Modern Slavery and Financial Reporting Quality Worldwide: The Impact of Institutional and Legal Environment

December 2024

Abstract

Modern slavery poses a serious global problem that encloses various illegal and illegitimate practices and could have severe consequences on the society and the economy. This study examines how the institutional and legal environment influences the relationship between modern slavery and the quality of financial reporting worldwide. We employ a comprehensive worldwide sample with a plethora of control variables and reveal that modern slavery asserts a positive effect on classification shifting, and that this effect is more acute in developing and emerging economies than developed economies. Similarly, our results confirm that slavery would assert a positive effect on real earnings management. However, there are some remedies for subduing the impact of modern slavery on earnings management and the quality of financial reporting in terms of strengthening the institutional environment/legal environment.

Keywords: Modern Slavery, Legal Environment, Institutional Environment, Classification Shifting, Real Earnings Management, Financial reporting Quality

JEL: G3, M41, K42, Z12.

1. Introduction

This study explores the moderating impact of firms' institutional and legal environment on the relationship between modern slavery and financial reporting quality (as measured by expense misclassification and real activities manipulation). Modern slavery, a hidden crime affecting millions worldwide, often goes undetected due to weak regulatory environments (Han et al., 2024; Strand et al., 2023; Smith & John, 2020). It has attracted significant attention as a global issue linked to unethical, self-serving behaviours that exploit vulnerable populations. This has led various governments to enact laws aimed at curbing modern slavery, though its presence remains significant across numerous sectors (Meehan & Pinnington, 2021; Barnes et al., 2023). The Walk Free Foundation (2022) estimates around 49.6 million people live in conditions of modern slavery, prompting NGOs and governments to pressure firms to address slavery-related practices in their operations (Caruana et al., 2021; Ishaya et al., 2024).

Recent researchers have examined how modern slavery impacts corporate outcomes, specifically through transparency, monitoring, classification shifting and earnings management, which can distort a firm's true financial position (Christ et al., 2024; McLaren et al., 2024). This study investigates how institutional environments influence these practices, as managers may use financial manipulation to mask unethical or illegal actions like modern slavery. The broader institutional environment—encompassing both formal regulatory frameworks and informal societal norms—plays a key role in shaping firms' behaviour. In weak institutional environments, the lack of regulatory strength may permit the concealment of unethical practices, making it difficult for auditors and regulators to detect wrongdoing (Armstrong & Alan, 2010; Duong Thi, 2023; Freitas et al., 2024).

In countries where modern slavery is prevalent, managers may exploit institutional weaknesses to mislead stakeholders, producing less transparent corporate outcomes and financial reports (Christ et al., 2023). As pressure mounts from governments, NGOs and the public to combat modern slavery, some managers in high-prevalence regions may misuse anti-slavery measures as a form of "window dressing" to cover up unethical practices, such as earnings manipulation (Caruana et al., 2021, Cousins et al. 2020; Ishaya et al., 2024). Previous research links unethical environments (e.g., high crime and pollution) to questionable business practices (Bondy et al., 2020; Cho et al., 2022), suggesting that the prevalence of modern slavery could be associated with unethical accounting practices like

expense misclassification and real activities management at the firm level. Several countries, including the UK, Australia, and Canada, have enacted legislation specifically aimed at reducing modern slavery (Meehan & Pinnington, 2021, Cousins et al. 2020; Barnes et al., 2023). This study tests whether strong legal/institutional environments can moderate the relationship between modern slavery and financial reporting quality. Our hypothesis is that robust legal frameworks create constraints that prevent managers from engaging in or concealing unethical activities, thus improving financial transparency.

Our findings reveal a positive association between modern slavery and poor financial reporting quality, especially pronounced in emerging and developing countries with weaker regulatory environments. However, the study also shows that strong legal frameworks moderate this association, reducing the extent to which modern slavery influences financial misreporting. These results suggest that institutional strength, particularly through legal regulation, can help deter unethical practices at the firm level by increasing transparency and reducing opportunities for earnings manipulation.

The contributions of this research are multifaceted. First, it adds to the literature on institutional environments, modern slavery, and financial reporting quality, addressing a research gap on the moderating role of regulatory environments in the relationship between modern slavery and earnings management (Bondy et al., 2020; Cho et al., 2022). Second, the study provides insights into how institutional factors influence managerial discretion over earnings management, showing that both formal (legal) and informal (modern slavery prevalence) institutions impact financial reporting quality. Third, the findings indicate that institutional weaknesses in developing countries facilitate modern slavery and associated financial misreporting, contrasting with developed countries with more robust regulatory structures. This aligns with the view that emerging/developing economies often lack strong regulatory frameworks, creating "institutional voids" that allow unethical practices to persist (Gabbioneta et al., 2013; Holmes et al., 2013; Lewellyn & Bao, 2017; Muravyey, 2024).

Additionally, the study demonstrates that at a national level, modern slavery is associated with unethical practices like expense misclassification and earnings management at the firm level. This finding aligns with Bondy et al. (2020) and Cho et al. (2022), who observed that unethical environmental factors (e.g., crime, corruption) are linked to unethical firm-level behaviours. The research further supports the idea that a strong legal environment can serve

as a deterrent to such practices, suggesting that international efforts to strengthen anti-slavery laws may enhance financial reporting quality by limiting the space for unethical activities.

Our study contributes to the ongoing policy debate by showing how institutional and legal environments influence firms' behaviour regarding modern slavery and financial reporting. The findings reveal the importance of robust regulatory frameworks and ethical auditing practices in curbing modern slavery and promoting transparency. As firms continue to navigate these challenges, strengthening institutional and ethical standards could play a key role in reducing illegal and unethical practices, ultimately contributing to better financial transparency and accountability on a global scale.

