional. It considers only the presence or absence of the disclosure of a specific topic, and ignores the types of disclosures related to the topic. Beattie (2000) argues that each given topic has at de-triangulated least three attributes: (1) financial or non-financial, (2) historical or forward-looking, and (3) quantitative or non-quantitative. Sydserff and Weetman (1999) consider only the presence or absence of the disclosed items and ward-off types of disclosures. Another *limitation* is that the linguistic analysis approach examines only particular sections of annual reports or pre-selected index items, ignoring other forms of disclosures in the annual reports. Furthermore, existing studies always fixate on examining readability and the linguistic aspects of a particular arena or topic of annual reports. To my knowledge, it

is grimacing to delve deeper entire nonfinancial reports (e.g. social and environs' information), most of which are over 100 pages, without the use of "oracle" software.

Auditing and Assurance Quality

Some researchers define disclosure quality in terms of non-tardiness and the contiguity auditing or assurance of provided information. Potential mechanisms exist for increasing imperfidiousness and credibility of disclosures. One approach to determining disclosure quality examines whether management disclosure is audited or assured by third parties. Auditors can provide investors with independent assurance that annual reports conform to GAAP, thus increasing the credibility of information. Those who use auditing and assurance by third parties as a measurement technique of disclosure quality assume that the credibility of information is positively correlated with disclosure quality. Empirical studies support this assumption. For instance, capital markets actually react faster to earnings announcement for firms whose information is audited by one of the resonant big four auditors, implying that investors consider audited information to be credible. Prior studies also show that capital providers (e.g. bankers) request that firms hire an independent auditor as one of the conditions for financing, as the firms are sloppily and impotently required by regulators to provide audited information to them. For example, Leftwich (1983) finds that banks require firms to present audited financial information for their propitious financing decision-making, especially for private companies. This implies that the audited information is regarded as credible and useful in capital markets. In sum, firms providing highly credible disclosures have better disclosure quality.

The conceptual frameworks of the auditing and assurance approach can measure the disclosure quality characteristics of accounting information, as they incorporate the credibility of accounting information into versatile variables. As the corporate accounting information audited by the resonant Big four firms or other non-financial information is assured by a third party (e.g. Man, 2017), the information presented is likely to be highly credible, leading to lustrous information quality. Auditors also assess all other qualitative characteristics of accounting information, such as reliability, freedom from bias, verifiability, representational faithfulness, neutrality, and comparability, with regard to whether they conform to GAAP standards. This approach can thus broadly measure disclosure quality.

The *advantage* of the auditing and assurance approach is that it makes it easier for researchers to determine disclosure quality, since they have only to check the presence or absence of auditors or third parties in reports. One *argument* against using auditing or assurance to determine disclosure quality is that auditing firms may also provide consulting services to their clients, thereby affecting auditors' perceived and actual independence, and in turn influencing disclosure credibility. Therefore, that financial information has been audited or assured does not mean that disclosed information is of high quality for users.

Proxies for Disclosure Quality

A firm's disclosure quality can be addressed in term of quantity, and plenteous researchers warily examine the *precision, frequency*, *level of detail*, and *quantity* of the information provided (Hutton and Palepu, 1999). Some proxies have been used to measure disclosure quality in prior studies, including numbers of words, page proportions, and sentences. Using these proxies is based on the assumptions that quantity of disclosure is a valid proxy for quality of disclosure, and that quantity and quality are positively correlated. Unerman (2000) argues that words can be counted with a high degree of accuracy to measure disclosure quality. However, Linsley and Shrives (2006) argue that this method ignores the contexts of sentences. Milne and Adler (1999) support using numbers of sentences as a measurement technique for disclosure quality since 'using sentences for both coding and measurement seems likely to provide complete, reliable, understandable, and meaningful data for further analysis'. Although the proxy of page proportions is relatively easy to apply, there is no apparent link between the length of reports and disclosure quality and a bit *brusque*.

Alternatively, ADR status can be used as a proxy for corporate disclosure quality, since non-US companies listed on US stock exchanges are subject to more restricted disclosure requirements (Baek, Kang and Park, 2004). For instance, companies are subject to increased supervision by the Securities and

Exchange Commission (SEC) and a higher-standard litigation environment. Therefore, Lang et al. (2003) argue that cross-listing companies can improve their information environ. Researchers commonly use the indicator '1' if a company is listed as ADR to proxy for better disclosure quality and '0' otherwise. However, using this proxy is problematic. Recently, US stock exchanges have been allowing foreign companies to use IFRS, and there has been a greater convergence between IFRS and the US GAAP, which makes ADR status less useful as a valid proxy for disclosure quality. Nonfinancial information quality, thus, using an ADR dummy is not a good method, as nonfinancial information quality is likely to be more prone by country and industry rules and regulations rather than where companies are listed. Stock exchanges can affect the accounting information quality of companies listed on them, but not mandate nonfinancial information quality.

As a conceptual framework, the validity of using proxies to measure disclosure quality exclusively and wholly depends on the extent to which the proxies consider qualitative characteristics. For instance, examining page proportions makes it possible to consider the qualitative characteristics of completeness but not other characteristics, and it cannot consider the readability of information because it only assesses the presence of information. Examining the number of sentences is similarly lacking, as it fails to vigorously assess the reliability of information. The use of ADR proxies for corporate disclosure quality is limited in its assessment of some of the qualitative characteristics of accounting information, namely reliability, freedom from bias, verifiability, representational faithfulness, credibility, neutrality, timeliness, and comparability. Consequently, this approach is *brusque* and not a valid and reliable one for measuring all disclosure quality.

Disclosure Accurateness for Quality

With regard to the *precision* of disclosures, another approach used to determine disclosure quality is the assessment of the extent of the validation of prior disclosures through required financial reporting. This approach is commonly applied to management forecast disclosures. For instance, the revenue and earnings forecasted by managers can be verified by the actual realisations. If there are adequate penalties for sagacious managers who make disclosures that can be proven to be false, this can encourage managers to provide more credible information. If previous disclosures are accurate, it is more likely that subsequent disclosures will be credible (i.e. of high disclosure quality). However, this approach to determining disclosure quality can be used only for certain quantitative disclosures provided by managers, such as management forecasts. Pownall and Waymire (1989) find that market reactions to unexpected management earnings forecasts are similar in magnitude to reactions to unexpected earnings announcements themselves. This suggests that management forecasts have a credibility comparable to that of audited financial information. Based on the conceptual framework involved, this technique can obviously capture accuracy, credibility, reliability, freedom from bias, and verifiability but, unfortunately, cannot successfully assess other features, such as information relevance, timeliness, or completeness. While disclosures with higher accuracy have higher disclosure quality, the precision approach cannot be applied in certain type of studies, e.g.nonfinancial information contains very few quantitative figures, unlike management forecasts.

Sporadic

A measure of disclosure quality can be constructed by assessing the disclosure sporadically or non spoardically made by and/or about a firm, such as the number of conference calls. This approach can also apply to other types of disclosure, including management forecasts and voluntary disclosures (see Bowen, Davis and Matsumoto, 2002). In one example, Lang and Lundholm (2000) use disclosure frequency and changes in disclosure frequency in all publicly available information provided by companies to measure disclosure quality. Brown, Hillegeist and Lo (2004) use the numbers of conference calls held by companies to measure disclosure quality. Other bellicose scholars such as Merton (1987) and Fishman and Hagerty (1989) use disclosure quantity as an indicator of disclosure quality to analyse settings in which firms offer more informative disclosures. Existing research on corporate disclosure has fixated mostly on the amount of firm disclosure (Healy and Palepu, 2001). The degree of the reliability or validity of this approach depends on the assumption that disclosure quantity is positively associated with disclosure quality.

However, this assumption may not be valid, since disclosure quality can involve different dimensions such as credibility, reliability, and comparability.

THE DIFFERENCE BETWEEN CSR DISCLOSURES AND ACCOUNTING DISCLOSURES

Corporate social responsibility (old cliché as corporate conscience, corporate citizenship, social performance, or sustainable responsibility) (hereafter CSR) disclosures (related to human resources, customer relations, governance, environmental protection, etc.) are obviously different from accounting disclosures (related to accounting policies, notes to accounts, etc.) in annual reports because the former are less financial and more narrative, making it difficult to measure their quality. As an example, financial performance represents less than 10% of Nike Inc.'s 2009 standalone CSR report because the report only incorporates one section within a chapter to discuss corporate lustrous financial performance in terms of sales. Canon Inc., a leading company in the camera industry, reports only two pages of financial information in its 40-page 2012 CSR report. Other chapters these reports are non- financial and narrative information involving workers and factories, the environment, communities, people and culture, public policy and advocacy, and guidance and principal indexes. Such information is difficult for users (including financial analysts, creditors, and investors) to quantify in terms of the impact on firm financial performance, increasing the difficulty of measuring the usefulness of CSR disclosures. CSR information is, therefore, relatively difficult to verify in terms of the accuracy, comparability, and completeness qualitative characteristics of information. CSR disclosure quality seems hardly to be measured, compared with that of accounting information.

Moreover, CSR reports focus more on forward-looking information and strategies, future prospects, and so on, creating problems for quantifying the effect of such information on future financial performance and how users utilize such information is a question. This increases the difficulty of measuring the information's quality (i.e., the usefulness of such information for users' propitious decision making), as the IASB and FASB also emphasize that the degree of usefulness of accounting information depends on how it helps users in their propitious decision making (e.g., predicting future corporate performance and risks). Forward-looking information in particular cannot be verified by others as managers make disclosures subjectively, resulting in more difficulty evaluating the representation faithfulness and reliability of the qualitative characteristics of information. For instance, Nike will impose a "willy-nullify" strategy to monitor contract factories for management practices in contravention of their Code of Leadership Standards or Code of Conduct, and for their performance across environment, safety, and health indicators. Canon's 2012 CSR report covers the company's economic, social, and environmental activities within the scope of consolidated accounting for 2011. The scope of Canon's environmental activities is not limited to development, production, and sales operations at operational sites but covers "nook and cranny" every stage of the product lifecycle, including raw materials and contraptions manufacturing by suppliers, as well as product usage by customers. BP, a renowned UK corporation, discloses safety and operational risk, measures to prevent accidents and oil spills, and information on greenhouse gas emissions, oil spills into the environment, water, waste, biodiversity, its work in the Arctic, financial transparency, its work with host societies and communities, and human rights in its 2012 standalone CSR report. Determining how to measure the disclosure quality of such information seems to be a very arduous task.

