Chapter 2

Sustainability Reporting and Income Smoothing: Evidence from Saudi-Listed Companies

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Additional information is available at the end of the chapter

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Abstract

A unique definition of sustainability, or sustainability reporting, does not exist, but it continues to progress and has emerged as one of the most critical issues in the business area. It is correlated with several contemporary social and disclosure practices, including corporate social responsibility (CSR), environmental disclosure, corporate citizenship, green economy, and sustainable entrepreneurship. All these concepts are studied in an accounting context; in other words, accounting and its branches are adapted to the new phenomena of sustainability. This study focuses on the effect of sustainability reporting in earnings quality, using income smoothing as a proxy of earnings quality. I apply this study to Saudi Arabia because it is a petroleum country where notions of sustainability must be studied. Empirical results show an important level of reporting of sustainability that positively affects the practice of income smoothing.

Keywords: sustainability, reporting, Saudi companies, income smoothing, CSR, environment

1. Introduction

Today, the close link between the economy and the environment is recognized. Indeed, the economy must draw its raw materials from the environment to develop goods and services, but it also dumps garbage back in. Hence, there is a growing interest from the international community on sustainable socioeconomic development that respects the environment. Two world events reflect this concern [1]. The Earth Summit in Rio de Janeiro in 1992 marked a turning point in adopting Agenda 21 for Sustainable Development, which introduced the concept of environmental accounting as an instrument for implementing coherent policies in this area. Then, in 2002, the United Nations Conference in Johannesburg stressed the importance of adopting adequate environmental controls and information systems at different levels in countries that can be used as a basis for political decisions, mainly through the Global Reporting Initiative (GRI) and the Global Compact.

The World Bank is not far behind; it has published recommendations and offers courses to raise corporate social responsibility (CSR) awareness among companies. The Organization for Economic Co-operation and Development (OECD) has made simple recommendations but is a forerunner with papers dating back to 1976. Environmental accounting provides more information and promotes transparency and accountability for political action for the environment by bringing the economy and the environment closer together.

On another hand, green or universal accounting is slowly entering the world of finance. Global warming, biodiversity, pollution, water consumption, noise pollution, employability, and the fight against discrimination are beginning to be integrated into accounting plans. The objective, in addition to financial performance, is the company's ability to live in harmony with its physical and social environment. An important change in the economic model was evident, and the subject is taken very seriously by a handful of auditors, experts, and researchers.

2. Literature review and hypotheses development

2.1. Accounting and sustainable development

Traditional accounting tools do not provide information tailored to the specific needs of environmental issues. Environmental information is often embedded in aggregates of costs and revenues, which do not allow the benefits and losses inherent in this area to be identified. This inefficient allocation of costs complicates the decision-making process.

The occurrence of environmental accounting is consistent with the improvement of environmental awareness that started in the 1970s. The unawareness of different leaders about environmental concerns has given way to rebuff. Increasingly, the focus of firms progressed toward mindfulness, and the appearance of a commitment vis-à-vis the protection of the environment emerged [1].

The need to integrate environmental considerations into decision-making is one of the basic strategies for sustainable development. Sustainability requires taking greater responsibility for decisions, which calls for changes in the legal and institutional frameworks to emphasize the public interest. The law alone cannot impose the public interest; this requires broad public participation in decision-making that affects the environment. When the environmental impacts of the proposed project are high, it requires that there be mandatory public scrutiny of such projects [2].

Income smoothing is one of the most common forms of earnings management, and managers try to maintain the stability of net income by influencing the timing of certain financial events or by selecting specific accounting methods or both. Companies generally prefer to show

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a stable trend in income growth and do not want to show the volatility of profits, the rise in some periods, and decline in others. To achieve this balance, companies try to maintain income stability.

Management is based on the relative performance of the company now and in the future. When current profits are low and expected future profits are strong, the manager borrows profits from the future period for use in the current period. When current profits are good, management tends to save them for potential use in the future.