In what follows, Section 2 provides the theoretical framework and hypotheses, while Section 3 presents the global sample. Sections 4 and 5 report and discuss the results, while the last Section offers some conclusions, policy implications, limitations and future research directions.

2. Theoretical Framework and Hypotheses Development

Firms operate in an institutional environment that sets standards and provides the background by which organisational behaviour are deemed authentic (DiMaggio, 1998; Kury, 2007; Uzunca et al., 2018). Institutional environments are enduring systems of social beliefs and practices with diverse functional areas of societal systems such as; religion, work, politics, laws, and regulations (Muravyey, 2024; Uzunca et al., 2018; North, 1990). The firms' institutional environment includes both formal and informal institutions. Prior research indicates that when formal institutions exhibit weaknesses and uncertain outcomes, informal institutions gain relevance in business decisions and transactions (Abdi & Aulakh, 2012; Duong Thi, 2023; Lewellyn & Bao, 2017; North, 1990). For example, Abdi and Aulakh (2012) indicate that national level informal institutions "stimulate shared cognitive and normative frameworks among economic agents" suggesting that the values, norms, beliefs, and assumptions associated with the institutional environment subjectively shape the managerial discretion in relation to earnings management practices of the institutional environment and context in which they are embedded.

Duong Thi, (2023) indicates that firms can act to influence the institutional environment or justify their actions in the eyes of other institutional actors. According to Kury (2007), institutional environment provides the best perspective to examine earnings management practices. Consequently, existing studies have examined the relationship between institutional

environments and earnings management practices using proxies such as; the strength of the legal environment (Behn et al, 2013; Yamen et al., 2022), control of corruption or bribery (Lourencxo et al., 2018) and investor protection (Ali et al., 2022; Leuz et al., 2003). Consistent with prior studies, this study proposes that the strength of the legal environment/institutional environment can also shed light on the association between modern slavery and financial reporting quality.

Given the institutional environment, Cho et al., (2022) indicate that managers exercise discretion in financial reporting and this could lead to earnings management at firm-level. Similarly, Christ et al., (2023) observe that managerial discretion to engage in modern slavery in the firms institutional environment are viewed as acting in a self-interested manner at the expense of other stakeholders. Taken together, an examination of modern slavery practices associated with how individuals view themselves and promote their self-interest at the expense of financial reporting quality will be particularly relevant in the firms' institutional environment. Behn et al. (2013) and Haw et al (2011) observe that firms in weak institutional environment (specifically, weak investor protection countries) exhibit high levels of earnings management and poor financial reporting.

Relatedly, research indicates that the strength of the institutional environments could promote or mitigate illegality or unethical business practices (Duong Thi, 2023; Yamen et al., 2022)). For example, Yamen et al. (2022) observe that corporate illegality and unethical business practices such as; earnings manipulation, corruption, accounting fraud, anti-competition and embezzlement are actions that are facilitated by the firms' institutional environment and are intended to benefit the organisation or individuals who act in their self-interest at the expense of the organization. Recently, Muravyev (2024) observes that firms' institutional environment complements the firms' governance mechanism to improve board monitoring in the firms' environment. On the contrary, Freitas et al (2024) indicates that a weak institutional environment could provide opportunities for firms to engage in illegality and unethical business practices. When modern slavery (an informal institution) is part of individuals' belief systems in an institutional environment, it plays an important role in everyday economic and social life. However, the association between modern slavery and financial reporting quality in the firms' institutional environment is still largely unaddressed. Therefore, we examine the extent to which the level of modern slavery in a country's institutional environment will also influence earnings management practices and financial reporting quality.

2.1 Modern Slavery

Modern slavery is a practice that incorporates various forms of exploitation including; forced labour, human trafficking, sex trafficking, organ harvesting, forced marriage, forced migration, the worst forms of child labour, debt-bonded labour, and traditional slavery and it affects every country and several industries (Christ et al. 2020, Barnes et al., 2023; Krambia Kapardis, 2024). The International Labour Organisation (2022) estimates that annual profits obtained from the use of forced labour in the private economy amount to $150 billion and G20 countries gain more than 354 billion dollars in illegal profits from imports products that are at risk of modern slavery. Recent studies indicate that modern slavery in the context of business exists when there is deprivation or restriction of individuals' freedom by people or an organization who exercise control via coercion over the individual, for the purpose of economic exploitation (Cousins et al., 2020; Ishaya et al., 2024). Modern slavery menace affects businesses, economy and society. Consequently, several studies have examined modern slavery in the business and management subject area, including: human resource management (Alamgir & Banerjee, 2019, Ishaya et al., 2024); marketing (Smith & Johns, 2020), strategy (Crane et al., 2018), supply chain management (LeBaron, 2021, LeBaron & Crane, 2019), finance (Krambia Kapardis, 2024) and accounting (Rodrigues & Craig, 2018). However, when it comes to the association between quality of financial reporting and modern slavery, there is scanty evidence in the literature.