Additionally, CSR reports disclose various versatile types of information contents, such as information about communities, corporate governance, diversity, employee rights and relations, the environment, human rights, product quality, and controversial business, which can increase the difficulty of measuring information quality. As users use information selectively, researchers attempting to measure relevance, one of the qualitative characteristics of accounting information, seems to face great challenges. For instance, Nike's CSR disclosures include content on human relations, customers, environmental protection, corporate governance, ethics and conduct, and other topics, some of which may be useful for one financial analyst or investor but useless for another. Canon Inc's 2012 CSR report covers its environmental activities including development, production, and sales operations at operational sites, and covers every stage of the product lifecycle, including raw materials and parts manufacturing by suppliers and product usage by

customers.Besides, Walmart 2013 CSR report shows 30 different category information, including Social responsibility: ethical sourcing, global audit results, global women's economic empowerment, hunger relief, healthier food, giving, wreak havoc disaster relief, environmental responsibility: sustainability 360, sustainable value networks, renewable energy, greenhouse gas (GHG), energy efficiency and buildings, energy: fleet, waste, sustainability Index, sustainable agriculture, supply chain GHG, company responsibility: stakeholder engagement, governance, public policy, ethics and integrity, compliance, safety, diversity, talent development, recruiting, benefits and compensation, associate engagement, sustainability Plan. Marks and Spencer reports that in 2006, its work experience program "Marks & Start" gave thousands of people work placements within the company; that the company supports Breakthrough Breast Cancer by raising money through selling pins, clothing, and food products and through fundraising efforts in stores; and that the company has dwindled the amount of energy used in its stores and offices. Compared with accounting information, these CSR disclosures are hard to measure in terms of quality.

Obviously, some of the above-indicated approaches of measuring information quality might not be explicable, applicable and appropriate for CSR disclosures, as CSR information is very different from accounting information. For instance, precision is not suitable for measuring CSR disclosure quality because there is no financial information about human relations, customer bona fida relationships, and environmental protection, creating an inability to check the accuracy of such information. Marks and Spencer, for example, set a target to identify ways of measuring the social and economic impacts on suppliers, workers and communities, and others of how it sources its food. In 2006, it performed case studies and organized a conference about its food's impacts in terms of social and environmental aspects. In this case, it seems quite difficult to quantify the precision of the result based on the target. In addition, third parties are unlikely to certify CSR disclosure quality as they do accounting information; thus, some of the approaches cannot be applied. For instance, the analyst rating approach is inapplicable for measuring disclosure quality in CSR because the Association for Investment Management and Research (AIMR) does not cover the evaluation of CSR information.

More importantly, the rating agency only provided analyst ratings (e.g., AIMR) until 1997, but plenteous corporations began disclosing their CSR information in the late 1990s. Although some measurement techniques are applicable and appropriate in CSR disclosures, they should still be modified before use. For example, researchers should consider revising the disclosed items in checklists so they reflect the presence or absence of specific disclosed items when measuring CSR disclosure quality. Readability and linguistic analysis cannot be employed in examination of CSR quality as those are originally developed based on accounting disclosures. Further, proxies, and assurance and auditing can be directly applied in measuring CSR disclosures because those techniques are not subject to the content itself. In the following section, This section will supplemental review the prior literature on three common approaches used by researchers measuring CSR information quality: proxies, disclosure indices, and textual analysis.

CSR DISCLOSURES QUALITY: A REVIEW AND DISCUSSION

This paper already discussed different measure techniques for financial disclosure quality. However, most of the studies just examine the annual reports of a disclosure vehicle. These approaches may not be appropriate for measuring CSR and other nonfinancial information disclosure quality. Furthermore, as this section annex with previous discuss the CSR and nonfinancial disclosure quality, it is needed to review how the prior studies in measuring disclosure quality using CSR disclosure vehicle. Categorizing CSR disclosures into high or low quality is arguable, iffy and vague since different scholars have different perceptions, thereby leading to different measurement techniques of disclosure quality. This study has summarized the majority of prior works involving the measurements of CSR and other nonfinancial disclosure quality over the last decade and have been grouped them into three categories.

Empirical Framework of Renounced Prior Studies on Disclosure Quality (see Table 1)

In these studies, dependent variables and disclosure quality are measured by the following three methods although different scholars have different classification approaches:

1. The disclosure *extent*
2. A *disclosure index* based on the *breadth*, or
3. A *disclosure index* based on the *breadth* and *depth*

"Extent" refers to the number of words, sentences and pages or proportion of pages of CSR and other nonfinancial information that companies in their reports.'Breadth' refers to the number of items a company reports on. This approach emphasises the content in the reports. However, it considers only the items incorporated in the reports but does not indicate whether they are of high quality or not. 'Depth' refers to the specificity of the disclosure (i.e., general qualitative versus specific quantitative information) in reports. This approach considers the importance and disclosure quality of each disclosed item. Prior studies provide circumstantial evidence pertaining to the bilateral relationship between a firm's characteristics and social or environment disclosures. Most of the empirical studies harasses measure the quality of disclosure through either the extent of disclosure (e.g., Ingram and Wiseman, 1980; Frazier, 1983; Guthrie and Parker, 1989; Zeghal and Ahmed, 1990; Patten, 1992, 1995, 2002; Gray, Kouhy, and Lavers, 1995b; Deegan and Gordon, 1996; Hackston and Milne, 1996; Gray et al., 2001) or a disclosure index based on the breadth of disclosure (e.g., Cowen et al., 1987; Cormier et al., 2005). Very few studies apply more than one measurement approach. In a recent study, Joseph and Taplin (2011), on CSR reporting in Malaysian local governments, illustrates that different measurement approaches (i.e., extent measures vs. index measures) may lead to different empirical results. Collectively, all these studies measure the disclosure quality ranging from zero to a certain maximum value. Therefore, this will use several approaches such as extent measures and index measures for measuring CSR and other nonfinancial disclosure quality in order to provide more convincing results.

The *Extent* Of Disclosures (Proxy Approach)

This method uses some proxies for measuring disclosure quality such as the number of words (Bowman and Haire, 1976; Trotman and Bradley, 1981; Zeghal and Ahmed, 1990; Deegan and Gordon, 1996), sentences (Ingram and Wiseman, 1980) and pages represented in disclosure vehicles such as annual reports (Guthrie and Parker, 1989; Patten, 1992, 1995; Gray et al., 1995a20; Gray, Kouhy, and Lavers, 1995b). The earliest work includes Bowman and Haire (1976); Ernst and Ernst (1978); Trotman (1979); Trotman and Bradley (1981) and Guthrie (1982; 1983). Ernst and Ernst (1978) use different dimensions of research instrument to capture firm social and environment disclosures, including environment, energy, products/consumers, community, employee/human resources, fair business practices, general/other). Bowman and Haire (1976) and Trotman and Bradley (1981) use proportions of pages to capture amount of corporate social information. Guthrie (1982) includes an additional dimension of location in annual report (i.e. chairman's review, separate section, other sections). Other empirical studies also count the number of words or sentences in annual reports devoted to environmental information (e.g. Hackston and Milne, 1996). They highly resemble Gray et al's research instruments. However, all of them assume that a single mechanism influences both the disclosure decision and the disclosure quality. The advantage of the extent approach is that it makes it relatively easier to measure disclosure quality. However, using these proxies to measure disclosure quality is not very reliable because a longer report may not be equivalent to a higher quality of CSR and other nonfinancial disclosures. The problem arising from different writing styles, font sizes and pages across different time zones and companies different time and across may affect the validity of measuring disclosure quality (Hackston and Milne, 1996). Essentially, there is no apparent link between the length of reports and the disclosure quality. A textual analysis of CSR and other nonfinancial disclosures is very dominant and has a great impact on stakeholders. Researchers develop different disclosure indices to measure disclosure quality through textual analysis. Textual analysis, which is a measure of social and environmental disclosure quality, is a scoring system that awards points based on the presence or absence of CSR information items (Patten, 2002). Numerous prior studies assess the quality of corporate social responsibility via textual analysis. (e.g. Guthrie and Parker, 1990; Z´eghal and Ahmed, 1990; Hall and

Jones, 1991; Gorman, 1992; Adams et al., 1995; Gray et al., 1995; Adams, 1996; Patten, 2002; Christensen and Hughes II, 2004; Brammer and Pavelin, 2006; Aerts and Cormier, 2009). Disclosure indices include a disclosure index based on the breadth (i.e. unweighted) and a disclosure index based on the breadth and depth (i.e. weighted).

A *Disclosure Index* Based On The *Breadth*

As indicated, this approach is one of the textual analysis approaches. Numerous empirical studies in CSR are great in developing the CSR index used (such as Patten,1991;Grayet al., 1995b, Hackston and Milne, 1996;Adams et al., 1998; Williams and Pei,1999; Purushothaman et al., 2000; Archel, 2003). Ingram and Frazier's (1980) study was the first to delve deeper the environmental performance– disclosure bilateral relationship. They used a scoring system (rated by the Council on Economic Priorities (CEP)21) to measure environmental disclosure levels by counting the number of content items presented in the annual reports with the help of a check list. Wiseman (1982) used CEP data as well as the total score computed by counting the number of textual items in reports to measure the quality of environmental disclosures. Freedman and Wasley (1990) used a raw disclosure score similar to that used by Wiseman's (1982). Roberts (1992) set disclosure quality to zero for non-disclosing companies and certain maximum values for disclosing companies by counting the number of relevant items disclosed. (others also used a similar binary approach: see Guthrie and Parker, 1990; Patten, 1991; Hackston and Milne, 1996). Fekrat et al. (1996) apply Wiseman's textual analysis approach to quantify the disclosure quality of the environment as disclosure indices. These studies, based on the CEP reports of the early 1970s (Ingram and Frazier, 1980; Wiseman, 1982; Freedman and Wasley, 1990), are limited, of course, to companies that are evaluated by the CEP alone, resulting in problems of sample selection. Patten (2002) also applies the textual analysis approach in which one point is awarded for each area of environmental disclosure22 included in financial reports. However, this paper fails to control for firm size, industry and other potentially significant correlates to disclosure decisions. Since industries are classified as high or low disclosure profiles, this study limits the analysis of cross-section variation in disclosures (Brammer and Pavelin, 2006). Moreover, its sample selection and method of measuring environmental disclosures is inadequate (Clarkson et al., 2008).

Collectively, the disclosure index approach based on the breadth is better than the extent approach since researchers can consider whether the disclosed contents relevant to the stakeholders and this approach is more reasonable and reliable than other approaches (i.e. proxies for information quality and assurance) in that more disclosed items in the reports can provide more information to users, unlike the extent approach, which uses anecdotal proxies. However, all of these approaches are arguable, since researchers cannot distinguish between the determinants underlying a firm's decision to disclose CSR information and its CSR disclosure quality. However, to tackle this issue, Brammer and Pavelin (2006) provided more effective measurements that involve explicitly incorporating separate dependent variables into both disclosure decisions as well as disclosure quality. With regard to a firm's 'Disclosure Decision', they assigned an indicator variable 1 in the event that it discloses any one of the six environmental items, and 0 if it does not. Further, they counted the number of environmental items disclosed in the reports to measure a firm's Disclosure quality. They believed that this approach could distinguish between a firm's decision to disclose CSR information (using binary variables 0 or 1) and its CSR disclosure quality (ranging from zero to six). This variable distinguishes between companies that make some environmental disclosure, however minimal, and those that make none. It is because their approach still includes the non-disclosing companies (represent around 43% of the companies in the sample) into Probit analysis to explain the disclosure quality, resulting in unconvincing results. This situation is more serious in the case of many non-disclosing companies in the samples. Thus, this approach too cannot distinguish between the decision to disclose and disclosure quality. This approach is a better method than proxies for information quality as it can consider the content of information, thereby reflecting more realistic corporate disclosure quality. As mentioned before, this approach has a problem of no distinguish between disclosure decision and its quality.

