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Earnings management for sustainability: the surplus income model of sustainable development

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Abstract

The purpose of this paper is to develop a new model or approach to earnings management for sustainability. The challenges posed by climate change and environmental degradation have stimulated interest in sustainability. But such interest has not led to the development of new models that demonstrate how earnings management by firms can contribute to sustainability and sustainable development. I show that the surplus income model allows a firm to contribute or donate to a relevant sustainability activity or project out of its surplus income. Under this model, managers have an incentive to generate surplus income from which they can contribute to a relevant sustainability activity or project, thereby making the firm a champion of sustainability.

Keywords: Earnings management, surplus income model, income smoothing, income targeting, tax rebate, environment, sustainability, sustainable development, accounting, managerial discretion.

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1. Introduction

The objective of the paper is to develop a new model or approach to earnings management for sustainability.

Earnings management has consequences. It lowers earnings quality and increases the opacity of firms' financial reporting (Lo, 2008). Critics of earnings management point out that earnings management is mostly opportunistic (Chung et al, 2002), while proponents of earnings management argue that firms engage in earnings management for good reasons even though earnings management is more persistent in certain industries (Jiraporn et al, 2008; El Sood, 2012). External events, such as a crisis, can induce firms to manage earnings for non-opportunistic reasons especially when survival is more important to firms than the need to receive high bonuses in bad times (El Sood, 2012; Peterson and Thankom, 2018).

One external factor that firms have begun to think about is sustainability risks or climate change (Dumay and Hossain, 2019; Kim et al, 2019; Weber et al, 2010). Many firms are already embracing environmental, social and governance (ESG) reporting which collectively describes sustainability reporting or sustainability accounting (Bachoo et al, 2013; Du et al, 2017; Bergmann and Posch, 2018).

This paper presents a surplus income model. The model shows the linkage between firms' income and sustainability. The model presents a view of total income that is different from the conventional view of total income. The surplus income model depicts that total income consists of the target income component and the surplus income component. I show that a firm can contribute meaningful to a sustainability activity or project from the surplus income it generates. I also show that a tax rebate can further encourage firms to continue its contribution to a relevant sustainability activity or project from surplus income.

This paper contributes to the literature in the following way. Firstly, this paper contributes to the literature on accounting for society and the environment. Several studies in this literature argue that accounting tools can be used to disclose the impact of firms' activities on the environment, and such disclosures can meet the broad interest of stakeholders in society while paying attention to environmental protection (see. West, 1993; Burchell et al, 1980; Burchell et al, 1985). The paper contributes to this literature by showing how accounting can contribute to society through targeted profit allocation decisions. Secondly, this paper contributes to the sustainable development literature. Studies in this literature encourage firms to actively participate in sustainability activities towards achieving the sustainable development goals. The present study develops a model that demonstrate how firms can meaningfully support sustainability activities from surplus income in the interest of sustainable development. Finally, this study contributes to the financial reporting literature by showing that the desire to generate surplus income, which

can be donated to a relevant sustainability activity or project, can motivate managers to engage in earnings management which reduces earnings quality but contributes positively towards sustainability.

The rest of the paper is structured as follows. Section 2 presents the conceptual framework and literature review. Section 3 introduces the income targeting approach. Section 4 provides a conceptual discussion of the surplus income model. Section 5 presents the surplus income model. Section 6 concludes.

2. Conceptual Framework and Literature Review

2.1. Conceptual framework

Earnings management is the alteration of firms' reported economic performance by insiders to either mislead some stakeholders or to influence contractual outcomes (Healy and Wahlen, 1999; Leuz et al, 2003). Sustainability is the ability to use existing natural resources to improve the quality of human life in the present without depleting natural resources for the future. Sustainability is based on three pillars: social development, economic development and environmental protection (Purvis et al, 2019). Firms engage in earnings management to report persistent profit. A firm is considered to be sustainable when it is persistently profitable. Conversely, a firm is considered to be unsustainable when it reports persistent losses. A sustainable firm can contribute to an activity which the firm believes in, for instance, a firm can contribute to a social equity activity or economic development project which the firm believes will lead to greater sustainability outcomes in society. Earnings management is the link that connects managerial discretion to sustainability because managers will manage earnings in order to report persistent profits which allows the firm to contribute to a relevant sustainability activity or project from its profit. Thus, understanding how earnings management contributes to sustainability is important because it provide insights into how firms manage earnings to address sustainability concerns.

