Nijmegen School of Management
Department of Economics and Business Economics
Master's Thesis Economics (MAN-MTHEC)

The relationship between earnings management and corporate social responsibility: The moderating effect of corporate life cycle stages

By Thinh Nguyen Ngo Phuc (S1101146)

Nijmegen, 30 June 2023

Program: Master's Program in Economics
Specialisation: Accounting and Control
Supervisor: Dr. Daniel Reimsbach

Radboud Universiteit

Abstract

This study investigates the impact of corporate social responsibility (CSR) on earnings management (EM), focusing on the moderating effect of the corporate life cycle. A sample of 497 listed companies from the US and European markets across eight industries from 2011 to 2021 is utilized for multiple regression analyses. Findings reveal that CSR has a stronger adverse effect on real EM than accrual EM and the direct association between real EM and accrual EM is identified. Interestingly, the results indicate that the negative relationship between CSR and EM is reversed during the introductory stage of the corporate life cycle. Overall, this study contributes to the research field on how CSR impacts EM and highlights the importance of considering the corporate life cycle as a moderating factor in this relationship.

Keywords: Earnings Management, Corporate Social Responsibility, Corporate Life Cycle

Table of Contents

List of figure and tables

1 Introduction

Nowadays, corporate social responsibility (CSR) is recognized as a crucial aspect in fostering strong stakeholder relationships, enhancing brand reputation in society, and attracting external investments. CSR provides companies with a powerful platform to showcase their dedication to aligning management performance with societal values. It involves initiatives beyond financial considerations, focusing on environmental sustainability, community welfare, and employee well-being. Through active participation in CSR, companies acknowledge their responsibility to make positive contributions to society. Integrating CSR into business core operations promotes ethical and sustainable practices, strengthens stakeholder relationships, and offers significant long-term benefits. It enhanced reputation, improved brand image, and increased customer loyalty. According to the research conducted by Godfrey et al. (2009), the implementation of CSR initiatives has been identified as a valuable risk management tool for companies to mitigate potential negative events and safeguard the company's reputation in the eyes of society.

Numerous previous research studies have delved into the captivating subject of how CSR influences earnings management. According to Hong & Andersen (2011) findings, companies prioritising their CSR performance observe a decline in the degree of manipulation in earnings management. This leads to a more precise and transparent portrayal of financial and non-financial information, benefiting stakeholders by providing accurate insights. Y. Kim et al. (2012) conducted a comprehensive study that firms that actively engage in CSR activities tend to adopt conservative accounting policies, aiming to present more truthful and reliable financial reporting. By contrast, Prior et al. (2008) propose that top managers frequently employ CSR activities to mask their manipulation of earnings management. They contend that by participating in CSR practices, these managers create a protective cover that can help hide their manipulative actions from stakeholders in the event of scrutiny.

In light of mentioned findings, it is important to recognize that managers may employ different strategies and decision-making processes based on various financial conditions at different stages. This can potentially result in varying levels of earnings management as they navigate through different stages and circumstances. The relationship between CSR and earnings management is multifaceted, especially in different periods. Therefore, this research aims to delve deeper into the impact of CSR performance on earnings management across various stages of the corporate cycle. By examining this relationship, the research aims to provide valuable insights that can assist stakeholders in making informed investment decisions.

The dataset utilized in this study is gathered from the Refinitiv Eikon database, covering the period from 2011 to 2021 and consisting of 497 listed companies across eight industries in the US and European markets. To measure earnings management, two approaches are employed such as accrual earnings management and real earnings management. Accrual earnings management is assessed through discretionary accrual, utilizing the modified Jones model developed by Dechow et al. (1995) to capture potential earnings management manipulation. This modified model offers advantages over the original version from Jones (1991) by incorporating additional elements that represent discretionary accruals, such as accrued revenues. Real earnings management is evaluated based on abnormal operating cash flow, abnormal product costs, and abnormal discretionary expenditures derived from the model proposed by Roychowdhury (2006). These measures are determined through a combination of industry, country, and year variables, employing pooled Ordinary Least Squares regression analysis. The research adopts a quantitative approach to analyse earnings management and employs the Fixed Effects Model (FEM) to estimate a balanced panel data model. To determine the corporate life stages of firms, the methodology outlined by Dickinson (2011) is utilized, which involves a combination of operating cash flows, investing cash flows, and financing cash flows. This classification results in five stages: introductory, growth, maturity, decline, and shake-out, providing insights into different phases of a firm’s life cycle. The hypothesized models are estimated using a Time and Firm Fixed Effects Model, incorporating relevant tests to assess the validity of the estimated relationships.

This research strives to uncover three significant findings throughout the empirical analysis of the collected dataset. Firstly, the analysis demonstrates that CSR has a more substantial negative effect on real earnings management than accrual earnings management. This implies that companies with a strong CSR orientation prefer utilizing accrual earnings management for financial reporting adjustment than engaging in abnormal activities associated with real earnings management. Secondly, the research identifies a direct relationship between real earnings management and accrual-based earnings management. It reveals that when top management intervenes in regular business activities, they also manipulate the corresponding financial data by accrual earnings management to align with their intention in real earnings management. This allows companies to present misleading financial to stakeholders by using both approaches simultaneously. Lastly, the research highlights the impact of CSR performance on earnings manipulation during the introduction stage. During this phase, managers are motivated to manipulate earnings to lower the cost of debt or enhance the company's financial performance as perceived by stakeholders. This strategic manipulation aims to secure necessary funds, as firms in the introduction stage often require substantial investments for future development projects. These findings shed light on the intricate relationship between CSR and earnings management across different stages of a company's lifecycle.

This research is structured into the following key sections:

Chapter 1 provides a brief introduction and research summarization

Chapter 2 delves into the theoretical foundations, literature reviews and hypotheses development

Chapter 3 outlines the research methodology and variables measurement

Chapter 4 presents descriptive statistics and empirical results

Chapter 5 discusses the main findings and outlines limitations.

2 Theoretical foundations and hypothesis development

2.1 Earnings management

The accounting field employs two fundamental bookkeeping approaches, which are the cash basis and the accrual basis. The critical factor that distinguishes them is the time of recognition. Dechow & Skinner (2000) stated that the accrual method aids in reducing fluctuations in business performance records, providing investors with more informative and predictive data than the cash method. In a subsequent study, Barth et al. (2001) discovered that the optimal method for predicting future operating cash flows is the combination of disaggregated accruals with operating cash flows. They found that while discretionary accrual, like accounts receivable, was recorded at the time of revenue recognition, cash-based variables recorded at the time of cash collection provided insight into the inflow of funds required to monitor afterwards in the Order to Cash process.

Although the accrual approach has advantages, Guidry et al. (1999) pointed out its drawbacks. Specifically, their research found a positive relationship between managers' income and discretionary accruals for short-term bonuses. Another same finding from Shuto (2007) is conducted for Japan market. He recognized that managers intend to manipulate discretionary accrual to boost executive member compensation and get rewards from bonuses. On the other hand, the decline of the accrual income indicates that managers have less chance to achieve the target bonus as their expectation. Bonollo (2022) mentioned that a primary concern is a potential for financial statement manipulation or "window dressing", which may hinder stakeholders from getting a true and fair view of a company's performance. Managers may artificially adjust revenue or expenses between periods by manipulating the timing of recognition, thereby creating a false impression of the company's performance. As a result, accruals have been viewed as the fundamental basis of earnings management. There are two types of earnings management, including accrual-based earnings management and real earnings management.

Considerable research has been conducted to conceptualize the definition of earnings management. Schipper (1989) posited that top management might utilize earnings management as a strategic tool to manipulate financial statements for their benefit. Later on, Healy & Wahlen (1999) characterized earnings management as a tactic employed by

top managers to deceive stakeholders about the "true and fair view" performance of the business by using "window dressing" techniques in financial statements to achieve specific compensation goals. Akers et al. (2007) defined earnings management as manipulating deferred variables in financial reporting, particularly revenue and expense recognition, to achieve target compensation. To summarize, accrual-based earnings management has been considered as a strategy that uses accrual estimation to shape the perceptions of stakeholders toward the financial status of a company for private purposes.

There are various significant discoveries about the diverse incentives to drive earnings management, which include capital market, regulation, and contracting. In terms of capital market motivation, Wu (1997) observed that managers sought to decrease accrual earnings, leveraging the decrease in stock prices to prepare for management buyouts. Healy & Wahlen (1999) argued that top managers aimed to strategically adjust financial statements to achieve anticipated short-term stock price values. Burgstahler & Eames (2006) found that management teams engaged in earnings management practices regardless of upward or downward trend as long as it produced results aligned with the predicted outcomes from corporate financial analysts. The objective of adopting such an approach is to obtain a favourable assessment from the market ultimately.

Sweeney (1994) examined how managers responded to the risk of violating debt covenants from a contractual motivation perspective. The study revealed that managers aimed to leverage net income figures after breaching the debt repayment agreement to maintain a favourable financial position under the scrutiny of stakeholders. Regarding regulatory motivation, Marques et al. (2011) observed that regulatory motivation was one of the reasons why some companies in Portugal engaged in earnings management practices. Specifically, these companies manipulated their earnings and profits to decrease them as much as possible to secure a more favourable tax rate.

