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FEATURES AFFECTING THE QUALITY OF SUSTAINABILITY REPORTING: AN EMPIRICAL STUDY AND EVALUATION

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Abstract -Despite of the increasing importance of the sustainability reporting, as a measure of the sustainability performance, nowadays, there is a consensus on the poor quality of sustainability reporting among academics and practitioners. This research aims at testing the impact of some factors that could be the reason behind that poor quality of sustainability reporting. Based on the relevant literature, the research applied multiple regression analysis to test the impact of the corporate adherence to regulations (mainly Global Reporting Initiatives "GRI") and the type of information in the report (mainly the quantitative information) on the quality of sustainability reporting. This relationship has been tested on a sample of the Global Fortune 100 (G100) companies for the period of 2011-2015. The empirical study concluded that, there is a significant positive relationship between the adherence to regulations and the type of information on the quality of sustainability reporting.

Keywords - Sustainability Reporting, Lack of Regulation, Type of Information.

I. INTRODUCTION

The scientific awareness for the environmental damage that is threatening the whole globe nowadays is increasing by time. The harmful economic activities, done by companies, hold the majority of the responsibility for the environmental damage. In addition, the public pressure by corporate stakeholders increases nowadays on companies to hold their responsibility for the society[1; 2; 3; 4]. In the mid-1990s, there was a global trend between corporations to integrate information about the corporate social and environmental aspects in the annual reports. In 1998, corporations started to publish separate environmental reports, in which it is found that 35% out of the 250 biggest Fortune companies were publishing environmental reports [4]. It was identified by the International Corporate Governance Network (ICGN) that, the environment is an important criterion upon which stakeholders should base their decisions in relation to evaluating a company's value, current and future risks and investment opportunities [5].

Gradually, the concept of sustainable development began to evolve and to be of a considerable concern on both governmental and business levels [6]. The word "Sustainability" embraces the view that an individual or an entity considers future and others' needs while satisfying todays' needs. Sustainability could be considered as the integration of the long-term economic, social and environmental objectives of society. In corporate terms, "Sustainable Development" (SD) is often referred to in a "Triple Bottom Line" (TBL) context; this is being the process of developing business while considering the triple sustainability related issues, i.e. economic, social and environmental issues. Then, it targets the needs of present corporate stakeholders without compromising their future and others' needs. Sustainability issues are also referred to as the three Ps- Profit, People and Planet. In which, Profit refers to the economic side, People refers to the social side and Planet refers to the environmental side [7; 8; 9; 10; 1; 3; 11].

The link between accounting and the concept of sustainability evolved in the early 1990s, -more specifically in 1993 by the work of Gray and then in 2002 after the release of the Sustainability Accounting Guidelines at the World Summit on Sustainable Development-, that is reflected as the concept of **Sustainability Accounting** or **Sustainability Reporting** [12]. **Sustainability Report** can be defined as that Public report disclosed to both internal and external corporate stakeholders, it should present a comprehensive picture about the corporate economic, social and environmental effectiveness and efficiency in a balanced way. This definition complies with the definition of World Business Council for Sustainable Development (WBCSD) and the definition of the KPMG in its International Survey of Corporate Sustainability Reporting, in which the latter emphasized the balanced reporting of the three sustainability aspects [4]. Sustainability reporting requires an organization to report on its economic, environmental and social performance to its stakeholders. An organization has to report on its environmental and social performance regardless of their impact on the economic position of the organization. Hence, Sustainability Reporting is called a **Triple Line Reporting (TLR).** As it is concerned with three dimensions of reporting which are the economic, environmental and social

dimensions [13; 6; 14; 15; 2; 3; 16; 17; 11; 18; 4; 19; 12].

II. RESEARCH PROBLEM

Although the concept and importance of sustainability reporting becomes, theoretically, well known in the last decade, the practice of sustainability reporting among corporations is still in its infancy and involves confusing issues [3]. The vast majority of the researches, implemented in the area of the sustainability reporting, were qualitative studies while there are only few empirical studies concerned with the sustainability reporting. The empirical studies measuring the sustainability performance of organizations are very few [6; 20; 21]. Given the increasing attention afforded to sustainability and sustainability performance, research interest has grown in the latest years in these areas among academics and practitioners [22; 3; 23; 11]. However, most of the studies focused on the quantity of the disclosed information with less consideration to related quality [23]. This may have led to deterioration in the quality of the reported information, with many companies disclosing adequate detail information in terms of quantity but still not reflecting actual sustainability performance.

There is an insistent requirement for future research on improving and assessing the quality of sustainability reporting [13; 23; 12]. The quality of sustainability reporting becomes a focus subject for research and benchmarking studies nowadays. There is a general consensus on that although the number of sustainability reports is increasing, their quality is still poor. It is claimed that, the current quality of **sustainability reporting is unsustainable** [13; 1; 16; 24]. Corporations adopt a lower level of quality for sustainability reporting than that adopted by quality assessors and academics [25]. So that,
What are the reasons behind the increase in the number of the sustainability reports that is not associated with a parallel increase in their quality?