Modern slavery affects every society, is widespread and profitable criminal industry that has gained the attention of policy makers, civil society, the public and even business leaders (Han et al, 2024; Birkey et al., 2018). The failure of the rule of law makes it difficult to combat modern slavery but when the rule of law is strong and effective, even the most vulnerable are protected from slavery (Barnes et al., 2023; Stevenson & Cole, 2018; Yang et al., 2020). Relatedly, Ishaya et al. (2024) and Christ et al. (2020) observe that business-related slavery affects all countries around the world, though it is more visible in developing countries than developed countries. Developing countries are characterised by power distant cultural dimension and weak legal systems which allow individuals to exert control over others as if they own them (Strand et al., 2024). Surprisingly, an end to the legality of slavery has not brought an end to modern slavery due to the development of black market and the associated hidden financial accounting issues and illicit transactions (Christ et al., 2020; Krambia Kapardis, 2024).

The effects of accounting practices on slavery, particularly, how workers and employers without proper documentation adopt accounting practices to hide financial information or decrease any possible disruptive effects associated with government regulations have been examined (Yang et al., 2020; Neu, 2012). For example, Neu (2012) finds international firms are required to disclose audits and associated monitoring mechanisms they have established to address modern slavery issues (Islam et al., 2021) since accounting practices can conceal or promote modern slavery directly or indirectly. Therefore, an understanding of the impact of modern slavery on financial reporting quality (as measured by, classification shifting and real activities earning management) around the world opens doors to long-term solutions and an appreciation of issues affecting financial reporting and the global supply chains that tie businesses, societies, and nations together.

2.2. Hypothesis Development

The financial reporting literature extensively covers accruals earnings management, classification shifting, and real earnings manipulations, with ongoing research in these areas (Bansal, 2023; Bui, 2024; Habbash & Alghamdi, 2015; Le et al., 2023). These practices undermine confidence and transparency in financial reporting and markets (Abdalla & Clubb, (2024; Rehman et al., 2024). Classification shifting, involving the misclassification of expenses, is particularly appealing to firms due to limited regulatory penalties and reduced auditor scrutiny (Anagnostopoulou & Malikov, 2023; He et al., 2024). Firms use it to meet financial benchmarks and managerial targets (Abdalla & Clubb, 2024; Ha & Thomas, 2020).

While recent studies on modern slavery in accounting focus on topics like disclosure, accountability, and supply chain management (Christ et al., 2024; Rogerson et al., 2020), few examine its impact on financial reporting within firms' institutional environments. This paper addresses this gap, inspired by studies on undocumented labour and illicit activities (Neu, 2012; Segarra & Prasad, 2024). In weak institutional settings, firms may conceal unethical practices, including modern slavery and expense misclassification, making detection by auditors challenging (Freitas et al., 2024; Gabbioneta et al., 2013). Coffee (2005) and Yamen et al. (2022) note that differences in institutional and auditing environments can enable corporate illegality. Research also shows that unethical institutional environments, marked by crime and corruption, foster unethical practices at the firm level (Bondy et al., 2020; Cho et al., 2022). Therefore, we anticipate that countries with high levels of modern slavery will see more expense misclassification and financial misreporting, as hidden slavery practices may

drive unethical financial behaviour. Therefore, the following hypothesis is presented for testing:

Hypothesis 1: Modern slavery is positively associated with classification shifting.

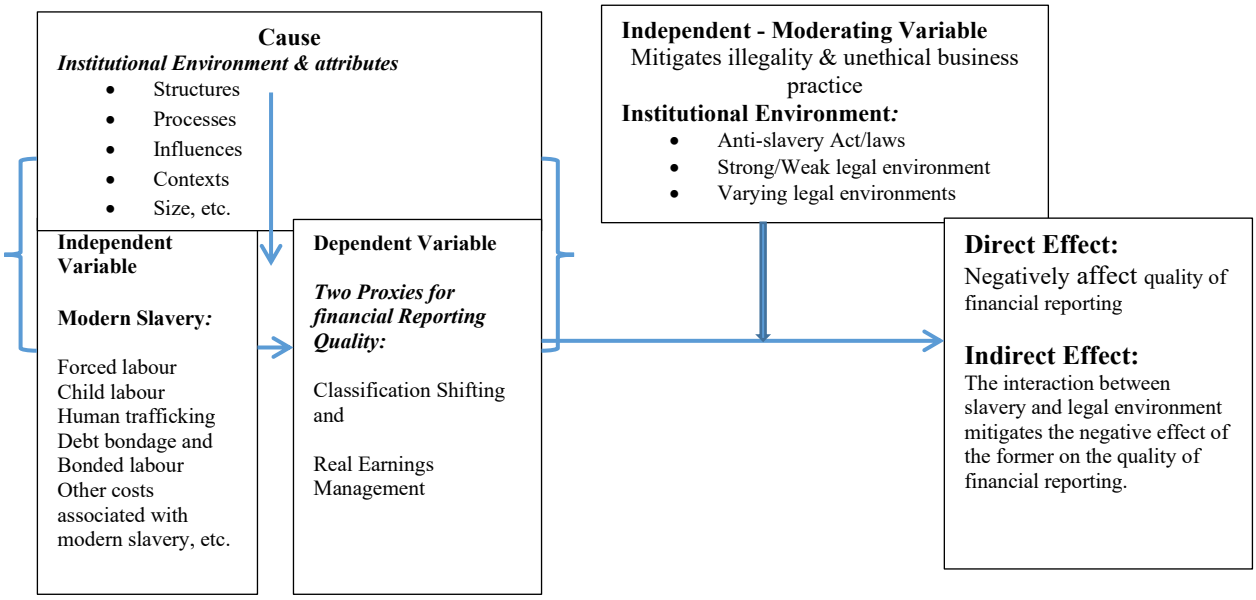
While managers' unethical modern slavery practices at country level might induce hidden and unethical expense misclassification at firm level, there is also a reasonable expectation that our hypothesis 1 may not be supported due to the strength of the institutional environment and its effects on modern slavery. Generally, slavery has been condemned as an illegal practice for centuries (Antonini et al., 2020; Christ et al., 2023) and modern slavery is subject to criminal prosecution around the world (Caruana et al., 2021; McLaren et al., 2024). Again, the importance of the institutional environment in restraining financial misreporting and earnings management practices is well-documented in the literature (Boahen & Mamatzakis, 2024; Behn et al., 2013; Leuz et al., 2003; La Porta et al., 1998). For example, Boahen and Mamatzakis (2024) find that institutional environment (strong legal environment and certain cultural dimensions) constrain earnings management practices. However, there is some variability though as Doupnik (2008) finds little association between legal environment and earnings smoothing and Callen et al. (2011) find no relationship.