Regarding accrual-based earnings management, Healy (1985) proposed that management's intentions could distinguish discretionary accruals from non-discretionary accruals in accrual-based earnings management. Discretionary accruals are influenced by top management to meet their targets, while non-discretionary accruals follow

accounting policies and are not influenced by them. Healy was the pioneer who first introduced a measurement model for earnings management that accounted for both discretionary and non-discretionary accruals. Afterwards, Hong & Andersen (2011) found no relationship between accrual-based earnings management and cash flows. Specifically, changes in estimating deferral liability in warranty impact accrual earnings and not future cash flows.

On the other hand, Roychowdhury (2006) introduced the term "real activities manipulation" as a management strategy that disregards regular business operations to attain short-term objectives. Real earnings management may entail various tactics, such as lowering advertising or market research expenses, increasing discounts on selling prices or mass-producing products to decrease overall administrative costs. She discovered that this form of earnings management adversely correlates with future operating cash flows. Conversely, Hong & Andersen (2011) determined no direct relationship between accrual-based earnings management and cash flow.

Roychowdhury (2006) found that it is challenging for external auditors and regulators to detect real activities manipulation compared to accrual-based earnings management. Enomoto et al. (2015) discovered that top management in countries with high stakeholder protection tends to evaluate real earnings management, whereas those in countries with low stakeholder protection favour accrual-based earnings management. Cohen et al. (2008) argued that accrual-based earnings management is more cost-effective than real earnings management since it aligns with normal business performance. Achleitner et al. (2014) suggested that local firms prefer accrual-based earnings management due to traditional value protection, while international firms prioritize real earnings management. However, determining a preferable approach for a specific market is challenging since both methods have strengths and weaknesses. Hence, this study aims to examine both approaches to measure earnings management.

2.2 CSR performance

Drucker (1984) laid the groundwork for the correlation between company earnings and society, giving businesses a competitive edge in the market, which serves as the basis for philanthropic responsibility. Later, Carroll (1991) developed the pyramid model as a

conceptual framework for CSR, encompassing four components such as economic, legal, ethical, and philanthropic. This pyramid model is visualised in figure 1 below. The economic component serves as the pyramid's foundation, representing the company's responsibility for generating value and ensuring profitability for shareholders. This model was initially built for developed countries.

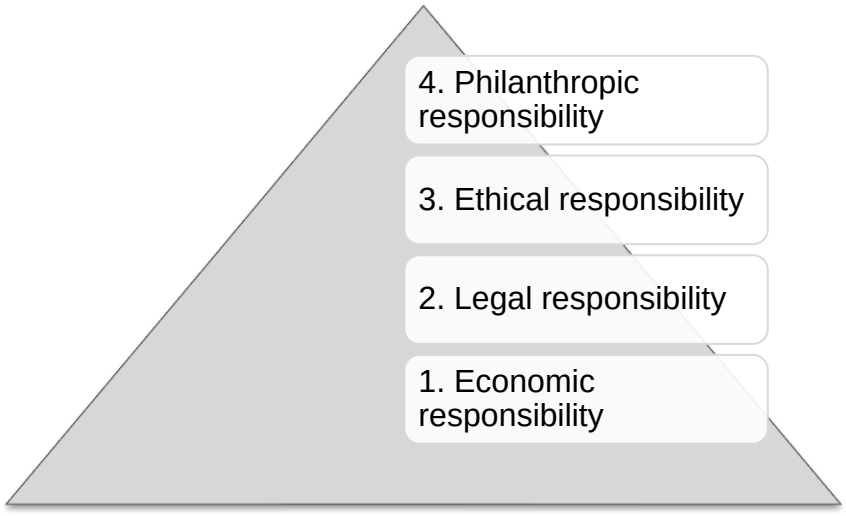

Figure 1: Carroll's Pyramid of CSR (1991)

Building upon the foundation of economic responsibility is the obligation to comply with regulations, representing the second tier of the pyramid model. This involves adhering to the necessary current laws and regulations. The third tier of the pyramid model is an ethical responsibility, which encompasses how a company goes beyond simply complying with government regulations to act ethically. The philanthropic responsibility at the top of the pyramid model portrays the company's commitment to enhancing societal welfare through charitable contributions, volunteering, and other comparable endeavours. Visser (2010) corroborated these findings, particularly for developing regions such as Africa, and emphasized the importance of reorganizing Carroll's CSR model to align with specific country circumstances. The suggested priority order of the pyramid, from bottom to top, is economic responsibility, legal responsibility, philanthropic responsibility, and ethical responsibility.

Carroll (2016) revised the CSR pyramid framework in 2016 and observed that the four factors had a mutually dependent relationship. Ethical motivation was a crucial factor

integral to all the other factors. Given the significance of upholding business ethics, it not only proved essential in achieving favourable returns for shareholders but also facilitated the surpassing minimum legal requirements and voluntarily participating in philanthropic activities. Although balancing these factors simultaneously, particularly in the short term, can be challenging, companies prioritising CSR activities can reap long-term benefits such as improved reputation, sustainable development, competitive advantages, and risk mitigation.

The array of CSR conceptualizations, as mentioned above, primarily emphasizes the non-financial information of corporations, aligning with the evolving understanding of how companies respond to economic, social, and governance (ESG) considerations.

In the realm of CSR, ESG is widely recognized as a conceptual framework to promote its brand and core values through social responsibilities. Each company adopts its strategy to translate its corporate CSR performance into practical actions. A joint research study conducted by international consulting firms, McKinsey and Nielsen, revealed that between 2017 and 2022, researched by Frey et al. (2023), 70% of US consumers preferred sustainable products from companies that demonstrated a strong commitment to CSR performance, particularly about the environment and society. By utilizing CSR performance, companies can showcase their efforts to stakeholders and manage their brand reputation through carbon reduction, local charity support, workforce diversification, and other impactful actions.

2.3 Relationship between CSR and earnings management

The multitude of prior research studies has extensively explored the intriguing topic of the impact of CSR on earnings management. Hong & Andersen (2011) identified a negative correlation between CSR performance and earnings management. This was explained when the company places greater emphasis on CSR performance, the distortion in earnings management decreases. The top management aims to deliver a transparent representation of financial and non-financial information for stakeholders, aligned with long-term sustainable development with its CSR performance. Afterwards, Y. Kim et al. (2012) found similar results on the impact of CSR performance on both accrual-based and real earnings management with a broader scope. They found that the effect of

CSR performance on real-based earnings management is more significant than on accrual earnings management. To ensure a "true and fair view" in financial statements, those firms actively pursue CSR performance, intending to adopt conservative accounting policies. Consequently, this leads to a reduction in the manipulation of accruals to manage earnings. In the Asian market, both Scholtens & Kang (2013) and Tran et al. (2022) concluded that there was a negative impact between CSR performance and earnings management. These studies suggest that the more a firm performs its social responsibility, the less likely it is to manipulate earnings. Scholtens & Kang (2013) noted that companies deliberately use CSR performance data to present a positive public image compared to their competitors in the same industry, indicating their commitment to social responsibility and disavowing any intention to manipulate earnings. According to Tran et al. (2022), CSR performance data is a key indicator for assessing the long-term sustainability of a business, with a particular focus on the labour workforce and social community. Consequently, senior managers are less likely to partake in manipulative earnings management practices in order to safeguard their credibility, uphold their brand reputation, and prioritize long-term growth and development.

In contrast, Prior et al. (2008) held the view that there is a positive correlation between CSR activities and earnings management. They argued that top managers tend to engage in more CSR activities to camouflage their manipulation of earnings management. According to them, this strategy is perceived as an effective shield if stakeholders discover their manipulation activities. Likewise, Gargouri et al. (2010) shared the same findings about the mentioned relationship for two main reasons. Firstly, in order to reduce pollution, many manufacturing companies invested heavily in their fixed assets and incurred high costs for waste treatment, resulting in significant short-term expenses. This motivates managers to engage in earnings management to cover short-term losses. Secondly, the collaboration among top management and employees to achieve human development goals related to CSR indicators has been seen as a way to take advantage of earnings management.

Despite the contrasting findings mentioned earlier, Kumar et al. (2022) concluded that a majority of previous research indicates a negative relationship between CSR activities

and earnings management. Based on the above discussion, the first hypothesis is developed as below:

H1: Companies with stronger CSR performance are less likely to participate in earnings management activities than companies with weaker CSR performance. In other words, there is a negative relationship between CSR performance and the level of earnings management.

Jordaan et al. (2018) discovered that companies that participated in more CSR activities tend to engage in accrual-based earnings management than real earnings management. They stated that managers intend to inflate accrual-based earnings management to cover high CSR performance costs and evade close examination from stakeholders. It is explained that the more responsible companies have toward society, the less real earnings management is manipulated to keep the firm's reputation in front of stakeholders. On the other perspective, the impact of CSR data on real earnings management is much more significant negatively than accrual-based earnings management, as found by Choi et al. (2018). Afterwards, Santos-Jaén et al. (2021) reviewed multiple studies on the relationship between CSR and accrual, together with real earnings management. They found that most correlations between CSR and earnings management existed with accrual-based rather than real earnings management. This is because real earnings management involves direct intervention by managers in normal business activities, and its impact on CSR may be observed differently than the accrual approach. Given the uncertainty regarding which approach is more useful in measuring earnings management, this research examines both types of earnings management. The following hypothesis is developed:

H2: The impact of CSR on earnings management is stronger in real earnings management than in accrual-based earnings management.

