

Disclosure quality in Tunisian annual reports

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Accepted for publication at Corporate Ownership and Control

Acknowledgement:

This paper has benefited from comments and suggestions from participants of the Critical Studies in Accounting, Economics and Finance (CSAF) Conference, December 2013, Abu Dhabi, UAE.

ABSTRACT

This paper explores disclosure quality and its determinants in the Tunisian context. More specifically, we followed Beest and Braam (2012)'s approach in measuring disclosure quality and examined if disclosure quality and disclosure quantity shared the same determinants. We used a sample of 56 annual reports from non-financial companies listed on the Tunisian Stock Exchange for the years 2007 and 2008. Our results showed that board independence (managerial ownership) had both positive and negative effects on disclosure quality. However, the results showed that there were different determinants of disclosure quality and quantity. We contribute to disclosure studies by being the first study to examine disclosure quality in Tunisia. In addition, this study enables us to provide the Tunisian companies' stakeholders (like regulators and managers) with a diagnosis of the determinants of disclosure quality and quantity.

KEY WORDS

Disclosure quality; disclosure quantity; determinants; annual reports; Tunisia

1. Introduction

Disclosure is a mechanism of control that protects investors and makes capital markets more efficient. It is a concept which is difficult to measure directly (Marston and Shrivess, 1991). Generally, a proxy (which may be disclosure quantity or quality) must be selected as a variable of interest not directly observable and must be measured with a sufficient degree of accuracy. Nowadays, stakeholders require high quality information with sufficient quantity. Botosan (2004) argued that no universally accepted notion of disclosure quality existed. It could be defined as “information about the reporting entity that is useful to present and potential equity investors, lenders and other creditors in making decisions in their capacity as capital providers” (IASB, 2008). Demand for disclosure quality or decision-useful information arises from information asymmetry and agency conflicts between insiders (managers) and outsiders (stakeholders). Consequently, for the users of annual reports, increasing the disclosure quality reduces information asymmetry.

The measurement of disclosure quality is still extraordinary difficult (Hassan and Marston, 2010); Marston and Shrivess, 1991; Beattie et al., 2004). Quality has been elusive; it remains a subjective, multidimensional concept dependent on the context of the decision (Beattie et al., 2004). Previous research used different proxies to measure the quality of corporate disclosure. However, recent review articles criticised critically the proxies (Core, 2001 and Beyer et al., 2010). Due to the difficulties of measuring disclosure quality, many previous researches used quantity as a proxy for quality (e.g. Hussainey et al., 2003). In their review paper, Beyer et al. (2010, p.311) argued that: “*A sensible economic definition of voluntary disclosure / financial reporting quality and direct derivation of measures from that definition is missing from the literature. This lack of an underlying economic definition hinders our ability to draw inferences from this work, and we recommend that future research address this issue*”.

In responding to Beyer et al. (2010), recent efforts were undertaken to measure the quality of corporate disclosure in developed countries. These included Anis et al. (2010), Bamber and McMeeking (2010) and Beest et al. (2009). In addition, previous literature suggested that disclosure quality might be related to disclosure quantity (Eng and Mak, 2003; Gul and Leung, 2004) and, hence, disclosure quality and quantity shared the same determinants. The problem of the use of disclosure quantity as a proxy for disclosure quality generated our main research question: To what extent do disclosure quality and disclosure quantity share the same determinants?

Given the scarcity of studies on the disclosure quality in the emerging economies and the call for research on this topic by Beyer et al. (2010), we aimed to elucidate it in Tunisia. On the one

hand, Tunisia is an African developing country of the MENA (Middle East and North Africa) zone. It has an emerging stock market composed of 57 listed companies among which there are 25 financial institutions in which the minority shareholders are not well protected and there is weak regulation of corporate disclosure. On the other hand, the emergence of many changes related to the information environment on the Tunisian Stock Exchange (TSE) especially the promulgation of the Law No. 2005-96 dated 18/10/2005 concerned with the strengthening of financial security and the development of corporate governance in the economy, highlighted the need to disclose high quality information for the users of annual reports having real crises of confidence. However, this created new expectations of the Tunisian financial analysts and portfolio managers relating to the quality of corporate disclosure (Chakroun, 2012).

Disclosure is a complex phenomenon. Through a critical review of disclosure theories, Alhtaybat et al. (2012) sought to map the theories to explain this phenomenon. The previous empirical results, which explained disclosure quantity and quality, were mixed and controversial. Our research objectives were: [a] to measure disclosure quality for a sample of Tunisian companies for the years 2007 and 2008; [b] to identify the determinants of disclosure quality; and [c] to find out if disclosure quality and disclosure quantity shared the same determinants. We contribute to the literature by being the first study to examine the disclosure quality in Tunisia which is one of the developing countries. In fact, research regarding Tunisian disclosure quality and its determinants is missing from the previous work on disclosure; the matter which makes this research useful. Also, we drew on theories suitable for the Tunisian setting which are the agency and the stewardship theories.

The paper describes disclosure quality in the Tunisian context. It identifies its determinants and concludes with a comparison between the determinants of disclosure quality and quantity. Our empirical test results failed to support the agency theory and provided some support for the stewardship theory. The empirical results, which did not support the predictions of the agency theory, indicated that some corporate governance mechanisms (board independence, managerial ownership) affected disclosure quality. In particular, our test results indicated clearly that disclosure quality was a substitute of board independence and a complement of managerial ownership. This result was in line with previous research which modelled, also, the link between disclosure and corporate governance in the Tunisian setting (Chakroun and Matoussi, 2012). Consistent with Anis et al. (2012) and Bamber and McMeeking (2010), the empirical results indicated, also, that the determinants of disclosure quality differed from the determinants of disclosure quantity.

The remainder of the paper is organised as follows. Section 2 discusses the literature review and the development of the research hypotheses. Section 3 explains the research design. Section 4 describes the data. Section 5 reports the empirical findings. Section 6 concludes the study.

2. Literature Review

2.1. Institutional Framework

In Tunisia, the legal obligations for the annual reports are set by the Code of Commercial Companies¹, the firms' accounting system (1997), which was established through harmonizing standards with those of the IASB and the regulation of the Financial Market Council² (Chakroun and Matoussi, 2012). Indeed, Article 201 of the Code of Commercial Companies gives no precision about the form and content of the annual report and states only about the fact that it must be “detailed”. In addition, Article 44 of the Regulation of the Financial Market Council³, approved by the Finance Minister's Order of April 7 2000, lists the compulsory information to be provided in the annual report. In Tunisia, since there continued to be no strict regulation of the information disclosed in the annual report and no company had been penalized because of its non-compliance with the Law, we considered that all the information, which accompanied the financial statements in the annual reports, was voluntary information.

In recent years, Tunisia's legal environment of has undergone major changes and these have encouraged the Tunisian companies to disclose information at the highest level of quality in their annual reports. In the main, this is reflected clearly in the promulgation of the Law No. 2005-96, dated 18/10/2005, concerning the strengthening of financial security. In fact, in the Chapter 3 of this Law (Item 3 ‘new’), we found that: *“The annual report on the management of the company must include the information determined by the regulation of the Financial Market Council and particularly, a presentation on results of operations, their foreseeable evolution and possibly changes in the way of development and presentation of financial statements, as well as elements of internal control”*. This legislative reform was considered to be an external governance mechanism. In this Law, which was promulgated and became effective in October 2005, the legislator attempted to follow the international trends in information disclosure (e.g. the 2002 Sarbanes Oxley Act in the USA and the 2003 Financial Security Act in France). This Law aimed to reshape the financial disclosure requirements and introduced measures putting a greater obligation on publicly traded companies to improve their communications. In addition, this Law brought several changes to the Code of Commercial

Companies and introduced a series of measures to enhance accountability for companies; market transparency; and good corporate governance (Chakroun and Matoussi, 2012).

In addition, despite the absence of a formal regulatory framework to mentor it, we noted a change in the corporate governance environment. This was reflected by the Arab Institute of Business Leaders' publications (in 2008 and updated in 2012) of a Guide about Good Governance Practices of Companies and a Guide of the Annual Report of the Tunisian Companies (in 2009); as well as the establishment (in 2009) of the Tunisian Center of Corporate Governance.

2.2. Literature Review of Measurement Methods to assess the Quality of Financial Reporting

Previous empirical researches developed and used various types of measurement methods and proxies⁴ assess and evaluate the quality of corporate disclosure (Healy and Palepu, 2001). We present the measures of: Beattie et al. (2004); Beretta and Bozzolan (2004a, 2004b, 2008); Anis et al. (2012); and Beest and Braam (2012). These measures are considered to be the key attempts to measure disclosure quality.

Beattie et al.'s (2004) first pioneering study to develop a measure of disclosure quality provided a general framework applicable to various types of information. This study stated that quality was a function of the quantity plus there was a four-dimensional framework for the content analysis of accounting narratives, namely: the spread (the number of topics disclosed); the time orientation of the information (historical or forward-looking); the financial orientation (financial/non-financial); and the quantitative orientation (quantitative/qualitative). In addition, this paper presents a computer-assisted methodology; explores the complex concept of quality; and the problematic nature of quality assessment.