2.2. Priority theory of sustainable finance

One theory that best describes the contribution of firm profit to sustainability is the priority theory of sustainable finance. The priority theory of sustainable finance argues that a firm's financial contribution to a relevant sustainability project or activity is a true reflection of the priority given to sustainability by the firm at a particular time (Ozili, 2022a). The theory further argues that the priority a firm gives to funding sustainability activities is influenced by: (i) the effort put together by the firm towards achieving sustainable finance goals, (ii) how quickly or slowly a decision is reached, (iii) how quickly or slowly actions are taken to achieve sustainable

finance goals, and (iv) the willingness to trade-off other goals in pursuit of funding a relevant sustainability activity or project (Ozili, 2022a). The theory also show that these priorities may change over time in response to changing realities in the firm or industry (Ozili, 2022a). The theory shows that although firms may have multiple important priorities, managers can use their discretion to prioritize the allocation of surplus profit to fund a relevant sustainability activity or project.

2.3. Literature review

Early studies sought to identify ways in which accounting can become more relevant to society and the associated challenges. Gray (1992) shows that social accounting received little interest from accountants in the last two decades while Lewis et al (1992) advocated that social accounting should be taught as a course in universities. Gray (2002) reviewed the social accounting literature of the last 25 years, and show that social accounting projects have advanced over the years while Hopwood (2009) show that accounting is becoming more useful in society particularly in accounting for carbon emission permits and in accounting for corporate environmental reporting.

Other studies offer some perspectives on how accounting can contribute to sustainability. These studies focus on the social and environmental dimensions of sustainability. For instance, Milne (1996) suggests that management accounting can become more relevant to sustainability when additional developments are introduced in management decision-making such as social cost-benefit analysis and non-market valuation techniques. Kaur and Lodhia (2018) suggest that stakeholder involvement is needed for the development of sustainability indicators for sustainability reporting. Schaltegger and Csutora (2012) explore the accounting for carbon and argue that carbon accounting can support carbon management by providing accounts dedicated for carbon sustainability improvements, and that carbon management accounting can support decision-making in all levels of an organization.

Some studies offered a critical perspective on the accounting for sustainability. Burritt and Schaltegger (2014) show that accounting for sustainability in supply chains is faced with many challenges such as the problems of scope and terminology, lack of a broad sustainability focus, and the difficulty in determining what information is relevant to different functional managers. Schneider (2015) suggests that a firm's stakeholders would need to participate in sustainability accounting and management, but participative sustainability accounting maybe difficult to achieve in practice due to the risk of misbalancing single aspects of sustainability. The author suggests that an ongoing reflection of the relationship between the goals of corporate sustainability and the overarching objectives of sustainable development is needed for effective stakeholder participation in sustainability accounting. Gray and Bebbington (2000) offered some word of caution on the growing enthusiasm towards environmental accounting. They warned

that accounting, and accounting research, has a mostly managerialist focus, and therefore accounting may contribute to promoting the conventional business agenda of profit making at the expense of environmental protection especially in the pursuit of sustainability. The implication of their caveat is that the 'managerialist' focus of accounting might be a setback for accounting to contribute meaningfully to sustainability.