Consistent with the above view, we hypothesize that a strong institutional and legal environment could moderate the association between modern slavery and earnings management practices. The legal and institutional environments could hinder modern slavery practices and curb firms' ability to gain illicit financial benefits via modern slavery practices to increase reported core earnings through expense misclassification. Therefore, we posit that a strong legal and institutional environment would exert moderating effects on the relationship between modern slavery and earnings management practices. Given the plethora of countries in our sample, we observe variability in both modern slavery and institutional environment across countries that enhance the robustness of our identification. To this end, we test for the following hypothesis:

H2: The institutional (legal) environments in developed, emerging and developing economies would moderate the positive association between modern slavery and classification shifting.

The figure below illustrates and summarises hypotheses 1 and 2.

Fig. 1: Moderating Effect of Legal/Institutional Environment on the Association between Modern Slavery, Expense Misclassification and Real Activities Earnings Management



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3. DATA AND EMPIRICAL METHODOLOGY

3.1. Measuring Slavery

Our slavery data consist of annual country-level observations for the years 2013, 2014, 2016 and 2018. The specification of the time framework is due to the availability of data. All the available data were taken from the Walk Free Foundation, Global Slavery Index. Given that modern slavery is a hidden crime and illegal activity, we were constrained by data accessibility for some years. Therefore, we follow prior studies to derive full dataset for years with missing slavery data[1].

The Global Slavery Index is an annual report produced by the Walk Free Foundation[2] based on representative random sample surveys.[3] The Index consists of the data collection of people

[1] In line with prior studies (Hofmann & Schwaiger, 2020, Dyreng et al. 2012, Hilary & Hui, 2009), we assume a linear trend in slavery data and interpolate modern slavery data from 2013 to 2018 to get information on modern slavery data for 2015 and 2017. For years prior to 2013, we extrapolate using the slope of the lines fitted between 2013 and 2018. We use the linear trend to predict modern slavery dataset for the years with missing data between 2010 and 2018. Following this procedure, we were able to derive the annual slavery dataset which we merge by year using country code identifiers and the Compustat company location code.

[2] Walk Free Foundation is a global human rights organisation dedicated to ending modern slavery. Four editions of the Global Slavery Index have been published by Walk Free Foundation in 2013, 2014, 2016 and 2018.

[3] A detailed explanation of the research design and sample survey method used is available on the Global Slavery Index website.

in modern slavery from developed and developing countries around the world. It provides a country by country ranking related to the number of people in modern slavery, the factors that make people vulnerable in modern slavery and the actions of governments that are taking to respond to modern slavery. Specifically, the Global Slavery Index has quantified data across three dimensions.

To present the prevalence of modern slavery, the percentage of population in modern slavery is estimated by dividing the number of enslaved populations with total population. The calculated number of enslaved is derived from random sample surveys and secondary source estimates, such as published reports from governments, non-governmental and international organisations, and journalists.

3.2. Measuring the Legal and Institutional Environment

We obtain legal environment scores from the International Country Risk Guide (ICRG) (2018), in line with previous research (Boahen & Mamatzakis 2021, Winters & Martinez, 2015, Askarov & Doucouliagos, 2013, Fan et al., 2010, Leuz et al., 2003, La Porta et al. 1998). We follow Boahen and Mamatzakis (2021) and Winters and Martinez (2015) to measure legal environment using the ICRG composite legal environment score. The legal environment is of importance for combating modern slavery. For example; in the EU, the European Directive 2014/95 introduced a mandatory non-financial reporting on legal and social issues, such as corruption and the respect of human rights that controls for the modern slavery. The composite ICRG legal environment score identifies changes in the legal environment of a country and provides comprehensive information on the quality of legal environment. The ICRG employs 22 variables to measure risk ratings in three main areas: political, financial, and economic for 140 countries on monthly and on an annual basis. Therefore, there is time variability in the ICRG legal environment datasets. However, a separate index is created for each subcategory. The ICRG provides information on the strength of the legal environment and measures legal environment as the average mark across three main legal indicators: (i) the efficiency of the judicial system, (ii) the appraisal of the rule of law and (iii) the corruption. The strength of ICRG legal environment takes values from zero to ten for all the three main indicators. Similarly, La Porta et al. (1998), as corroborated by Leuz et al. (2003), use index to define legal environment as the average score across three legal variables, namely (i) the level of corruption index, (ii) an index of the assessment of rule of law and (iii) an index of the efficiency of the judicial system. In

addition, to account for economic conditions we include in our analysis from International Country Risk Guide (ICRG): the annual per capita Gross Domestic Product (GDP), inflation, economic risk, and political risk to control for differences in countries for all the years.