Beretta and Bozzolan (2004a) were restricted to the disclosure quality of risk information. The authors proposed a measure which captured four main dimensions, namely: the content of information (the quantity of disclosure based on pre-determined topics);⁵ the economic sign (positive/negative information); the type of information (financial/non-financial information); and the outlook orientation. Beretta and Bozzolan (2004b) argued that the quality of voluntary disclosure ought to be defined from the user's perspective. In this regard, multidimensional frameworks should be based on a detailed analysis of the information needs expressed by specific segments of users on specific issues. Given the multifaceted nature of risk, this seems particularly important in the case of risk communication.

Beretta and Bozzolan (2008) were restricted to the disclosure quality of forward-looking information. They suggested a multidimensional measure which combined disclosure quantity and richness of information. Richness is a function of both width and depth. Disclosure width consists of disclosure coverage (the extent of disclosure of relevant topics) and disclosure dispersion (the spread of disclosure across different topics). Disclosure depth addresses the question of what information is disclosed. They identified four information attributes which represented disclosure depth, namely: outlook dimension; the information measurement type (qualitative/quantitative information; financial/non-financial information); and the economic sign (positive/negative news information).

Anis et al. (2012) contributed to existing disclosure literature by providing a multidimensional measure for disclosure quality; this was supported by a valid framework (Botosan, 2004)⁶. They operationalized the qualitative characteristics of information and aimed to assess the quality of different dimensions of information simultaneously in order to determine the decision usefulness of financial reporting information. As a response to Botosan's (2004) recommendation that disclosure quality measures ought to use a well-established regulatory framework, Anis et al. (2012) considered the Operating and Financial Review best practice (OFR) framework (ASB, 2006) as a base for developing their measure of disclosure quality. This measure represents a sum of the following information attributes: forward-looking orientation; verifiability; relevance; supplementary and complementary financial statements; comprehensiveness; readability; balance and neutrality; and comparability.

Beest and Braam (2012) examined whether there were differences between IFRS and US GAAP based financial reports in meeting the fundamental and enhancing qualitative characteristics for decision usefulness as defined in the Conceptual Framework of the IASB (2010). Fundamental and enhancing qualitative characteristics are the underlying attributes which contribute to the decision usefulness of information. "For financial information to be useful, it must be relevant and faithfully represent what it purports to represent". The enhancing qualitative characteristics of understandability, comparability, verifiability and timeliness are complementary to the fundamental characteristics and distinguish more useful information from less useful information (IASB, 2010). Although, for a comprehensive assessment, the enhancing qualitative characteristics are perceived to be less important than the fundamental ones, it remains important to include them in the analysis. This study adds to the literature by developing and testing a comprehensive and compound financial reporting quality assessment tool which, both in terms of the fundamental and the enhancing qualitative characteristics as

defined in the Conceptual Framework of the IASB (2010), aimed to measure the decision usefulness of financial and non-financial reporting information in annual reports.

Finally, we can say that there is no clear definition of disclosure quality and that its measurement is recognized as a relevant question which is still open in the literature.

2.3. Disclosure Quantity versus Disclosure Quality

On the one hand, disclosure quantity could be defined as the extent or amount of disclosed information. It could be measured via a content analysis which consists of counting the number of statements, sentences or words related to a specific topic (Guthrie et al., 2004; Milne and Adler, 1999; and Unerman, 2000) or via the use of indices (Patelli and Prencipe, 2007; Chau and Gray, 2002; Lang and Lundholm, 1993; Botosan, 1997...). Marston and Shrikes (1991) provided a review of the use in accounting research of disclosure indices to measure disclosure quantity. On the other hand, information with high quality is a major factor that helps users of annual report to make rational decisions. In fact, Beuselinck and Manigart (2007) defined disclosure quality in terms of annual reports' decision usefulness of. The disclosure quality was not being measured with a sufficient degree of accuracy (Beattie et al., 2004). Botosan (2004) argued that it was a function of information quality attributes proposed by a regulatory framework. These attributes could be the qualitative characteristics of information as proposed by the conceptual frameworks for financial reporting and proposed by regulatory bodies and recommendatory reports.

The majority of the previous empirical studies did not make a clear distinction between the quantity and quality of disclosure (Hassan and Marston, 2010). In the same vein, Marston and Shrikes (1991) argued that the index score "can give a measure of the extent of disclosure but not necessarily of the quality of disclosure". Because of the difficulties in measuring disclosure quality and, in particular, the absence of a generally agreed model and relevant and reliable techniques to measure it, researchers used disclosure quantity as a proxy for the quality of disclosure (e.g. Eng and Mak, 2003; Gul and Leung, 2004). Consequently, it was assumed that more information was related to the reduction of information asymmetries and there was a positive correlation between those disclosure quality and disclosure quantities (Botosan, 1997). Similarly, Amir and Lev, 1996; Hussainey et al., 2003; Schleicher et al., 2007; and Hussainey and Walker, 2009 used the quantity of forward-looking statements as a proxy for disclosure quality. These studies found that this information improved investors' abilities to anticipate future earnings change. In addition, Cerbioni and Parbonetti (2007) disputed the idea that

quantity was a good proxy for quality. They individuated other aspects related to the quality of disclosure and used the semantic properties of the disclosed information, and on the content of information, as proxies for the quality of disclosure. Furthermore, Botosan (2004) argued that the measure of disclosure quality of Beretta and Bozzolan (2004a) counted only the number of information items and, hence, it did not differ from quantity-based measures used in previous research.

However, Beattie et al. (2004), Anis et al. (2012) and Berretta and Bozzolan (2008) criticized this approach. They contended that even if the quantity of disclosed information influenced the quality of information, an assessment on disclosure quality could not be based purely on this association. Beattie et al. (2004) overemphasized disclosure quantity as a component of disclosure quality. In addition, the authors did not justify their “key” assumption that firms, disclosing more information, were more likely to have a greater level of quality. Based on a sample of UK firms, Anis et al. (2012) provided empirical evidence that disclosure quantity was not a proper proxy for disclosure quality. In fact, whilst firms might disclose more information, such information could lack accuracy. Also, they showed that the determinants of disclosure quality and disclosure quantity were not identical. In addition Beretta and Bozzolan’s (2008)’ tests confirmed that richness and quantity of disclosure were two independent dimensions and they revealed that, in assessing narrative disclosure, quantity was not a good proxy for quality. Their study’s empirical evidence supported the hypothesis that the dimensions, considered in the disclosure quality framework, gave a more realistic picture of disclosure than quantity and suggested that, in assessing the disclosure, these dimensions could be used to complement each other .

2.4. Determinants of Disclosure Quality

There was considerable research interest in the impact of corporate governance characteristics on corporate disclosure (Chakroun and Matoussi, 2012; Arcay and Vázquez, 2005; Cerbioni and Parbonetti. 2007; Ho and Wong, 2001; Eng and Mak, 2003; Gul and Leung, 2004; Chau and Gray, 2002; Forker, 1992; Cheng and Courtenay, 2006). We have much to learn still about the impact of corporate governance on the quantity and quality of disclosure. Following Anis et al (2012), we studied the association between corporate governance mechanisms and disclosure quality. Using firm-specific characteristics, Anis et al (2012) found that there were different determinants for disclosure quality and quantity; these supported their arguments that disclosure quantity was not a precise proxy for disclosure quality. Cohen et al. (2004) highlighted the relationship between corporate governance mechanisms and financial reporting

quality. They stated that “better” corporate governance led to improved financial reporting. Therefore, in addition to firm specific characteristics, we examined the impact of corporate governance mechanism related to board composition and ownership structure (the board independence; its size; the leadership structure; the managerial ownership; and the family control) on disclosure quality and quantity.

The agency theory explains the relationship between the agency problem and corporate disclosure since it serves as one of the principal monitoring tools in ensuring that a manager’s policy decision aligns with his need (Jensen and Meckling, 1976). According to this theory, when the board is independent, this leads to a better control of management and, therefore, to a high quality of disclosure. For a sample of Italian companies, Patelli and Prencipe (2007) showed a positive relationship between the independence of the board and voluntary disclosure. Similarly, previous empirical studies’ results (Cheng and Courtenay, 2006; Cerbioni and Parbonetti, 2007; Apostolou and Nanopoulos, 2009; Lim et al., 2007; Chen and Jaggi, 2000) showed a positive relationship between the independence of the board and the voluntary corporate disclosure.

In the Tunisian context, Chakroun and Matoussi (2012) found a negative and significant relationship between the board independence⁷ and the extent of voluntary disclosure linked closely to the mandatory one in the annual reports. This result was explained by the fact that independent administrators might be regarded as strangers to the company without being actually independent. The Code of Commercial Companies did not define an independent administrator and the Code did not require companies to include such administrators on their boards. In this case of Tunisia, the independent administrators could be considered to be only managers' advisers. Eng and Mak (2003) and by Barako et al. (2006) found the same results in the settings of Singaporean and Kenyan respectively. In conclusion, as predicted by the agency theory, we expect the positive relationship between the board independence and the quality of disclosure. In fact, through the increase of disclosure quality, the presence of independent administrators leads to a reduction of the agency problems.