2.4 Corporate life cycle and its moderating effect on the relationship between CSR and earnings management

Although most prior research found a negative relationship between CSR performance and EM, many researchers still found a positive correlation. Those researches have been

conducted and examined different markets at different times. These differences provide the possibility for companies to adopt their strategies to align with their situations in specific stages of firms' life cycle. Throughout each corporate life cycle stage, top management could have different motivations to meet different defined strategies, objectives, and capital requirements.

Jenkins et al. (2004) put forward the argument that top management adopts distinct approaches during different stages of the corporate life cycle. In the growth stage, the emphasis is on increasing sales rather than net income, while in the maturity stage, higher profitability takes precedence over changes in sales value. Hribar & Yehuda (2015) noted that a company's stock values react differently at each corporate life cycle stage. Accrual items and cash flow are crucial to identify distinguished information during the growth stage, but cash flow is more critical than the stock price during the decline stage.

Hasan et al. (2015) highlighted the potential variation in factors such as budget, funding sources, firm structure, and hierarchy across different corporate periods. Nagar & Radhakrishnan (2015) added to this by noting that managers are more likely to manipulate discretionary expenditures during mature stages rather than growth or introductory phases. Additionally, Almeida & Kale (2023) found that the quality of accrual-based earnings management by large firms in the US tends to decline during growth and mature stages as top management aims to inflate cash flows. Roma et al. (2020) conducted a study revealing the influence of unstable fiscal policies on accrual-based earnings management at different stages of the corporate life cycle. Interestingly, numerous firms in the US market engage in earnings management tactics during economic policy fluctuations, particularly during the growth and decline stages.

According to Hussain et al. (2020), managers' reactions toward earnings management vary across different stages of the corporate life cycle. Notably, during the introduction or decline stage, managers are more motivated to manipulate earnings to achieve a low cost of debt or improve the company's financial performance in the eyes of stakeholders. At the starting point, firms invest in multiple projects or research and development (R&D) activities, and earnings management is used as an indicator to attract further investments. However, they discovered that discretionary expenses could not be used for earnings

management since it relates to the sustainable development process at each life cycle stage. In the decline stage, top managers engage in accrual and real earnings management more strongly than in other stages to rescue the company from bankruptcy. In contrast, fewer earnings management intervention was observed in the growth and maturity stages, as companies have maintained their financial position and reputation for a long time, leading to lower costs of debt.

Given the dynamic nature of the corporate life cycle, it is crucial to understand that top management teams pursue distinct objectives and strategies to achieve targeted earnings. This research investigates whether managers' attitudes towards earnings management practices differ across different stages of the corporate life cycle. As such, the third hypothesis is developed to address this aspect:

H3a: The negative relationship between corporate social responsibilities and earnings management is reversed during the introduction stages.

H3b: The negative relationship between corporate social responsibilities and earnings management is reversed during the decline stages.

3 Research methodology

3.1 Data sample

Table 1 presents the data observations gathered from the Refinitiv Eikon database. In the initial phase of this research, a dataset comprises 13,234 observations from 1,018 companies across 11 sectors in the US and European markets between 2009 and 2021. The dataset incorporates financial statements, financial ratios, and ESG scores for various firms annually. The chosen timeframe of 2009 to 2021 allows for a comprehensive analysis of the influence of the corporate life cycle on earnings in the research study. However, 277 companies were excluded from the analysis due to missing essential financial data required to estimate both accrual-based and real earnings management and corporate life cycle. Furthermore, 244 companies were removed from the observation due to the insufficient presence of at least eight firms per industry. This is because, according to many previous research before, such as Cohen et al. (2008), Bonetti et al. (2016), and R. Kim & Luo (2017), it is reasonable to include at least eight variables from the combination of country, industry, and year. Maintaining a minimum of eight observations is crucial to ensure the regression analysis's validity and obtaining reliable coefficients for estimating discretionary accrual and three components of real earnings management.

Table 1: Sample selections

	Companies
Initial sample with ESG data from Refinitiv Eikon for US and European markets between 2009 – 2021	1,018
LESS: Firms with incomplete financial data	-277
LESS: Firms belong to an industry having less than eight observations	-244
Final sample	**497**

Source: Author calculations.

As a result, the final dataset for this research consists of 5,467 observations from 497 companies across eight sectors in the US and European markets between 2011 and 2021.

The data frame was shortened from 2009 – 2021 to 2011 – 2021 because of computing average cashflow patterns with three years for corporate life cycle identification. Noticeably, the higher proportion of US companies compared to other countries is primarily due to the availability of public data sources from listed firms in the US, which contributes to a more representative sample for analysis in the below table.

Table 2: Classification of companies by industry and country

No	Industry	Germany	France	Sweden	US	Total
1	Basic Materials	12			39	51
2	Consumer Cyclicals	8	14		99	121
3	Consumer Non-Cyclicals				40	40
4	Energy				35	35
5	Healthcare				46	46
6	Industrials	8	8	9	73	98
7	Technology		7		77	84
8	Utilities				22	22
	Total	**28**	**29**	**9**	**431**	**497**

Source: Author calculations.

Table 2 presents the original dataset comprising information from 497 listed companies. 431 firms belong to the US market, while the remaining 66 are from European markets. The data was collected from the Refinitiv Eikon database and covers the period from 2009 to 2021. Data was primarily sourced from Germany, France, and Sweden for the European market, as these countries provided comprehensive and publicly available financial and non-financial data within the chosen timeframe. It is worth noting that each research industry included in the analysis had at least eight observations. In the US market, the consumer cyclicals sector had the highest representation with 99 firms, while the utilities sector had the lowest number of collected data samples in this research, accounted for 22 firms.

3.2 Dependent variables

In this research, earnings management serves as the dependent variable and is measured using two main approaches: accrual-based earnings management and real earnings management. Real earnings management pertains to deviations from normal business activities that aim to achieve short-term objectives, while accrual-based earnings management relates to the manipulation of financial statements driven by managerial motivations. Hence, the measurement of earnings management varies between these two approaches.

3.2.1 Accrual-based earnings management

Hribar & Collins (2002) outlined three key steps in measuring accrual-based earnings management, emphasising utilizing the cash flow statement. The cash flow approach was motivated by concerns that the accrual-based approach could be compromised by inaccurate accrual estimates.

The first step of estimating total accruals involves subtracting cash flows from operations (CFO) from income before extraordinary items and discontinued operations (EBXD), as shown in the following equation:

$$TA_{i,t} = EBXD_{i,t} - CFO_{i,t} \qquad (1)$$

where $TA_{i,t}$ is total accruals of the company i in year t; $EBXD_{i,t}$ is income before extraordinary items and discontinued operations for the company i in year t; $CFO_{i,t}$ is cash flows from operating activities of the company i in year t.

In the next step, this research employs a pooled Ordinary Least Squares (OLS) regression approach based on the Modified Jones model proposed by Dechow et al. (1995) to measure three main coefficients α, β_1, β_2, along with the corresponding error term $\varepsilon_{i,t}$ for each industry and each country annually. This presents an advantage compared to the original version proposed by Jones (1991) as it includes supplementary components that encompass discretionary accruals, including accrued revenues. Accrued revenue has been recognized as a component of accrual earnings management, as it

allows top management to record revenue before the year-end closing activities instead of recording for the beginning of the upcoming year to achieve target performance. Consequently, Dechow et al. (1995) made modifications to Jones (1991) model by incorporating sales credits as an additional element.

The dataset consists of 5,467 observations which were from 497 different companies over 11 years. These observations are collected from eight different industries and four different countries.

$$\frac{TA_{i,t}}{A_{i,t-1}} = \frac{\alpha}{A_{i,t-1}} + \frac{\beta_1(\Delta REV_{i,t} - \Delta REC_{i,t})}{A_{i,t-1}} + \frac{\beta_2 PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (2)$$

where $TA_{i,t}$ is the total accruals of the company i in year t; $A_{i,t-1}$ is a total asset for the company i in year t-1; $\Delta REV_{i,t}$ is the difference between net revenues firm of the company i between year t and t-1; $\Delta REC_{i,t}$ is the change in accounts receivable of the company i between year t and year t-1; $PPE_{i,t}$ is property, plant and equipment of company i in year t.

In the final step, accrual-based earnings management is the error term per company in each industry annually from Eq (2).

3.2.2 Real earnings management

Real earnings management is assessed through three key components, including abnormal operating cash flow, abnormal product costs, and abnormal discretionary expenditure. Roychowdhury (2006) proposed a method for measuring the abnormal level within each component by calculating the deviation between the actual value and the estimated normal value. For each country, pooled Ordinary Least Squares regression approach is employed to estimate each industry-year combination using the Eq (3), Eq (4), and Eq (5) outlined below.

Eq (3) considers both cash sale and deferral sales when abnormal operating cash flows is measured. Managers may aim to increase sales without considering customers' creditworthiness to meet short-term sales targets, resulting in high levels of outstanding receivables and potential negative impacts on future cash flow.

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \alpha + \frac{\beta_1}{A_{i,t-1}} + \frac{\beta_2 REV_{i,t}}{A_{i,t-1}} + \frac{\beta_3 \Delta REV_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (3)$$

where $CFO_{i,t}$ is cash flows from operating activities of the company i in year t; $A_{i,t-1}$ is the total asset of the company i in year t-1; $REV_{i,t}$ is net revenues of the company i in year t; $\Delta REV_{i,t}$ is the change in net revenues of the company i between year t and year t-1.