Several studies have dealt with the concept of preparing income for study and analysis. Fudenberg and Tirole [3] referred to the concept of income as all the methods and processes are used by management in business organizations to reduce income to reduce the degree of risk in the company's investments. Ashari et al. [4] referred to the introduction of income as a set of mechanisms whereby profits are reduced in periods of a significant increase in income and they increase in periods where income falls significantly.

2.2. Relation between sustainability reporting and income smoothing: hypothesis development

A growing number of organizations are making sustainable development a major focus of communication. If sustainable development is designated as the ideal new structure or "skeleton" of a society going through a global crisis, communication is the blood that feeds it. I know the magnitude of the operational challenges that companies face when trying to understand and use this new approach. However, developing an integrated approach to sustainability based communication is an equally difficult challenge. There are perceptions of issues of concern: understanding stakeholder expectations varies, and traditional structures are firmly established.

Indeed, accounting allows the aggregation of all the financial information of the firm and communicating it to stakeholders with interest in the financial management of the company. Accounting can also be used to measure other types of financial information about the company's environmental and social performance, helping managers to make strategic decisions [5]. Several concepts have appeared in parallel with this concern for sustainability, for example, eco-accounting, the "green economy," the carbon footprint among others.

Eco-accounting is a reworking of the traditional accounting system, integrating the internal and external environmental and social and economic costs inherent in the total life cycle of the product. This practice allows managers to review the profitability of their products by considering the environmental and social impacts. For example, an executive could recognize the cost of managing and disposing of waste by property or by department and thus review its profitability. The attribution of a specific cost to an environmental or social effect makes it possible to measure the inefficiency of current methods and to identify new sources of potential savings [6]. However, some costs are difficult to quantify. In this case, the company may allocate an approximate cost to them.

A majority of the sustainability literature relies on institutional theory, which states that firms establish actions for external legitimacy. Conferring to the legitimacy theory, firms attempt to justify their activities as reliable with the norms and values "required" by society because they are permitted to continue their actions through a social treaty. If a firm does not act according to society's rules, a legitimacy gap appears, affecting the firm's very durability [7]. Legitimacy is insight or postulation that the actions of an organization are needed or suitable within some focus on the norms, values, and beliefs in the social area. It increases when society and pertinent stakeholders enhance a company's behavior as correct and convenient; consequently, firms communicate to the relevant public that they work in tandem with norms and values of society. A firm may also report its envisioned objective in social matters along with the use of reporting to adjust the discernment of its actions or hide unethical comportment or the weak quality of its financial information to protect or enhance its legitimacy [8].

According to the institutional theory, sustainability reporting is observed as one of the central concepts that organizations rely on to prove that they work with society's rules [9]. A company's legitimacy is influenced by its sustainability reputation, as well as by its financial situation; sustainability reporting and financial reporting are instruments that outline the stakeholders' insights of these two reputational features [10].

Firms use signaling of their qualities and then act dependably with ethical values. As stated by signaling theory, a pertinent signal should be noticeable to the community. Sustainability reporting is a visible signal to socially responsible behavior. Likewise, it is a costly behavior and cost rise with the volume of the given information.

Regarding the impact of CSR on financial performance, some studies in stakeholder theory suggest a positive link between the two concepts (social impact hypothesis) since it is supposed to improve the satisfaction of the whole. The company's stakeholders, and consequently, the reputation of the company, favor better economic and financial performance. Others, belonging to a liberal trend, establish a negative link (trade-off hypothesis), a socially responsible commitment of the company increasing costs and leading to misuse of capital, causing competitive disadvantages.

According to the signal theory, the incentives emanating from sustainability reporting and unethical comportment, such as income smoothing, have been well documented. Based on the following theories, propositions, and arguments, I can present the following hypothesis:

Hypothesis: The more companies disclose about sustainability, the more their managers are motivated to smooth income.