H 1: There is a positive relationship between the board independence and the quality of disclosure

There is a complex relationship between the size of the board and disclosure quality. Chakroun and Matoussi (2012) confirmed that, in Tunisia, voluntary disclosure was a recent event. When we assumed that the culture of the quality of disclosure was not deeply rooted in the minds of

most of the Tunisian managers, it was very likely to see, in the large-sized boards, members who encouraged the increase of the disclosure quality. Namely, when boards are large, it is more likely that they include administrators who tend to favour the best quality of disclosure. Chakroun and Matoussi (2012) and Barako et al. (2006) stated that there existed a positive and significant relationship between the size of the board and the extent of voluntary disclosure. Moreover Jouini (2013) found a positive but insignificant relationship between the size of the board and the level of financial disclosure. Therefore, we expect that companies with large-sized boards⁸ disclose a higher quality of information.

H 2: There is a positive relationship between the size of the board and the quality of disclosure

The stewardship theory argues that shareholder interests are maximised by the combination of functions of board chair and CEO. This theory does not favour of the separation of functions of CEO and chairman of the board. This theory emphasizes the concept of "unity of direction" and that duality provides more control. According to the assumption of the interest alignment of the dominant personality in the company with those of the other shareholders (Morck et al., 1988), we expect that the existence of a leadership structure (combination of functions) within the company helps the disclosure quality to increase.

In a sample of Kenyan firms, Barako (2007) emphasized the existence of a positive and significant relationship between the leadership structure and the three sub-indexes of voluntary disclosure connected to the general and strategic information; the financial and social information; and the information about the board. In addition, in a sample of Tunisian firms, Haniffa and Cooke (2002) and Chakroun and Matoussi (2012) found a positive and significant relationship between the leadership structure and the extent of voluntary disclosure.

We should mention that the positive sign on duality in position was in contradiction to previous studies (i.e. Laksmana, 2008; Forker, 1992; Eng and Mak, 2003; Gul and Leung, 2004) which drew on the agency theory and argued that CEO duality was associated negatively with corporate voluntary disclosure. We supposed that the stewardship theory and the assumption of interest alignment of the dominant personality with those of the other shareholders in the company were suitable for the Tunisian context. Then, we predicted a positive association between disclosure quality and leadership structure.

H 3: Compared to other firms, the quality of disclosure is higher in firms where there is a leadership structure than in the other firms.

The stewardship theory is a collaborative approach which focuses on the board's role of service and administrators are called to advise and stimulate business strategy. Therefore, the social and personal relationships between administrators and the CEO foster collaboration and strengthen the management (Donaldson and Davis, 1991). Consequently, according to this theory, the shareholders-administrators tend to enhance the disclosure quality in order to clear themselves from the other shareholders (non-administrators) and to demonstrate that they do not transfer the company's wealth to their own accounts. Similarly, based on the assumption of alignment of interests, when administrators hold a significant part in the company, ownership and management are held by the same people whose interests converge with those of the non-administrator shareholders. Disclosure quality in the annual reports is of major interest for these non-administrator shareholders.

In accordance with the stewardship theory (Donaldson and Davis, 1991) and the assumption of interest alignment of the controlling shareholders with those of the other shareholders in the firm (Morck et al., 1988), we expect that the managerial ownership helps the disclosure quality to increase. More specifically, the greater the part held by the shareholders-administrators is important, the weaker the divergences of interests become between them and the other shareholders. Namely, when administrators hold a significant part of capital; ownership and management are held by the same persons whose interests converge with those of the non-administrator shareholders interested in the quality of disclosure. Therefore, we expect that increases in the disclosure quality in the annual reports correspond with increases in managerial ownership. A high managerial ownership can help increase the company's disclosure quality (Li and Qi, 2008). In the Tunisian context, Chakroun and Matoussi (2012) found, also, a positive and significant relationship between the managerial ownership and the extent of voluntary disclosure.

H 4: There is a positive relationship between the managerial ownership and the quality of disclosure

Agency problems type II (which are caused by the conflicts between shareholders-directors and non-director shareholders) tend to be intense in the family controlled firms. In fact, family members seem unlikely to take into account the interests of the minority non director shareholders to obtain high quality financial information.

In a family business, the members of the family are involved in its management and have a precise knowledge about their business. We expect that these members do not promote high quality of information. Therefore, compared to other firms, family controlled firms are expected

to disclose information of low quality. Indeed, Chau and Gray (2002) and Chen et al. (2006) argued that family controlled firms provided less voluntary information than the non-family ones. Chakroun and Matoussi (2012) showed, also, that, compared to other companies, the extent of voluntary disclosure by family controlled firms was not linked closely to the mandatory one.

H 5: Compared to other firms, the disclosure quality is lower in family controlled firms.

3. Research Methodology

3.1. Sample Selection and Data

This research focused on data of all non-financial sector companies (industrial and of services) listed on the Tunisian Stock Exchange (TSE) and observed in the years 2007-2008. We mention that the number of all listed firms on the TSE was 51 in 2007 and 50 in 2008. This difference in the number of listed firms was explained by two new introductions and three radiations.

We focused on listed companies because they were particularly careful about their disclosure policies. We excluded financial institutions due to the specificity of the disclosure of the financial institutions and because their annual reports differed from those of non-financial firms (Schleicher and Walker, 2010). We included all non-financial firms in our analysis; however, for 2008, we could not obtain the annual reports of two firms. The number of firms observed in 2008 was 28 whilst, in 2007, their number was 26. This gave us a sample of 54 firm-year observations. We chose the period 2007-2008 because it is quite close to the promulgation of the Law No. 2005-96 concerning the strengthening of financial security. As mentioned, this Law calls firms to enhance their quantity and quality of disclosure and it is predicted that these consequences will be observed a few years thereafter.

TABLE 1 ABOUT HERE

In order to assess the disclosure quality we used a manual content analysis on the annual reports. We consulted the annual reports of the companies which we collected from the Financial Market Council and the stockbrokers in the market since they were not downloadable directly through the Internet. We collected our data for the characteristics of the companies and the corporate governance mechanisms from the TSE website (<http://www.bvmt.com.tn/>) and the companies' annual reports.

3.2. Measurement Method to assess the Disclosure Quality

In Tunisia, there are no subjective ratings for disclosure quality. Beest et al. (2009) developed the method selected to assess the disclosure quality. It was applicable to the hard copies of our sample's annual reports. In fact, Beest et al. (2009) produced a comprehensive measure to operationalize the fundamental and to enhance the qualitative characteristic of annual reports' information.

We assessed a score which represented a proxy of the disclosure quality of the 54 annual reports. We based the operationalization of the qualitative characteristics of reporting information on a 19 item index of which 3 were related to relevance; 5 to faithful representation; 4 to understandability; 6 to comparability; and 1 to timeliness. We dropped two items from Beest et al.'s (2009) list of items; these were neither applicable nor relevant to the Tunisian firms (Relevance 3⁹ and Understandability 4¹⁰). In fact, we adapted Beest et al.'s (2009) method to the Tunisian context since Botosan (2004) stated that the researcher ought to recognize that effective frameworks for assessing disclosure quality were likely to be context specific. By using predefined 5 point Likert scales, we coded the reports on the number of items. In order to ensure consistency in the scoring, we read all annual reports twice. As recommended by Botosan (2004) and by Jonas and Blanchet (2000), Beest et al.'s (2009) measure captured all the qualitative characteristics of information discussed in the conceptual frameworks for IASB financial reporting (IASB 2008)¹¹ and the FASB (FASB 1980). These were namely: the fundamental qualitative characteristics (i.e. relevance and faithful representation)¹²; and the enhancing qualitative characteristics (i.e. understandability, comparability and timeliness)¹³. These qualitative characteristics were mentioned by the Tunisian accounting conceptual framework (1997).

Beest et al. (2009) used multiple items which were drawn from existing measurement items developed already in previous studies (e.g. Jonas and Blanchet, 2000). Appendix A provides an overview of the 19 measured items which we used to operationalize the fundamental and to enhance the qualitative characteristics. The Appendix includes, also, the measurement scales used to assess the values of the distinct items.

In order to compute a standardized outcome for each qualitative characteristic (sub scores), the scores on the related items were added and divided by the total number of items. We measured a sub score for each qualitative characteristic and, then, we measured a score which represented an aggregate measure for the disclosure quality. The aggregated disclosure quality score was a function of five measures (sub scores) representing the quality attributes: relevance; faithful representation; understandability; and comparability and timeliness. We weighted equally the

sub scores that composed the aggregated score because there was no reason to prioritize one attribute over the others. Indeed, the ASB (2006) valued all attributes equally. Following Beest et al. (2009), we discuss these qualitative characteristics as follows:

Relevance

Information is considered relevant “if it is capable of making a difference in the decisions made by users” (IASB, 2010, p. 17). The IFRS provide, also, a more specific definition of relevance: “financial information is capable of making a difference in decisions if it has predictive value, confirmatory value or both” (IASB, 2010, p. 17). Information would have a predictive value “if it can be used as an input to processes employed by users to predict future outcomes” (IFRS 2010b, p. 17). Information would have a confirmatory value “if it provides feedback about (confirms or changes) previous evaluations” (IFRS 2010b, p. 17). Usually, information, which has predictive value, has confirmatory value.