Recent studies have also examined some aspects of the accounting for sustainable development. Roberts et al (2021) reviewed the literature on the accounting for biodiversity and species extinction. They find a relationship between the human destruction of biodiversity and the recent Covid-19 crisis. Dhar (2022) argues that firms should implement green accounting because green accounting presents an opportunity for firms to grow greener by promoting sustainability. Abhayawansa, Adams and Neesham (2021) show that transparency and stakeholder participation are important considerations in the accounting, accountability and governance for sustainable development. Pizzi et al (2022) observe that companies operating in institutional environments that encourage long term orientation in assessing organizational performance are more oriented to disclose their contributions to the SDGs. Sisaye (2021) shows that sustainability accounting rulemaking has evolved overtime and has improved the extent and scope of environmental and economic performance that businesses disclose in the global reporting initiative. Tregidga and Laine (2022) argue that the construction of 'environmental accounting' as accounting for the long-term contributes to the construction of the environment as lacking urgency, and potentially enables its marginalisation. They argue that in order to make the most of accounting's potential as a constitutive force, environmental accounting needs to be about the short-term orientation. Dhar et al (2022) analyse the role of green accounting on the sustainable development capabilities of heavily polluting companies in Bangladesh from 2010 to 2019. They assess 212 listed companies under the Dhaka Stock Exchange. They find that the effective implementation of green accounting significantly improved the sustainable development capabilities of heavily polluting companies. They also find a significant positive correlation between the quality of social responsibility information disclosure and the sustainable development capabilities of heavily polluting companies. Falih Chichan and Alabdullah (2021) examine the role of environmental management accounting in providing information that might influence decisions related to environmental protection and preservation of natural resources in Iraqi industrial firms. They conduct a survey which contained a questionnaire focused only on the social dimension of sustainable development. They find that Iraqi industrial companies have an awareness of environmental management accounting concepts. Jaff et al (2021) assess the impact of sustainability disclosures on the quality of financial reports in Iraq. In the study, 91 financial reports of listed commercial banks were analysed for the period 2012 - 2018. They found that sustainability disclosures have a positive impact on the quality of financial reports in commercial banks in Iraq. Elalfy et al (2021) investigate the factors

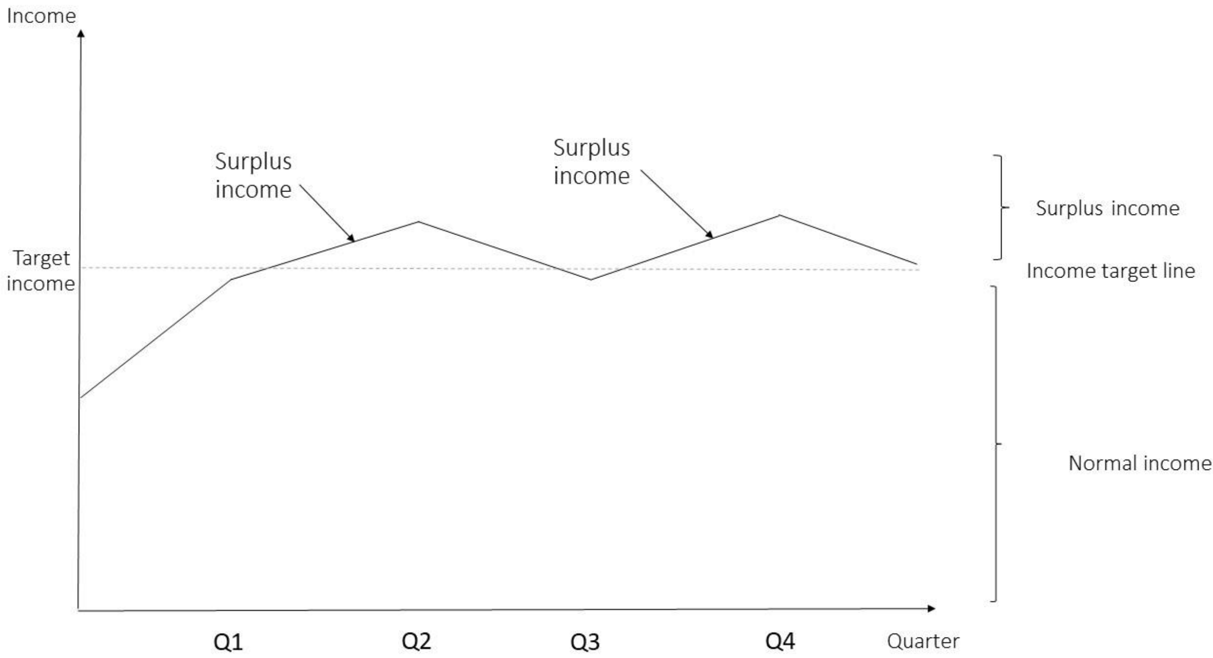
that influence the adoption of the sustainable development goals by organizations. They analyzed the Global Reporting Initiative (GRI) dataset which consist of 14,308 reports from 9,397 organizations between 2016 and 2017. They find that (i) larger organizations are more likely to integrate the SDGs into their reporting than smaller organizations, (ii) publicly listed firms are more likely to address the SDGs, and (iii) industries with higher sustainability impacts are more likely to address the SDGs in their reporting. Gola et al (2022) point out that even though many companies have started making environmental disclosures in their annual reports, these practices are still largely voluntary in nature. In their analysis of companies taken from Nifty 50 based on the summary of Global Reporting Standards, they find 29 count of environment-related disclosures in the annual reports, and the 29 counts where mostly in the energy, cement and metal sectors.