3.3. Accounting Data

Financial data was obtained from the Compustat Global Database to estimate abnormal core earnings and to determine the extent of classification shifting across countries. The full sample consists of 508,125 firm-year observations for the period 2010 to 2018 from 117 countries. Our sample period ends in the fiscal year 2018 to match with our available modern slavery data. We start from 2010 because we have the available firm year observations for most of the firms used in our analyses. In line with previous studies (Behn et al., 2013), countries require a minimum of 10 firm-year observations to qualify for inclusion in the sample. To estimate abnormal core earnings, 54 countries were excluded because of the insufficient number of observations. All firm-years and variables with missing firm-year observations were also deleted. To effectively use sales as a deflator for most of the variables and to avoid the creation of outliers, any firm year observation with sales revenue of less than $500,000 are excluded (Behn et al., 2013, Haw et al., 2011, Fan et al., 2010, McVay, 2006).

(INSERT TABLE 1 ABOUT HERE)

Table 1 presents the list of countries grouped under International Monetary Fund (IMF) and World Bank classification of developed, emerging, and developing countries. The breakdown of the final datasets consists of 26 developed countries, 37 emerging and developing countries with sufficient firm-year observations. Countries such as Australia, Belgium, the United Kingdom, Japan, and the United States of America are included in the list of the developed countries with significant number of firm-year observations. Similarly, China, Indian, South Korea and Malaysia, Croatia, Tanzania, Vietnam, and Sri Lanka are among the list of emerging and developing countries with a high number of firm-year observations. Appendix B, Table B2 provides the number of firms per Country (% of the sample in parenthesis).

Table 2 provides the descriptive statistics. We provide for each of the variables, the count of the firm-year observations, the mean, the standard deviation, the minimum and the maximum values. The mean sales (in millions U.S. $) values suggest that wide variations exist in firm size among the firms in the sample. The mean unexpected core earnings (UNEXP_CE) for

the full and sub-samples are equal to zero consistent with previous studies (Boahen & Mamatzakis, 2019, Zalata & Roberts, 2017, Behn et al., 2013, Haw et al., 2011). The mean slavery (SLAVE) across the sample countries is 3.722, suggesting that wide variations exist in countries that are engaged in modern slavery and the mean legal environment (LEGAL) across the countries in the sample is 7.833, suggesting that legal environment is strong in most of the countries sampled for the study (Boahen & Mamatzakis, 2021, La Porta et al., 1998, Leuz et al., 2003).

(INSERT TABLE 2 ABOUT HERE)

4. RESEARCH DESIGN AND EMPIRICAL RESULTS

In line with previous studies (Behn et al., 2013, Haw et al., 2011), we develop a model for normal core earnings (NOR_CE) within each industry and estimate NOR_CE from the following model:

$$NOR\_CE = \beta_0 + \beta_1 CE_{t-1} + \beta_2 ATO + \beta_3 ACRUALS_{t-1} + \beta_4 \Delta SALES + \beta_5 NEG\_\Delta SALES_t + \varepsilon_{t,} \quad (1)$$

Appendix A outlines variables definition and data sources for all variables. Having derived a measure of classification shifting, (see unexpected core earnings), we estimate the unexpected core earnings (UNEXP_CE) as the difference between reported core earnings (REP_CE) and expected core earnings (NOR_CE) for each firm. When firms engage in classification shifting, unexpected core earnings increase with special items. Thereafter, to test Hypothesis 1 and 2, we estimate the following model:

$$UNEXP\_CE = \beta_0 + \beta_1 SPITEM + \beta_2 SLAVE + \beta_3 SLAVE \times SPITEM + \beta_4 ROA + \beta_5 SIZE + \beta_6 MBV + \beta_7 LEV + \beta_8 GDP + \beta_9 BIG4 + \beta_{10} ESGSCORE + \beta_{11} AUDIT + \beta_{12} CSR + \beta_{13} INDBOARD + Year, Industry\ Fixed\ Effects + Country\ Fixed\ Effects + \varepsilon_{t,} \quad (2)$$

where UNEXP_CE is unexpected core earnings and SPITEM is income decreasing special items multiplied by negative one (-1). SLAVE is the measure of slavery obtained from the Global Slavery Index produced by the Walk Free Foundation. SLAVE x SPITEM is the interactive term between countrywide slavery and income-decreasing special items. We expect the co-efficient on the interaction term between countrywide slavery and negative special items to be significantly negative if slavery mitigates classification shifting in

international firms.[4] In addition, we include BIG4 that is a dummy variable that captures whether a firm is audited by BIG4/5 auditors; CSR is a measure of corporate social responsibility (Cho et al., 2015; Deegan, 2017), and AUDIT is an index measuring the quality of the auditing environment and whether a firm has social audit (Brown et al., 2014). We also consider board structure by using a measure of independent board members that takes values from 0 to 100 (see INDBOARD in equation 2). Finally, we include ESG score (Eliwa et al., 2021, García-Sánchez et al., 2021) to measure sustainability reporting. The ESG score is of importance because it provides information about non-financial disclosure at firm-level regarding environmental, social, and governance issues.