The measurement of abnormal production costs involves the combination between the cost of goods sold and the change in inventories. In the short term, producing goods on a large-scale lead to a lower allocated overhead cost per unit, reduced cost of goods sold, and a higher profit margin. However, this approach can have long-term consequences as it may result in an oversupply of products beyond customer demand. This can lead to increased expenses related to inventory storage, provisions, and disposal, ultimately lowering the operating cash flow from the estimated normal level. This research employs a pooled ordinary least squares (OLS) panel regression model to estimate the abnormal production costs, which is known as the error term for each industry within each country and year, as shown below in Eq (4):

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \alpha + \frac{\beta_1}{A_{i,t-1}} + \frac{\beta_2 REV_{i,t}}{A_{i,t-1}} + \frac{\beta_3 \Delta REV_{i,t}}{A_{i,t-1}} + \frac{\beta_4 \Delta REV_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (4)$$

where $PROD_{i,t}$ is production cost including the cost of goods sold and change in inventory between year t and t-1 of the company i; $A_{i,t-1}$ is the total asset of the company i in year t-1; $REV_{i,t}$ is net revenues of the company i in year t; $\Delta REV_{i,t}$ is the change in net revenues of the company i between year t and year t-1; $\Delta REV_{i,t-1}$ change in net revenues of the company i between year t-1 and year t-2.

Estimating normal discretionary expenditure involves combining the selling, general, and administrative expenses with the R&D expenses. These expenses are considered as key operational costs that can be manipulated in the current year to meet short-term earnings expectations and generate a strong operational cash flow. However, such manipulation can have adverse effects on future long-term earnings, leading to a

downward trend. To estimate abnormal discretionary cost, pooled OLS regression model is used to extract the error term for each industry within each country and year in the below equation:

$$\frac{DISE_{i,t}}{A_{i,t-1}} = \alpha + \frac{\beta_1}{A_{i,t-1}} + \frac{\beta_2 REV_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \quad (5)$$

where $DISE_{i,t}$ is discretionary expenses of the company i in year t, which is defined as the sum of selling, general and administrative expense plus research and development expense; $A_{i,t-1}$ is the total asset of company i in year t-1; $REV_{i,t-1}$ is net revenues of the company i in year t-1.

After computing three components of REM, an aggregated proxy $REM_{i,t}$ is derived from the following equation:

$$REM_{i,t} = -CFO_{i,t} + PROD_{i,t} - DISE_{i,t} \quad (6)$$

3.3 Independent variable

The ESG (Environmental, Social, and Governance) score is used as the independent variable, known as the recognized system, to quantitatively measure CSR performance and assess the sustainable development status of each corporation. While CSR performance serves as the guiding principle for a company's sustainability initiatives, the ESG score provides a numerical representation of these performances. Merck has been well-known as a good example of emphasizing its CSR performance on ESG reports, and they highlighted the commitment to reducing greenhouse gas emissions by 9% between 2019 and 2021 and sourcing 41% of its electricity consumption from renewable sources in 2021. Similarly, Danone made significant efforts in agricultural optimization to restore 52 watersheds in their production sites, contributing to biodiversity enhancement and soil nutrition. This action not only supports the environment but also benefits local farmers by preserving the resources necessary for producing fresh soy milk. Therefore, this research uses ESG ratings to assess a corporation's CSR performance towards stakeholders and society.

CSR performance proxy is measured by ESG score from public data of 497 companies between 2009 and 2021, collected from the Refinitiv Eikon database. It indicates the combined score ESG (Environmental, Social, and Governance), comprising three main pillars: environmental, governance, and social performance, while negative media narratives are also considered. Table 3 presents a standardized ESG scorecard that assigns weights to various factors to evaluate the importance of business performance in the environment, social, and governance context.

Table 3: ESG Score's Components

	PILLAR	**TOPIC**	**WEIGHT**
ESG SCORE	Environment (0.44)	Resource use	0.15
		Emissions	0.15
		Innovation	0.14
	Social (0.31)	Workforce	0.09
		Human rights	0.05
		Community	0.04
		Product responsibility	0.13
	Governance (0.25)	Management	0.05
		Shareholders	0.03
		CSR strategy	0.17

Source: ENVIRONMENT, SOCIAL AND GOVERNANCE SCORES FROM REFINITIV (2022).

The environmental pillar holds the highest weight of 44% of the overall score and includes categories such as resource use, emissions, and innovation. The corporate governance pillar accounts for a smaller proportion, accounted for 25% of the score. It

focuses on the importance of the management team, shareholders, and CSR strategy within ESG performance. The social pillar carries a weight of 31% of the total performance and primarily emphasizes workforce, human rights, community engagement, and product responsibility.

Furthermore, negative public news is incorporated to assess the alignment of companies with their public narratives. If there are no public scandals, the ESG combined score is estimated to be the same as the ESG normal score. In worst-case scenarios where a company faces public scandals, the ESG combined score is lower than the normal score, indicating a lack of commitment to its stated values.

3.4 Moderating variable

This research uses the corporate life cycle as the moderating variable. Dickinson (2011) introduced a measurement approach to quantitatively assess the corporate life cycle, encompassing five stages: introductory, growth, maturity, decline, and shake-out. This approach leverages the analysis of cash flow patterns within an organization to determine different stages of companies. Dickinson's research revealed that the combination of operating cash flow, investing cash flow, and financing cash flow demonstrates distinct behaviours across different periods. This measurement approach has provided a valuable conceptual framework for comprehending the cash flow dynamics of firms at various stages of corporate development, gaining widespread adoption among researchers.

A study by Hasan & Habib (2017) observed that during the mature stage, a significant number of global firms, totalling 40,518 globally in observation, made substantial investments in CSR initiatives to bolster their brand reputation. Within the Chinese market, Zhao & Xiao (2019) identified a negative correlation between CSR performance and financial constraints among companies facing challenges in the decline stage.

Given the widespread adoption of Dickinson's (2011) measurement approach, this research utilizes the same methodology to determine the stage of the companies under investigation based on cash flow patterns, as demonstrated in Table 4.

Table 4: Cashflow patterns in corporate life cycle developed by Dickinson (2011)

Cash flow	Introductory	Growth	Mature	Decline	Shake-out
Operating	-	+	+	-	
Investing	-	-	-	+	Others
Financing	+	+	-	+/-	

Source: Dickinson (2011).

According to Dickinson (2011), during the introductory stage, firms encounter positive financing cash flows but negative operating and investing cash flows. This is primarily attributed to their efforts in securing sufficient capital to cover anticipated expenses and the substantial costs associated with R&D endeavours. However, if companies heavily rely on borrowing to obtain the required funds, it can lead to a significant debt burden and elevated cost of debt.

During the growth stage, companies aim to expand their current operations, resulting in positive operating and financing cash flows but negative investing cash flows. This is because firms strive to boost their revenue, optimize production efficiency, maintain cash flow stability, and enhance their net margin. To achieve these objectives, companies often allocate significant resources to acquire new assets, develop new products or services, expand into new markets, and invest in marketing and promotional efforts. The negative investing cash flows indicate the substantial investments made by the company during this stage to support its growth trajectory.

In the maturity stage of the corporate life cycle, companies typically experience positive operating cash flows, while investing and financing cash flows are negative. This is primarily due to the company's focus on maintaining necessary investments and potential debt repayments. During this stage, companies strive to reach the pinnacle of competitiveness compared to their industry peers. They establish a strong brand presence, excel in technological advancements, and achieve competitive profit margins. The positive operating cash flows reflect the company's ability to generate consistent revenue and cash flow from its core operations. However, investing and financing cash

flows are negative as the company channels resources towards maintaining and upgrading existing assets, paying off debt obligations, and ensuring financial stability in the mature phase.

During the decline stage, companies typically experience negative operating cash flows, while cash flows from investing activities turn positive. This stage is characterized by a notable decrease in sales and profit margins, leading to significant losses for the company. In some cases, the top management teams may prioritize their benefits over the company's objectives, further exacerbating the decline. As a result, fewer investing activities are undertaken during this period as the company focuses on managing the downturn and minimizing expenses. The positive cash flows from investing activities indicate that the company may be divesting or selling off assets to generate much-needed cash flow and mitigate the impact of the decline.

Beyond the introductory, growth, maturity, and decline stages, the remaining sign combinations of cash flow patterns signify the shake-out stage. During this stage, companies encounter challenges in differentiating themselves from competitors or being influenced by external factors. To survive and flourish in this stage, companies must prioritize investments in sustainable development initiatives. Predicting the specific behaviours of operating, investing, and financing cash flows becomes challenging, as they can vary significantly depending on the company's strategic decisions, market dynamics, and competitive landscape. The shake-out stage demands adaptability and strategic choices to navigate uncertainties and emerge successfully amidst intense competition and evolving market conditions.

3.5 Control variables

The dataset utilized in this study employed a firm-year fixed effect model after conducting the Chow test and Hausman test in the preceding chapter. To account for the unique characteristics of various sectors within each country, dummy variables were introduced into the regression model to represent the eight industries across four countries. The inclusion of these dummy variables not only enhances the explanatory power of other independent variables but also mitigates the risk of omitting important variables in the model. While this research considers three distinct levels firm, industry,

and country, it is important to note that the data primarily focuses on individual firms. Therefore, no significant multi-level impacts are expected to influence the regression model, as the analysis primarily revolves around each firm's specific characteristics and data points. This research incorporates three primary control variables that have the potential to influence the relationship between earnings management and CSR. These variables have been widely utilized in numerous prior studies and include firm size, leverage, and return on assets.