Faithful representation

Faithful representation is the second fundamental qualitative characteristic as elaborated in the conceptual frameworks. In order to faithfully represent economic phenomena which the information purports to represent, annual reports must be complete, neutral, and free from material error (IASB, 2010). Economic phenomena, represented in the annual report, are “economic resources and obligations and the transactions and other events and circumstances that change them” (IASB, 2006).

Understandability

The IASB (2010) defined understandability as the quality of information that enabled users to comprehend its meaning. The IASB (2010) argued that understandability was enhanced when information was classified, characterized and presented clearly and concisely.

Comparability

Comparability is considered to be a quality attribute of information which enables users to identify similarities in, and differences between, two sets of economic phenomena (IASB, 2010). In addition, as a quality attribute, comparability helps users to identify the main trends and the analysis of a firm’s performance over time (ASB, 2006).

Timeliness

Timeliness means “having information available to decision-makers before it loses its capacity of influencing decisions” (IASB, 2010). Timeliness refers to the time it takes to reveal the information and, in general, is related to decision usefulness (IASB, 2010).

3.3. Measurement Method to assess the Voluntary Disclosure Quantity

Healy and Palepu (2001), who examined corporate disclosure extensively, stated that one of the limitations of the studies on voluntary disclosure was the difficulty in measuring its extent or quantity. We based our measure of disclosure quantity on the Botosan (1997)¹⁴'s index adapted to the Tunisian context (Appendix B). We dropped eight items which were not disclosed by any company in our sample. Based on the previous studies to identify the information expected by the users of the annual reports and on the Guide of the Annual Report of the Tunisian Companies published in 2009, we added three categories of information, namely: information on intangible assets; social and environmental information; and information on governance.

We used an un-weighted and weighted index based on the views of financial analysts and portfolio managers. According to the un-weighted approach, an item took "1" if disclosed and "0" otherwise. We measured the extent of disclosure by the ratio between the company's score and its maximum possible score for not penalizing it for non-disclosing items when they were irrelevant to its activities.

$$\text{UN DIS}_i = \sum_{j=1}^{72} x_{ji} / M_i$$

With: M_i : maximum number of items of which disclosure was possible for company "i"; $M_i \leq 72$, $x_{ij} = "1"$ if j^{th} item was disclosed and = "0" otherwise.

It should be noted that for the weighting of the disclosure quantity score, we based it on data from an investigation through a questionnaire on a sample of 40 Tunisian financial analysts and Tunisian portfolio managers¹⁵ (Chakroun and Matoussi, 2012). This method reflected the relative utility of each item and admitted that all items provided a different utility to the selected user of the annual report. The respondents were asked to rate the usefulness which they attached to the items on a 5 points Likert scale. The values, attached to the items which could be disclosed in the annual reports, were (1=Not useful at all), (2=Little useful), (3=Somewhat useful), (4=Useful) and (5=Very useful). According to the weighted approach, an item took its "weight" if it was disclosed and "0" otherwise. The weight represented the arithmetic average of the points awarded by the respondents to the item¹⁶.

$$W_DIS_i = \sum_{j=1}^{72} x_{ij} * P_j / \sum_{j=1}^{M_i} P_j$$

With: M_i : number of maximum items whose disclosure was possible for company 'i';
 $M_i \leq 72$; $x_{ij} = '1'$ If the j^{th} item was disclosed and = '0' otherwise;
 P_j : j^{th} item weight (arithmetic average of the points awarded by the analysts to the item).

3.4. The Determinants of Disclosure Quantity and Disclosure Quality

We examined the extent to which disclosure quality and disclosure quantity were correlated and, hence, the former could be used as a proxy for the latter. In addition, we examined the extent to which both disclosure quality and disclosure quantity shared the same determinants. We compared the determinants of the disclosure quantity with the determinants of the disclosure quality, especially since previous studies showed that the determinants of disclosure quality and disclosure quantity were not identical (e.g. Anis et al., 2012). We used the following regression model to examine the determinants of disclosure quality and quantity:

$$DIS_i = \beta_0 + \beta_1 YEAR_i + \beta_2 INDB_i + \beta_3 SIB_i + \beta_4 COMFUN_i + \beta_5 MAN_i + \beta_6 FAM_i + \beta_7 AGE_i + \beta_8 QAU_i + \beta_9 LSIZE + \varepsilon_i$$

Where;

DIS = disclosure quality (quantity). We measured disclosure quality through the fundamental qualitative characteristics (relevance and faithful representation) and by enhancing qualitative characteristics (understandability, comparability and timeliness) qualitative information characteristics and their aggregation. We measured disclosure quantity by a weighted and an un-weighted score. $YEAR = 1$ in 2008 and = 0 in 2007. $INDB$ was the independence of the board. SIB was the size of the board. $COMFUN$ was the combination of functions of General Manager and Chairman. MAN was managerial ownership. FAM was family control. AGE was the age of the company. QAU was the quality of auditor, and $LSIZE$ was the size of business. Table 2 shows the definition of each of the variables and the data source.

TABLE 2 ABOUT HERE

4. Descriptive Statistics

Firstly, we present the descriptive statistics of the proxies of the disclosure quality and, then, we present the proxies of the disclosure quantity. Afterwards, we present a summary of the descriptive statistics of the independent variables.

Table 3 shows that the means of the sub scores of disclosure quality, namely: relevance (R_DISQUA); faithful representation (FR_DISQUA); understandability (U_DISQUA); and comparability (C_DISQUA). These were close with a little superiority to (U_DISQUA). We noted that the mean observed for the (C_DISQUA) sub score was relatively low and was of the order of 2.70. In other words, in our sample, the firms tended to be weakly concerned by the qualitative characteristic of comparability. The highest mean was observed for the sub score of timeliness (T_DISQUA). Then, it appeared that timeliness was the highest qualitative characteristic for the sampled companies. The mean and median of the aggregate disclosure quality score (DISQUA) increased to 2.90 and 2.86 respectively. In addition, its minimum was 1.95 and its maximum was 4. This result indicated that the disclosure quality of the sampled companies tended to have a medium level since the values of the mean and the median were close to the neutral value “3”.

Furthermore, by examining the means and medians values of the disclosure quantity scores (W_DIS and UN_DIS), we noted that these values were very close. Such results meant that there was no difference between the weighted and un-weighted measures of the voluntary disclosure quantity.

Moreover, we could see that, generally, the boards of directors were not independent: the mean and median of the INDB variable reached 28 % and 29 % respectively. The standard deviation of this variable was very close to its mean and increased to 23 %. This could be explained by the variability between the sampled companies regarding the independence of their boards. The review of the SIB variable revealed that the boards of directors tended to be large. The mean of this variable was 8.81 and its median was 9.50. For the COMFUN variable, we noted that 62% of the sampled companies had a Chairman who, at the same time, was the General Manager. The mean and the median of the MAN variable were respectively 59 % and 63%. These results enable us to ascertain that the sampled firms were characterized by a very strong property of administrators. For variable FAM, we could say that more than a third of the observations represented family-controlled companies. This high proportion reflected a characteristic of the Tunisian economic tissue which was the dominance of the family-controlled businesses.

By looking at the control variables, we could see that the mean of the AGE variable increased to 8.75. For the QAU variable, we noted that only 33 % of the observed companies had a « Big 4 » auditor. Finally, the mean of the variable size of business, as measured by the natural logarithm of total assets, was 18.01.

TABLE 3 ABOUT HERE

5. Empirical Results and Discussion

5.1. Correlation Analyses

Table 4 shows a significant positive (negative) correlation between the disclosure quality score and the managerial ownership (the independence of the board). More specifically, Pearson's correlation coefficients between the disclosure quality and the managerial ownership and between the disclosure quality and the independence of the board stood respectively at 34 % and 33 % and they were significant at 5%. In addition, this Table shows some significant correlations between some independent variables such as, on the one hand, the correlations between the size of the board, and, on the other hand, the independence of the board and the size of business,. Hence, these results pushed us to conduct further multicollinearity analyses.

TABLE 4 ABOUT HERE

Moreover, Table 5 shows that the highest correlations between the sub scores of disclosure quality were observed, on the one hand, between the sub score of understandability (U_DISQUA) and the sub score of comparability (C_DISQUA), and, on the other hand, between the sub score of faithful representation (FR_DISQUA) and the sub scores of understandability (U_DISQUA) and of comparability (C_DISQUA),.