Moreover, sustainability has been found to applied, studied and assessed much more in the developed countries than it is in the developing countries. In which, it is found that, the vast majority of the sustainability studies are focused in the countries of Europe and North America. An important reason for this could be that, most of the sustainability rules and regulations are released from European and North American countries. This adds an additional requirement for consideration and assessment of the sustainability practices in the developing countries that lag behind the developed countries to a large extent [8]. Ane (2012) assessed the quality of the environmental reporting in China between 2007 and 2009 based on the relevance, reliance, comparability and understandability of the environmental reporting disclosures. The study finds that the quality of the environmental reporting in China is still very lacking, especially in relation to reliance and comparability. The study revealed that out the 110 tested firms in China in different sectors, only 5% are reporting environmental information in quantitative form and 17% are reporting environmental information in both quantitative and qualitative forms. These percentages are very low in terms of quantitative reported information that is more required for a qualified sustainability report as it facilitates understanding and evaluation by the corporate stakeholders. It is found that, the corporate sustainability reporting disclosed by the Islamic banks are inconsistent [22]. A survey done in 2003 revealed that 50% of the surveyed investors in addition to all the study analysts viewed sustainability reporting as poor. Latridis (2013) found that, reports including sustainability disclosures in Malaysia are very poor, in which they are general, narrative in nature and lack quantitative indicators to a large extent.

In a nutshell, it could be concluded that, there is a kind of general agreement among academics and practitioners on the deprivation and deteriorating level of the sustainability reporting quality. This leads the corporate stakeholders to take inappropriate decisions, which in turn harm the corporate investment opportunities, profitability and market value. In accordance with the Pragmatic-Based Approach of research planning and research question evolved, the research in turn will seek to solve this problem through investigating the reasons behind it and applying appropriate methods to, empirically, test proposed solutions.

III. RESEARCH OBJECTIVES AND CONTRIBUTION

As the importance of the sustainable development is increasing by time and more specifically for the companies,-which hold a major responsibility in achieving this objective of being sustainable-oriented, the significance of the sustainability reporting is increasing as well. In which, it is the only channel for comprehensively evaluating the sustainable performance of an organization. However, despite of this significance, there is a considerable confusion about and a very poor quality level of the sustainability reports offered by companies. Consequently, this research is seeking to solve this critical problem by building a conceptual framework for the factors that could lead to the improvement or the deterioration of the quality level of the sustainability reporting. It aims to provide an original contribution towards setting objective criteria for evaluating the quality of sustainability reports. Having such an objective framework, contributes to the scientific knowledge by developing a robust

measure for the degree of the sustainable development worldwide.

The research aims to identify-evaluate the features that tend to affect the quality of sustainability reporting. As these factors should be taken into consideration in order to improve and that at the same time could be the reason behind the deterioration in the quality level of the sustainability reporting.
This research aim will be achieved through the following research objectives:

1- Testing the impact of the lack of regulation on the quality of sustainability reporting.
2- Testing the impact of the type of information on the quality of sustainability reporting.

IV. THEORETICAL BASIS

In addition to its contribution to the academic field, a Theory has an important professional contribution to the management and organization science. Theory based knowledge can largely help managers and policy makers to control organizational behavior through not only understanding the current behavior but also predicting the future organizational behavior and practices. The goals and objectives of an organization are achieved through the behavior of its members. So, controlling this behavior by theory based knowledge, can most likely lead to achieving organizational goals [26]that is in this study providing a qualified sustainability report. And from this point on, Legitimacy Theory is the Substantive Theory providing the content base for the research topic. It acts as a robust conceptual framework for understanding and analyzing sustainability disclosures [27; 28; 29]. Research objectives, referred to in the previous section, will be attempted while considering them through the Socio-Economic theory of "**Legitimacy Theory**". The importance of a Socio-Economic theory is that, it well considers the social issues related to the organizational activities together with related economic issues, so that serving all corporate stakeholders. This is unlike purely economic theories focusing only on economic practices, so that targeting only financial corporate stakeholders. Since, an entity's economic activities cannot be fully verified without the consideration of interrelated social as well as environmental activities. Therefore, the three types of an entity's activities, i.e. economic, social and environmental, representing dimensions of sustainability should be considered as three dependent components of one unit [30; 24].
Organizations should eliminate or even reduce the legitimacy gap that can threaten its survival. Legitimacy gap occurs when business activities do not satisfy social expectations, like cases of imposing penalties on business environmental damages [30; 6; 31; 27]. As the organization is disclosing information that satisfies the needs of its stakeholders, a good relationship with stakeholders will be maintained, a stable inflow of required organizational resources will be guaranteed and consequently a considerable level of social legitimacy will be sustained for the organization to keep its successful survival.

V. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Lack of Regulation

With the increasing need of the corporate stakeholders for the evaluation of the non-financial operations in order to reach a comprehensive, balanced performance assessment of an organization, the sustainability report is considered as the only channel to fulfill this need [16]. The need for sustainability reporting is increasing day by day because of the increasing change in the society that leads to more control and monitoring by the public to the companies and that also requires more attention to the corporate ethical behavior [4].
However, the deviation from the accepted level of quality in those reports will negatively affect the firm's performance. So it can be deduced that, the quality of the sustainability report is the fundamental cornerstone for sustainability reporting as it identifies the important information that has to be disclosed in the report to the corporate stakeholders and thus sustainability reporting achieves its objectives [32].
Therefore, based on relevant research literature, the following sections will present the factors that can significantly affect the quality level of sustainability reporting and in turn develop research hypotheses.