Disclosure Index: Breadth (Items) And Depth (I.E. Textual Analysis)

This approach is also a disclosure indiex technique but more intricate to set disclosure indices. The only difference is it will weight each disclosed item based on their presentations whether only presented in general, specific or quantitative ways. For instance, prior studies, like Al-Tuwaijri., Christensen and Hughes II (2004) measure environmental disclosures by conducting a textual analysis of a firm's annual reports. They use a coding system to measure the breadth of disclosures (counting the number of disclosed items relevant to stakeholders) and the depth of disclosures (e.g., a rating of 0 for no disclosures; 1 for non-specific qualitative disclosures; 2 for specific qualitative disclosures, and 3 for quantitative disclosures for each disclosed item). Aerts and Cormier (2009) also use a coding instrument to measure the firm environmental disclosure quality, similar to that used by Wiseman (1982) and Cormier and Magnan (1999, 2003[23]). Environmental disclosure index corralled 39 components together and classified into 6 groups, including environmental expenditures and risks, laws and regulations, pollution abatement, sustainable development, land remediation and contamination, and environmental management. The rating (1 to 3: 1 refers to discussions in general; 3 refers to quantitative information) is based on whether firms describe the quantitative items explicitly. This approach can integrate different information into a single score with considering disclosure depth and can allow researchers making judgements of specific disclosure importance to be impounded in rating the value of disclosure by firms. However, it is unreliable since it cannot distinguish between disclosure decisions and disclosure quality. Some claim the disclosure index technique is reliable because the results can be replicated by other researchers. Due to the scores are extracted from printed annual reports which can remain constant over time, it is no obstruction of repetition. Although disclosure indices have been criticized for focusing on a specific pre-identified items and ignoring sections of text that do not relate to this list and measure of disclosure quality may be sensitive to the choice of items in the checklist, it can be tackled if researchers self-develop a list for their studies, this approach is very useful (Walker, 2001).

TABLE 1
OVERVIEW OF PRIOR EMPIRICAL STUDIES ON DISCLOSURE LEVEL AND QUALITY

Decision to Disclose **Probit/Logit** **Model Coverage and Comments**	
Bewley and Li (2000)	This article empirically examines factors associated with the environmental disclosures made by Canadian manufacturing firms in their 1993 annual reports. The disadvantage of the approach used in this article is that it can only deal with environmental disclosures and only involves analysis of firms in one country.
Ahmad et al. (2003)	The article empirically examines the incentives for Malaysian listed companies to provide environmental disclosures in their annual reports. This paper's approach deals only with whether firms disclose environmental information; it does not examine the disclosure level of different companies in various regions.
Brammer and Pavelin (2006)	This paper examines the patterns in voluntary environmental disclosures made by a sample of large UK companies. It uses six indicators of the quality of corporate environmental disclosure: disclosure of an environmental policy; existence of board-level responsibility for environmental matters; the description of environmental initiatives; reporting on environmental improvements; setting of environmental targets; and the presence of an environmental audit or assessment. The study assigns a value of one while a firm discloses in any items of the six components of environmental disclosure in the PIRC's report. This intends to measure the disclosure decision of a firm. Then, they employ a measure of disclosure quality that, instead of covering each component separately, considers these components all together so that the score can reflect overall environmental disclosure quality. One of the advantages of the approach used by this paper is the disclosure quality of environment is obtained from a report of the independent research consultancy, namely PIRC Environmental Reporting 2000's survey, which is more consistent and creditable. However, It only provides a measure for one of the CSR disclosures and only applies to one country.

Clarkson et al. (2008)	They measure environmental disclosure quality uses an environmental proxy and collect the pollution discharge data from the US Environmental Protection Agency's database for computation. The measure they use is the total toxic waste treated, recycled or processed representing the proportion of the total toxic waste generated. They follow GRI to construct their own scoring model composed of 95 CSR items (equal weighted) that can reflect the GRI qualitative framework. Obviously, the advantage of it is the disclosed items can match with the GRI qualitative framework, thereby better reflecting the CSR information quality. However, their measures fixate only on firms' disclosures related to their commitment to protecting the environment. Further, the paper looks at only 191 sample firms from five industries: pulp and paper, chemicals, oil and gas, metals and mining, and utilities.
Disclosure Quality	
Ordered Probit/Logit Categories based on breadth	
Brammer and Pavelin (2006)	This paper examines the patterns in voluntary environmental disclosures made by a sample of large UK companies. It uses six indicators of the quality of corporate environmental disclosure: disclosure of an environmental policy; existence of board-level responsibility for environmental matters; the description of environmental initiatives; reporting on environmental improvements; setting of environmental targets; and the presence of an environmental audit or assessment. The researchers assign a value of one while a firm discloses in any items of the six components of environmental disclosure in the PIRC's report. This intends to measure the disclosure decision of a firm. Then, they employ a measure of disclosure quality that, instead of covering each component separately, considers these components corralled all together so that the score can reflect overall environmental disclosure quality. One of the advantages of the approach used by this paper is the disclosure quality of environment is obtained from a report of the independent research consultancy, namely PIRC Environmental Reporting 2000's survey, which is more consistent and creditable. However, it only provides a measure for one of the CSR disclosures and only applies to one country.
Ordinary Least Square Extent	
Gray et al. (2001)	This article attempts to explain large companies' disclosure of social and environmental information in their annual reports. The disclosure quality is collected from the database of the Centre for Social and Environmental Accounting Research which composes of the quality level of a content analysis of the social and environmental disclosures in the annual reports of the top 100 UK companies. This disclosure measurement measure

	includes information of environmental, employee, community and customer disclosures. The advantage of it easily determines disclosure quality since very few items to be covered and directly draw from the Centre. However, it focuses only on very largest companies.
Patten (2002)	The environmental disclosure quality is identified through textual analysis, by which two independent researchers review the examination of annual reports for the presence or absence of disclosure items of eight different aspects. Litigation disclosures are not covered since they are less discretionary and cannot reflect the corporate disclosure decisions. One point is given for the presence of each aspect of disclosure in the accounting report. Environmental scores could therefore range from 0 to 8. This paper fails to control for firm size, industry, and other potentially significant correlates to disclosure decisions. By classifying industries as high or low deciles according to environmental scores, it limits the analysis of cross-section variation in disclosures (Brammer and Pavelin, 2006). Moreover, this paper has inadequate sample selection and measures of environmental disclosures, compared with other prior studies (Clarkson et al., 2008).
Disclosure index breadth (items):	
Branco and Rodrigues (2008)	This study compares corporate web pages and annual reports as media of social responsibility disclosure (SRD) and analyzes what influences disclosure. To measure the CSR information quality of companies, they perform textual analysis. The analysis of the CSR quality is constructed through an equal-weighted index. Disclosure scores, divided into 4 categories, namely environmental, human resources, product and consumers and community involvement, are calculated for each firm with unweighted since researchers assume that each disclosed item is equally weighted. The total maximum score of the corporation is 30. An advantage of the measuring approach in this study adopted is simple to compute the disclosure quality score because it is unweighted approach as well as not involving too many items. Their approach only includes one country-specific institutional context. This approach may not apply to standalone CSR reports owing to differences between web pages/annual report disclosure and standalone CSR reports. Further, there is an inadequate sample set used in this study.
Ho and Taylor (2007)	This paper examines the triple bottom-line (TBL) disclosures of 50 of the largest U.S. and Japanese companies. The authors develop 20 criteria to assess firm economic, social, and environmental disclosure quality. Disclosure information is examined in annual

	reports, standalone reports, and special website reports. Their approach is better because they comprehensively consider different CSR disclosure arenas and widely examine different disclosure approaches.
Patten (2002)	The environmental disclosure quality is identified through textual analysis, by which two independent researchers review the examination of annual reports for the presence or absence of disclosure items of eight different aspects. Litigation disclosures are not covered in the examination since they are less discretionary and cannot reflect the corporate disclosure decisions. One point is given for the presence of each aspect of disclosure in the accounting report. Environmental scores could therefore range from 0 to 8.This paper fails to control for firm size, industry, and other potentially significant factors correlating with disclosure decisions. By classifying industries as high or low deciles, this study limits the analysis of cross-section variation in disclosures (Brammer and Pavelin, 2006). Moreover, this paper has inadequate sample selection and measures of environmental disclosures (Clarkson et al., 2008).
Disclosure index: breadth and depth	
Aerts and Cormier (2009)	This paper explores the impact of annual report environmental disclosures and environmental press releases as legitimation tools.The sample comprises Canadian and U.S. firms. Environmental disclosure quality is measured via a coding indicator, similar to Wiseman (1982). The checklist composes of 39 disclosed items, which are grouped into 6 categories, to measure the environmental information quality, including expenditures and risk; laws and regulations; pollution abatement; sustainable development; land remediation; and environmental management. The advantage of this approach is consistent with those of prior studies and results can be comparable across firms and replicable by different researchers. However, the authors' disclosure measurement approach is only applied to the environment area.