3. Data and methodology

3.1. Population and sample

I apply this study to Saudi Arabia not only because they represent the Gulf countries but also because of its place in the petroleum organizations, the core economic driver of the Middle East and strategic world supplier of oil and gas. This study examines the sustainability reporting made by Saudi firms through the companies' websites. I also believe the choice of Saudi Arabia will fill the gap between developed and developing countries on sustainability framework.

A final sample of 94 of the 146 nonfinancial listed companies was obtained (see Appendix 1). I discarded companies created after 2008 and those that do not have a website.

3.2. Variables and measurement

3.2.1. Independent and explanatory variables

In this section, I describe the variables of the study beginning with the principle variables (dependent and explanatory) and then the control variables.

Sustainability reporting represents the dependent variable, which is measured by an index. The index includes many items related to CSR, economic, and environmental governance, updated to the new guidelines of the International Organization of Standardization (ISO) 26000. These items are measured via content analysis, grouped in dimensions that describe social and environmental areas.

In the field of management sciences, the most commonly used method in the analysis of qualitative data, especially interviews, is content analysis [5, 11, 12] as pointed out by [13], p.202: “The place of content analysis is becoming increasingly important in social research, particularly because it offers the possibility of methodically dealing with information and testimonies that have a certain degree of depth and complexity, such as semi-directive interviews.”

The sustainability reporting score is obtained after an analysis of the quality and quantity of published sustainability information. The assessment of the quality of the information content delivered by the company consists of coding the content delivered according to two modalities: quantitative information and general information. Quantitative information is of better quality and reliability than general information because it is considered to have better informational influence [14].

To measure the sustainability reporting index, I evaluate the degree of firm communication by coding a grid of items relating to sustainability, assigning values from zero to four dependent on the quantity or quality of reported information in the firm’s website. The rating of the grid of items related to sustainability reporting is based on a score from zero to three; three points are given for an item described in monetarily or quantitatively, two when an item is described precisely, one for an item discussed in general, and zero for no information about the item [15, 16]. Two persons made the valuation of items, and then I made a rapprochement between the two results [17].

Regarding the explanatory variable, income smoothing, the firm is supposed to smooth its results if it presents low variability results as referenced to a level considered normal. From a methodological point of view, it is necessary to define the object of smoothing, the duration of study of the smoothing, and the statistical tool allowing evaluation of the variability of the result.

I use the ratio of cash flow volatility to earnings volatility to measure income smoothing. This measure presents the extent to which accrual accounting has smoothed out the underlying volatility of the firm’s operations, which is reliable with previous research on income smoothing [8, 18]. Cash flow (earnings) volatility is the standard deviation of cash flows from operations (earnings before extraordinary items) scaled by the average total assets estimated at the annual level over the 3 years, t-5 to t-1, with a minimum of 2-year data. Large values of income smoothing indicate greater income smoothing practice.

After reviewing the literature related to income smoothing, different measures were used. I use the measure confirmed by Leuz et al. (2003) and Francis et al. [18]. These authors use smoothness as a proxy for earnings management. The model of the income smoothing measurement is presented as follow:

$$\text{SMTH} = (\beta(\text{NI it}/\text{Assets it}))/(\beta(\text{CFO it}/\text{Assets it}))$$

Where:

β i = firm i standard deviation;

NI i,t = firm i, time t net income before extraordinary items;

CFO i,t = firm i, time t operating cash flows;

Assets i,t = firm i, time t average total assets.

3.2.2. Control variables

In order to explain the relationship between the level of sustainability reporting and income smoothing, and after a review of the literature, I chose the control variables.

The first variable is firm size, as it is considered a significant determinant of CSR and sustainability. Larger firms are more noticeable than smaller firms and thus face more pressure to engage in and report on the consequences of their activities on the environment and society [17]. I measure the firm size by the total assets, which is the most used measure in the literature.

The second variable is sector sensitivity. Refs. [19, 20] argue that the economic sector plays an important role in determining the level of social and environmental disclosure. Sensitivity is related to sectors controlled by governments, and their activities are controlled by the social and environmental regulations in the country, such as the rate of gas emissions and the laws related to the protection of workers' rights. I give a one for the sensitive sector and zero for the nonsensitive sector.