Despite the considerable number of studies on accounting for sustainability, no studies have explicitly examined the relationship between managerial discretion and sustainability. This study develops a model that describe how firms can contribute to sustainability, and how this approach gives managers an incentive to influence financial reporting outcomes in the interest of sustainability.

3. Income targeting approach

Income targeting is an approach that involves adjusting income to achieve a specified income target. The principle of income targeting is based on the belief that sustainable income or profit of a firm is best achieved by setting a reasonable income target, achieving the income target and maintaining the income target consistently. Income targeting primarily focuses on maintaining income stability, and it supports the sustainability of the firm in the short and long term. The 'target income' is the reported after-tax income in the financial statement of firms. Any income above the target income is surplus income. In figure 1, any income above the income target line is the surplus income. The income targeting approach allows a firm to identify a convenient after-tax income threshold or target. It allows the firm to meet its obligations to shareholders and creditors from target income while at the same time allocating any surplus income to other uses.

Figure 1: income targeting approach



Source: Author

4. The Surplus income model for sustainability

When a firm generates surplus income, or income above the target income, the surplus income is allocated to other uses. In the model, I show that a portion of the surplus income can be allocated to a relevant sustainability activity or project while the other portion may be used to mitigate sustainability risks or for contingent earning management purposes.

4.1. Donating a portion of surplus income to a relevant sustainability cause

Firms can allocate or donate a portion of any surplus income (i.e., income above the target income threshold) to a relevant sustainability activity or project such as a social sustainability programme, environmental protection project or a climate change mitigation activity. Such donation allows a firm to contribute meaningfully to sustainability, and it eliminates opportunities for green washing.[1] The donated income becomes available to private and public sector agents that need funding to address the most pressing risks to sustainability in society and the environment.

4.2. Using a portion of surplus income to manage sustainability risk

A firm can also use a portion of the surplus income to save for the rainy day. A portion of any income above the target income can be saved so that the saved income becomes available to the firm for mitigating the impact of unfavorable environmental and social events on the firm. The saved income acts as a cost-free self-insurance against unexpected risk that threatens the sustainability of the firm.

4.3. Using residual surplus income for contingent earnings management

Provided that the firm has performed the steps in sections 4.1. and 4.2., the firm can then use the remaining surplus income to manage earnings in periods when realised income does not meet the target income threshold. A firm can achieve this by increasing low profit or reducing the size of reported losses in the firm. When profit is too low in the current period, the firm can use the residual surplus income from the previous period to increase profit in the current period. Also, when the firm reports a loss in the current period, the firm can use the residual surplus income from a previous period to reduce the size of the loss in the current period. This type of income smoothing or earnings management is common among firms, and the literature document evidence that firms engage in this type of income smoothing behaviour (see Baik et al, 2020; Tucker and Zarowin, 2006; Ozili, 2022b).

[1] Greenwashing occurs when a firm covey the impression that it cares about the environment but its actions does not support such claim (Delmas and Burbano, 2011; Mahoney et al, 2013)

4.4. Reward for allocating profit to sustainability

When firms donate profit to a relevant sustainability activity or project, they lose the profit. There should be some incentive or reward to firms that contribute meaningfully to sustainability so that the behavior can be repeated. This idea is consistent with the Skinner theory of operant conditioning which states that a behavior that is rewarded will be repeated. For instance, the tax authorities can give a tax rebate to firms that donate their profit to some relevant sustainability activity or project. This will encourage firms to contribute to sustainability. Other firms that did not previously contribute to sustainability may become interested in contributing to sustainability when they become aware that they will receive a tax rebate for contributing to sustainability. A tax rebate is one type of reward or incentive that might be used. Other types of incentive or reward can also be used.