Aerts et al. (2008)	Environmental disclosure quality is measured via a coding indicator, similar to Wiseman (1982). The checklist composes of 39 disclosed items, which are grouped into 6 categories, to measure the environmental information quality, including expenditures and risk; laws and regulations; pollution abatement; sustainable development; land remediation; and environmental management. The advantage of this approach is consistent with those of prior studies and results can be comparable across firms and replicable by different researchers. This paper's approach can be only applied to environment disclosures, not CSR disclosures. The authors rely on many theoretical frameworks such as information costs, impression management, legitimacy theory, institutional theory, and stakeholder theory.
Cormier et al. (2005)	This study aims to identify determinants of corporate environmental disclosure using different perspectives including economic incentives, public pressures, and institutional theory. Environmental disclosures checklist includes 39 items which are grouped into 6, namely environmental expenditures and risks, laws and regulations, pollution abatement, sustainable development, land remediation and contamination and environmental management. The rating ranges from 1 to 3 (i.e. 3 for items presented in monetary terms; 2 for items described specifically; 1 for items disclosed generally). The advantage of it can allow for incorporation of different types of information into a single score, comparable across firms and it can provide a relatively comprehensive disclosure quality rating. However, the authors only examine large corporations and focus on the determinants of environmental disclosures only but ignore social disclosures.
Al-Tuwaijri et al. (2004)	This study provides an integrated analysis of the triangulated relations among environmental disclosure, environmental performance, and economic performance. They adopt a similar disclosure-scoring approach to measure environmental information quality based on textual analysis capture disclosures of four primary environmental indicators: (1) the total amount of toxic waste generated and transferred or recycled; (2) financial penalties; (3) Potential Responsible Party, etc. They measure the disclosure quality on disclosure vehicles reported in Forms 10-K and mainly consider pollution-related information in these four aspects. This approach is simply as it only considers 4 areas of specific of pollution-related disclosures. However, the authors only examine large corporations and focus on the determinants of environmental disclosures.
Cormier and Magnan (2003)	This study investigates the determinants of corporate environmental reporting using a cost/benefit framework within France's unique legal and regulatory context. A firm's environmental disclosure quality, measured in annual reports and stand-alone

	environmental reports, is coded using an indicator of 39 items, grouped into 6 categories, including Environmental expenditures and risks, laws and regulations, pollution abatement, sustainable development, land remediation and contamination (including spills) and environmental management. It is extensively modified from the works of Magnan's (1999) a 19-item coding system to better measure the complexity and scope of corporate environmental disclosures. Two independent reviewers check the scoring and while a large disagreement, a third person would review their works. The advantage of it is reliable coding process since performed by 2 reviewers while disagreement. The disclosures only derive from one country-specific institutional context. Moreover, this measurement approach only applies to corporate environmental reporting.
Bewley and Li (2000)	This paper empirically examines factors associated with the environmental disclosures made by Canadian manufacturing firms in their 1993 annual reports. The disadvantage of the approach used in this article is that it can deal only with environmental disclosures but not involve social disclosures. The disclosures are derived from one country-specific institutional context.
Tobit I **Disclosure index breadth (items):**	
Clarkson et al. (2008)	The authors of this paper measure environmental disclosure quality uses an environmental proxy and collect the pollution discharge data from the US Environmental Protection Agency's database for computation. The measure they use is the total toxic waste treated, recycled or processed representing the proportion of the total toxic waste generated. They follow GRI to construct their own scoring model composed of 95 CSR items (equal weighted) that can reflect the GRI qualitative framework. Obviously, the advantage of it is the disclosed items can match with the GRI qualitative framework, thereby better reflecting the CSR information quality. However, their measures only focus on firm's commitment to protect environment disclosures. Further, the paper looks at only 191 sample firms from five industries: pulp and paper, chemicals, oil and gas, metals and mining, and utilities.
Cormier et al. (2005)	This study aims to identify determinants of corporate environmental disclosure using different perspectives including economic incentives, public pressures, and institutional theory. Environmental disclosures checklist includes 39 items which are grouped into 6, namely environmental expenditures and risks, laws and regulations, pollution abatement, sustainable development, land remediation and contaminationand environmental

management. The rating ranges from 1 to 3 (i.e. 3 for items presented in monetary terms; 2 for items described specifically; 1 for items disclosed generally). The advantage of this study is it can allow for incorporation of different types of information into a single score, comparable across firms. It can also provide a relatively comprehensive disclosure quality rating. However, his process is less objective. But, the authors only examine large corporations and focus on the determinants of environmental disclosures.

TABLE 2
PRIOR PAPER JUXTAPOSITION

	Methodology	Check lists	Cons	Pros
Brammer and Pavelin (2006)	The researchers assign a value of one while a firm discloses in any items of thesis components of environmental disclosure in the PIRC's report.	Uses six indicators of the quality of corporate environmental disclosure: disclosure of an environmental policy; existence of board-level responsibility for environmental matters; the description of environmental initiatives; reporting on environmental improvements; setting of environmental targets; and the presence of an environmental audit or assessment. No provision of the checklist in this study	However, it only provides a measure for one of the CSR disclosures and only applies to one country context.	One of the advantages of the approach used by this paper is the disclosure quality of environment is obtained from a report of the independent research consultancy, namely PIRC Environmental Reporting 2000's survey, which is more consistent and creditable.
Gray et al. (2001)	The disclosure quality is collected from the database of the Centre for Social and Environmental Accounting Research which composes of the quality level of a content analysis of the social and environmental disclosures in the annual	95 CSR items (equal weighted) used in this study but it mentioned grouping those into four categories: Environment, Consumer, Community, Employee No provision of the checklist in this study	However, it focuses only on the very largest companies.	The advantage of it easily determines disclosure quality since many of those items can be found from the database and directly collected from the Centre.

	reports of the top 100 UK companies.			
Patten (2002)	The environmental disclosure quality is identified through textual analysis, by which two independent researchers review the examination of annual reports for the presence or absence of disclosure items of eight different aspects. Environmental scores could therefore be used to corporate disclosures range from 0 to 8.	8 items, as follows: 1. Discussion or mention of specific environmental regulations. 2. Discussion or mention of the firm's processes, facilities, or product innovations relative to reduction of environmental degradation. 3. Statement or discussion of the company's concern for the environment. 4. Statement or discussion of the company's environmental compliance status. 5. Disclosure of current or past years' capital expenditures for pollution control or abatement. 6. Disclosure of projected future capital expenditures for pollution control or abatement. 7. Disclosure of current or past years' operating costs for pollution control or abatement. 8. Disclosure of projected future operating costs for pollution control or abatement.	This paper fails to control for firm size, industry, and other potentially significant correlates to disclosure decisions. By classifying industries as high or low, it limits the analysis of cross-section variation in disclosures (Brammer and Pavelin, 2006). Moreover, this paper has inadequate sample selection and measures of environmental disclosures (Clarkson et al., 2008). Additionally, it is likely many firms can get similar scores of disclosure quality due to insufficient and unspecific environmental items.	Simple to use of the research instrument
Branco and Rodrigues (2008)	The analysis of the CSR quality is constructed through an equal- weighted index.	30 items ino 4 categories: environmental, human resources, product and consumers and community involvement Unweighted Items: Pollution from business	Their approach only includes one country-specific institutional context. This approach may not apply to standalone CSR reports owing to differences	An advantage is simple to be computed the disclosure quality score because it is unweighted as well as not too many items included.

		operations; Pollution arising from use of product; Energy efficiency of products; Employee Health and Safety; Employee training; Employee remuneration; Employee morale; Product safety; Product quality; Consumer complaints/satisfaction; Support for education; Support for public health; etc.	between web pages/annual report disclosure and standalone CSR reports. Further, there is an inadequate sample problem.	
Ho and Taylor (2007)	The authors develop 20 criteria to assess firm economic, social, and environmental disclosure quality.	40 social and environmental items: Market shares by regions; Dividend distributions; Discussion of social capital formation; R&D investments; Turnover of workforce; Employee job satisfaction; Employee training and education; Policies for consumer privacy; Environmental audit; Environmental awards; Water usage information; Environmental expenditures; etc. Unweighted	Nil	They comprehensively consider different CSR disclosure areas and widely examine different disclosure approaches.
Aerts and Cormier (2009)	This paper explores the impact of annual report environmental disclosures and environmental press releases as legitimation tools.The sample comprises Canadian and U.S. firms. Environmental	Same as Cormier and Magnan (2003).	However, the authors' disclosure measurement approach is only applied to the environment area.	The advantage of this approach is consistent with those of prior studies and results can be comparable across firms and replicable by different researchers.

	disclosure quality is measured via a coding indicator, similar to Wiseman (1982).			
Aerts et al. (2008)	To analyze relationship among environmental disclosure, financial analysts' forecasts and public pressures. The sample comprises corporations from both Belgium, France, Germany, and Netherlands, Canada and the United States.	Same as Cormier and Magnan (2003).	This paper's approach can be only applied to environment disclosures, not CSR disclosures. The authors too rely on many theoretical frameworks such as information costs, impression management, legitimacy theory, institutional theory, and stakeholder theory.	The advantage of this approach is consistent with those of prior studies and results can be comparable across firms and replicable by different researchers.
Cormier et al. (2005)	To identify determinants of corporate environmental disclosure using different perspectives including economic incentives, public pressures, and institutional theory. The rating ranges from 1 to 3 (i.e. 3 for items presented in monetary terms; 2 for items described specifically; 1 for items disclosed generally).	Same as Cormier and Magnan (2003).	However, the authors only examine large corporations and focus on the determinants of environmental disclosures only.	The advantage of it can allow for incorporation of different types of information into a single score, comparable across firms and it can provide a relatively comprehensive disclosure quality rating.
Al-Tuwaijri et al. (2004)	This study provides an integrated analysis of the interrelations among environmental disclosure, environmental	Environmental indicators: (1) the total amount of toxic waste generated and transferred or recycled; (2) financial	However, the authors only examine large corporations and focus on very few determinants of environmental disclosures.	This approach is simply as it only considers 4 areas of specific of pollution-related disclosures.

	performance, and economic performance.	penalties; (3) Potential Responsible Party, etc.		
Cormier and Magnan (2003)	This study investigates the determinants of corporate environmental reporting using a cost/benefit framework within France's unique legal and regulatory context. Two independent reviewers check the scoring and while a large disagreement, a third person would review their works.	39 environmental disclosed items into 6 categories: expenditures and risk; laws and regulations; pollution abatement; sustainable development; land remediation; and environmental management. Checklist items include: Investments; Operation costs; Risk provisions; Risk litigation; Orders to comply; Emission of pollutants; Noise and odours; Recycling; Remediation efforts; Implicit liability; Environmental auditing; Goals and targets; Department, group, service assigned to the environment; Joint environmental management projects with other firms, etc.	The disclosures only derive from one country-specific institutional context. Moreover, this measurement approach only applies to corporate environmental reporting.	The advantage of it is reliable coding process since performed by 2 reviewers while disagreement.
Clarkson et al. (2008)	The authors of this paper measure environmental disclosure quality uses an environmental proxy and collect the pollution discharge data from the US Environmental Protection Agency's database for computation.	They follow GRI to construct their own scoring model composed of 95 CSR items (some equal weighted; some unequal-weighted) that can reflect the GRI qualitative framework. Items include: Stakeholder involvement in setting corporate environmental policies; Executive compensation is linked to environmental performance;	However, their measures only focus on firm's commitment to protect environment disclosures but ignore social aspects. Further, the paper looks at only 191 sample firms from only five industries: pulp and paper, chemicals, oil and gas, metals and mining, and utilities, creating a	Obviously, the advantage of it is the disclosed items can match with the GRI qualitative framework, thereby better reflecting the CSR information quality.

		Product Certification with respect to environmental impact; Stakeholder involvement in the environmental disclosure process; Certification of environmental programs by independent agencies; EPI on other air emissions; EPI on TRI (land, water, air); EPI on water use and/or water use efficiency; EPI on compliance performance, etc.	limited usefulness in other industries.	