We observed, also, with the exception of the timeliness sub score, a strong and positive correlation between the scores of disclosure quantity and all the sub scores of disclosure quality. This indicated that disclosure quantity and qualitative characteristics of information were correlated and disclosure quantity could be a predictor of disclosure quality. Consequently, the prevailing assumption in the literature was that disclosure quantity and quality were correlated and, therefore, quantity represented a proper proxy for quality which could be precise and ought to be tested by multivariate analyses. Furthermore, the correlation between the weighted and un-weighted disclosure quantity scores stood significantly at 99%. This result could be interpreted by the fact of the non-reliability of the weighting of items.

Finally, we focused on the correlation between the quantity and quality scores. Pearson correlation showed a significant positive correlation (0.71) between the quality and the quantity scores (weighted and un-weighted). As discussed earlier, it seemed that the disclosure quantity could be a proper proxy of disclosure quality. Moreover, the correlation analysis yielded logical results about the strong and significant correlations between the aggregate score of disclosure quality and all its sub scores.

TABLE 5 ABOUT HERE

5.2. Results and Discussion of the Multivariate Analyses

5.2.1. Results Related to the Multiple Regression Models of Disclosure Quality

Before explaining the results of the OLS regression analysis, we tested the model on multicollinearity. Table 4 shows that, for each of the variables, the Variance Inflation Factor (VIF) was smaller than the threshold value "3"; this indicated the absence of the multicollinearity problem.

Table 6 Panel A shows that INDB was negative and significant. Then, we could conclude that this result did not support the predictions of the agency theory. However, consistent with Chakroun and Matoussi (2012) and Jouini (2013), this result allowed us to disprove hypothesis H 1. This substitutive relationship might be explained by the fact that companies would not improve both disclosure quality and board independence at the same time; however, they would chose strategically to improve one at the expense of the other. Besides, with a high value, the coefficient of MAN variable was positive and significant. In this complementary relationship, each mechanism strengthened the other. This result allowed us to confirm hypothesis H 4 and to support the predictions of stewardship theory and the assumption of the alignment of the interests of the shareholders-administrators with those of the other shareholders (Morck et al., 1988). Consequently, the administrators (stewards) were considered to be members of an organization where they contributed to the success and achievement of objectives (Donaldson and Davis, 1991). The coefficient of the SIB variable had the positive expected sign but it is insignificant. Likewise, the coefficient of the COMFUN variable had the positive expected sign but it was insignificant. Also, the coefficient of the FAM variable had the negative expected sign but it was insignificant. In conclusion, the insignificant coefficients of the variables SIB, COMFUN and FAM allowed us to invalidate our hypotheses H 2, H 3 and H 5.

TABLE 6 (PANEL A) ABOUT HERE

Furthermore, by comparing the R^2 of the regressions of Table 6 Panel B and Panel C, it appeared that these values were significantly higher for the regressions with the fundamental qualitative characteristics as dependent variables (Panel B) than for the regressions with the enhancing qualitative characteristics as dependent variables (Panel C).

Table 6 Panel B shows that there was no significant relationship between the corporate characteristics and the disclosure quality score on relevance. However, it shows a negative and significant relationship between the board independence and the disclosure quality score on

faithful representation and a positive and significant relationship between the managerial ownership and this score. These results are similar to those found for the model with the aggregate score of disclosure quality as dependent variable.

TABLE 6 (PANEL B) ABOUT HERE

We can say that the positive significant relation between, on the one hand, MAN; and the disclosure quality sub scores on faithful representation (Table 6 Panel B) and, on the other hand, on understandability (Table 6 Panel C); allowed us to strengthen the acceptance of hypothesis H 4. Also, we noted the negative relationship between, on the other hand, INDB and the disclosure quality based on the sub scores of faithful representation and, on the other hand, between understandability and comparability led us to strengthen the rejection of hypothesis H 1. However, based on the sub score of timeliness and as expected in hypothesis H 2 (Table 6 Panel C) we observed a positive and highly significant (at 1%) relationship between the size of the board and the disclosure quality. This result enabled us to partially confirm hypothesis H 2. Besides, in Table 6, the results of all the regressions provided strong support that there were no relationships between, on the one hand, the board's leadership structure ; the family control; the age of the company; the quality of auditor; and the size of business; and, on the other hand, all the disclosure quality scores.

TABLE 6 (PANEL C) ABOUT HERE

5.2.2. Results Related to the Disclosure Quantity Determinants versus Disclosure Quality Determinants

By comparing the R^2 of the regressions as shown in Tables 6 and 7, it appeared that these values were significantly lower for the regressions with the disclosure quantity scores as dependent variables than for the regressions with the disclosure quality scores as dependent variables. Next, we present a comparison of the coefficients of the regressions of Tables 6 and 7.

Table 7 shows that only the coefficient of the INDB variable was significant. The negative sign of this coefficient was similar to that found for the regression with the aggregate disclosure quality score as dependent variable; however, its value was lower. In addition, with the exception of the coefficient of the INDB variable, all the coefficients for the independent variables for the regressions with the disclosure quantity scores as dependent variables were insignificant. This was similar to those found in the regression with the aggregate disclosure quality score as dependent variable. Also, many previous studies found insignificant relationships between corporate disclosure and mechanisms of corporate governance. As an

illustration, both Ho and Wong (2001)¹⁷ and Cheng and Courtney (2006)¹⁸ found no significant association between CEO duality and voluntary disclosure. However, we noted that, while it was strongly positive and connected significantly to the disclosure quality score, the coefficient of the MAN variable was weakly positive and not connected significantly to the disclosure quantity scores.

In conclusion, we mention that, on the one hand, we found similarities and differences in the relationship between the corporate governance mechanisms and, on the other hand, between the disclosure quantity and the disclosure quality. This result could be interpreted by the fact that there was partial correlation between disclosure quantity and the disclosure quality. Hence, the use of disclosure quantity as a proxy for the quality could be false. Our findings are consistent with the work of (Marston and Shrivess, 1991; Botosan, 2004; Beattie et al., 2004). Besides, our results seem to be inconsistent with the results of Hussainey et al., (2003) and Hassan and Marston, (2010) which suggested that quantity was a proper proxy for the quality of disclosure.

TABLE 7 ABOUT HERE

6. Conclusion

We measured the quality of corporate disclosure for a sample of Tunisian companies within the time period 2007-2008. We examined, also, the degree to which disclosure quality and quantity shared the same determinants. We used a new methodology proposed by Beest and Braam (2012) to measure the quality of corporate disclosure. A novel feature of this methodology is that it is applicable to any context and is not restricted to English speaking countries. Our analyses show that [a] some [*not all*] corporate governance mechanisms affect the quality of corporate disclosure: On the one hand, the effect of board independence on disclosure quality is consistent with a substitutive relationship. Indeed, independent administrators may be regarded as stranger administrators to the firm without being actually independent or may be regarded as advisors to the CEO. On the other hand, the effect of managerial ownership on disclosure quality shows a complementary relationship. In fact, (a) the shareholders-administrators, who have a close idea about the business, can tend to improve the quality of disclosure in order to clear themselves from the other shareholders; and [b] the determinants of disclosure quality and quantity are dissimilar.

The measurement of disclosure quality is still an open question and represents one of the main unresolved and debated issues in disclosure literature. Consequently, it includes many aspects about the firm and cannot be identified as referring only to the items considered in this study.

In addition, we considered our sample to be very small and this was due to the small size of the Tunisian population. Moreover, we believe that there is scope for further refinement of the process of calculating the quality of corporate disclosure in annual reports. We used a labour-intensive approach to measure disclosure quality. However, the use of a computerised content analysis approach should save time and effort. Also, the involvement of experts in linguistics, in determining relevant key words, may improve the ability of the computer software packages to calculate the quality of corporate disclosure. However, the potential contribution from the application of linguistic methods remains an area for future research since it is possible that there will be significant difficulties in overcoming some of the classificatory problems of some statements. However, notwithstanding these limitations, this study shows interesting results which can be useful for managers, regulators, investment professionals, and market participants as a whole.

Finally, disclosure theories show that a rich information environment and low information asymmetry should lead to desirable consequences. These include: [a] an improvement in the investors' ability to anticipate future earnings; [b] an improvement in the analysts' accuracy of earnings forecasts; and [c] a reduction in the firms' cost of capital. Therefore, it would be interesting to extend this study by exploring the economic consequences of disclosure quality. In addition, further research might examine the potential endogenous or simultaneous relationship between disclosure quality and quantity (substitution or complementary relationships).