5. The Surplus Income Model

5.1. Total profit (πt)

Assume that the total profit of a firm depends on the target income of the firm and any surplus income above the target income (see the target income line in figure 1).

Total profit (π_t) = target income (P_t) + any surplus income or income above the target income threshold (ϴt)

$$\pi t = P_t + \theta_t ---- equation\ (1)$$

where, Θ_t = surplus income of the firm for the period, t = period, P_t = target income of the firm for the period.

5.2. Donating to a relevant sustainability activity or project

When a firm voluntarily donates to a relevant sustainability activity or project (Θ_2), its total profit will be:

Mathematically,

$$\pi_t = P_t + \theta_t ---- equation\ (1)$$

Θ_t is divided into three components θ_1, θ_2 and θ_3

$$\theta t = \theta_1 + \theta_2 + \theta_3$$

where, Θ_2 = portion of surplus income allocated to a relevant sustainability activity or project. t = period. Pt = target income (or after-tax profit). Θ_1 = portion of surplus income allocated to mitigate sustainability risk. Θ_3 = portion of surplus income allocated for contingent earnings management.

A weight is then assigned to the three surplus income components. Assume a weight of 25%, 50% and 25%. A higher weight is assigned to Θ_2 because the firm wants to make a significant contribution to sustainability.

Therefore,

$$\theta t = 0.25\theta_1 + \mathbf{0.5}\boldsymbol{\theta}_{\mathbf{2}} + 0.25\theta_3 ---- equation\ (2)$$

Insert equation (2) into equation (1) to derive the model in equation (3) below:

$$\pi_t = P_t + [0.25\theta_1 + \mathbf{0.5}\boldsymbol{\theta}_{\mathbf{2}} + 0.25\theta_3] ---- equation\ (3)$$

The model in equation (3) is the surplus income model.

5.3. Effect of a tax rebate

Assume the authorities want to reward firms that contribute to sustainability by offering them a tax rebate, r. When a tax rebate is offered to a firm that voluntarily contribute or donate to a relevant sustainability activity or project, its total profit will increase because the tax rebate is applied on the target income.

Mathematically,

$$\pi_t = P_t(1 + r) + \theta_t ---- equation\ (4)$$

where, r = tax rebate; Θ_t = surplus income; t = period.

Recall that Θ_t is divided into three components Θ_1, Θ_2 and Θ_3 and some weights were assigned to them.

Next, expand equation (4) to reflect the surplus income components

$$\pi_t = P_t(1 + r) + [0.25\theta_1 + 0.5\theta_2 + 0.25\theta_3] ---- equation\ (5)$$

Equation (5) above shows the effect of tax rebate on total profit. The model shows that a tax rebate has a direct positive effect on target income (or after-tax profit) and has no effect on surplus income. The implication is that a tax rebate does not lead to an increase in the amount of surplus income allocated to a relevant sustainability activity or project. The tax rebate only helps a firm to recover a part of the target income paid out in taxes, and the presence of tax rebate can encourage firms to donate a portion of surplus income to a relevant sustainability activity or project on a consistent basis.

5.4. An illustration

In this section, I illustrate the model with hypothetical number. Assume a firm's after-tax earnings forecast (or target income) is $10,000. The firm exceeds its forecast and reports an after-tax profit of $14,500. The firm's surplus income is $4,500. Assume the firm voluntarily allocates 25% of the surplus income to managing sustainability risks, donates 50% to the Solar Green Project in the local community where it operates, and allocates the remaining 25% for contingent earnings management purposes. Also, assume that the tax authority grants a tax rebate of 20% to firms that contribute to a relevant sustainability project. What is the total profit using the surplus income model with and without a tax rebate? What is the amount contributed to sustainability in the two cases?

(i) Total profit (π_t) (without rebate)

$$\pi_t = P_t + \theta_t$$

= 10,000 + 4,500

= 10,000 + [0.25*(4,500) + **0.5*(4,500)** + 0.25*(4,500)]

= 10,000 + [1,125 + **2,250** + 1,125]

= 10,000 + 4,500 = 14,500

Total profit is $14,500. The portion of surplus profit donated to a relevant sustainability activity is $2,250.