Although there is an increasing trend in the recent years towards disclosing a comprehensive sustainability report voluntarily, most of the companies are still reporting only on the sustainability issues required by rules and regulations. One of the main existed regulations on environmental reporting is the Statement of Financial Accounting Standards (SFAS) no. 5 of the Financial Accounting Standards Board (FASB) [5]. According to [23] despite of the existence of some required environmental disclosures in few countries, like those relating to the toxic waste emissions in USA, environmental reporting is largely unregulated. Most of the decisions taken regarding the environmental reporting in the companies are managerial-based, that mainly depend on the board of directors and the company's shareholders.
Sustainability reporting is an innovative and a growing field, in which there are more than 20 methodologies and several protocols to be followed. As a result, companies will be confused about which one to follow, which one is better, which one will achieve a qualified report for a specific company and at which situation the company meets the required reporting objectives. This is in addition to the inconsistency between the different companies and

consequently harder comparability. Comparability and benchmarking show to the company's management the opportunities for improvements that could be implemented to enhance the quality of the sustainability report [14; 20; 2; 3; 32; 16; 17; 4; 12; 25].

It is found that, there is a considerable lack of consistency in the sustainability reports among the local government authorities in Australia, in terms of the type of the reported information and the extent of reporting [17]. A survey implemented in 2002 in Malaysia revealed that, only 7.7% of the surveyed companies are reporting voluntarily on the sustainability issues, which emphasizes the need for a regulatory framework for sustainability reporting [1]. There are serious attempts in the UAE to force all the companies listed in the financial market to comply with sustainability reporting regulations while providing their annual reports. The Adu Dhabi Sustainability Group (ADSG) is established in 2008 to promote and enhance the sustainability behavior among companies. In doing so, the ADSG induces companies to follow the international best practices for corporate sustainability disclosures, as a way for maintaining a high transparency level in the sustainability report. In reviewing the 2009 sustainability reports of UAE companies, the ADSG recommended that, companies should coincide with the Global Reporting Initiatives (GRI) criteria as a reference to improve the quality of sustainability reports [22]. Currently, GRI is the international reference and proxy of sustainability corporate performance and its evaluation for organizations worldwide. Corporate sustainability performance has to be reported and evaluated against certain sustainability criteria that should be globally accepted, and this is represented in the GRI guidelines [9; 10]. GRI is considered as the most generally and globally accepted and applied guidelines for sustainability corporate reporting [9; 22; 1; 14; 2; 3; 16; 11; 33]. According to KPMG study in 2008, the GRI framework, more specifically G3 of 2006, is followed by 79% of the top global 250 companies and 69% of the top 100 companies worldwide [16]. Beside its practical application, GRI is applied as a proxy in the academic and research contexts while studying the sustainability performance of the organizations in different sectors [9]. In which, referring to the GRI sustainability reporting ensures the inclusion of the required performance measures in the sustainability report that can reflect the actual sustainability performance of the organization as well as it maintains the consistency and consequently the comparability among the different reporting companies.

Hammond and Miles, (2004) conclude that if a country political system does not have regulating bodies for sustainability reporting and that the sustainability reporting is left to the pressures of the market place and the stakeholders, the quality of the sustainability reporting cannot be guaranteed to a large extent. The adoption of reporting standards and guidelines is an indicator for a qualified sustainability report. The quality of sustainability reporting could be assessed through comparing the sustainability disclosures against predetermined reporting elements and marks given based on fulfilling these elements. These predetermined reporting elements could be those of a widely and globally accepted and used regulating body for sustainability reporting, such as the GRI [6; 25]. This way allows consistency and comparability between the different reporting companies, benchmarking that will be easily done by stakeholders in order to take appropriate decisions and facilitating the job of quality assessing firms. The quality of the sustainability report has to be assessed in relation to the range of issues reported, style of disclosure, nature of disclosure, scope, coverage and period in addition to the reliability, credibility and consistency of the disclosed information [25]. In most situations, there is a high correlation between the quality of sustainability reporting and the extent of the reporting in which, in order to disclose a comprehensive picture about all the corporate areas mainly like the environmental and social areas, several sentences are required, unlessdisclosures are repetitive and are not adding new information [32].

Voluntary sustainability reporting that is not complying with certain regulations or guidelines produces sustainability reports that vary between companies in content and format and that are not usually meeting the needs of the stakeholders specially the external ones [1; 16; 5; 11; 4; 12]. Fritz et al., (2017) confess the fact that regulations is one of the important factors affecting the efficient application of sustainable management of a corporate supply chain. And it is found that, even voluntary sustainability reporting that is complying with the GRI produces sustainability reports with a higher quality than those not complying with the GRI or other related regulations. Complying with the GRI, guarantees legitimacy for the reporting organization with its stakeholders [6; 1; 5; 11; 4; 12]. Moreover, the Netherlands is considered as a leader in the field of sustainability reporting because of the existence of the GRI organization in it [34]. Therefore, the existence of and the adherence to certain regulations improves the quality of the sustainability report.