Hausman tests show that the fixed effects regression model is the preferred one. We also conduct normality tests using Kolmogorov-Smirnov test of normality, tests for the presence of heteroscedasticity, using Breusch-Pagan tests for heteroscedasticity and finally checks for serial correlation or auto-correlation with a Wooldridge test for autocorrelation in panel data. The results of these preliminary tests indicate that the data meet the requirements of normality. There is an absence of heteroscedasticity and auto-correlation or serial effects. Wald tests assist to omit insignificant variables and to estimate the model with only significant control variables to the maximum extent possible. This approach reduces the number of variables to an efficient size. To ensure that there is non-multicollinearity problem, both the Pearson and Spearman correlation coefficients are run for all the variables in the regression model and the correlation coefficients are generally similar, an indication that there is a lack of multicollinearity problem within the data. We also estimate the variance inflation factor (VIF) for the independent variables in each regression model and the highest

[4] When β_1 is positive and significant, firms engage in misclassification of core expenses into special items. In line with previous studies (Behn et al. 2013, Fan et al. 2010, Ashbaugh et al., 2003), size and book to market value are included as control variables, plus other variables for year and country fixed effects. Firm size (SIZE) is included as a control variable because previous research (Ashbaugh et al. 2003, Callen et al, 2011) indicates that small firms are more likely to influence reported core earnings than large ones, and book to market value (MBV) is included to control for the effects of market capitalisation. Leverage (LEV) is included as a control variable because Zang (2012) finds that firms influence reported profit to meet debt covenants and to secure external financing. Return on assets (ROA) is included as a firm level control variable because the literature states that earnings management is a function of firm performance (Zalata & Roberts, 2016, 2017, McVay, 2006). Thus, poor performing firms are more likely to engage in classification shifting. Therefore, we predict the co-efficient of ROA to be negative. As in Athanasakou et al. (2009), we control for growth because an increase in working capital might be associated with higher growth, which might affect future cash flows. We also control for per capita gross domestic product (GDP) as previous studies in Leuz et al. (2003) to capture wealth effects. We include levels of unexpected core earnings (Behn et al., 2013, Fan et al., 2010). We run Models 2 and 3 using the measures of slavery and legal environment to assess their impact on classification shifting.

VIF among all the independent variables is 3.4. Greene (2012) indicates that a VIF of 10 or less is a good sign of non-multicollinearity problems. The correlation coefficients in Appendix B, Table B1 support the validity of the model and the multivariate regression results will further confirm the relationship.

4.1. Relationship between Countrywide Slavery and Classification Shifting

First, we test hypothesis 1. Table 3 presents the findings for all the sub-samples. Regardless of the sample examined, SPITEM is positive and significant at 1% for both the full sample and sub-samples, confirming that classification shifting is prevalent in all the sub-samples. Results in Table 4 also indicate that SLAVE is positively associated with UNEXP_CE at 1% significance level in all the sub-samples. Our findings suggest that unethical modern slavery is associated with unethical expense misclassification, confirming that managerial exposure to unethical behaviour leads to unethical business practice (Bondy et al. 2020, Cho et al., 2022). The results for the control variables confirm our preliminary findings.

(INSERT TABLES 3 and 4 HERE)

We examine the relationship between the interaction term slavery and special items; SLAVE×SPITEM. We augment model 2 to include the interaction term, SLAVE×SPITEM. . The variable of interest is SLAVE×SPITEM and results are presented in Table 5. We observe that the relationship between SLAVE×SPITEM and UNEXP_CE is positive and significant at 1% or 5% levels for all the sub-samples. Results show that the interaction term between slavery and special items, (SLAVE×SPITEM) is significantly positive in both emerging and developing countries at 5% significant level, suggesting that slavery would enhance misclassification of core expenses into special items to influence reported core earnings. This is possible because classification shifting is subject to limited external auditor vigilance and monitoring (Boahen & Mamatzakis, 2019, Zalata & Roberts, 2017, McVay, 2006). Again, modern slavery is a hidden crime that cannot easily be detected; therefore, combatting it through social audit is not an easy task (Ford & Nolan, 2020). The results could suggest that the weakness in the firms' legal/institutional environment facilitates modern slavery practices, making it possible for firms to shift core expenses associated with slavery into special items to increase reported core earnings. Consistent with prior studies (Gabbioneta, et al. 2013, Prechel & Morris, 2010), our results confirm the view that institutional environment open opportunity structures for sustained concealment and illegality. We report that slavery

increases with core earnings and special items because both are hidden business practices, difficult to detect and audit by auditors and regulators. This result is in line with Hypothesis 1, and it is a novel contribution to financial reporting literature.

4.2. Testing the Moderating Role of Legal/Institutional Environment on the Association between Slavery and Classification Shifting

Previous studies observe that institutional environments play a significant role in firms' behaviour toward earnings management (Duong Thi, 2023; He et al., 2024; Uzunca et al., 2018). For example, Duong Thi, (2023) reports that strong country-level institutional environments reduce the positive effect of ownership concentration on earnings management. Consistent with this evidence, we expect the observed relationship between modern slavery and expense misclassification to be stronger in countries with weak legal/institutional environments than in countries with strong legal/institutional environments. There might be an underlying association between the institutional environment, modern slavery and classification shifting. To test this conjecture, we break our data into developed, emerging and developing economies to capture the strength of legal/institutional environment. To this end, we augment model (3) to include the interaction term between slavery and legal/institutional environment as follows:

$$UNEXP\_CE = \beta_0 + \beta_1 SPITEM + \beta_2 SLAVE + \beta_3 SLAVE \times SPITEM + \beta_4 LEGAL + \beta^5 LEGAL \times SPITEM + \beta_6 LEGAL \times SLAVE + \beta_7 LEGAL \times SLAVE \times SPITEM + \beta_8 ROA + \beta_9 SIZE + \beta_{10} MBV + \beta_{11} LEV + \beta_{12} GDP + \beta_{13} BIG4 + \beta_{14} ESGSCORE + \beta_{15} AUDIT + \beta_{16} CSR + \beta_{17} INDBOARD + Year + Industry\ Fixed\ Effects + Country\ Fixed\ Effects + \varepsilon_t, \quad (3)$$

where LEGAL captures the legal environment at country level and LEGAL x SPITEM is country's legal environment multiplied by negative special items. LEGAL x SLAVE is the interaction term between slavery and legal environment. We expect the co-efficient on the interaction term between countrywide slavery and legal environment (SLAVE x LEGAL), to be significantly negative if legal environment could moderate slavery and mitigates classification shifting in international firms.