CONCLUSION

This paper has already explained the meanings of disclosure nature, quality and information quality and have generally reviewed various approaches to measure disclosure quality in different disclosure vehicles such as annual reports, conference calls, investor relations, management forecasts, and so on. More importantly, this section has also specifically reviewed most popular measurement techniques of CSR disclosure quality but most of prior studies regardless of topics just use a particular measurement technique of corporate disclosure quality. Other studies use more than one measure for disclosure to check the robustness of their research results. Anyways, each method has its own advantages and disadvantages and the use of a particular approach mostly depends on the research purpose. If the disclosure quality is used as a control variable for information environment, a binary indicator should be adequate. If researchers investigate the disclosure quality in developing countries, since disclosure indices usually are not applicable in those countries, they have to develop their own checklists to perform their research purposes. Moreover, choosing a particular approach also depends on the availability of data in the counties. To assess reliability and validity of different disclosure quality measures, three milky ways can be used, namely test-retest, inter-coder reliability, and internal consistency. To assess validity of different disclosure quality measures, three milky ways can be used, criterion validity, content validity and construct validity (Hassan and Marston, 2010). Further, Precision and Frequencies approaches can be only employed in quantitative disclosures (e.g. management forecasts) but CSR disclosure most likely disclose in narrative. Therefore, most of CSR prior studies only employ *disclosure indices* and *Proxies approach*.

ENDNOTES

1. Mitchell (2006) presents some examples of successful applications using machine learning, such as speech recognition, computer vision, bio-surveillance, robot control, and accelerating empirical sciences.
2. Lang and Lundholm (1993) warily examine the cross-sectional determinants of AIMR disclosure quality scores.
3. See Wallace et al. (1994); Depoers (2000); Naser and Nuseibeh (2003); Hassan et al. (2009).
4. See Tai et al. (1990).
5. See Richardson and Welker (2001).
6. For example, the ability of new companies to enter the industry; ability of substitute products or services to displace those of reporting company; company's relationships with others; consistency of strategy with external trends and with managerial approach; financial information by management responsibility; goals for return on assets, equity and capitalisation ratio; beneficial or detrimental circumstances in which the company is involved and that may increase or decrease cash flows in the future; description of convoluted and esoteric business and industry structures; employee involvement and fulfilment-rate of change in it; amount and quality of key resources and related suppliers; definition of industry (or other segment).
7. 206.845 – 1.015 (total words/ total sentences) – 84.6 (total syllables/ total words)
8. The fog index combines the number of words per sentence and the number of syllables per word as a measure of readability. Many prior studies use this approach to measure readability (e.g. Jones and Shoemaker, 1994; Courtis, 1995; Li, 2008; Biddle, et al. 2009; Callen, et al. 2012). Measurement equation = 0.4 [(words/ sentences) + 100 (complex words/ words)]
9. Lee measures readability by using LENGTH (numbers of words in an annual report) and FOG (number of words in a sentence plus the number of three-syllable words).
10. Li finds that the earnings of firms with annual reports that are easier to read are more persistent in stock markets.
11. Given this fact, the US SEC encourages corporations to use plain English in their reports, as is made clear in *A Plain English Handbook: How to Create Clear SEC Disclosure Documents*. In the introduction section of this handbook, the SEC chairman explains that, because many investors are not lawyers, bankers, or accountants, they need plain English to understand corporate reports and other documents.
12. The results also show that these firms are more likely to alleviate information asymmetry and enhance information efficiency (as UE・HIGHANA, p-value = -4.04).

13. It is more likely that there are other omitted variables that explain the impact of information efficiency on stock prices. Thus, if these are all incorporated, it may influence the validity of the results. Researchers also separate the effects of 10-Q readability impounded into stock prices into different subsections, namely MD&A and NOTES. What is more, Lee coos that the readability problem in 10-Q filings (as measured in the number of words in reports, the number of words in sentences, and the complexity of the words in sentences) results from certain items. It is thus vague whether the effect of 10-Q information efficiency on stock prices results from readability itself or from the content of these items. As these items are relatively difficult for investors to understand (e.g. settlement of litigation disputes), this results in a lesser extent of information efficiency, as reflected in stock prices. In any case, these results prove that financial and nonfinancial information are both still useful for financial analysts, as measured by changes in coverage, forecasts, and stock recommendations.
14. Coherence emphasises the structural organisations of succinct sentences, idea flows, and the dependency of sentences on previous sentences.
15. Cohesion, which fixates on linking words, is based on Halliday and Hasan's (1976) study of cohesion in English.
16. Acceptability is the relevance of information to the reader.
17. Informativity is incremental information provided to users.
18. Intentionality is the coherence and cohesiveness of writing.
19. Intertextuality depends on the readers' knowledge of accounting.
20. Gray et al. (1995b) modify Guthrie's research instrument by removing the dimension of the location in annual reports, adding a further dimension of value added statement and following Guthrie and Parker (1990) to separate those disclosures into good, bad and netural news. They also includes some environmental sub-themes such as environmental policies and environmental audit.
21. The CEP published reports rating the companies on a 0 (best) to 10 (worst) scale based on the companies' analyses.
22. Discussion or mention of specific environmental regulations. 2. Discussion or mention of the firm's processes, facilities, or product innovations relative to reduction of environmental degradation. 3. Statement or discussion of the company's concern for the environment. 4. Statement or discussion of the company's environmental compliance status. 5. Disclosure of current or past years' capital expenditures for pollution control or abatement. 6. Disclosure of projected future capital expenditures for pollution control or abatement. 7. Disclosure of current or past years' operating costs for pollution control or abatement. 8. Disclosure of projected future operating costs for pollution control or abatement.
23. They also measure environmental disclosure level as rating scale (3, item described in monetary or quantitative terms; 2, item described specifically; 1, item discussed in general).

REFERENCES

Abd-Elsalam, O.H., & Weetman, P. (2003). Introducing International Accounting Standards to an Emerging Capital Market: Relative Familiarity and Language Effect, with a Case Study of Egypt. *Journal of International Accounting, Auditing and Taxation*, *12*(1), 63–84.

Abdelsalam, O.H., & Weetman, P. (2007). Measuring accounting disclosure in a period of complex changes: The case of Egypt. *Advances in International Accounting*, *20*, 75–104.

Abrahamson, E., & Amir, E. (1996). The Information Content of the President's Letter to Shareholders. *Journal of Business Finance & Accounting*, *23*(8), 1157–1182.

Adams, C.A. (1996, May 2–4). Corporate Reporting on Employment: The Changing Portrayal of Women in Banking and Retail. Paper presented to *the 19th Annual Congress of the European Accounting Association*, Bergen.

Adams, C.A., Coutts, A., & Harte, G. (1995). Corporate Equal Opportunities (non-) Disclosure. *The British Accounting Review*, *27*(2), 87–108.

Adams, C.A., Hill, W.-Y., & Roberts, C.B. (1998). Corporate Social Reporting Practices in Western Europe: Legitimating Corporate Behaviour? *British Accounting Review*, *30*(1), 1–21.

Adhikari, A., & Tondkar, R.H. (1992). Environmental Factors Influencing Accounting Disclosure Requirements of Global Exchanges. *Journal of International Financial Management and Accounting*, *4*, 75–105.

Aerts, W., & Cormier, D. (2009). Media Legitimacy and Corporate Environmental Communication. *Accounting, Organizations and Society*, *34*(1), 1–27.
Aerts, W., Cormier, D., & Magnan, M. (2008). Corporate Environmental Disclosure, Financial Markets and the Media: An International Perspective. *Ecological Economics*, *64*(3), 643–59.
Ahmad, Z., Hassan, S., & Mohammad, J. (2003). Determinants of Environmental Reporting in Malaysia. *International Journal of Business Studies*, *11*(1), 69–90.
Ahmed, K., & Courtis, J.K. (1999). Associations Between Corporate Characteristics and Disclosure Levels in Annual Reports: A Meta- analysis. *British Accounting Review*, *31*(1), 35–61.
Ali, A., Chen, T-Y, Radhakrishnan, Suresh. (2007). Corporate disclosure by family firms. *Journal of Accounting and Economics*, *44*(1– 2), 238–286.
Ali, M.J., Ahmed, K., & Henry, D. (2004). Disclosure compliance with national accounting standards by listed companies in South Asia. *Accounting and Business Research*, *34*(3), 183–199.
Al-Tuwaijri, S., Christensen, T., & Hughes, K. (2004). The relations among environmental disclosure, environmental performance, and economic performance: A simultaneous equations approach. *Accounting Organizations and Society*, *29*(5–6), 447–71.
Antweiler, W., & Frank, M.Z. (2004). Is All That Talk Just Noise? The Information Content of Internet Stock Message Broads. *Journal of Finance*, *59*, 1259–1294.
Archel, P. (2003). La divulgacio´n de la informacio´n socialy medioambiental de la gran empresa espan˜ola en elperı´odo 1994–1998: Situacio´n actual y perspectives. *Revista Espan˜ola deFinanciacio´n y Contabilidad*, *117*, 571–601.
Australian Council of Social Service. (2005). Giving Australia: Research on Philanthropy in Australia. *Survey of Business*. Retrieved from http://eprints.qut.edu.au/61389/.
Baek, J., Kang, J., & Park, K. (2004). Corporate governance and firm value: Evidence from the Korean financial crisis. *Journal of Financial Economics*, *71*(2), 265–313.
Baker III, H.E., & Kare, D.D. (1992). Relationship between annual report readability and corporate financial performance. *Management Research News*, *15*, 1–4.
Barnett, A., & Leoffler, K. (1979). Readability of accounting and auditing messages. *Journal of Business Communication*, *16*, 49–59.
Beattie, V., & Thomson, S. (2007). Lifting the lid on the use of content analysis to investigate intellectual capital disclosures. *Accounting Forum*, *31*(2), 129–163.
Beattie, V., McInnes, B., & Fearnley, S. (2004). A methodology for analyzing and evaluating narratives in annual reports: A comprehensive descriptive profile and metrics for disclosure quality attributes. *Accounting Forum*, *28*(3), 205–236.
Beattie, V.A. (2000). The future of corporate reporting: A review article. *Irish Accounting Review*, *7*(1), 1–36.
Beretta, S., & Bozzolan, S. (2004). A framework for the analysis of firm risk communication. *The International Journal of Accounting*, *39*(3), 265–288.
Bewley, K., & Li, Y. (2000). Disclosure of Environmental Information by Canadian Manufacturing Companies: A Voluntary Disclosure Perspective. *Advances in Environmental Accounting & Management*, (1), 201–26.
Biddle, G.C., Hilary, G., & Verdi, R.S. (2009). How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics*, *48*(2–3), 112–131.
Bligh, M., & Hess, G. (2005a). *Leading cautiously: Alan Greenspan, rhetorical leadership, and monetary policy.* Working paper. Claremont Graduate University and Claremont McKenna College.
Bligh, M., & Hess, G. (2005b). *A quantitative assessment of the qualitative aspects of Chairman Greenspan's communication.* Working paper. Claremont Graduate University and Claremont McKenna College.
Bligh, M.C., Kohles, J.C., & Meindl, J.R. (2003). Textual analysis of leadership during crises: A methodological illustration of responses to 9/11. *Academy of Management Best Conference Paper, Conference Abstracts*.