According to Comyns et al. (2013), one of the major deficiencies in the sustainability reports is their lack for the quantitative indicators such as greenhouse emissions. When sustainability reports produced by the Greek companies are compared with the GRI reporting guidelines, it is found that the reports of the Greek companies lacks the comprehensiveness of the report in several important indicators like

environmental performance, human rights and product responsibility. There is a considerable gap in the oil and gas industry in Australia between the companies and the industry benchmark, in which the quality of the sustainability reports offered by the companies is obviously lower than that of the industry benchmark. In addition, it is found that Australian companies that are litigated for their violation for the environmental guidelines do not disclose that information in their reports however focusing only on the positive aspects of their activities [13]. In the absence of standardized and regulated sustainability reporting, corporate stakeholders can to some extent rely on voluntary sustainability disclosures, which are influenced by the existence of a variety of factors that are hard to be controlled in addition to the inconsistency and the incomparability of reporting. Then, the existence of regulations for sustainability reporting is a significant guarantee for improving the quality of sustainability reporting [1; 20; 3; 23; 16; 4; 12; 29]. Mandatory reporting can ensure that organizations will provide unbiased sustainability information to its stakeholders, claiming that voluntary reporting does not offer prevalent and consistent information, so that regulation is required as an assurance for a qualified sustainability report. Therefore, the lack of regulation is considered as a barrier for improving the quality of sustainability reporting [13; 1; 16; 12; 29]. The role of the regulations for the sustainability reporting obviously appears in situations of releasing corporate information through private channels, by preventing or even reducing the release of corporate information through private channels and maintains the availability of qualified publicly available corporate sustainability information [1]. Therefore, as the lack of regulation increases, the information asymmetry increases and the quality of the sustainability report decreases.

Therefore, the lack of regulation can considerably impair the consistency and comparability of sustainability reporting, while the existence of regulation acts an indicator for the quality of the sustainability report. Thus, the first research hypothesis generated for testing is:

H1: That Adherence to Regulations (ATR) has a significant impact on the Quality of the Sustainability Reporting (QSR).

VI. TYPE OF INFORMATION

The inclusion of quantitative data is one of the frequently determined criteria for a qualified sustainability report [20; 33; 25]. Unlike, general descriptive data, quantitative data can clearly and easily reflects a company's performance. In which, quantitative data is easily understandable by readers and could be used by stakeholders to compare between the performance of different companies and also for subsequent years of the same company to assess the improvement in performance and whether the company is on the right way toward achieving its predetermined targets and objectives [20; 25; 29]. Sustainability costs are more likely to be disclosed in the sustainability reports than sustainability benefits, as the sustainability costs can usually be assessed using quantitative measures, unlike the sustainability benefits that are most of the time difficult to be assessed quantitatively so they are often assessed using qualitative measures. Sustainability costs can be reported as quality costs, so that categorized into four types as follows. Prevention costs incurred to prevent sustainability problems to occur, appraisal costs incurred to reform problems that are not avoided by prevention costs, internal failure costs incurred to deal with problems still existed in the company before affecting the external environment and external failure costs incurred to handle external environmental damages. The sustainability benefits can then be determined through the reduced failure costs [1; 5]. It is claimed that, reporting on sustainability costs and benefits in this way provides a comprehensive view about the company's sustainability issues that will help managers to take better decisions. It is also suggested that, a similar but less detailed report be provided to the external stakeholders that will also help them to take better decisions especially related to capital investments and then achieving the objective of meeting stakeholders' needs.

It worth mentioning here that, legitimacy theory plays an important role in the extent, type and format of the information disclosed in the sustainability reports. Organizations seek to acquire legitimacy of the society in which they operate, so that they tend to provide information in the required extent, type and format required by the surrounding society so that organizations could gain the social legitimacy and support, through appearing as socially and environmentally responsible organizations [29]. However, compulsory regulations are required to review and audit the credence information in order to, at least, maintain an acceptable quality level of this type of reported information. In the case of credence information, the information asymmetry between the report reader and the company remains at a high level either at the time of reading the report or after the passage of a certain period of time. The reader is unable to determine the quality of the reported information due the high levels of expert knowledge, time and costs required and consequently the reader may give legitimacy to the company even if it does not deserve it [13; 12]. Since there is a high level of information asymmetry, the result is a vague report quality and company legitimacy given regardless of its credibility. Therefore, companies will not be willing to incur costs or effort in order to improve the quality of their sustainability report as they gain

legitimacy from their stakeholders with a low price and this way the quality of the sustainability reporting will keep deteriorating [13; 12]. The quality level of this type of information, cannot be controlled by the stakeholders, because it requires considerable experience, knowledge, time and costs to evaluate the report quality [13; 4; 12].

The type of the information that is required to be reported affects the quality of the sustainability report. In which, some environmentally related information are easy to be quantified and reported and then they are clearly reported, such as the information related to the costs incurred to remove or even reduce the effect of some chemical emissions. While there are other environmentally related information that are difficult to be quantified and measured, such as the long term impact of some pollutants, and then companies seek to omit these information from the sustainability reports whether for their costs or benefits. Therefore, the sustainability report will not be reflecting the whole picture about sustainability business impacts to the stakeholders, who will base their decisions on incomplete information missing some costs and/or benefits that may affect the whole financial position of the company [5].