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Table 1. Distribution of observations by industry and year

Sector of activity	2007	2008
TELECOMMUNICATIONS	1	1
CONSUMER SERVICES	3	4
TRAVEL AND LEISURE	2	2
HEALTH	1	1
CONSUMER GOODS	4	4
FOOD AND DRINKS	3	3
HOUSEHOLD PRODUCTS AND PERSONAL CARE	2	2
BUILDINGS AND BUILDING MATERIALS	4	4
INDUSTRIAL GOODS AND SERVICES	2	2
CHEMISTRY	2	3
OIL AND GAS	1	1
RAW MATERIALS	1	1
TOTAL	26	28

Table 2. Summary of the measures of explanatory variables

Explanatory variables	Indicators	Measures used and Availability
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Independence of the board	INDB	(Number of outside administrators / Total number of administrators)*100 (the website of the TSE)
Size of the board	SIB	Total number of administrators (the website of the TSE)
Combination of functions of GM and CH	COMFUN	= 1 if a person combine the functions GM and CH and = 0 if not (the website of the TSE)
Managerial ownership	MAN	The percentage of shares held by the administrators (the website of the TSE)
Family control	FAM	= 1 if the firm is controlled by a family and = 0 if not (the website of the TSE)
Age of the company	AGE	Duration of quotation of the company out of Stock Exchange in years (the website of the TSE)
Quality of auditor	QAU	= 1 if the firm is audited at least by a « Big 4 » and = 0 if not (the website of the TSE)
Size of business	LSIZE	Log (Total assets) (companies' annual reports)
Year	YEAR	= 1 in 2008 and = 0 in 2007

Table 3. Summary of the descriptive statistics

Indicators	N	Mean	Median	Standard deviation	Minimum	Maximum
DISQUA	54	2.90	2.86	0.53	1.95	4
R_DISQUA	54	2.90	2.83	0.92	1.33	5
FR_DISQUA	54	2.84	2.8	0.52	1.8	4
U_DISQUA	54	2.95	3	0.71	1.5	4.25
C_DISQUA	54	2.70	2.58	0.65	2	4
T_DISQUA	54	4.40	4	0.49	4	5
W_DIS	54	52.61	53.71	13.63	10.1	76.17
UN_DIS	54	51.84	51.47	13.74	9.72	76.27
YEAR	54	0.5	0.5	0.50	0	1
INDB	54	0.28	0.29	0.23	0	0.77
SIB	54	8.81	9.5	2.39	3	12
COMFUN	54	0.62	1	0.48	0	1
MAN	54	0.59	0.63	0.17	0	0.89
FAM	54	0.37	0	0.48	0	1
AGE	54	8.75	9	5.43	1	19
QAU	54	0.33	0	0.47	0	1
LSIZE	54	18.01	17.86	0.94	16.38	20.99

DISQUA= Disclosure Quality Score.

R_DISQUA= Disclosure Quality Score on Relevance.

FR_DISQUA= Disclosure Quality Score on Faithful Representation.

U_DISQUA= Disclosure Quality Score on Understandability.

C_DISQUA= Disclosure Quality Score on Comparability.

T_DISQUA= Disclosure Quality Score on Timeliness.

W_DIS= Weighted Disclosure Quantity Score.

UN_DIS= Unweighted Disclosure Quantity Score.

YEAR= 1 in 2008 and = 0 in 2007.

INDB = (Number of outside administrators / Total number of administrators)*100.

SIB = Total number of administrators.

COMFUN= 1 if a person combine the functions GM and CH and = 0 if not.
MAN = The percentage of shares held by the administrators.
FAM= 1 if the firm is controlled by a family and = 0 if not.
AGE = Duration of quotation of the company out of Stock Exchange in years.
QAU= 1 if the firm is audited at least by a « Big 4 » and = 0 if not.
LSIZE = Log (Total assets).

Table 4. Matrix of correlation and variation inflation factors

	DISQUA	MAN	FAM	SIB	COMFUN	INDB	QAU	AGE	LSIZE	VIFs
DISQUA	1									
MAN	0.34*	1								1,15
FAM	0.01	0.01	1							1.44
SIB	0.04	0.07	-0.23	1						1.98
COMFUN	0.20	0.21	-0.12	-0.05	1					1.24
INDB	-0.33*	-0.03	0.05	0.27*	-0.28*	1				1.31
QAU	0.002	-0.09	0.02	-0.17	0.13	0.08	1			1.72
AGE	-0.13	0.006	-0.49*	0.46*	-0.09	0.15	0.04	1		1.84
LSIZE	0.16	0.15	-0.27*	0.45*	0.13	0.004	0.39*	0.46*	1	2.27

* indicate significance at a level below 5%; Mean VIF = 1.56

DISQUA= Disclosure Quality Score.

MAN = The percentage of shares held by the administrators.

FAM= 1 if the firm is controlled by a family and = 0 if not.

SIB = Total number of administrators.

COMFUN= 1 if a person combine the functions GM and CH and = 0 if not.

INDB = (Number of outside administrators / Total number of administrators)*100.

QAU= 1 if the firm is audited at least by a « Big 4 » and = 0 if not.

AGE = Duration of quotation of the company out of Stock Exchange in years.

LSIZE = Log (Total assets).

Table 5. Matrix of correlation of the Disclosure Quality Scores and the Disclosure Quantity Scores

	R_DISQUA	FR_DISQUA	U_DISQUA	C_DISQUA	T_DISQUA	UN_DIS	W_DIS	DISQUA
R_DISQUA	1							
FR_DISQUA	0.58*	1						
U_DISQUA	0.59*	0.69*	1					

C_DISQUA	0.54*	0.63*	0.66*	1				
T_DISQUA	-0.039	0.13	0.17	0.07	1			
UN_DIS	0.63*	0.53*	0.65*	0.60*	-0.07	1		
W_DIS	0.64*	0.53*	0.66*	0.60*	-0.07	0.99*	1	
DISQUA	0.78*	0.83*	0.88*	0.85*	0.13	0.71*	0.71*	1

* indicate significance at a level below 5%

R_DISQUA= Disclosure Quality Score on Relevance.
FR_DISQUA= Disclosure Quality Score on Faithful Representation.
U_DISQUA= Disclosure Quality Score on Understandability.
C_DISQUA= Disclosure Quality Score on Comparability.
T_DISQUA= Disclosure Quality Score on Timeliness.
UN_DIS= Unweighted Disclosure Quantity Score.
W_DIS= Weighted Disclosure Quantity Score.
DISQUA= Disclosure Quality Score.

Table 6. Results related to the multiple regression models: Disclosure Quality

Panel A: Disclosure Quality based on the Disclosure Quality Score			
$DISQUA_i = \beta_0 + \beta_1 YEAR_i + \beta_2 INDB_i + \beta_3 SIB_i + \beta_4 COMFUN_i + \beta_5 MAN_i + \beta_6 FAM_i + \beta_7 AGE_i + \beta_8 QAU_i + \beta_9 LSIZE_i + \varepsilon_i$			
	Coefficients	t-statistic	P> t
Constant	1.115	0.7	0.489
YEAR	0.171	1.18	0.243
INDB	-0.744*	-2	0.051
SIB	0.032	0.66	0.513
COMFUN	0.005	0.03	0.973
MAN	0.823**	2.09	0.042
FAM	-0.032	-0.18	0.859
AGE	-0.024	-1.51	0.137
QAU	0.036	0.19	0.852
LSIZE	0.074	0.7	0.486
Fisher Test	0.0236		
R-squared	29.99%		
Panel B: Disclosure Quality based on the Scores of Fundamental Qualitative Characteristics (Relevance and Faithful Representation)			
$R_DISQUA_i = \beta_0 + \beta_1 YEAR_i + \beta_2 INDB_i + \beta_3 SIB_i + \beta_4 COMFUN_i + \beta_5 MAN_i + \beta_6$		$FR_DISQUA_i = \beta_0 + \beta_1 YEAR_i + \beta_2 INDB_i + \beta_3 SIB_i + \beta_4 COMFUN_i + \beta_5 MAN_i +$	

	$FAM_i + \beta_7 AGE_i + \beta_8 QAU_i + \beta_9 LSIZE + \varepsilon_i$			$\beta_6 FAM_i + \beta_7 AGE_i + \beta_8 QAU_i + \beta_9 LSIZE + \varepsilon_i$		
	Coefficients	t-statistic	P> t	Coefficients	t-statistic	P> t
Constant	0.307	0.1	0.918	2.456	1.65	0.106
YEAR	0.366	1.35	0.184	0.025	0.19	0.852
INDB	-0.002	-0.31	0.761	-0.008**	-2.33	0.025
SIB	-0.057	-0.64	0.528	0.072	1.62	0.111
COMFUN	0.005	0.02	0.983	-0.026	-0.2	0.843
MAN	0.009	1.4	0.169	0.011***	3.48	0.001
FAM	-0.063	-0.2	0.845	-0.284	-1.67	0.102
AGE	-0.050	-1.66	0.103	-0.024	-1.39	0.173
QAU	-0.325	-1.02	0.314	0.253	1.46	0.151
LSIZE	0.165	0.86	0.396	-0.024	-0.25	0.803
Fisher Test	1.43		3.09			
R-squared	30.10%		24.20%			

Table 6. (Continued)