After presenting the variables of this study, the principle model is as follow:

$$\text{SMTH} = a^{*}\,\text{SR} + b^{*}\,\text{SIZE} + {}^{*}\,\text{SECT} +$$

where

SMTH: income smoothing.

SR: sustainability reporting.

SIZE: firm size.

SECT: sector sensitivity.

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3.3. Hypothesis test and results

3.3.1. Descriptive statistics

Table 1 summarizes the descriptive statistics of the variables; Panel A shows the continuous variables, and Panel B shows the dummy variable. The main conclusion of **Table 1** is the score of sustainability reporting (47.566). I conclude that the score is high comparing it with scores in other similar studies. Loh et al. [22] obtained a score of 43.6 for sustainability reporting among the 186 firms that communicated sustainability.

3.3.2. Hypothesis test

This study is applied to a sample of 94 Saudi firms in a 3-year period from 2014 to 2016, and the hypothesis test is conducted via a regression of the panel data. For this regression, it is necessary to start by checking the conditions relating to the robustness of the econometric model, heteroskedasticity and multicollinearity.

After the significance test of the empirical model, I test for Heteroskedasticity, via the White Test. According to **Table 2**, I conclude the absence of Heteroskedasticity. Furthermore, I test the presence of multicollinearity using a variance inflation factor. **Table 3** shows that multicollinearity is not a problem.

Moreover, I perform a test of normally distributed variables and residuals. For this, the Jarque-Bera Normality Test is the most used. This test estimates whether the skewness (S) and kurtosis (K) of the sample match a normal distribution. The results show that there is not a problem related to normality.

Finally, I conduct the linear regression for panel data to test the relationship between sustainability reporting and income smoothing. **Table 4** shows these results.

Panel A: Descriptive statistics for continuous variables					
Variables	Observations	Mean	Standard deviation	Minimum	Maximum
SMTH	282	0.894	0.630	0.005	2.435
SR	282	47.566	26.838	0	88
SIZE*	282	11.226	3.458	4.559	19.119
Panel B: Descriptive statistics for dummy variables					
Variable	Groups	Frequency/ companies	Frequency/ observations	Percent cumulative percent	
SECT**	0	50	150	53.13	
	1	44	132	46.87	

*The values of total assets are logarithmic.

**Sensitivity sector, usually considered as the petroleum, chemical, metals, and paper industry [21].

Table 1. Descriptive statistics for all variables.

Heteroskedasticity test for the model			
Test	**Statistic**	**df**	**p > Chi2**
White test	32.66	18	0.000

Table 2. Heteroskedasticity test.

Multicollinearity test (variance inflation factor) for model		
Variables	**VIF**	**Tolerance**
SMTH	1.77	0.56
SR	1.44	0.69
SIZE	1.09	0.91
SECT	1	1

Table 3. Multicollinearity test.

Dependent variable (SMTH)	Relation between income smoothing SMTH and sustainability reporting (SR score)					
	Coeff.	**Std err.**	**t**	**P > |t|**	**[95% conf.**	**interval]**
SR	0.056	0.042	2.773	0.041**	0.027	0.069
SIZE	0.007	0.002	2.053	0.091***	0.061	0.163
SECT	0.108	0.099	2.097	0.001*	0.083	0.112

*Significance at 1%.
**Significance at 5%.
***Significance at 10%.

Table 4. Hypothesis test—linear regression.

The above scores improve slightly over the 3-year period (2014–2016): sustainability reporting positively and significantly affected the income smoothing practice made by Saudi-listed companies at the 5% level. Furthermore, the effect of firm size on the income smoothing practice is significantly positive at a level of 10%. Concerning the role of the sector sensitivity, I also note a significantly positive effect on income smoothing at the 1% level.