Therefore, the type of information disclosed in the sustainability report can significantly affects the understandability and the usefulness of the corporate report. Consequently, the second research hypothesis generated for testing is:

H2: That Type of information (TOI) has a significant impact on the Quality of the Sustainability Reporting (QSR).

Based on the literature reviewed, it can be concluded that, the lack of regulation and the type of information, are considered as essential factors and drivers that should be considered for improving and maintaining the quality of sustainability reporting.

VII. RESEARCH DESIGN AND METHODOLOGY

A. Methodological Theory

Following the Pragmatic Approach, the research seeks to choose the most appropriate methods and techniques that can answer the research questions in the most effective and efficient way. The research structure is prespecified ahead of the empirical part of the research. In which, the research question is predetermined while introducing the research context and problem. Moreover, the research design is accurately preplanned before pursuing the empirical part of the research that will use well-structured data. The data that will be used in the empirical study are tightly structured using quantitative measures before starting the data collection process. A major significance of having a well-structured research design in advance of the empirical part of the research is that, the more tightly structured the research design and in turn the research questions and data, the more likely there will be a well-developed conceptual framework [35]. The research seeks to follow the Positivism Philosophy, in which the research aims at verifying a theory through testing objective data, in order to, finally, reach law-like generalizations that develop knowledge. A scientific method is applied that empirically tests hypotheses using a large sample of mostly structured quantitative data. Unlike other research philosophies, like realism and interpretivism, the researcher values or other surrounding viewpoints will not influence the research procedures held [35; 36]. The research chooses appropriate research methods and procedures that can best help in answering the research question that evolved from the literature, in order to finally, achieve the targeted research objectives. A Mono Quantitative Design is applied, in which the research will depend on the documentation in extracting the required research data that will be tested longitudinally over subsequent time periods [36]. Documentation is characterized with the accuracy, reliability and verifiability of the extracted data, as it is less likely to involve bias, subjective values or viewpoints. So, it is an objective, robust resource for the data upon which the research builds its results and findings [37; 38;39].

B. Research Methods

The research employs Empirical/Experimental techniques for testing causal relationships between different variables under controlled conditions. Empirical/Experimental research uses quantitative data that is required to show the difference in and strength of relationships between different variables in order to make inferences about tested variables [40]. This explanatory, quantitative research has to test the effect of the two factors discussed in the literature review section, through making precise predictions about the change in a certain dependent factor or variable (i.e. Quality of Sustainability Reporting), because of the change in two other independent factors or variables (i.e. Adherence to Regulation and Type of Information). These predictions can best determine accurate cause-and-effect relationships among the different variables, which are required by the research. Accordingly, the best statistical analysis to fulfill these tasks is the **Regression Analysis**, which will be employed by the research [41; 38; 42; 39; 43; 40].

The research uses the Ordinary Least Squares (OLS) Regression method of estimation, which is convenient for the research variables. The OLS regression analysis is the standard and the widely used regression analysis approach especially in the social sciences and the sustainability reporting field

as well. In which, a major benefit for applying the OLS is that it minimizes the errors (squared residuals) that may result from the variance between the actual and the expected values of the dependent variable. That's why it is also called Linear Least Squares Regression Analysis because of that mentioned privilege over the Linear Regression method. The enter regression method is used that includes all the variables' data into the regression model at the same time [31; 1; 44; 42].

VIII. RESEARCH VARIABLES AND ESTIMATING EQUATION

A. Dependent Variable:

Quality of Sustainability Reporting (QSR) This variable is defined as the application level of the sustainability reporting guidelines, mainly G3, for each company's sustainability report. In which according to the GRI organization (https://www.globalreporting.org), a rank of A, B, C is used to reflect the application level of the guidelines. A means that the report addresses more indicators from the guidelines, B means fewer indicators and C means even fewer indicators. While there is a few number of reports (6.4%) are assessed based on the G4 version of the reporting guidelines, further application levels are also used. According to the G4, there are two application levels, which are less strict than the three levels of G3. The two levels are Comprehensive and Core, in which, Comprehensive means more addressed indicators and Core means fewer addressed indicators. Comprehensive is given a rank of D and Core is given a rank of E. Finally, a rank of F is given to reports with no indicators addressed. This Ordinal, Categorical variable is measured by giving a rank of A, B, C, D, E, or F to each sustainability report, as A represents the highest application level for reporting guidelines and F represents no application for reporting guidelines.

B. Independent Variables:

Adherence to Regulations (ATR) This variable is defined as whether (or not) the relevant company claims to adhere to the Global Reporting Initiative (GRI) principles and guidelines (https://www.globalreporting.org/Pages/default.aspx). In which, GRI has been extensively applied by researches that studied the assessment of corporate sustainability reporting as the most globally applied proxy for a corporate adherence to sustainability reporting regulations [9; 22; 13; 1; 14; 2; 3; 11; 33; 12]. This Binary, Categorical variable is to be determined according to whether (or not) the relevant firm claims to adhere to the Global Reporting Initiative (GRI) principles and guidelines If so, a value of 1 is assigned and, if not, a value of 0 is assigned.