Panel C: Disclosure Quality based on the Scores of Enhancing Qualitative Characteristics (Understandability, Comparability and Timeliness)									
	$U_DISQUA_i = \beta_0 + \beta_1 YEAR_i + \beta_2 INDB_i + \beta_3 SIB_i + \beta_4 COMFUN_i + \beta_5 MAN_i + \beta_6 FAM_i + \beta_7 AGE_i + \beta_8 QAU_i + \beta_9 LSIZE + \varepsilon_i$			$C_DISQUA_i = \beta_0 + \beta_1 YEAR_i + \beta_2 INDB_i + \beta_3 SIB_i + \beta_4 COMFUN_i + \beta_5 MAN_i + \beta_6 FAM_i + \beta_7 AGE_i + \beta_8 QAU_i + \beta_9 LSIZE + \varepsilon_i$			$T_DISQUA_i = \beta_0 + \beta_1 YEAR_i + \beta_2 INDB_i + \beta_3 SIB_i + \beta_4 COMFUN_i + \beta_5 MAN_i + \beta_6 FAM_i + \beta_7 AGE_i + \beta_8 QAU_i + \beta_9 LSIZE + \varepsilon_i$		
	Coefficients	t-statistic	P> t	Coefficients	t-statistic	P> t	Coefficients	t-statistic	P> t
Constant	0.492	0.27	0.788	0.621	0.31	0.756	6.694***	3.39	0.001
YEAR	0.104	0.53	0.595	0.196	1.14	0.262	0.065	0.47	0.639
INDB	-0.008*	-1.75	0.086	-0.011**	-2.21	0.033	-0.003	-1.39	0.170
SIB	0.057	0.91	0.369	0.032	0.49	0.629	0.120***	3.89	0.000
COMFUN	0.167	0.74	0.462	-0.132	-0.68	0.499	-0.137	-0.98	0.332
MAN	0.011*	1.98	0.054	0.005	1.25	0.217	0.006	1.55	0.128
FAM	0.064	0.25	0.806	0.136	0.69	0.493	0.061	0.38	0.703
AGE	-0.019	-0.88	0.381	-0.010	-0.65	0.516	-0.017	-1.08	0.284
QAU	0.109	0.49	0.629	0.050	0.17	0.863	0.297	1.47	0.148
LSIZE	0.082	0.67	0.508	0.100	0.79	0.435	-0.197	-1.58	0.121
Fisher Test	2.36		1.84		4.27				
R-squared	12.50%		9.30%		9.90%				

*, ** and *** indicate significance at a level below 10%, 5% et 1% respectively

DISQUA= Disclosure Quality Score.
R_DISQUA= Disclosure Quality Score on Relevance.
FR_DISQUA= Disclosure Quality Score on Faithful Representation.
U_DISQUA= Disclosure Quality Score on Understandability.
C_DISQUA= Disclosure Quality Score on Comparability.
T_DISQUA= Disclosure Quality Score on Timeliness.
YEAR= 1 in 2008 and = 0 in 2007.
INDB = (Number of outside administrators / Total number of administrators)*100.
SIB = Total number of administrators.
COMFUN= 1 if a person combine the functions GM and CH and = 0 if not.
MAN = The percentage of shares held by the administrators.
FAM= 1 if the firm is controlled by a family and = 0 if not.
AGE = Duration of quotation of the company out of Stock Exchange in years.
QAU= 1 if the firm is audited at least by a « Big 4 » and = 0 if not.
LSIZE = Log (Total assets).

Table 7. Results related to the multiple regression models: Disclosure Quantity based on Unweighted and Weighted Disclosure Quantity Scores

	UN_DIS _i = $\beta_0 + \beta_1 \text{YEAR}_i + \beta_2 \text{INDB}_i + \beta_3 \text{SIB}_i + \beta_4 \text{COMFUN}_i + \beta_5 \text{MAN}_i + \beta_6 \text{FAM}_i + \beta_7 \text{AGE}_i + \beta_8 \text{QAU}_i + \beta_9 \text{LSIZE}_i + \varepsilon_i$			W_DIS _i = $\beta_0 + \beta_1 \text{YEAR}_i + \beta_2 \text{INDB}_i + \beta_3 \text{SIB}_i + \beta_4 \text{COMFUN}_i + \beta_5 \text{MAN}_i + \beta_6 \text{FAM}_i + \beta_7 \text{AGE}_i + \beta_8 \text{QAU}_i + \beta_9 \text{LSIZE}_i + \varepsilon_i$		
	Coefficients	t-statistic	P> t	Coefficients	t-statistic	P> t
Constant	41.770	1	0.321	48.018	1.22	0.23
YEAR	0.682	0.17	0.864	1.100	0.28	0.781
INDB	-0.169*	-1.98	0.054	-0.162	-1.93*	0.061
SIB	0.568	0.52	0.604	0.651	0.6	0.549
COMFUN	5.773	1.39	0.172	5.560	1.33	0.189
MAN	0.053	0.48	0.634	0.053	0.48	0.633
FAM	1.642	0.38	0.709	1.789	0.40	0.689
AGE	-0.457	-0.95	0.349	-0.527	-1.07	0.290
QAU	-1.976	-0.46	0.646	-1.120	-0.27	0.787
LSIZE	0.378	0.15	0.885	0.031	0.01	0.990
Fisher Test		1.65			1.68	
R-squared		5.92%			5.90%	

* indicates significance at a level below 10%

UN_DIS= Unweighted Disclosure Quantity Score.

W_DIS= Weighted Disclosure Quantity Score.

YEAR= 1 in 2008 and = 0 in 2007.

INDB = (Number of outside administrators / Total number of administrators)*100.

SIB = Total number of administrators.

COMFUN= 1 if a person combine the functions GM and CH and = 0 if not.

MAN = The percentage of shares held by the administrators.

FAM= 1 if the firm is controlled by a family and = 0 if not.

AGE = Duration of quotation of the company out of Stock Exchange in years.

QAU= 1 if the firm is audited at least by a « Big 4 » and = 0 if not.

LSIZE = Log (Total assets).

**Appendix A: Overview of the measurement items and the measurement scales used to operationalize the qualitative characteristics
(Source: Beest et al. 2009)**

Relevance				
Question no.	Question	Operationalization	Concept	Literature
R1	To what extent does the presence of the forward-looking statement help forming expectations and predictions concerning the future of the company?	1 = No forward-looking information 2 = Forward-looking information not in an apart subsection 3 = Apart subsection 4 = Extensive predictions 5 = Extensive predictions useful for making expectation	Predictive value	e.g. McDaniel et al., 2002; Jonas and Blanchet, 2000
R2	To what extent does the presence of non-financial information in terms of business opportunities and risks complement the financial information?	1 = No non-financial information 2 = Little non-financial information, no useful for forming expectations 3 = Useful non-financial information 4 = Useful non-financial information, helpful for developing expectations 5 = Non-financial information presents additional information which helps developing expectations	Predictive value	e.g. Jonas and Blanchet, 2000
R3	To what extent do the reported results provide feedback to users of the annual report as to how various market events and significant transactions affected the company?	1 = No feedback 2 = Little feedback on the past 3 = Feedback in present 4 = Feedback helps understanding how events and transactions influenced the company 5 = Comprehensive feedback	Confirmatory value	e.g. Jonas and Blanchet, 2000
Faithful representation				
Question no.	Question	Operationalization	Concept	Literature
F1	To what extent are valid arguments provided to support the decision for certain assumptions and estimates in the annual report?	1 = Only described estimations 2 = General explanation 3 = Special explanation of estimations 4 = Special explanation, formulas explained etc.	Verifiability	e.g. Jonas and Blanchet, 2000

		5 = Comprehensive argumentation		
F2	To what extent does the company base its choice for certain accounting principles on valid arguments?	1 = Changes not explained 2 = Minimum explanation 3 = Explained why 4 = Explained why + consequences 5 = No changes or comprehensive explanation	Verification	e.g. Jonas and Blanchet, 2000
F3	To what extent does the company, in the discussion of the annual results, highlight the positive events as well as the negative events?	1 = Negative events only mentioned in footnotes 2 = Emphasize on positive events 3 = Emphasize on positive events, but negative events are mentioned, no negative events occurred 4 = Balance pos/neg events 5 = Impact of pos/neg events is also explained	Neutrality	e.g. Razaee, 2003; Cohen et al., 2004
F4	Which type of auditors' report is included in the annual report?	1 = Adverse opinion 2 = Disclaimer of opinion 3 = Qualified opinion 4 = Unqualified opinion: Financial figures 5 = Unqualified opinion: Financial figures + internal control	Free from material error, verification, neutrality, and completeness	e.g. Maines and Wahlen, 2006
F5	To what extent does the company provide information on corporate governance?	1 = No description CG 2 = Information on CG limited, not in an apart subsection 3 = Apart subsection 4 = Extra attention paid to information concerning CG 5 = Comprehensive description of CG	Completeness, verifiability, and free from material error	e.g. Jonas and Blanchet, 2000
Understandability				
Question no.	Question	Operationalization	Concept	Literature
U1	To what extent is the annual report presented in a well organized manner?	1 = Very bad presentation 2 = Bad presentation 3 = Poor presentation 4 = Good presentation	Understandability	e.g. Jonas and Blanchet, 2000