To compute firm size, the natural logarithm of total assets for 497 companies of 10 years from 2011 to 2021 is computed annually. Gras-Gil et al. (2016) proposed a negative relationship between firm size and earnings management. Typically, larger firms are more inclined to disclose comprehensive corporate performance to the public and attract attention from various stakeholders. Consequently, this reduces managers' opportunities to engage in earnings manipulation. Similarly, in the context of research conducted on the Indonesian market by Purnama & Nurdiniah (2019), it was found that larger firms experienced lower levels of earnings management. This can be attributed to larger firms facing greater scrutiny from diverse stakeholders, leaving them with fewer opportunities to manipulate earnings. The firm's size becomes a crucial factor in minimizing the chances of earnings management as it necessitates higher transparency and accountability.

The second control variable is leverage, which is determined by calculating the ratio of total debts to total assets. Previous studies, including Pyo & Lee (2013) and Gras-Gil et al. (2016), have established a positive relationship between leverage and earnings management. Pyo & Lee (2013) asserted that companies with high leverage levels are more prone to manipulating earnings to avoid violating debt covenants. Similarly, Gras-Gil et al. (2016) argued that companies burdened with significant debt obligations may seek to enhance their accrual incomes to fulfil their debt commitments. This suggests that the extent of a company's leverage plays a role in shaping its propensity for earnings management, as firms under greater debt pressure may resort to such practices to meet their financial obligations. On the other hand, according to a study conducted by Hussain et al. (2022), it was discovered that both short-term and long-term debt positively impact earnings management. The researchers found that increased levels of short-term and long-term debt heightened the risk of bankruptcy and restricted fund liquidity, thereby

creating conditions that encouraged companies to engage in earnings management practices. These findings suggest that companies facing higher debt obligations are more likely to manipulate their reported earnings to mitigate financial distress and maintain financial stability.

Return on Assets (ROA) is computed as the ratio of return to total assets for each company annually. Pyo & Lee (2013) proposed a positive correlation between return on assets (ROA) and earnings management. A higher ROA signifies greater productivity and efficiency regarding how effectively a company utilizes its assets to generate corporate earnings. This suggests that companies with a higher ROA may be more motivated to engage in earnings management practices to maintain or enhance their performance. Similarly, Saleh et al. (2020) discovered that top management teams strive to instil confidence in shareholders by reporting higher revenue figures. By presenting impressive revenue numbers, companies can signal their growth and financial health, positively influencing shareholder belief and attracting investment. Both studies highlight earnings management's potential motivations and implications with performance indicators such as ROA and revenue. They suggest that companies may be incentivized to manipulate their financial results to present a favourable image to stakeholders and achieve their strategic objectives.

3.6 Models

This research constructed four main regressions to examine proposed hypotheses on both accrual-based earnings management and real earnings management.

While the first hypothesis is developed to find the impact of CSR on earnings management, the second hypothesis evaluates further how CSR affects which earnings management type, including real and accrual-based earnings management, is stronger. The regressions are set up below to examine both H1 and H2:

$$AEM_{i,t} = \alpha + \beta_1 CSR_{i,t} + \beta_2 REM_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 LEV_{i,t} + \beta_5 ROA_{i,t} + \beta_6 INDUSTRY_{i,t} + \beta_7 COUNTRY_{i,t} + \varepsilon_{i,t} \quad (7)$$

$$REM_{i,t} = \alpha + \beta_1 CSR_{i,t} + \beta_2 AEM_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 LEV_{i,t} + \beta_5 ROA_{i,t} + \beta_6 INDUSTRY_{i,t} + \beta_7 COUNTRY_{i,t} + \varepsilon_{i,t} \quad (8)$$

where $AEM_{i,t}$ is the proxy of accrual-based earnings management of company i in year t; $REM_{i,t}$ is the proxy of real activities manipulation of the company i in year t; $CSR_{i,t}$ is a proxy for CSR performance of company i in year t; $SIZE_{i,t}$ represents the size of the company i in year t; $LEV_{i,t}$ is leverage ratio of the company i in year t; $ROA_{i,t}$ is the return on asset of the company i in year t; $INDUSTRY_{i,t}$ is dummy variable of industry of company i in year t; $COUNTRY_{i,t}$ is dummy variable of the country whose company i in year t belongs.

For H1 to be confirmed, the coefficient β_1 of Eq (7) and Eq (8) needs to be negative and significant, suggesting that companies engaged greater in CSR activities have a lower propensity to engage in earnings management, based on the observed data. Regarding H2, if the coefficient β_1 of Eq (8) is significant and more negative about earnings management than its counterpart in Eq (7), it indicates that firms involved in multiple CSR initiatives are even less likely to engage in real earnings management than accrual-based earnings management.

Cohen et al. (2008) found that top management chooses between real earnings management and accrual-based earnings management based on the costs associated with each approach. Zang (2011) further emphasized the trade-off between these two types of earnings management, considering their associated costs. Motivated by Zang's (2011) regression model, this research incorporates real earnings management and accrual-based earnings management as control variables in each other's regression models. This approach addresses the issue of correlated omitted variables and allows for controlling the trade-off between the two forms of earnings management.

This thesis proposes an additional hypothesis to address the above circumstances. The model examines whether the negative relationship between CSR and earnings

management is reversed during the introduction and decline stages. The following regressions are conducted for both real and accrual-based earnings management.

$$AEM_{i,t} = \alpha + \beta_1 CSR_{i,t} + \beta_2 CLC_{i,t} + \beta_3 CSR_{i,t} \times CLC_{i,t} + \beta_4 REM_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 LEV_{i,t} + \beta_7 ROA_{i,t} + \beta_8 INDUSTRY_{i,t} + \beta_9 COUNTRY_{i,t} + \varepsilon_{i,t} \quad (9)$$

$$REM_{i,t} = \alpha + \beta_1 CSR_{i,t} + \beta_2 CLC_{i,t} + \beta_3 CSR_{i,t} \times CLC_{i,t} + \beta_4 AEM_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 LEV_{i,t} + \beta_7 ROA_{i,t} + \beta_8 INDUSTRY_{i,t} + \beta_9 COUNTRY_{i,t} + \varepsilon_{i,t} \quad (10)$$

where $AEM_{i,t}$ is the proxy of accrual-based earnings management of company i in year t; $REM_{i,t}$ is the proxy of real activities manipulation of the company i in year t; $CSR_{i,t}$ is a proxy for CSR performance of company i in year t; $CLC_{i,t}$ includes four dummy variables to indicate five different stages during the life cycle of the company i in year t (with Shake-out being the benchmark, four variables represent introductory, growth, mature and decline stage); $SIZE_{i,t}$ represents the size of the company i in year t; $LEV_{i,t}$ is leverage ratio of the company i in year t; $ROA_{i,t}$ is return on asset of the company i in year t; $INDUSTRY_{i,t}$ is dummy variable of industry of company i in year t; $COUNTRY_{i,t}$ is dummy variable of the country whose company i in year t belongs.

To confirm H3, during the introduction and decline stages, the coefficient β_3 in both Eq (7) and Eq (8) need to be significant and positive. This suggests that the corporate life cycle has a moderating effect on earnings management, and specifically, during the introduction and decline stages, top management is more inclined to engage in earnings manipulation.

Chow test is performed to determine whether the regression can be estimated by either pooled Ordinary Least Squares (OLS) regression or fixed effects. The Chow test for regression models has been performed with the probability p-value to compare with the 5% significance level. If the p-value is lower than the 5% significance level, hypothesis H0 is rejected, indicating that the fixed effect model is efficient. Following Table 5, the p-values of the test are less than 5%, so the research chooses the fixed effects model instead of the pooled Ordinary Least Squares (OLS) model.

Table 5: Chow test

Test Summary	Explanatory	Values
Eq (7)	F statistic	8.3358
	Probability	2.2e-16
Eq (8)	F statistic	19.839
	Probability	2.2e-16
Eq (9)	F statistic	7.3413
	Probability	2.2e-16
Eq (10)	F statistic	19.669
	Probability	2.2e-16

Source: Author calculations.

In addition, the Hausman test is performed to determine whether either fixed or random effects can best estimate the regression. The Hausman test for regression models has been performed with the probability p-value to compare with the 5% significance level. If the p-value is lower than the 5% significance level, hypothesis H0 is rejected, indicating that the random effects model is inefficient. Following Table 6, the p-values of the test are less than 5%, so the research chooses the fixed effects model instead of the random effects model. The research evaluates the fixed effects model (fixed in firms and time) for regression models.

Table 6: Hausman test

Test Summary	Explanatory	Values
Eq (7)	Chi-Sq Statistic	12.342
	Probability	0.03039
Eq (8)	Chi-Sq Statistic	24.099
	Probability	0.0002078
Eq (9)	Chi-Sq Statistic	172.14
	Probability	2.2e-16
Eq (10)	Chi-Sq Statistic	62.765
	Probability	1.674e-08

Source: Author calculations.