(ii) Total profit with a tax rebate (π_{tr})

$$\pi_{tr} = P_t(1 + r) + \theta_t$$

= 10,000*(1+0.2) + 4,500

= 10,000*(1.2) + [0.25*(4,500) + **0.5*(4,500)** + 0.25*(4,500)]

= 12,000 + [1,125 + **2,250** + 1,125]

= 12,000 + 4,500 = 16,500

The total profit is $16,500. The portion of surplus income donated for sustainability is $2,250.

Note that total profit of the firm that enjoys a tax rebate is $16,500 which is higher than the total profit without a tax rebate of $14,500. The 20% tax rebate has a direct effect on the target income (or after-tax profit) and has no effect on surplus income as the surplus income remains the same

at $2,250 with or without tax rebate. The implication is that, although a tax rebate increases the target income, it does not necessarily lead to an increase in the amount of surplus income donated to a relevant sustainability activity or project.

5.5. Implication of the model

The implication of the surplus income model is that a firm's propensity to contribute to sustainability depends on its ability to generate surplus income. When a firm generates surplus income, a portion of the surplus income of the firm can be contributed to a relevant sustainability activity or project. In the absence of surplus income, or when surplus income is zero or when realized income falls below the target income, the firm does not contribute to sustainability.

External incentives can play an important role in influencing firms to contribute to sustainability. The model showed that external incentives, such as a tax rebate, can act as a reward or compensation to firms for contributing to sustainability. Such incentives can encourage firms to generate surplus income so that a specific portion of the surplus income can be donated to a relevant sustainability activity or project. Although a tax rebate does not have a direct effect on surplus income, it has a more direct effect on the target income (or after-tax profit) because firms can use the tax rebate as saved income for the next financial year.

5.6. Implication for managers

The implication for managers is that it gives managers an ethical incentive to seek surplus income or higher profits. Managers will be motivated[2] to generate surplus profit so that the firm can support sustainability projects and activities, and by so doing, the firm can retain its legitimacy and acceptance in society. Also, the surplus income approach mitigates the desire of managers to seek higher profits solely for bonus compensation purposes. Under the surplus income approach, managers can begin to think of new ways to generate surplus income and make donations towards sustainability. Furthermore, when firms are assured of a tax rebate, managers will not only be motivated to generate surplus income (i.e., income above target income) for the firm, they will also be willing to donate a specific amount of surplus income to a relevant sustainability activity or project. Such actions allow a firm to be considered a "champion of sustainability".

[2] Firm-specific incentives, such as bonus and stock ownership, can be offered to managers to motivate them to generate surplus income for the firm

6. Conclusion

This paper examined earnings management for sustainability by firms. The paper developed a surplus income model. The model showed that the income targeting approach divides a firm's profit into the target income component and the surplus income component, and firms can contribute to sustainability from surplus income. I argued that firms adopting the income-targeting approach can donate a portion of surplus income to a relevant sustainability activity or project. The residual surplus income can be used for sustainability risk management or for contingent earnings management purposes such as to increase low profit or to reduce the size of losses in the future. The implication of the model is that a firm can earn the legitimate right to manage its earnings when the firm contributes meaningfully to sustainability by donating a portion of surplus income to a relevant sustainability activity or project.

The insights offered in this paper are useful to sustainability advocates. It can help policy makers to understand how firms' profit making activities can contribute directly to social and environmental sustainability. While the author does not suggest that policies should be introduced that compel firms to donate their profit to sustainability causes, the author believes that firms can voluntarily donate surplus profit to a relevant sustainability activity or project if such firms want to be considered as 'champions of sustainability'.

The limitation of the surplus income model is that it does not recognize donations to sustainability activities from realised income or the target income – it focuses only on surplus income. It assumes that firms that do not generate surplus income do not donate or contribute to sustainability activities. In reality, some firms that do not generate any surplus income may donate to sustainability activities from retained earnings after paying out dividends to shareholders while other firms may charge such donations as an expense in the income statement.

Future research can adjust or refine the surplus income model to reflect other accounting and non-accounting considerations. Future studies can also examine whether the managers' incentive to generate surplus income for sustainability reasons is stronger than the incentive to manage earnings for bonus compensation reasons.

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