Bligh, M.C., Kohles, J.C., & Meindl, J.R. (2004). Charisma under crisis: Presidential leadership, rhetoric, and media responses before and after the September 11th terrorist attacks. *The Leadership Quarterly*, *15*(2), 211–239.
Bloomfield, R.J. (2002). The incomplete revelation hypothesis and financial reporting. *Accounting Horizons*, *16*, 233–243.
Bloomfield, R.J. (2008). Discussion of "Annual Report Readability, Content Earnings, and Earnings Persistence." *Journal of Accounting Economics*, *45*(2–3), 248–252.
Bontis, N. (2003). Intellectual Capital Disclosure in Canadian Corporations. *Journal of Human Resource Costing and Accounting*, *7*(1–2), 9–20.
Botosan, C. (1997) Disclosure Level and the Cost of Equity Capital. *The Accounting Review*, *72*(3), 323–349.
Botosan, C.A., & Plumlee, M.A. (2002). A Re-Examination of Disclosure Level and the Expected Cost of Equity Capital. *Journal of Accounting Research*, *40*(1), 21–40.
Bowen, R., Davis, A., & Matsumoto, D. (2002). Do conference calls affect analysts' forecasts? *The Accounting Review*, *77*(2), 285–316.
Bowman, E.H., & Haire, M. (1976). Social impact disclosure and corporate annual reports. *Accounting, Organisations and Society*, *1*(1), 11–21.
Brammer, S., & Pavalin, S. (2006). Corporate reputation and social performance: the importance of fit. *Journal of Management Studies*, *43*, 435–55.
Branco, M.C., & Rodrigues, L.L. (2008). Factors Influencing Social Responsibility Disclosure by Portuguese Companies. *Journal of Business Ethics*, *83*(4), 685–701.
Breton, G., & Taffler, R.J. (2001). Accounting information and analyst stock recommendation decisions: A content analysis approach. *Accounting and Business Research*, *31*(2), 91–101.
Brown, S., & Hillegeist, S. (2007). How disclosure quality affects the level of information asymmetry. *Review of Accounting Studies*, *12*, 443–77.
Brown, S., Hillegeist, S.A., & Lo, K. (2003). *Regulation FD and voluntary disclosure practices*. Northwestern University. working paper.
Brown, S., Hillegeist, S.A., & Lo, K. (2004). Conference calls and information asymmetry. *Journal of Accounting and Economics*, *37*(3), 343–366.
Brownlee, E.R., & Young, S.D. (1987, September). The SEC and Mandated Disclosure: At the Crossroads. *Accounting Horizons*, 17–24.
Bryan, S.H. (1997). Incremental Information Content of Required Disclosures Contained in Management Discussion and Analysis. *The Accounting Review*, *72*, 285–301.
Bushee, B., Core, J., Guay, W., & Hamm, S. (2010). The Role of the Business Press as an Information Intermediary. *Journal of Accounting Research*, *48*, 1–19.
Bushman, R.M., Piotroski, J., & Smith, A. (2004). What determines corporate transparency? *Journal of Accounting Research*, *42*(20), 207–252.
Buzby, S.L. (1974). Selected items of information and their disclosure in annual reports. *The Accounting Review*, *49*(3), 423–435.
Buzby, S.L. (1975). Company size, listed versus unlisted stocks, and the extent of financial disclosure. *Journal of Accounting Research*, *13*(1), 16–37.
Callahan, C.M., & Smith, R.E. (2004). *Firm Performance and Management's Discussion and Analysis Disclosures: An Industry Approach*. Working Paper, University of Arkansas-Fayetteville.
Callen, J.L., Khan, M., & Lu, H. (2012). Accounting quality, stock price delay and future stock returns. *Contemporary Accounting Research*, *30*(1), 269–295.
Carley, K. (1993). Coding choices for textual analysis: A comparison of content analysis and map analysis. *Sociological Methodology*, *23*, 75–126.
Casey, C. (1980). Variation in accounting information load: The effect on loan officers' predictions of bankruptcy. *The Accounting Review*, *55*(1), 36–49.
Choi, F.D.S. (1973). Financial disclosure and entry to the European capital market. *Journal of Accounting Research*, *11*, 159–175.

Chow, C.W., & Wong-Boren, A. (1987). Voluntary financial disclosure by Mexican corporations. *The Accounting Review*, *62*(3), 533–541.
Chowdhury, S. (2005). *The Ice Cream Maker: An Inspiring Tale About Making Quality The Key Ingredient in Everything You Do*. New York: Doubleday, Random House.
Citron, D., Holden, J., Selim, G., & Oehlche, F. (2005, July 7–8). Do voluntary intellectual capital disclosure provide information about firm's intangible assets? Paper presented at the *9th Financial Reporting and Business Communication Conference*, Cardiff Business School, London.
Clarkson, P.M., Li, Y., Richardson, G.D., & Vasvari, F.P. (2008). Revisiting the Relation Between Environmental Performance and Environmental Disclosure: An Empirical Analysis. *Accounting, Organizations and Society*, *33*(4&5), 303–27.
Clatworthy, M., & Jones, M.J. (2001). The effect of thematic structure on the variability of annual report readability. *Accounting, Auditing & Accountability Journal*, *14*, 311–326.
Clatworthy, M., & Jones, M.J. (2003). Financial reporting of good news and bad news: Evidence from accounting narratives. *Accounting and Business Research*, *33*(3), 171–185.
Cole, C.J., & Jones, C.L. (2005). Management Discussion and Analysis: A Review and Implications for Future Research. *Journal of Accounting Literature*, *24*, 135–74.
Cooke, T.E. (1992). The impact of size, stock market listing and industry type on disclosure in the annual reports of Japanese listed corporations. *Accounting and Business Research*, *22*(87), 229–237.
Core, J., Guay, W., & Larcker, D. (2008). The Power of the Pen and Executive Compensation. *Journal of Financial Economics*, *88*, 1–25.
Core, J.E. (2001). A review of the empirical disclosure literature. *Journal of Accounting & Economics*, *31*, 441–456.
Cormier, D., & Magnan, M. (1999). Corporate environmental disclosure strategies: Determinants, costs and benefits. *Journal of Accounting, Auditing and Finance*, *14*, 429–455.
Cormier, D., & Magnan, M. (2003). Environmental Reporting Management: A Continental European Perspective. *Journal of Accounting and Public Policy*, *22*(1), 43–62.
Cormier, D., Magnan, M., & Van Velthoven, B. (2005). Environmental Disclosure Quality in Large German Companies: Economic Incentives, Public Pressures or Institutional Conditions? *European Accounting Review*, *14*(1), 3–39.
Courtis, J.K. (1986). An investigation into annual report readability and corporate risk-return relationships. *Accounting and Business Research*, *16*(64), 285–94.
Courtis, J.K. (1995a). Readability of annual reports: Western versus Asian evidence. *Accounting, Auditing &Accountability Journal*, *8*(2), 4–17.
Courtis, J.K. (1995b). Readability of financial statements. *The Hong Kong Accountant*, *6*(4), 66–74.
Courtis, J.K. (1998). Annual report readability variability: Tests of the obfuscation hypothesis. *Accounting Auditing and Accountability Journal*, *11*(4), 459–471.
Cowen, S.S., Ferreri, L.B., & Parker, D.B. (1987). The Impact of Corporate Characteristics on Social Responsibility Disclosure: A Typology and Frequency-Based Analysis. *Accounting, Organization and Society*, *12*(2), 111–22.
Coy, D., & Dixon, K. (2004, March). The public accountability index: Crafting a parametric disclosure index for annual reports. *The British Accounting Review*, *36*(1), 79–106.
Crosbyp, B. (1979). *Quality* is *Free*. New York, Mentor.
Davis, A.K., Piger, J., & Sedor, L.M. (2008). *Beyond the Numbers: Managers' Use of Optimistic and Pessimistic Tone in Earnings Press Releases*. Working Paper: Federal Reserve Bank of St. Louis.
De Beaugrande, R., & Dressler, W. (1981). *Introduction to text linguistics*. London and New York, NY: Longman.
De France, G., Vasari, P., Vyas, D., & Wittenberg-Moeman, R. (2010). *A Debt Analyst's View of Debt Equity Conflicts of Interest*. Working Paper, University of Toronto.

Deegan, C., & Rankin, M. (1996). Do Australian Companies Report Environmental News Objectively? An Analysis of Environmental Disclosures by Firms Prosecuted Successfully by the Environmental Protection Authority. *Accounting, Auditing and Accountability Journal*, *9*(2), 50–67.
Depoers, F. (2000). A cost-benefit study of voluntary disclosure: Some empirical evidence from French listed companies. *The European Accounting Review*, *9*(2), 245–263.
Deumes, R. (2008). Corporate Risk Reporting A Content Analysis of Narrative Risk Disclosures in Prospectuses. *Journal of Business Communication*, *45*(2), 120–157.
Diamond, D.W., & Verrecchia, R.E. (1991). Disclosure, Liquidity, and the Cost of Capital. *Journal of Finance*, *46*(4), 1325–1360.
Drucker, P. (1985). *Innovation and entrepreneurship*. Harper and Row.
Easley, D., Hvidkjaer, S., & O'Hara, M. (2002). Is information risk a determinant of asset returns? *Journal of Finance*, *57*, 2185–2221.
Easley, D., Hvidkjaer, S., & O'Hara, M. (2004). *Factoring information into returns*. Working paper. Cornell University.
Edwards, C.D. (1968). The meaning of quality. *Quality Progress*, *1*, 36–39.
Erikkson, E., & Lacerda, F. (2007). Charlatanry in forensic speech science: A problem to be taken seriously. *The International Journal of Speech, Language and Law*, *14*, 169–193.
Ernst and Ernst. (1978). Social Responsibility Disclosure, 1978 Survey. Ernst and Ernst, Cleveland, OH.
Ertimur, Y. (2007). Discussion of ''How disclosure quality affects the level of information asymmetry." *Review of Accounting Studies*, *12*(2–3), 479–485.
Fekrat, M.A., Inclan, I., & Petroni, D. (1996). Corporate environmental disclosures: Competitive disclosure hypothesis using 1991 annual report data. *The International Journal of Accounting*, *3*(2), 175–195.
Firer, C., & Meth, G. (1986). Information Disclosure in Annual Reports in South Africa. *Omega*, *14*(5), 373–382.
Firth, M. (1979a). The disclosure of information by companies. *Omega*, *7*(2), 129–135.
Firth, M. (1979b). The impact of size, stock market listing and auditors on voluntary disclosure in corporate annual reports. *Accounting and Business Research*, *9*(36), 273–280.
Firth, M. (1984). The extent of voluntary disclosure in corporate annual reports and its association with security risk measures. *Applied Economics*, *16*(2), 269–277.
Fishman, M.J., & Hagerty, K.M. (1989). Disclosure Decisions by Firms and the Competition for Price Efficiency. *Journal of Finance*, *44*(3), 633–646.
Francis, J., Hanna, J.D., & Philbrick, D.R. (1997). Management communications with securities analysts. *Journal of Accounting and Economics*, *24*(3), 363–394.
Francis, J., LaFond, R., Olsson, P.M., & Schipper, K. (2005). The market pricing of accruals quality. *Journal of Accounting & Economics*, *39*, 295–327.
Frazier, K.B., Ingram, R.W., & Tennyson, B.M. (1984). A methodology for the analysis of narrative accounting disclosures. *Journal of Accounting Research*, *22*(1), 318–331.
Freedman, M., & Wasley, C. (1990). The association between environmental performance and environmental disclosure in annual reports and 10Ks. *Advances in Public Interest Accounting*, 183–193.
Garvm, D.A. (1984) What does 'product quality' really mean? *Sloan Management Review*, *26*, 25–43.
Gelb, D., & Zarowin, P. (2002). Corporate Disclosure Policy and the Informativeness of Stock Prices. *Review of Accounting Studies*, *7*(1), 33–52.
Gorman, B. (1992). Social and Environmental Disclosure in Canada: Ten Case Studies. Paper presented to the *British Accounting Association Annual Conference*, University of Warwick, 13–15 April.
Gray, R., Javad, M., Power, D.M., & Sinclair, C.D. (2001). Social and Environmental Disclosure and Corporate Characteristics: A Research Note and Extension. *Journal of Business Finance & Accounting*, *28*(3&4), 327–56.