4 Results

4.1 Descriptive statistics

Table 7 presents the descriptive statistics for ten variables, including dependent, independent, and control variables, covering the period from 2011 to 2021. The analysis excludes incomplete annual financial data for specific firms and industries with less than eight observations.

Table 7: Descriptive statistics for the variables used in the analyses

Variable	N	Mean	Std. Dev.	Min	Max
Dependent variables					
AEM	5,467	0.033	0.046	0	0.79
REM	5,467	0.24	0.26	0	4.2
Independent variables					
CSR	5,467	0.51	0.18	0.049	0.95
CLC-INTRO	5,467	0.012	0.108	0	1
CLC-GROW	5,467	0.247	0.431	0	1
CLC-MATU	5,467	0.678	0.467	0	1
CLC-DECL	5,467	0.01	0.1	0	1
Control variables					
SIZE	5,467	16	1.3	12	21
LEV	5,467	47	36	0	794
ROA	5,467	7.2	8.8	-88	97

Source: Author calculations.

There are two main dependent variables, including accrual-based earnings management and real earnings management. The average value of accrual-based earnings management is 0.033 points, which is relatively close to zero. The minimum value of accrual-based earnings management is 0 points, indicating no manipulation regarding conservative accounting policy, while the maximum value of 0.79 points indicates instances of aggressive accounting practices, reaching the peak level. In contrast, the mean value of real earnings management is comparatively higher than accrual-based earnings management.

Furthermore, this research incorporates five key independent variables, including CSR and four stages of the corporate life cycle. The CSR performance variable is assessed using an ESG score of 0 to 1. The lowest ESG score observed in the sample is 0.049, indicating a lack of CSR performance. Conversely, the highest score recorded is 0.95, reflecting companies actively engaged in societal activities and taking their social responsibilities seriously. The selected sample includes firms with varying degrees of social responsibility, with an average score of 0.51. The mean is in the middle of the minimum value and maximum value. Therefore, the ESG has median skewness. This is the signal of average firms' performance CSR activities during observation time focus equally on both corporate performance and environmental commitment.

Regarding the corporate life cycle, instead of directly using five main stages, this research utilizes four dummy variables to represent the different stages of the corporate life cycle. This approach allows for a categorical representation of the corporate life cycle stages, providing a more comprehensive analysis of the impact on the dependent variable.

This research considers two main variables to assess company performance: return on assets (ROA) and leverage ratio. Regarding ROA, the sample's minimum observed value is -88 points, indicating significant underperformance. On the other hand, the maximum value of 97 points suggests exceptional performance. The range of ROA values reflects the varying levels of company performance within the sample. Regarding leverage, the mean value stands at 47 points, representing the midpoint of the distribution. This value indicates a moderate level of leverage for the companies included in the analysis. However, the highest observed leverage ratio reaches a peak of 794 points, which signals

a concerning level of debt. Such a high debt ratio can be detrimental to financial stability and may increase the risk of bankruptcy, as it indicates a potential lack of funds to meet debt obligations or distribute dividends to shareholders.

Another control variable included in this research is the company's size, measured by taking the natural logarithm of total assets. Using natural logarithms instead of absolute values is justified as it helps reduce the standard deviation that large companies can impose on the sample (Wang and Sarkis, 2017). By employing the natural logarithm, the size variable accounts for a wide range of company sizes, ranging from small and medium-sized enterprises (SMEs) to large corporations. The mean value of 16 points indicates the central tendency of the distribution and represents the median skewness of company sizes within the sample.

4.2 Multicollinearity testing

This research examines two testing approaches, the Pearson correlations test and the variance inflation factor (VIF) test, to evaluate multicollinearity. The Pearson correlations test measures the association between variables, ranging from -1 (indicating the least association) to 1 (indicating the highest association).

Table 8 displays Pearson correlation coefficients for the selected variables in the dataset. The correlation coefficients are all below 0.6 or above -0.6, indicating a low degree of association. The highest correlation coefficient between CSR and firm size is 0.2766. On the other hand, the lowest correlation coefficient is observed between REM and firm size, measuring -0.1930. Based on these findings, multicollinearity is not indicated in the provided dataset.

Table 8: Pearson correlations of the variables

Variable	AEM	REM	CSR	SIZE	LEV	ROA
AEM	1.0000					
REM	0.1849	1.0000				
CSR	-0.1418	-0.0988	1.0000			
SIZE	-0.0912	-0.1930	0.2766	1.0000		
LEV	0.0364	-0.0400	0.0275	0.0501	1.0000	
ROA	-0.0127	0.1589	0.0399	-0.0811	0.0170	1.0000

Source: Author calculations.

The variance inflation factor (VIF) is a widely employed test to detect multicollinearity. It quantifies how much the variance of a parameter estimate increases due to correlations among the selected variables in the model. Higher VIF values indicate a higher degree of collinearity among the independent variables. The minimum possible VIF value is 1. If the VIF exceeds 5, it is generally seen as an indication of multicollinearity and calls for remedial actions. In certain cases, a VIF value of 10 is also used as a milestone to identify the presence of multicollinearity.

Upon examining the VIF results in Table 9, it is evident that the variables have relatively low VIF values. The lowest VIF value among all the variables is 1.004280, while the highest VIF value is 1.123559. These values indicate that there is no significant multicollinearity issue present in the dataset.

Table 9: VIF of the variables

Variable	AEM	REM	CSR	SIZE	LEV	ROA
AEM	-	1.025675	1.043529	1.056103	1.054408	1.055387
REM	1.066312	-	1.097401	1.073792	1.097012	1.072446
CSR	1.091289	1.103891	-	1.029805	1.105134	1.100362
SIZE	1.123559	1.098841	1.047632	-	1.122633	1.118804
LEV	1.004280	1.005039	1.006527	1.005066	-	1.006062
ROA	1.034851	1.011503	1.031730	1.031171	1.035725	-

Source: Author calculations.

4.3 Empirical results

Following the application of the Chow test, Hausman test and Multicollinearity test, this study adopted the Time and Firm Fixed Effects Model as the foundation for the findings presented in Table 10.

Table 10: Fixed effect model results

	Without moderating effect		With moderating effect	
	AEM	REM	AEM	REM
Variables	Eq (7)	Eq (8)	Eq (9)	Eq (10)
CSR	-0.009*	-0.039*	-0.002	-0.103*
	p = 0.087	p = 0.078	p = 0.863	p = 0.093
CLC-INTRO			0.045***	-0.160**
			p = 0.004	p = 0.019
CLC-GROW			0.007	-0.033
			p = 0.397	p = 0.353
CLC-MATU			0.003	-0.041
			p = 0.722	p = 0.228
CLC-DECL			0.026*	0.074
			p = 0.098	p = 0.270
CSR*CLC-INTRO			-0.070**	0.348**
			p = 0.043	p = 0.021
CSR*CLC-GROW			-0.004	0.068
			p = 0.768	p = 0.290
CSR*CLC-MATU			-0.005	0.068
			p = 0.699	p = 0.263
CSR*CLC-DECL			-0.034	-0.118
			p = 0.251	p = 0.359
AEM		0.389***		0.388***
		p = 0.000		p = 0.000
REM	0.021***		0.021***	
	p = 0.000		p = 0.000	
SIZE	-0.004***	-0.022***	-0.005***	-0.025***
	p = 0.006	p = 0.002	p = 0.002	p = 0.001
LEV	0.00003	-0.0002**	0.00002	-0.0002**
	p = 0.259	p = 0.022	p = 0.517	p = 0.019
ROA	-0.0001	0.001***	-0.0001	0.001***
	p = 0.175	p = 0.00001	p = 0.266	p = 0.00001
Country dummies	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included
Constant	0.110***	0.197	0.117***	0.270*
	p = 0.002	p = 0.190	p = 0.002	p = 0.085
Observations	5,467	5,467	5,467	5,467
R^2	0.494	0.716	0.496	0.717

**** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level. Source: Author calculations.*

The result from all columns of Table 10 except column 3 represents the empirical evidence to accept Hypothesis 1. The analysis reveals that CSR performance has a negative impact on both accrual-based earnings management and real earnings management. Specifically, when accrual earnings management is the independent variable in column 1, a high R-squared value of 49.4% indicates that 49.4% of the variation in accrual earnings management can be explained by ESG score, firm size, and real earnings management. Holding other factors constant, a 1-point increase in ESG score leads to a decrease of 0.009 points in accrual earnings management with a significance level of 10%. This finding aligns with the research conducted by Hong & Andersen (2011) and Y. Kim et al. (2012), suggesting that companies focusing on CSR performance are more likely to present financial statements in a true and fair view.

Furthermore, the study finds a positive effect of real earnings management on accrual earnings management. In other words, in a ceteris paribus condition, a 1-point increase in real earnings management leads to a nearly 0.021-point increase in accrual earnings management with a significance level of 1%. This observation can be explained by the fact that many companies in the selected sample employ accrual manipulation to mask the effects of abnormal activities related to real earnings management.

In contrast, when real earnings management serves as the independent variable in column 2, the R-squared value significantly increases to 71.6%. This indicates that 71.6% of the variation in real earnings management can be explained by the ESG score, all control variables, and accrual earnings management. The impact of the ESG score on real earnings management aligns with its impact on accrual earnings management, as previously observed. Moreover, in a ceteris paribus condition, a 1-point increase in accrual earnings management leads to a nearly 0.389-point increase in real earnings management with a significance level of 1%. This finding suggests that companies in the given dataset utilize both accrual and real earnings management techniques to compensate for the impact of each other.