Type of Information (TOI) This variable is defined as the existence of Quantitative measures in the sustainability report for the two sustainability dimensions of Social and Environmental corporate performance. The third sustainability dimension of the Economic performance is not considered in this variable because the economic performance means the financial performance that is by nature a Quantitative measure. And that's why the economic dimension is not a debatable research point in relation to the inclusion of quantitative measures. The type of information, in terms of the Quantitative information amount, has been extensively applied by the researches that studied the assessment of corporate sustainability reporting as an indicator for the quality of sustainability report [13; 20; 32; 45; 33; 25]. Accordingly, this Ordinal, Categorical variable is measured by giving a value of 0%, 50% or 100% for each report, as 0% means no Quantitative measures for either Social or Environmental performances, 50% means Quantitative measures for either Social or Environmental performance and 100% means Quantitative measures for both Social or Environmental performance.

C. Control Variables:

Company Size (TOA) This variable is defined as the company size in terms of the owned assets at the end of each year. Company Size has been controlled by several researches that studied the assessment of the corporate sustainability reporting [31; 1; 23; 44]. This Continuous variable is measured as the "Total Assets" of the company at the end of each relevant year.

Net Profitability (ROA) This variable is defined as the company Profitability in terms of the Return on Assets (ROA) achieved at the end of each year. Company Profitability has been controlled by several researches that studied the assessment of the corporate sustainability reporting [31; 1]. This Continuous variable is measured and computed as the ratio between "Net Profit" for each relevant year and the appropriate "Total Assets" at that year-end.

Accordingly, the following Multiple Regression (MR) model will be used in order to estimate or predict the variation in the relationship between the variables:

$$QSR = a + b1ATR + b2TOI + b3TOA + b4ROA$$

Where,

QSRis the Quality of Sustainability Reporting that represents the Dependent variable.

ATRis the Adherence to the (GRI) Regulations that represents the first Independent Variable.

TOIis the Type of the Information that represents the second Independent Variable.

TOAis the Total Assets that represents the first Control Variable.

ROAis the Return On Assets that represents the second Control Variable.

IX. DATA SOURCES AND ACQUISITION

From that explanation, it can be concluded that the research is primarily quantitative. The research data were collected for the Global Fortune 100 companies (G100). In which according to the (Fortune.com) database, the Global Fortune companies are the top companies worldwide in term of total revenues and the Fortune database ranks the top 500 companies on that basis.

The research is applied on the first 100 companies as a sample out of the population of the 500 companies. The reason of choosing these 100 sample companies is that they fit research objectives, as 95% of them provide sustainability disclosures [13].

Quantitative data of sustainability reports are collected for 5 years, from 2011 to 2015 (inclusive), for each one of the 100 companies, which means that the research data is collected and tested for 500 reports. Secondary data were also collected from the GRI website (globalreporting.org**),** which provides the most globally accepted and used sustainability reporting guidelines, together with its Corporate Register website "CorporateRegister.com" which is the largest repository of sustainability reports worldwide [3]. Furthermore, individual companies' websites were accessed as needed. As a result, it is envisaged that, no data will be collected from private sources; therefore, no research ethical issues should arise in terms of collection and analysis of the data.

X. EMPIRICAL RESULTS AND DISCUSSION

The research employed the Statistical Package for the Social Sciences (SPSS) package to implement the statistical analysis for the data. SPSS is the most popular and user-friendly statistical analysis software package. In which, it is capable of implementing descriptive statistics as well as sophisticated inferential statistics [35; 46; 38]. The results of the statistical analysis are divided into two categories of Descriptive results and Inferential results that will be discussed as follows.

Discussion of Descriptive Results:

As the research variables are divided into two categories, which are Categorical and Continuous variables (as explained in the previous section), the descriptive statistics for the variables are divided into two categories as well. Tables 1, 2, and 3 present the descriptive statistics for the categorical variables and Table 4 presents the descriptive statistics for the continuous variables. The descriptive results of the categorical variables shows that, only 98 reports out of the 500 reports, which represents 19.6%, gets the highest quality level of sustainability reporting (A), with the remaining 80.4% of the reports vary in their quality level of sustainability reporting. It is also observed that, 61%, of the G100 companies, adheres to the GRI regulations. Moreover, it is found that the vast majority of the 500 tested reports, representing 83%, includes quantitative measures for the corporate both social and environmental performance. While the descriptive results for the continuous variables shows that, the mean value for the Total Assets (TOA) of the G100 companies is 1394181.253million dollars and for the Return on Assets (ROA) is 3.88140793 million dollars.

Categorical Variables

Table 1. Descriptive Statistics of Quality of Sustainability Reporting

QSR		Frequency	Percent	Valid Percent
Valid	F	304	60.8	60.8
	E	20	4.0	4.0
	D	12	2.4	2.4
	C	14	2.8	2.8
	B	52	10.4	10.4
	A	98	19.6	19.6
	Total	500	100.0	100.0

Table 2. Descriptive Statistics of Adherence to Regulations

Adherence to Regulations (ATR)		Frequency	Percent	Valid Percent
Valid	YES	305	61.0	61.0
	NO	195	39.0	39.0
	Total	500	100.0	100.0

Table 3. Descriptive Statistics of Type of Information

Type of Information (TOI)		Frequency	Percent	Valid Percent
Valid	0	67	13.4	13.4
	50	18	3.6	3.6
	100	415	83.0	83.0
	Total	500	100.0	100.0