		5 = Very good presentation		
U2	To what extent are the notes in the balance sheet and the income statement sufficiently clear?	1 = No explanation 2 = Very short description, difficult to understand 3 = Explanation that describes what happens 4 = Terms are explained (which assumptions etc.) 5 = Everything that might be difficult to understand is explained	Understandability	e.g. Jonas and Blanchet, 2000
U3	To what extent does the presence of graphs and tables clarify the presented information?	1 = no graphs 2 = 1-5 graphs 3 = 6-10 graphs 4 = 11-15 graphs 5 = > 15 graphs	Understandability	e.g. Jonas and Blanchet, 2000
U4	To what extent is the use of language and technical jargon in the annual report easy to follow?	1 = Much jargon (industry), not explained 2 = Much jargon, minimal explanation 3 = jargon is explained in text 4 = Not much jargon, or well explained 5 = No jargon, or extraordinary explanation	Understandability	e.g. Jonas and Blanchet, 2000
Comparability				
Question no.	Question	Operationalization	Concept	Literature
C1	To what extent do the notes to changes in accounting policies explain the implications of the change?	1 = Changes not explained 2 = Minimum explanation 3 = Explained why 4 = Explained why + consequences 5 = No changes or comprehensive explanation	Consistency	e.g. Jonas and Blanchet, 2000
C2	To what extent do the notes to revisions in accounting estimates and judgments explain the implications of the revision?	1 = Revision without notes 2 = Revision with few notes 3 = No revision/clear notes 4 = clear notes + implications (past) 5 = Comprehensive notes	Consistency	e.g. Jonas and Blanchet, 2000
C3	To what extent did the company adjust previous accounting period's figures, for the effect of	1 = No adjustments 2 = Described adjustments 3 = Actual adjustments (one year)	Consistency	e.g. Jonas and Blanchet, 2000

	the implementation of a change in accounting policy or revisions in accounting estimates?	4 = 2 years 5 = > 2 years + notes		
C4	To what extent does the company provide a comparison of the results of current accounting period with previous accounting periods?	1 = No comparison 2 = Only with previous year 3 = With 5 years 4 = 5 years + description of implications 5 = 10 years + description of implications	Consistency	e.g. Jonas and Blanchet, 2000
C5	To what extent is the information in the annual report comparable to information provided by other organizations?	1 = No comparability 2 = Limited comparability 3 = Moderate comparability 4 = Very much comparability 5 = Very extensive comparability	Comparability	e.g. IASB, 2008; Jonas and Blanchet, 2000
C6	To what extent does the company presents financial index numbers and ratios in the annual report?	1 = No ratios 2 = 1-2 ratios 3 = 3-5 ratios 4 = 6-10 ratios 5 = > 10 ratios	Comparability	e.g. Cleary, 1999
Timeliness				
Question no.	Question	Operationalization	Concept	Literature
T1	How many days did it take for the auditor to sign the auditors' report after book-year end?	Natural logarithm of amount of days 1 = 1-1.99 2 = 2-2.99 3 = 3-3.99 4 = 4-4.99 5 = 5-5.99	Timeliness	e.g. IASB, 2008; Leventis and Weetman (2004)

APPENDIX B: Weights of items (score of disclosure quantity)

Items of (Botosan, 1997) index		
1	Background Information	
1	A statement of corporate goals or objectives is provided	4,33
2	A general statement of corporate strategy is provided	4,5
3	Actions taken during the year to achieve the corporate goals are discussed	4,25
4	Planned actions to be taken in future years are discussed	4,47
5	A time frame for achieving corporate goals is defined	4,25
6	Barriers to entry are discussed	3,8
7	Impact of barriers to entry on current profits are discussed	3,85
8	The competitive environment is discussed	4,53
9	The impact of competition on current profits is discussed	4,35
10	The impact of competition on future profits is discussed	4,5
11	A general description of the business is provided	3,88
12	The principal products produced are identified	3,98
13	Specific characteristics of these products are described	3,75
14	The principal markets are identified	4,3
15	Specific characteristics of these markets are described	4,13
2	Summary of historical results	
16	Return-on-assets or sufficient information to compute return-on-assets (i.e. net income, tax rate, interest expense and total assets) is provided	4 ,33
17	Net profit margin or sufficient information to compute net profit margin (i.e. net income, tax rate, interest expense and sales) is provided	4,32
18	Asset turnover or sufficient information to compute asset turnover (i.e. sales and total assets) is provided	3,95
19	Return-on-equity or sufficient information to compute return-on-equity (i.e. net income and stockholders equity) is provided	4,22
20	A summary of sales and net income for at least the most recent eight quarter is provided	4,22
3	Key non-financial statistics	
21	Number of employees	3,58
22	Order backlog	3,92
23	Percentage of order backlog to be shipped next year	4,23
24	Percentage of sales in products designed in the last five years	3,95
25	Market share	4,6
26	Amount of new orders placed this year	4,15
27	Units sold	4,10
28	Unit selling price	3,78
29	Growth in units sold	4,08
30	Production lead time	3,65
31	Sales growth in key regions not reported as geographic segments	3,85
32	Volume of materials consumed	3,7
33	Price of materials consumed	3,95
34	Growth in sales of key products not reported as product segments	3,98
4	Projected information	

	35	A comparison of previous earnings projections to actual earnings is provided	4,45
	36	A comparison of previous sales projections to actual sales is provided	4,47
	37	The impact of opportunities available to the firm on future sales or profits	4,2
	38	The impact of risks facing the firm on future sales or profits is discussed	4,27
	39	A forecast of market share is provided	4,35
	40	A cash flow projection is provided	4,13
	41	A projection of future profits is provided	4,5
	42	A projection of future sales is provided	4,6
5	Management discussion and analysis		
	43	Change in sales	4,3
	44	Change in operating income	4,3
	45	Change in cost of goods sold	4,18
	46	Change in cost of goods sold as a percentage of sales	3,98
	47	Change in gross profits	4,35
	48	Change in gross profits as a percentage of sales	4,17
	49	Change in selling and administrative expenses	3,85
	50	Change in interest expense or interest income	4
	51	Change in net income	4,55
	52	Change in inventory	3,95
	53	Change in account receivable	4,22
	54	Change in capital expenditures or R & D	3,88
	55	Change in market share	4,45
Items added to (Botosan, 1997) index			
6	Information on the intangibles		
	56	Description of key customers	3,9
	57	Description of key suppliers	3,87
	58	Description of the activities of R & D	3,65
	59	Results of R & D implemented	3,78
7	Social and environmental Information		
	60	Rate of employee absenteeism and number of strike days	3,13
	61	Training and skills development for employees	3,58
	62	Description of charitable donations, grants, financial aid	2,68
	63	Description of the firm's commitment to the community for specific social projects (community activities, cultural, educational, recreational and sports)	2,68
	64	Statement of activities for the protection and preservation of the physical environment (natural resources conservation, energy management, wildlife and flora ...)	3,08
	65	Description of activities to reduce pollution related to business activities	2,95
	66	Production and promotion of ecological products (prohibiting the use of chemical components harmful to health and ecosystems, recyclable packaging design...)	2,85
8	Information on corporate governance		
	67	Ownership structure (major shareholders)	4,65
	68	Percentage ownership by major shareholders	4,55
	69	Composition of the Board	4,27
	70	The mandates of the administrators	3,82

71	Profile of administrators	3,85
72	The frequency of meetings of the Board	3,55

Notes

¹ Which have a field of application covering most of the trading companies

² Of which the fields of application extend to all the companies publicly appealing to savings.

³ Which relates to public offering

⁴ e.g. survey-based subjective disclosure ratings, researcher-constructed disclosure indices

⁵ These topics were chosen based on the guidance on voluntary risk reporting discussed by professional bodies (i.e. FASB, 2001).

⁶ Botosan (2004) identified the qualitative attributes of disclosure quality namely: understandability; relevance; reliability; and comparability; these enhanced the usefulness of information to economic decision makers.

⁷ The definition of an independent administrator is unclear in Tunisian Law.

⁸ According to Article 189 of the Code of Commercial Companies, the number of administrators is fixed deliberately in the company's statutes and must be between at least 3 members and 12 at most.

⁹ To what extent does the company use fair value instead of historical cost?

¹⁰ What is the size of Glossary?

¹¹ The IASB framework identifies four qualitative characteristics of information that enhance the usefulness of information to economic decision makers: understandability; relevance; reliability; and comparability.

¹² They are most important and determine the quality of information.

¹³ They can improve decision usefulness when the fundamental qualitative characteristics are established. However, they cannot determine disclosure quality on their own (IASB, 2008).

¹⁴ Several studies, such as the studies of Singleton and Globerman (2002) and Rahman (2002), were based on the Botosan index (1997).

¹⁵ We circulated 62 questionnaires to the population of financial analysts and portfolio managers. We obtained a 64.51% response rate.

¹⁶ The weight of each item was the sum of points assigned by the respondents to the item divided by the number of the respondents.

¹⁷ who analyzed the relationship between corporate governance structures and the extent of voluntary disclosure in companies listed in Hong Kong,

¹⁸ who investigated board composition, regulatory regime and voluntary disclosure in Singapore-listed firms.