We run Model 3 to examine whether the legal environment moderates modern slavery practices (Hypothesis 2). Our variable of interest is SLAVE x LEGAL. Results in Table 5 indicate that the interaction term between slave and legal environment (SLAVE× LEGAL) is significantly negative at 1% and 5% levels for developed and emerging/developing countries, suggesting that strong legal environment constrains modern slavery practices, and the effect

is pronounced in developed economies, confirming the strength of legal environment in developed economies. Therefore, we report that strengthening the institutional environment would constrain modern slavery in relation to expense misclassification.

(INSERT TABLE 5 HERE)

Next, we extend the analysis to investigate the moderating role of legal environment on the association between modern slavery and classification shifting. We follow an identification strategy adopted by Zalata et al. (2018) and Haw et al. (2011) to examine an interaction term, SLAVE x LEGAL x SPITEM. In general, the results indicate that SPITEM is still positive and significant, but SPITEM x LEGAL is negative and significant at 1%, suggesting that increased regulation surrounding modern slavery environment reduces firm's preference towards expense misclassification. As Models 7-9 of Table 5 indicate, the coefficients on the variable of interest, SLAVE x LEGAL x SPITEM, is negative and significant at 1% for both developed and emerging/developing countries sub-samples, demonstrating that the legal/institutional environment moderates modern slavery to induce expense misclassification. The latter becomes less prominent in firms and countries where illegal modern slavery is restrained due to the strong legal/institutional environment. This further suggests that strong institutional environment plays effective monitoring role in curbing illegal modern slavery to induce unethical classification shifting behaviour. These results highlight the importance of institutional environments in subduing opportunistic use of modern slavery and the associated classification shifting behaviour to improve the transparency of financial reporting.

5.0 Further Analyses

The analyses above have examined the moderating role of legal/institutional environment on the association between modern slavery and expense misclassification. However, we do not know the extent to which the institutional environment would moderate the association between slavery and real activities manipulations which are equally unethical and difficult to detect by regulators and auditors (Abernathy et al. 2014, Cheng et al. 2016). In further analyses, we investigate the underlying relationship between institutional environment, real earnings management and modern slavery practices.

5.1 Testing the Moderating Role of Legal/Institutional Environment on the Association between Slavery and Real Earnings Management

Prior research indicates that real activities are costly and could affect shareholder value and investor confidence (Duong & Pescetto, 2019, Järvinen & Myllymäki, 2016, Kothari et al., 2005; Yamen et al., 2022). Real activities do not violate GAAP accounting rules, do not involve fraudulent transactions and are difficult to detect by auditors and regulators (see Cohen & Zarowin, 2010, McGuire et al., 2012). Therefore, firms might increase real activities manipulations through the channel of modern slavery, weak institutional environment and structures to influence financial reporting outcomes in a slavery environment. For example, firms' are likely to exploit hidden modern slavery practices through over-production to report lower cost of sales because real activities are not fraudulent transactions and are difficult to detect by auditors and regulators.

We follow prior studies (Cohen & Zarowin, 2010, Kothari et al., 2016; McGuire et al., 2012, Roychowdhury, 2006) and employ two measures as proxies for real activities earnings management. To test this conjecture, we adopt the following Roychowdhury, (2006) real earnings management three expectation models (4) – (6) to estimate REM1 and REM2 measures.

$$\frac{CASFO_{it}}{TA_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{it-1}} + \alpha_2 \frac{SALES_{it}}{TA_{it-1}} + \alpha_3 \frac{\Delta SALES_{it}}{TA_{it-1}} + \varepsilon_{it}, \quad (4)$$

$$\frac{D\_EXP_{it}}{TA_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{it-1}} + \alpha_2 \frac{SALES_{it-1}}{TA_{it-1}} + \varepsilon_{it}, \quad (5)$$

$$\frac{PCOST}{TA_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{it-1}} + \alpha_2 \frac{SALES_{it}}{TA_{it-1}} + \alpha_3 \frac{\Delta SALES_{it}}{TA_{it-1}} + \alpha_4 \frac{SALES_{it-1}}{TA_{it-1}} + \varepsilon_{it}, \quad (6)$$

where D_*EXP* is the aggregate of discretionary expenses (i.e., selling, general and administrative expenses plus research and development expenses (R&D)), and *PCOST* is the aggregate of the cost of production and change in inventory. We run the cross-sectional regressions of equations (4)-(6) each year for each two-digit SIC industry and use the residuals to estimate abnormal cash flow from operations (*ABNOR_CASH*), abnormal

discretionary expenses (ABNOR_D*EXP*), and abnormal production costs (*ABNOR_PCOST*), respectively. REM1 is the aggregate of ABNOR_DEXP and ABNOR_PCOST and REM2 is the aggregate of ABNOR_DEX and ABNOR_CASH (See Appendix A). Thereafter, we estimate the following model for REM1 and REM2:

$$REM1 \text{ or } REM2 = \beta_0 + \beta_1 SLAVE + \beta_2 ROA + \beta_3 SIZE + \beta_4 MBV + \beta_5 LEV + \beta_6 GDP + \beta_7 BIG4 + \beta_8 ESGSCORE + \beta_9 AUDIT + \beta_{10} CSR + \beta_{11} INDBOARD + Year + Industry\ Fixed\ Effects + Country\ Fixed\ Effects + \varepsilon_t, \quad (7)$$