4. Discussion and conclusion

Sustainable development is a complex concept that opens the door to many interpretations and topics on the usefulness and credibility of accountability of sustainable development.

The study tried to explain the link between earnings quality (attributes) presented by income smoothing and the sustainability communication made by Saudi-listed companies. Empirical results show a significant effect of sustainability reporting on income smoothing.

Obtained results can enrich literature in both empirical and theoretical area. From a managerial point of view, this research can lead to several lessons for both business managers and organizational consultants. A manager can find innovative, differentiated, and heterogeneous social responsibility practices, including integrating new organizational concerns into business management, as well as new organizational standards (ISO 26000).

This study may be of interest to several actors, in particular companies, in general, and companies following a social responsibility approach, in particular. Rating agencies are also concerned, as this research can help to think about the societal rating system in Saudi Arabia.

5. Limits and perspectives of research

This research suffers from certain limitations associated with the adopted methodology. The limited number of variables and the sample chosen does not allow a generalization of the results on the advantages and disadvantages of the societal commitment of companies labeled as sustainable in Saudi Arabia.

Several avenues can be considered to continue this research. I can treat this issue by targeting both labeled and unlabeled companies as a comparative study of these two types of companies in terms of added value. In other words, I can conduct a comparative study in the same domain between Gulf countries.

Appendices and nomenclature

Appendix 1: Sample companies

Company	Sector
Advanced Petrochemical Co.	Petrochemical industries
Alujain Corp.	Petrochemical industries
Methanol Chemicals Co.	Petrochemical industries
Nama Chemicals Co.	Petrochemical industries
National Industrialization Co.	Petrochemical industries
National Petrochemical Co.	Petrochemical industries
Rabigh Refining and Petrochemical Co.	Petrochemical industries
Sahara Petrochemical Co.	Petrochemical industries
Saudi Arabia Fertilizers Co.	Petrochemical industries
Saudi Basic Industries Corp.	Petrochemical industries
Saudi Industrial Investment Group	Petrochemical industries
Saudi International Petrochemical Co.	Petrochemical industries
Saudi Kayan Petrochemical Co.	Petrochemical industries

Company	Sector
Yanbu National Petrochemical Co.	Petrochemical industries
Al Jouf Cement Co.	Cement
Arabian Cement Co.	Cement
City Cement Co.	Cement
Eastern Province Cement Co.	Cement
Hail Cement Co.	Cement
Najran Cement Co.	Cement
Northern Region Cement Co.	Cement
Qassim Cement Co.	Cement
Saudi Cement Co.	Cement
Southern Province Cement Co.	Cement
Tabuk Cement Co.	Cement
Umm Al-Qura Cement Co.	Cement
Yamama Cement Co.	Cement
Yanbu Cement Co.	Cement
Abdullah Al Othaim Markets Co.	Retail
Al Hammadi Company for Development and Investment	Retail
Aldrees Petroleum and Transport Services Co.	Retail
Alkhaleej Training and Education Co.	Retail
Dallah Healthcare Holding Co.	Retail
Fawaz Abdulaziz Alhokair Co.	Retail
Fitaihi Holding Group	Retail
Jarir Marketing Co.	Retail
Mouwasat Medical Services Co.	Retail
National Agricultural Marketing Co.	Retail
National Medical Care Co.	Retail
Saudi Automotive Services Co.	Retail
Saudi Company for Hardware	Retail
Saudi Marketing Co.	Retail
United Electronics Co.	Retail
National Gas and Industrialization Co.	Energy and utilities
Saudi Electricity Co.	Energy and utilities
Al-Jouf Agricultural Development Co.	Agriculture and food industries
Almarai Co.	Agriculture and food industries