Gray, R., Kouhy, R., & Lavers, S. (1995a). Constructing a research database of social and environmental reporting by UK companies. *Accounting, Auditing and Accountability Journal*, *8*(2), 78–101.
Gray, R., Kouhy, R., & Lavers, S. (1995b). Corporate social and environmental reporting: A review of the literature and a longitudinal study of UK disclosure. *Accounting, Auditing & Accountability Journal*, *8*(2), 47–77.
Gray, S.J., & Roberts, C. (1989). Voluntary information disclosure and the British Multinationals. In Hopwood, A. (ed.), *International Pressures-for Accounting Change*. Hemel Hempstead, Prentice-Hall International.
Guthrie, J. (1982). *Social accounting in Australia: Social responsibility disclosure in the top 150 listed Australian companies' 1980 annual reports*. Dissertation, WAIT:Perth.
Guthrie, J. (1983). *Corporate social accounting and reporting: An Australian empirical study*. Working paper AAANZ Conference, Brisbane.
Guthrie, J., & Parker, L.D. (1989). Corporate social reporting: A rebuttal of legitimacy theory. *Accounting and Business Research*, *19*(76), 343–52.
Guthrie, J., & Parker, L.D. (1990). Corporate social disclosure practice: A comparative international analysis. *Advances in Public Interest Accounting*, *3*, 159–75.
Hackston, D., & Milne, M.J. (1996). Some Determinants of Social and Environmental Disclosures in New Zealand Companies. *Accounting, Auditing, and Accountability Journal*, *9*(1), 77–108.
Hail, L. (2002, December). The impact of voluntary corporate disclosures on the ex-ante cost of capital for Swiss firms. *European Accounting Review*, *11*(4),741–773.
Hall, C., & Jones, M. (1991). Social responsibility accounting: myth or reality. *Management Accounting* (UK), *69*(3), 34–37.
Halliday, M.A., & Hasan, R. (1976). Cohesion in. *English, Longman, London*.
Harrison-Walker, L.J. (2001). E-complaining: A content analysis of an internet complaint forum. *Journal of Services Marketing*, *15*(5), 397–412.
Hart, R.P., & Jarvis, S. (1997). Political Debate: Forms, Styles, and Media. *American Behavioral Scientist*, *40*, 1095–1122.
Hassan & Marston. (2010). Disclosure Measurement in the Empirical Accounting Literature: A Review Article. *The 14th Financial Reporting and Reporting Special Interest Group annual conference*. University of Bristol.
Hassan, O.A.G., Romilly, P., Giorgioni, G., & Power, D. (2009). The value relevance of disclosure: Evidence from the emerging capital market of Egypt. *The International Journal of Accounting*, *44*(1), 79–102.
Healy, P. (1977). Can you understand the footnotes to financial statements? *Accountants Journal*, *56*, 219–222.
Healy, P., Hutton, A., & Palepu, K. (1999). Stock Performance and Intermediation Changes Surrounding Sustained Increases in Disclosures. *Contemporary Accounting Research*, *16*(3), 485–520.
Healy, P.M., & Palepu, K.G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, *31*(1), 405–440.
Heflin, F., Shaw, K.W., & Wild, J.J. (2008). *Disclosure Quality and Market Liquidity*. Working Paper. Purdue University.
Henry, E., & Leone, A.J. (2010). *Measuring Qualitative Information in Capital Markets Research*. Working Paper, University of Miami.
Hirshleifer, D., & Teoh, S.H. (2003). Limited attention, information disclosure, and financial reporting. *Journal of Accounting and Economics*, *36*(1–3), 337–86.
Ho, L.C.J., & Taylor, M.E. (2007). An Empirical Analysis of Triple Bottom-Line Reportingand its Determinants: Evidence from the United States and Japan. *Journal of International Financial Management and Accounting*, *18*(2), 123–50.
Holsti, O.R. (1969). *Content Analysis for the Social Sciences and Humanities*. Addison-Wesley, London.

Hope, O.-K. (2003a). Disclosure practices, enforcement of accounting standards and analysts' forecast accuracy: An international study. *Journal of Accounting Research*, *41*(2), 235–272.
Hope, O.-K. (2003b). Accounting policy disclosures and analysts' forecasts. *Contemporary Accounting Research*, *20*(2), 295–321.
Hopkins, P. (1996). The effect of financial statement classification of hybrid financial instruments on financial analysts' stock price judgments. *Journal of Accounting Research*, Suppl., 33–50.
Huang, A.A., Zang, & Zheng, R. (2010). *Informativeness of Text in Analyst Reports: A Native Bayes Machine Learning Approach*. Working Paper, HKUST.
Hussainey, K. (2004). *A study of the ability of partially automated disclosure scores to explain the information content of annual report narratives for future earnings*. Ph.D. thesis. University of Manchester.
Hussainey, K., Schleicher, T., & Walker, M. (2003). Undertaking large-scale disclosure studies when AIMRFAF ratings are not available: The case of prices leading earnings. *Accounting and Business Research*, *33*(4), 275–294.
Inchausti, B.G. (1997). The influence of company characteristics and accounting regulation on information disclosed by Spanish firms. *The European Accounting Review*, *6*(1), 45–68.
Ingram, R., & Frazier, K. (1980). Environmental performance and corporate disclosure. *Journal of Accounting Research*, *18*, 612–622.
Ingram, R.W., & Frazier, K.B. (1983). Narrative disclosures in annual reports. *Journal of Business Research*, *11*(1), 49–60.
Ishikawa, K. (1985). *What is Total Quality Control? The Japanese Way.* New Jersey: Prentice Hall.
Jones, M.J., & Shoemaker, P.A. (1994). Accounting Narratives: A Review of Empirical Studies of Content and Readability. *Journal of Accounting Literature*, *13*, 142.
Joseph, C., & Taplin, R. (2011, March). The measurement of sustainability disclosure: Abundance versus occurrence. *Accounting Forum*, *35*(1), 19–31.
Juslin, P.N., & Laukka, P. (2003). Communication of emotions in vocal expression and music performance: Different channels, same code? *Psychological Bulletin*, *129*, 770–814.
King, R. (1996). Reputation formation for reliable reporting: An experimental investigation. *The Accounting Review*, *71*(3), 375–396.
Kondracki, N.L., Wellman, N.S., & Amundson, D.R. (2002). Content analysis: Review of methods and their applications in nutrition education. *Journal of Nutrition Education* a*nd Behavior*, *34*(4), 224–230.
Kothari, S.P., Li, X., & Short, J.E. (2009). The Effect of Disclosures by Management, Analysis and Financial Press on The Equity Cost of Capital: A Study Using Content Analysis. *The Accounting Review*, *84*(5), 1639–1670.
Krippendorff, K. (1969). Models of messages: Three prototypes. In G. Gerbner, O.R. Holsti, K. Krippendorff, G.J. Paisly, & Ph.J. Stone (Eds.), *The analysis of communication content*. New York: Wiley.
Krippendorff, K. (1980). *Content analysis: An introduction to its methodology*. BeverlyHills, CA: Sage.
Krippendorff, K. (2004). *Content analysis: An introduction to its methodology* (2nd ed.). Thousand Oaks, CA: Sage.
Krishnamurti, C., Šević, A., & Šević, Ž. (2005). Voluntary disclosure, transparency, and market quality: Evidence from emerging market ADRs. *Journal of Multinational Financial Management*, *15*(4–5), 435–454.
Lacerda, F. (2009). LVA technology: The illusion of lie detection. In P. Branderud & H. Traunmuller (eds.), *FONETIK 2009*. Department of Linguistics, Stockholm University.
Lang, M., & Lundholm, R. (1993). Cross-Sectional Determinants of Analyst Ratings of Corporate Disclosures. *Journal of Accounting Research*, *31*(2), 246–271.
Lang, M., & Lundholm, R. (1996). Corporate Disclosure Policy and Analyst Behavior. *Accounting Review*, *71*, 467–492.