Continuous Variables

Table 4. Descriptive Statistics of Continuous Variables

Variable	N	Min.	Max.	Mean	SD
ROA	500	-36.497485	28.541727	3.88140793	5.000300290
TOA	500	4621.3	22209780.0	1394181.253	3438233.0342

Discussion of Inferential Results:

The research builds two Multiple Regression models to be tested. Model 1 includes the Dependent variable (QSR) and the Independent variables, (ATR) and (TOI), without including the Control variables. Model 2 includes the Dependent variables, the Independent variables and the Control variables, (TOA) and (ROA), in order to test the impact of the control variables on the model, if any. Table 5, presents the inferential statistics of the two models as whole, in which the three statistical measures of, Adjusted R Square ($\overline{R}^2$), Mean Square (Residual) and F-Statistic, are used to build inferential conclusions about the applied regression models.

Table 5. Inferential Statistics for the Research Models

Model	F	Sig. (P-Value)	Mean Square (Residual)	Adjusted R Square ($\overline{R}^2$)
1 Constant ATR TOI	48.241	.000***	3.786	.159
2 Constant ATR TOI TOA ROA	27.992	.000***	3.701	.178

*** Significant at 1% significance level.
** Significant at 5% significance level.
* Significant at 10% significance level.
No stars means no significance.

F-statistic measure tests the goodness of fit of the whole regression model. It tests how much the represented figures that are used in the regression analysis are good to establish a regression model. The F-statistic value ranges from zero to arbitrarily large number. The higher the value of the F-statistic, the better is the goodness of fit of the regression model in explaining more variability in the dependent variable. The criterion used to judge the goodness of the F is its Significance (P-value) [37; 46; 38; 42; 39;43]. The F-statistic for Model 1 is 48.241 with a P-value of 0.000 that is extremely significant which means that it is an extremely good model for explaining the variability in the Quality of Sustainability Reporting (QSR). Similarly, the F-statistic for Model 2 is 27.992 with a P-value of 0.000 that is extremely significant as well, with significance level at 1%. This means that it is an extremely good model for explaining the variability in the Quality of Sustainability Reporting (QSR).

The MSE is used to determine the statistical significance of the factors or the variables under study. The less the value of MSE, the better, in which, a MSE value of zero is the ideal situation so that the variables provide predictions of the dependent variable with perfect accuracy, that is not usually the case in the actual life. Moreover, MSE is used to compare between two or more regression models in relation to how well each model explains a given set of observations [42]. Based on that, in addition to having a small MSE value of 3.701, Model 2 that includes the control variables is more statistically significant than Model 1. As Model 2 has a MSE value of 3.701 that is lower than the value of 3.786 of Model 1.

R square adjusted ($\overline{R}^2$) explains the percentage change in the dependent variable that can be explained by the change in the independent variables. The advantage of using the $\overline{R}^2$ over using R square (R^2) is that $\overline{R}^2$ excludes the number of the independent variables by imposing a penalty for increasing the number of the independent variables. This means that it takes into consideration the effect that may occur on the relationship or the regression model if the number of the independent variables is increased [37; 46; 38; 42; 39;43]. The Adjusted R Square ($\overline{R}^2$) for Model 1 is 15.9%, which means that the average change in the Adherence to Regulations (ATR) and the Type of Information (TOI) can explain or is the reason behind 15.9% of the change in the Quality of Sustainability Reporting (QSR). However in Model 2, the Adjusted R Square ($\overline{R}^2$) is 17.8%, which means that the average change in the Adherence to Regulations (ATR) and the Type of Information (TOI), while controlling the effect of the company size, measured by the Total Assets (TOA), and the company profitability, measured by the Return on Assets (ROA), can explain or is the reason behind 17.8% of the change in the Quality of Sustainability Reporting (QSR). Based on that, it can concluded that the inclusion of the control variables (TOA) and (ROA) results in an improving impact on the model, in which Model 2 is better than Model 1 in providing more explanation for the change in the dependent variable (Quality of Sustainability Reporting), i.e. from 15.9% to 17.8%.

After ensuring the robustness of the regression models used in the research, through Adjusted R Square ($\overline{R}^2$), Mean Square (Residual) and F-Statistic statistical measures (explained in the previous section), Table 6 presents more specific inferential statistics about the variables composing each model. In which, the table shows the Coefficient Value and its Significance for each research variable, in order to build inferential conclusions about each variable and consequently each research hypothesis.

Table 6. Inferential Statistics for the Research Variables

Model	Variable	Coefficient	Sig. (P-Value)
1	(Constant)	.894	.000***
	ATR	1.408	.000***
	TOI	.010	.000***
2	(Constant)	1.044	.000***
	ATR	1.467	.000***
	TOI	.010	.000***
	TOA	-9.159E-8	.000***
	ROA	-.014	.419

*** Significant at 1% significance level.
** Significant at 5% significance level.
* Significant at 10% significance level.
No stars means no significance.

Multiple regression analysis is implemented to test the impact of the average change in the Adherence to Regulations (ATR) and the Type of Information (TOI), while controlling the effect of the Total Assets (TOA) and the Return on Assets (ROA) on the Quality of Sustainability Reporting (QSR), through the 500 data points (representing the 500 sustainability reports).