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Company	Sector
Anaam International Holding Group	Agriculture and food industries
Ash-Sharqiyah Development Co.	Agriculture and food industries
Bishah Agricultural Development Co.	Agriculture and food industries
Halwani Bros. Co.	Agriculture and food industries
Herfy Food Services Co.	Agriculture and food industries
Jazan Development Co.	Agriculture and food industries
National Agricultural Development Co.	Agriculture and food industries
Qassim Agricultural Co.	Agriculture and food industries
Saudi Airlines Catering Co.	Agriculture and food industries
Saudi Fisheries Co.	Agriculture and food industries
Saudia Dairy and Foodstuff Co.	Agriculture and food industries
Savola Group	Agriculture and food industries
Tabuk Agricultural Development Co.	Agriculture and food industries
Wafrah for Industry and Development Co.	Agriculture and food industries
Al Abdullatif Industrial Investment Co.	Industrial investment
Al Hassan Ghazi Ibrahim Shaker Co.	Industrial investment
Al Sorayai Trading and Industrial Group	Industrial investment
Astra Industrial Group	Industrial investment
Basic Chemical Industries Co.	Industrial investment
Filing and Packing Materials Manufacturing Co.	Industrial investment
Middle East Paper Co.	Industrial investment
National Metal Manufacturing and Casting Co.	Industrial investment
Saudi Arabian Mining Co.	Industrial investment
Saudi Chemical Co.	Industrial investment
Saudi Industrial Export Co.	Industrial investment
Saudi Paper Manufacturing Co.	Industrial investment
Saudi Pharmaceutical Industries ..	Industrial investment
Takween Advanced Industries Co.	Industrial investment
The National Company for Glass Industries	Industrial investment
Abdullah A. M. Al-Khodari Sons Co.	Building and construction
Al-Babtain Power and Telecommunication Co.	Building and construction
Arabian Pipes Co.	Building and construction
Bawan Co.	Building and construction

Company	Sector
Electrical Industries Co.	Building and construction
Middle East Specialized Cables Co.	Building and construction
Mohammad Al Mojil Group	Building and construction
National Gypsum Co.	Building and construction
Red Sea Housing Services Co.	Building and construction
Saudi Arabian Amiantit Co.	Building and construction
Saudi Cable Co.	Building and construction
Saudi Ceramic Co.	Building and construction
Saudi Industrial Development Co.	Building and construction
Saudi Steel Pipe Co.	Building and construction
Saudi Vitrified Clay Pipes Co.	Building and construction
United Wire Factories Co.	Building and construction
Zamil Industrial Investment Co.	Building and construction

Appendix 2: Terms of sustainability reporting index

Dimensions	Terms
Expenditures and risks	• Investments • Operation costs • Future investments • Future operating costs • Financing for investments • Environmental debts • Risk provisions • Risk litigation • Provision for future expenditures
Laws and regulations conformity	• Litigation, actual and potential • Fines • Orders to conform • Corrective action • Incidents • Future legislation and regulations

Dimensions	Terms
Pollution abatement	• Emission of pollutants • Discharges • Waste management • Installation and process controls • Compliance status of facilities • Noise and odors
Sustainable development	• Natural resource conservation • Recycling • Life cycle information
Land remediation and contamination	• Sites • Efforts of remediation • Potential liability remediation • Implicit liability • Spills (number, nature, efforts of reduction)
Environmental management	• Environmental policies or company concern for the Environment • Environmental management system • Environmental auditing • Goals and targets • Awards • Department, group, service affected to the environment • ISO 14000 • Involvement of the firm in the development of environmental standards • Involvement in environmental organizations • Joint projects with other firms providing environmental management services
Labor practices and decent work	• Absenteeism and reasons • Employment opportunities • Labor rights/job creation • Rehiring, accompanying, social communication • Equity programs • Human capital development/training • Accidents at work • Health and safety programs • Employee savings

Dimensions	Terms
Society	• Regional development • Gifts and sponsorships • Business ethics/measures anticorruption • Strategic alliances • Community involvement • Dispositions of the International Labor Organization • Relations with stakeholders (environmental groups, consumer associations, …)
Consumer and product responsibility	• Purchases of goods and services • Product-related incidents • Product development and environment • Consumer health and safety/product safety

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