The findings presented in Table 10 allow for a comparison of the strength of the impact of CSR performance on accrual-based earnings management and real earnings management, as stated in Hypothesis 2. The results observed between column 1 and

column 2 (excluding the impact of corporate life cycle) and column 3 and column 4 (with a moderate effect) indicate that CSR performance has a stronger negative impact on real earnings management than accrual-based earnings management. In column 1, a 1-point increase in the ESG score results in a decrease of 0.009 points in accrual earnings management. On the other hand, in column 2, a 1-point increase in the ESG score leads to a much larger decrease of 0.039 points in real earnings management. This indicates that the negative impact of CSR performance on real earnings management is approximately three times stronger than its impact on accrual earnings management. This finding aligns with the research conducted by Choi et al. (2018) and Santos-Jaén et al. (2021), which suggests that real earnings management involves direct intervention by managers in regular business operations. As a result, its impact on CSR performance may manifest differently compared to the accrual-based approach. Additionally, when considering the moderating effect of corporate life cycle, the results in column 3 show that the relationship between the ESG score and accrual-based earnings management is insignificant. However, in column 4, the relationship between the ESG score and real earnings management remains significant and even stronger, with a decrease of approximately 0.103 points. This suggests that in a ceteris paribus condition, a 1-point increase in real earnings management leads to a nearly 0.103-point decrease in accrual earnings management, with a significance level of 10%. This finding highlights the important role of real earnings management in influencing the relationship between the ESG score and accrual-based earnings management, particularly in the context of different corporate life cycles.

The empirical evidence derived from column 4 of Table 10 supports Hypothesis 3a by confirming the moderating effect of the introduction stage. This finding indicates a reversal in the negative impact of corporate social responsibilities (CSR) on earnings management, specifically during the introduction stage. This analysis uncovers a noteworthy negative impact of CSR performance on real earnings management, resulting in a significantly increased R-squared value of 71.7%. Intriguingly, during the introduction stage, the effect of CSR performance on real earnings management becomes positive. Specifically, a 1-point increase in the ESG score leads to a 0.245-point increase (-0.103 + 0.348) in real earnings management, holding other factors constant, with a significant

level of 5%. This phenomenon can be attributed to companies' proactive utilization of CSR performance in the introduction stage to attract funding resources from stakeholders and enhance their brand reputation, even before reaching the growth stage, thereby paving the way for future sustainable development. Moreover, during the introduction stage, these companies may face less scrutiny from interested stakeholders, providing them with greater opportunities to manipulate earnings through abnormal activities.

Conversely, this research does not find any supporting evidence to validate the declining impact hypothesized in Hypothesis 3b, as the interaction term for the decline stage is statistically insignificant.

5 Conclusion

5.1 Discussion

This research detected three key findings based on the provided dataset. The first finding is that companies prioritising corporate social responsibility are more likely to choose accrual earnings management to manipulate earnings rather than perform abnormal activities linked directly to real earnings management. This result is aligned with the result from Bozzolan et al. (2015), which can be explained by future sustainable development. Those companies with a strong CSR orientation, emphasizing sustainable development and long-term commitment to stakeholders, are generally less inclined to engage in abnormal activities associated with real earnings management, which can contradict the principles of CSR orientation. Jordaan et al. (2018) arrived at a similar conclusion, indicating that managers tend to engage in accrual-based earnings management to offset the costs associated with high CSR performance and avoid thorough scrutiny by stakeholders. They explained that companies with greater societal responsibility exhibit less manipulation in real earnings management as they strive to uphold their reputation in the eyes of stakeholders.

Secondly, the research uncovers a positive relationship between real and accrual earnings management. Real earnings management involves managers directly intervening in regular business operations, manipulating financial reporting as accrual earnings management to align results with those activities. This allows companies to simultaneously present misleadingly improved performance to stakeholders with two earnings management approaches. Mizik & Jacobson (2007) concluded that top management intends to use both accrual and real earnings management to boost artificial earnings. Afterwards, Lemma et al. (2018) found a positive correlation between accrual earnings management and real earnings management in US markets and concluded that manager uses both techniques to manipulate earnings instead of using only one. Li (2019) detected the complementary relationship instead of trade-offs between accrual and real earnings management in strategic management to achieve favourable stock prices.

Lastly, the research brings attention to a noteworthy phenomenon regarding the impact of CSR on real earnings management, specifically during the introduction stages. During

this phase, managers are more motivated to manipulate earnings to achieve a lower cost of debt or enhance the company's financial performance as perceived by stakeholders. This strategic manipulation aims to secure adequate funds, as firms in the introduction stages often require substantial investments for multiple projects related to future development. In this context, earnings management serves as an indicator to attract additional investments and support the company's growth trajectory.

These findings shed light on the complex relationship between CSR, earnings management, and firm behaviour across different stages of a company's life cycle.

5.2 Limitations

While the results of this research are noteworthy, and the research methodology is carefully designed, several limitations could be addressed in future investigations. The limitation of this research is the limited scope of the collected data, which includes only 66 firms from European countries and predominantly 431 firms from the US market, covering the period from 2011 to 2021. Additionally, the availability of CSR performance data is restricted to publicly available sources, mainly from US firms, obtained from the Refinitiv Eikon database. Consequently, this research does not encompass all sample firms that may have publicly chosen not to disclose their CSR performance during the specified timeframe. It is worth noting that as of January 2023, the Corporate Sustainability Reporting Directive (CSRD) has been implemented, requiring approximately 50,000 companies, including large and listed companies and listed small and medium-sized enterprises (SMEs), to disclose social and environmental data in their published reports by 2025. This presents an opportunity for future research to access a broader range of CSR performance data and investigate its implications more comprehensively.

Bibliography

Achleitner, A.-K., Günther, N., Kaserer, C., & Siciliano, G. (2014). Real Earnings Management and Accrual-based Earnings Management in Family Firms. *European Accounting Review, 23*(3), 431-461. doi:10.1080/09638180.2014.895620

Akers, M., Giacomino, D., & Gissel, J. L. (2007). Earnings management and its implications. *The CPA Journal, 77*, 64-68.

Almeida, J. E. F. d., & Kale, D. (2023). Firm Life Cycle and Accrual Quality. doi:10.2139/ssrn.4346117

Barth, M. E., Cram, D. P., & Nelson, K. K. (2001). Accruals and the Prediction of Future Cash Flows. *The Accounting Review, 76*(1), 27-58. doi:10.2308/accr.2001.76.1.27

Bonetti, P., Magnan, M. L., & Parbonetti, A. (2016). The Influence of Country- and Firm-level Governance on Financial Reporting Quality: Revisiting the Evidence. *Journal of Business Finance & Accounting, 43*(9-10), 1059-1094. doi:10.1111/jbfa.12220

Bonollo, E. (2022). Negative effects of the adoption of accrual accounting in the public sector: a systematic literature review and future prospects. *Journal of Public Budgeting, Accounting & Financial Management, 35*(6), 1-27. doi:10.1108/jpbafm-06-2022-0097

Bozzolan, S., Fabrizi, M., Mallin, C. A., & Michelon, G. (2015). Corporate Social Responsibility and Earnings Quality: International Evidence. *The International Journal of Accounting, 50*(4), 361-396. doi:10.1016/j.intacc.2015.10.003

Burgstahler, D., & Eames, M. (2006). Management of Earnings and Analysts' Forecasts to Achieve Zero and Small Positive Earnings Surprises. *Journal of Business Finance <html_ent glyph="@amp;" ascii="&"/> Accounting, 33*(5-6), 633-652. doi:10.1111/j.1468-5957.2006.00630.x

Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons, 34*(4), 39-48. doi:10.1016/0007-6813(91)90005-g

Carroll, A. B. (2016). Carroll's pyramid of CSR: taking another look. *International Journal of Corporate Social Responsibility, 1*(1). doi:10.1186/s40991-016-0004-6

Choi, H., Choi, B., & Byun, J. (2018). The relationship between corporate social responsibility and earnings management: accounting for endogeneity. *Investment Management and Financial Innovations, 15*(4), 69-84. doi:10.21511/imfi.15(4).2018.06

Cohen, D. A., Dey, A., & Lys, T. Z. (2008). Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods. *The Accounting Review, 83*(3), 757-787. doi:10.2308/accr.2008.83.3.757

Dechow, P. M., & Skinner, D. J. (2000). Earnings Management: Reconciling the Views of Accounting Academics, Practitioners, and Regulators. *SSRN Electronic Journal*. doi:10.2139/ssrn.218959

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *Accounting review: A quarterly journal of the American Accounting Association, 70*(2), 193-225.