This analysis resulted in a regression coefficient of 1.467 for the ATR and .010 for the TOI. This means that there is a positive relationship between independent variables (ATR and TOI) and the dependent variable (QSR). In which when the Adherence to Regulations increases, an increase of1.467 is expected in the level of the Quality of Sustainability Reporting holding other variables in the model constant, and vice versa. And when the Type of Information increases, an increase of .010is expected in the level of the Quality of Sustainability Reporting, holding other variables in the model constant, and vice versa. The P-value of the regression coefficients for the ATR and the TOI is 0.000. This value is less than 0.001 that denotes an extremely strong evidence that there is a significant relationship between the Adherence to Regulations (ATR) and the Type of Information (TOI), and the Quality of Sustainability Reporting (QSR). Moreover, this means that the coefficient values are extremely significant and can be depended on.

Regarding the control variables, the analysis resulted in a regression coefficient of -9.159E-8 for the Total Assets (TOA) that represents the company size. This means that there is a negative relationship between the Total Assets (TOA) and the dependent variable (QSR). In which when the Total Assets increases by one unit, the level of the Quality of Sustainability Reporting decreases by -9.159E-8 units holding other variables in the model constant, and vice versa. This change value of -9.159E-8 units in the Quality of Sustainability Reporting is a small value, opposed to 1 unit change value in the Total Assets. However; it worth mentioning here that, this result is not in compatible with a considerable literature that assures a positive relationship between the company size and the quality of sustainability reporting [1; 23]. Accordingly, this point can be considered as a further research point. The P-value of the regression coefficients for the TOA is 0.000. This value is less than 0.001 that denotes an extremely strong evidence that there is a significant relationship between the Total Assets (TOA), and the Quality of Sustainability Reporting (QSR). Moreover, this means that the coefficient value is extremely significant and can be depended on. The second control variable, which is the Return on Assets (ROA) has a P-value of its regression coefficient by .419. This value is not significant at any level of significant and this means that this variable does not have any significant relationship with the dependent variable (QSR). Consequently, this variable with its coefficient is ignored.

SUMMARY AND CONCLUSIONS

The importance of the sustainability reporting is increasing nowadays due to the insistent need to maintain a sustainable performance by organizations to save our planet. Moreover, there is a significant pressure exerted by the stakeholders on the firms to hold their responsibility towards the society and the environment and to verify this responsibility through sustainability reporting. However, there is a general consent among academics and practitioners on the poor quality level of the corporate sustainability reporting. Consequently, this research seeks to reach the reasons behind this poor quality of sustainability reporting, as an attempt to have objective criteria to judge the quality of any sustainability report. Based on the relevant literature reviewed, the research tests the possible impact of the Adherence to Regulations and the Type of the Information in the report on the Quality of Sustainability Reporting. These factors have been tested on the Global Fortune 100 companies (G100) for the period of (2011-2015), representing a sample of 500 reports.

As a result of the empirical results, it can be concluded that the adherence to regulations and the type of information significantly affects the quality of sustainability reporting. In which, as the level of the corporate adherence to regulations increases, that is represented in the GRI regulations, the quality level of the sustainability reporting increases and vice versa. Similarly, as the level of the quantitative information, -about the corporate social and environmental performance-, in the sustainability report, increases, the quality level of the sustainability reporting increases and vice versa. The empirical results in relation to the controlling variables showed that, the company size (measured by the total assets)

has a negative significant relationship with the quality of sustainability reporting. This result is in contrast with a considerable literature arguing a positive relationship between these variables. The other control variable that is the return on assets does not have a significant relationship with the quality of sustainability. Accordingly, the adherence to regulations and the type of information should be taken in consideration in order to improve the quality of sustainability reporting. Therefore, the two research hypotheses are accepted, as follows: H1: That Adherence to Regulations (ATR) has a significant impact on the Quality of the Sustainability Reporting (QSR) and H2: That Type of information (TOI) has a significant impact on the Quality of the Sustainability Reporting (QSR).

RESEARCH LIMITATIONS AND FUTURE RESEARCH

Some limitations have been evolved from the insights provided in this research. There are two main research limitations derived from the empirical results. The first limitation to be highlighted is deducted from the value of Adjusted R Square ($\overline{R}^2$) of 17.8%. This means that the Adherence to Regulations (ATR) and the Type of Information (TOI) explains only 17.8% of the change in the Quality of Sustainability Reporting (QSR). Then, it is recommended for future research to test other variables that can explain remaining considerable percentage change (82.2%) in the Quality of Sustainability Reporting (QSR). The second research limitation relates to the statistical technique used to test the proposed research relationships. The research employed an Ordinary Multiple Regression technique, however; there is also another more sophisticated statistical technique to be used in case that the dependent variable (quality of sustainability reporting) is an Ordinal Variable, which is the case in this research. This advanced statistical technique is the Ordinal Regression. Then, a future research can test the same variables tested in this research and/or add more variables using the Ordinal Regression technique. As, in addition to gaining more accurate empirical results, a sophisticated statistical handling would reach different conclusions about the tested variables. For instance, the relationship between the company size and the quality of sustainability reporting, that evolved a contradicting result in this research.

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