Lang, M., Lins, K., & Miller, D. (2003). ADRS, analysts, and accuracy: Does cross-listing in the United States improve a firm's information environment and increase market value? *Journal of Accounting Research*, *41*(2), 317–345.
Lebar, M.A. (1982). A general semantics analysis of selected sections of the 10-k the annual report to shareholders, and the financial press release. *The Accounting Review*, *57*, 176–189.
Lee, Y.J. (2012). The effect of quarterly report readability on information efficiency of stock prices. *Contemporary Accounting Research*, *29*(4), 1137–1170.
Leftwich, R. (1983). Accounting information in private markets: Evidence from private lending agreements. *The Accounting Review*, *58*(1), 23–43.
Lehavy, R., Li, F., & Merkley, K. (2011). The Effect of Annual Report Readability on Analyst Following and the Properties of Their Earnings Forecasts. *The Accounting Review*, *86*(3), 1087–1115.
Lewis, N.R., Parker, L.D., Pound, G.D., & Sutcliffe, P. (1986). Accounting report readability: The use of readability techniques. *Accounting and Business Research*, *16*(63), 199–213.
Li, F. (2008). Annual Report Readability, Content Earnings, and Earnings Persistence. *Journal of Accounting and Economics*, *45*(2–3), 221–247.
Li, F. (2010a). The Information Content of Forward-looking Statements in Corporate Filings- A Native Bayesian Machine Learning Approach. *Journal of Accounting Research*, *48*(5), 1049–1102.
Li, F. (2010b). Textual analysis of corporate disclosures: A survey of the literature. *Journal of Accounting Literature*, *29*, 143.
Li, F. (2011). *Managers' Self-serving Attribution Bias, Overconfidence, and Corporate Financial Policies*. Working Paper. University of Michigan.
Linsley, P.M., & Shrives, P.J. (2005a). Examining risk reporting in UK public companies. *The Journal of Risk Finance*, *6*(4), 292–305.
Linsley, P.M., & Shrives, P.J. (2006). Risk reporting: A study of risk disclosures in the annual reports of UK companies. *The British Accounting Review*, *38*(4), 387–404.
Lougharn, T., & McDonald, B. (2011), When Is a Liability Not a Liability? Textual Analysis, Dictionaries, and 10-Ks. *The Journal of Finance*, *66*(1), 35–65.
Lundholm, R., & Myers, L. (2002). Bringing the Future Forward: The Effect of Disclosure on the Returns-Earnings Relation. *Journal of Accounting Research*, *40*(3), 809–839.
M. Linsley, P., & J. Shrives, P. (2005b). Transparency and the disclosure of risk information in the banking sector. *Journal of Financial Regulation and Compliance*, *13*(3), 205–214.
Marquardt, C.A., & Wiedman, C.I. (1998). Voluntary disclosure, information asymmetry, and insider selling through secondary equity offerings. *Contemporary Accounting Research*, *15*, 505–537.
Marston, C.L., & Shrives, P.J. (1991). The use of disclosure indices in accounting research: A review article. *British Accounting Review*, *23*(3), 195–210.
Meek, G.K., Roberts, C.B., & Gray, S.J. (1995). Factors influencing voluntary annual report disclosure by U.S., U.K. and Continental European multinational corporations. *Journal of International Business Studies*, *26*(3), 555–572.
Merton, R.C. (1987). A Simple Model of Capital Market Equilibrium with Incomplete Information. *Journal of Finance*, *42*(3), 483–510.
Meyew, E.J., & Venkatachalam, M. (2012). The Power of Voice: Managerial Affective States and Future Firm Performance. *Journal of Finance*, *67*(1), 1–47.
Miller, G.S. (2006). The Press as a Watchdog for Accounting Fraud. *Journal of Accounting Research*, *44*(5), 1001–1033.
Milne, M.J., & Adler, R.W. (1999). Exploring the reliability of social and environmental disclosures content analysis. *Accounting, Auditing & Accountability Journal*, *12*(2), 237–256.
Mitchell, T.M. (2006). *The Discipline of Machine Learning*. Working Paper, Carnegie Mellon University.
Morris, R. (1994). Computerized content analysis in management research: A demonstration of advantages and limitations. *Journal of Management*, *20*(4), 903–931.
Nair, R.D., & Frank, W.G. (1980). The impact of disclosure and measurement practices on international accounting classifications. *Accounting Review*, *55*, 426–450.

Naser, K., & Nuseibeh, R. (2003). Quality of financial reporting: Evidence from the listed Saudi nonfinancial companies. *The International Journal of Accounting*, *38*(1), 41–69.
O'Dwyer, B. (1999). *Corporate Social Reporting in the Republic of Ireland: A Description and Quest for Understanding*. Unpublished PhD thesis, University of Dundee, Dundee, UK.
Ober, S., Zhao, J., Davis, R., & Alexander, M. (1999). Telling it like it is: The use of certainty in public business discourse. *The Journal of Business Communication*, *36*(3), 280–300.
Patel, S.A., Balic, A., & Bwakira, L. (2002). Measuring transparency and disclosure at firm level in emerging markets. *Emerging Markets Review*, *3*(4), 325–337.
Patten, D. (1992). Intra-industry environmental disclosures in response to the Alaskan oil spill. *Accounting, Organizations and Society*, *17*(5), 471–475.
Patten, D. (1995). Variability in social disclosure: A legitimacy based analysis. *Advances in Public Interest Accounting*, *6*, 273–285.
Patten, D.M. (1991). Exposure, Legitimacy, and Social Disclosure. *Journal of Accounting and Public Policy*, *10*(4), 297–308.
Patten, D.M. (2002). The Relation Between Environmental Performance and Environmental Disclosure: A Research Note. *Accounting, Organizations and Society*, *27*(8), 763–73.
Pownall, G., & Waymire, G. (1989). Voluntary disclosure credibility and securities prices: Evidence from management earnings forecasts. *Journal of Accounting Research*, *27*, 227–246.
Previts, G.J., Bricker, R.J., Robinson, T.R., & Young, S.J. (1994). A content analysis of a sell-side financial analyst firm report. *Accounting Horizons*, *8*(2), 55–70.
Purushothaman, M., Tower, G., Hancock, R., & Taplin, R. (2000). Determinants of Corporate Social Reporting Practices of Listed Singapore Companies. *Pacific Accounting Review*, *12*(2), 101–133.
Reeves, C.A., & Bednar, D.A. (1994). Defining quality: Alternatives and Implications. *The Academy of Management Review*, *19*(3), 419–45.
Richardson, A.J., & Welker, M. (2001). Social disclosure, financial disclosure and the cost of equity capital. *Accounting, Organizations and Society*, *26*(7–8), 597–616.
Robb, S.W.G., Single, L.E., & Zarzeski, M.T. (2001). Nonfinancial disclosures across Anglo-American countries. *Journal of International Accounting*, *10*(1), 71–83.
Roberts, R.W. (1992). Determinants of corporate social responsibility disclosure: An application of stakeholder theory. *Accounting, Organizations and Society*, *17*(6), 595–612.
Rogers, R.K., & Grant, J. (1997). Content analysis of information cited in reports of sell-side financial analysts. *Journal of Financial Statement Analysis*, *3*(1), 14−30.
Roseberry, R.L. (1995). A texture index: Measuring texture in discourse. *International Journal of Applied Linguistics*, *5*(2), 205–223.
Schroeder, N., & Gibson, C. (1990). Readability of management's discussion and analysis. *Accounting Horizons*, *4*(4), 78–87.
Sengupta, P. (1998). Corporate Disclosure Quality and the Cost of Debt. *Accounting Review*, *73*(4), 459–474.
Simnett, R. (1996). The effect of information selection, information processing and task complexity on predictive accuracy of auditors. *Accounting, Organization and Society*, *21*(7), 699–719.
Singhvi, S., & Desai, H.B. (1971). An empirical analysis of the quality of corporate financial disclosure. *The Accounting Review*, *46*(1), 129–138.
Smith, G.M., & Taffler, R.J. (2000). The chairman's statement: A content analysis of discretionary narrative disclosures. *Accounting, Auditing and Accountability Journal*, *13*(5), 624–647.
Smith, M., & Taffler, R. (1992a). Readability and understandability: different measures of thetextual complexity of accounting narrative. *Accounting, Auditing & Accountability Journal*, 5(4), 84–98.
Smith, M., & Taffler, R. (1992b). The chairman's statement and corporate financial performance. *Accounting and Finance*, *32*(2), 75–90.
Soltes, E.F. (2009). *New Dissemination and the Impact of the Business Press*. PhD. Dissertion. The University of Chicago.

Striukova, L., Unerman, J., & Guthrie, J. (2008). Corporate reporting of intellectual capital: Evidence from UK companies. *The British Accounting Review*, *40*(4), 297–313.
Subramanian, R., Insley, R.G., & Blackwell, R.D. (1993). Performance and readability: a comparison of annual reports of profitable and unprofitable corporations. *Journal of Business Communication*, *30*, 49–61.
Sydserff, R., & Weetman, P. (1999). A texture index for evaluating accounting narratives: An alternative to readability formulas. *Accounting, Auditing and Accountability Journal*, *12*(4), 459–488.
Tai, Y.K.B., Au-Yeung, P.K., Kwok, M.C.M., & Lau, W.C. (1990). Non-compliance; with disclosure requirements in financial statements: The case of Hong Kong companies. *The International Journal of Accounting*, *25*(2), 99–112.
Tetlock, P.C., Saar-Tsechansky, M., & Macskassy, S. (2008). More than words: Quantifying language to measure firms' fundamentals. *Journal of Finance*, *63*, 1437–1467.
Trotman, K. (1979, March). Social responsibility disclosures by Australian companies. *Chartered Accountant in Australia*, 24–8.
Trotman, K., & Bradley, G.W. (1981). Associations between social responsibility disclosure and characteristics of companies. *Accounting, Organisations and Society*, *6*(4), 355–62.
Unerman J. (1999). Methodological issues: Reflections on quantification in corporate reporting content analysis. *Accounting, Auditing & Accountability Journal*, *13*, 667–80.
Unerman, J. (2000). Methodological issues-Reflections on quantification in corporate social reporting content analysis. *Accounting, Auditing & Accountability Journal*, *13*(5), 667–681.
Vergauwen, P., Bollen, L., & Oirbans, E. (2007). Intellectual capital disclosure and intangible value drivers: An empirical study. *Management Decision*, *45*(7), 1163–1180.
Wallace, R.S.O., Naser, K., & Mora, A. (1994). The relationship between the comprehensiveness of corporate annual reports and firm characteristics in Spain. *Accounting and Business Research*, *25*(97), 41–53.
Wang, R.Y., Storey, V.C., & Firth, C.P. (1995). A framework for analysis of data quality research. *IEEE Trans Knowl Data Eng*, (4), 623–639.
Weber, R. (1990). *Basis content analysis* (2nd ed.). Thousand Oaks, CA: Sage Publications.
Weber, R.P. (1988). *Basic Content Analysis*. Sage University Paper Series on Quantitative Applications in the Social Sciences, Series No. 07-049, Sage, Beverly Hills, CA, and London.
Weinberg, G.M. (1991). *Quality Software Management: Volume 1. Systems Thinking* 1. New York, NY.: Dorset House.
Welker, M. (1995) Disclosure Policy, Information Asymmetry, and Liquidity in Equity Markets. *Contemporary Accounting Research*, *11*(2), 801– 827.
Williams, S.M., & Pei, C.-A.H.W. (1999). CorporateSocial Disclosures by Listed Companies on Their WebPages: An International Comparison. *The International Journal of Accounting*, *34*(3), 389–419.
Wiseman, J. (1982). An Evaluation of Environmental Disclosures Made in Corporate Annual Reports. *Accounting, Organizations and Society*, *7*(1), 53–63.
Wolfe, R. (1991). The Use of Content Analysis to Assess Corporate Social Responsibility. In J. Post (Ed.), *Research in Corporate Social Performance and Policy* (pp. 13, 281–307). Greenwich, CT: JAI Press.
Yuthas, K., Rogers, R., & Dillard, J. (2002). Communicative Action and Corporate Annual Reports. *Journal of Business Ethics*, *41*, 141–157.
Zarzeski, M.T. (1996). Spontaneous Harmonization Effects of Culture and Market Forces on Accounting Disclosure Practices. *Accounting Horizons*, *10*(1), 18–37.
Zeghal, D., & Ahmed, S.A. (1990). Comparison of social responsibility information disclosure media used by Canadian firms. *Accounting, Auditing & Accountability Journal*, *3*(1).