Dickinson, V. (2011). Cash Flow Patterns as a Proxy for Firm Life Cycle. *The Accounting Review, 86*(6), 1969-1994. doi:10.2308/accr-10130

Drucker, P. F. (1984). Converting Social Problems into Business Opportunities: The New Meaning of Corporate Social Responsibility. *California Management Review, 26*(2), 53-63. doi:10.2307/41165066

Enomoto, M., Kimura, F., & Yamaguchi, T. (2015). Accrual-based and real earnings management: An international comparison for investor protection. *Journal of Contemporary Accounting & Economics, 11*(3), 183-198. doi:10.1016/j.jcae.2015.07.001

Frey, S., Am, J. B., Doshi, V., Malik, A., & Noble, S. (2023). Consumers care about sustainability—and back it up with their wallets. Retrieved from https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/consumers-care-about-sustainability-and-back-it-up-with-their-wallets

Gargouri, R. M., Shabou, R., & Francoeur, C. (2010). The relationship between corporate social performance and earnings management. *Canadian Journal of Administrative Sciences / Revue Canadienne des Sciences de l'Administration, 27*(4), 320-334. doi:10.1002/cjas.178

Godfrey, P. C., Merrill, C. B., & Hansen, J. M. (2009). The relationship between corporate social responsibility and shareholder value: an empirical test of the risk management hypothesis. *Strategic Management Journal, 30*(4), 425-445. doi:10.1002/smj.750

Gras-Gil, E., Palacios Manzano, M., & Hernández Fernández, J. (2016). Investigating the relationship between corporate social responsibility and earnings management: Evidence from Spain. *BRQ Business Research Quarterly, 19*(4), 289-299. doi:10.1016/j.brq.2016.02.002

Guidry, F., J. Leone, A., & Rock, S. (1999). Earnings-based bonus plans and earnings management by business-unit managers. *Journal of Accounting and Economics, 26*(1-3), 113-142. doi:10.1016/s0165-4101(98)00037-8

Hasan, M. M., Hossain, M., Cheung, A., & Habib, A. (2015). Corporate life cycle and cost of equity capital. *Journal of Contemporary Accounting & Economics, 11*(1), 46-60. doi:10.1016/j.jcae.2014.12.002

Healy, P. M. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics, 7*(1-3), 85-107. doi:10.1016/0165-4101(85)90029-1

Healy, P. M., & Wahlen, J. M. (1999). A Review of the Earnings Management Literature and Its Implications for Standard Setting. *Accounting horizons, 13*(4), 365-383. doi:10.2308/acch.1999.13.4.365

Hong, Y., & Andersen, M. L. (2011). The Relationship Between Corporate Social Responsibility and Earnings Management: An Exploratory Study. *Journal of Business Ethics, 104*(4), 461-471. doi:10.1007/s10551-011-0921-y

Hribar, P., & Collins, D. W. (2002). Errors in Estimating Accruals: Implications for Empirical Research. *Journal of Accounting Research, 40*(1), 105-134. doi:10.1111/1475-679x.00041

Hribar, P., & Yehuda, N. (2015). The Mispricing of Cash Flows and Accruals at Different Lifecycle Stages. *Contemporary Accounting Research, 32*(3), 1053-1072. doi:10.1111/1911-3846.12117

Hussain, A., Akbar, M., Kaleem Khan, M., Akbar, A., Panait, M., & Catalin Voica, M. (2020). When Does Earnings Management Matter? Evidence across the Corporate Life Cycle for Non-Financial Chinese Listed Companies. *Journal of Risk and Financial Management, 13*(12). doi:10.3390/jrfm13120313

Hussain, A., Akbar, M., Khan, M. K., Sokolová, M., & Akbar, A. (2022). The Interplay of Leverage, Financing Constraints and Real Earnings Management: A Panel Data Approach. *Risks, 10*(6). doi:10.3390/risks10060110

Jenkins, D. S., Kane, G. D., & Velury, U. (2004). The Impact of the Corporate Lifecycle on the Value-Relevance of Disaggregated Earnings Components. *Review of Accounting and Finance, 3*(4), 5-20. doi:10.1108/eb043411

Jones, J. J. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research, 29*(2). doi:10.2307/2491047

Jordaan, L. A., De Klerk, M., & De Villiers, C. J. (2018). Corporate social responsibility and earnings management of South African companies. *South African Journal of Economic and Management Sciences, 21*(1). doi:10.4102/sajems.v21i1.1849

Kim, R., & Luo, W. (2017). Customer Concentration and Earnings Management: Evidence from the SarbanessOxley Act. *SSRN Electronic Journal*. doi:10.2139/ssrn.2970368

Kim, Y., Park, M. S., & Wier, B. (2012). Is Earnings Quality Associated with Corporate Social Responsibility? *The Accounting Review, 87*(3), 761-796. doi:10.2308/accr-10209

Kumar, S., Sharma, A., Mishra, P., & Kaushik, N. (2022). Corporate social responsibility disclosures and earnings management: a bibliometric analysis. *International Journal of Disclosure and Governance, 20*(1), 27-51. doi:10.1057/s41310-022-00156-2

Lemma, T. T., Negash, M., Mlilo, M., & Lulseged, A. (2018). Institutional ownership, product market competition, and earnings management: Some evidence from international data. *Journal of Business Research, 90*, 151-163. doi:10.1016/j.jbusres.2018.04.035

Li, L. (2019). Is there a trade-off between accrual-based and real earnings management? Evidence from equity compensation and market pricing. *Finance Research Letters, 28*, 191-197. doi:10.1016/j.frl.2018.04.021

Marques, M., Rodrigues, L. L., & Craig, R. (2011). Earnings management induced by tax planning: The case of Portuguese private firms. *Journal of International Accounting, Auditing and Taxation, 20*(2), 83-96. doi:10.1016/j.intaccaudtax.2011.06.003

Nagar, N., & Radhakrishnan, S. (2015). Firm Life Cycle and Real-Activity Based Earnings Management. *SSRN Electronic Journal*. doi:10.2139/ssrn.2701680

Prior, D., Surroca, J., & Tribó, J. A. (2008). Are Socially Responsible Managers Really Ethical? Exploring the Relationship Between Earnings Management and Corporate Social Responsibility. *Corporate Governance: An International Review, 16*(3), 160-177. doi:10.1111/j.1467-8683.2008.00678.x

Purnama, I., & Nurdiniah, D. (2019). *Profitability, firm size, and earnings management: The moderating effect of managerial ownership.* Paper presented at the 5th annual international conference on accounting research (AICAR 2018).

Pyo, G., & Lee, H.-Y. (2013). The Association Between Corporate Social Responsibility Activities And Earnings Quality: Evidence From Donations And Voluntary Issuance Of CSR Reports. *Journal of Applied Business Research (JABR), 29(3)*, 945–962. doi:https://doi.org/10.19030/jabr.v29i3.7793

Roma, C. M. d. S., Louzada, L. C., Roma, P. M. d. S., Goto, H., & Souma, W. (2020). Earnings management, policy uncertainty and firm life cycle stages: evidence from

publicly traded companies in the USA and Brazil. *Journal of Financial Economic Policy, 13*(3), 371-390. doi:10.1108/jfep-02-2020-0031

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics, 42*(3), 335-370. doi:10.1016/j.jacceco.2006.01.002

Saleh, I., Afifa, M. A. B. U., & Alsufy, F. (2020). Does Earnings Quality Affect Companies' Performance? New Evidence from the Jordanian Market. *The Journal of Asian Finance, Economics and Business, 7*(11), 33-43. doi:10.13106/jafeb.2020.vol7.no11.033

Santos-Jaén, J. M., León-Gómez, A., & Serrano-Madrid, J. (2021). The Effect of Corporate Social Responsibility on Earnings Management: Bibliometric Review. *International Journal of Financial Studies, 9*(4). doi:10.3390/ijfs9040068

Schipper, K. (1989). Earnings Management. *Accounting Horizons, 3*(4), 91.

Scholtens, B., & Kang, F.-C. (2013). Corporate Social Responsibility and Earnings Management: Evidence from Asian Economies. *Corporate Social Responsibility and Environmental Management, 20*(2), 95-112. doi:10.1002/csr.1286

Shuto, A. (2007). Executive compensation and earnings management: Empirical evidence from Japan. *Journal of International Accounting, Auditing and Taxation, 16*(1), 1-26. doi:10.1016/j.intaccaudtax.2007.01.004

Sweeney, A. P. (1994). Debt-covenant violations and managers' accounting responses. *Journal of Accounting and Economics, 17*(3), 281-308. doi:10.1016/0165-4101(94)90030-2

Tran, N. M., Tran, M. H., & Phan, T. D. (2022). Corporate social responsibility and earning management: Evidence from listed Vietnamese companies. *Cogent Business & Management, 9*(1). doi:10.1080/23311975.2022.2114303

Visser, W. (2010). The Age of Responsibility: CSR 2.0 and the New DNA of Business. *Journal of Business Systems, Governance and Ethics, 5*(3). doi:10.15209/jbsge.v5i3.185

Wang, Z., & Sarkis, J. (2017). Corporate social responsibility governance, outcomes, and financial performance. *Journal of Cleaner Production, 162*, 1607-1616. doi:10.1016/j.jclepro.2017.06.142

Wu, Y. W. (1997). Management Buyouts and Earnings Management. *Journal of Accounting, Auditing & Finance, 12*(4), 373-389. doi:https://doi.org/10.1177/0148558X970120040

Zang, A. Y. (2011). Evidence on the Trade-Off between Real Activities Manipulation and Accrual-Based Earnings Management. *The Accounting Review, 87*(2), 675-703. doi:10.2308/accr-10196

Zhao, T., & Xiao, X. (2019). The impact of corporate social responsibility on financial constraints: Does the life cycle stage of a firm matter? *International Review of Economics & Finance, 63*, 76-93. doi:10.1016/j.iref.2018.08.010