Following the above, we run model 7 to examine the impact of slavery (SLAVE) on our proxies for real earnings management (REM1 and REM2). Initially, we run separate regressions for SLAVE and REM1 as well as SLAVE and REM2. Results in Table 6 show that the coefficients of SLAVE are significantly positive at 1% level across all the sub-samples, suggesting that slavery would enhance real earnings management activities. Our results are somewhat in line with the findings of prior studies (see Cohen & Zarowin, McGuire et al., 2012) which argue that real activities do not violate GAAP accounting rules or are not subject to auditor scrutiny. If this is the case, it would imply that slavery would encourage real activities earnings management through over-production to report lower cost of sales. Real activities manipulations do not involve fraudulent transactions but could affect shareholder value, long-term cash flows and firms' future competitiveness. In addition, given the importance of audits for real earnings management, we control for financial auditing by including a dummy variable if the firm has been audited by BIG4 and whether they have been through social audit. We also control for sustainability by using ESG scores and corporate social responsibility (CSR score). Results show that social audit and BIG4 are negatively related to real earnings management. We also report that governance and ESG score decrease reals earnings management, though there is variability across sample. Results show that CSR score mitigates real earnings management for developed and full samples, but it enhances real earnings management for emerging and developing countries. Lastly, the board structure as measured by independent board members, INDBOARD, is also negatively associated with real earnings management.

(INSERT TABLE 6 HERE)

Next, we augment model 7 to include LEGAL and LEGAL x SLAVE to examine the moderating role of institutional environment on the association between slavery and our proxies for real activities earnings management (REM 1 and REM2). Results in Table 7 show

that the coefficients on the variable of interest, SLAVE x LEGAL is negative and significant at 1% and 5% for developed and emerging/developing countries sub-samples, suggesting that the institutional environment in relation to slavery would reduce real earnings management activities. The effect is much more pronounced in developed countries, suggesting that strong institutional environments exist in developed countries to combat the effect of slavery on real activities manipulations. Again, the results suggest that real activities are less prevalent in the presence of sophisticated investors and developed countries are less likely to use modern slavery for overproduction to report lower cost of sales (Roychowdhury, 2006). Our findings and inferences remain the same after controlling for BIG4 audit, CSR scores, ESG scores, social audit, and corporate governance variables. In an institutional environment, we show that audit would help to mitigate modern slavery and real earnings management but would not deter it.[5]

(INSERT TABLES 7 HERE)

5.2. High and Low Slavery Countries

The above analyses have not indicated the extent to which the results might be affected by the geographic location of the countries. For instance, the results might be driven by countries with high or low levels of slavery in the developed, emerging and developing countries sub-samples. To address this concern, we follow previous studies (McGuire et al., 2012, Dyreng et al., 2012) to segregate the datasets into two samples, consisting of high and low slavery countries. We define countries with above the median slavery figure in each sub-sample as having high slavery, and those below the median figure as low.

Table 8 presents the results of high and low slavery for all the sub-samples. Initially, we test the existence of classification shifting in both sub-samples and observe that the coefficients of SPITEM are still positive and significant at 1% level for both high and low slavery sub-samples. Thus, the inference remains unchanged, confirming that core earnings increase with special items in both high and low slavery countries. The coefficients of SLAVE and *SLAVE× SPITEM* are significant and positive at 1% level in all the sub-samples. In addition, Table 8 shows that the coefficients on the variable of interest, LEGAL and *SLAVE × LEGAL*

[5] Prior studies show that slavery offers some economic advantages to industries like lower operating costs and increased profits (e.g., Bales, 2012) and this does not exist only in developing countries, but also disclosed in developed countries (Christ et al., 2020). Previous literature examines how enterprises deploy illegitimate practices to achieve profitability and improve their survival rate (Crane et al., 2018). Therefore, Islam and van Staden (2018) highlight the need for companies to take actions to deal with the slavery regulations and widespread stakeholder concerns.

are negative in all the sub-samples. Note that for high slavery sub-samples in emerging and developing countries, the effect is much more pronounced, suggesting that slavery induces expense misclassification more in these countries where modern slavery practices are high.

(INSERT TABLE 8 HERE)

We also run similar results for both high and low sub-samples using our proxies for real earnings management. The untabulated results for REM1 and REM2 support our main findings and the inferences remain the same. Overall, we document evidence that country-level slavery is associated with classification shifting and real activities earnings management but this effect is mitigated by legal/strong institutional environments. Therefore, institutional environments should be strengthened to mitigate modern slavery and improve financial reporting quality.

6. CONCLUSION

This study investigates how the institutional environment influences the relationship between modern slavery practices and financial reporting quality across 63 countries. Findings indicate that modern slavery induces expense misclassification and real activities manipulations, especially in emerging and developing countries, which often lack robust regulatory frameworks (Gabbioneta et al., 2013; Holmes et al., 2013; Lewellyn & Bao, 2017; Muravyey, 2024). We also find that the institutional environment moderates the impact of slavery on financial reporting, reducing expense misclassification and real activities manipulation. Specifically, this moderating effect is evident in developed, emerging, and developing countries. Overall, institutional environments can enable unethical behaviours and concealment, but strengthening these environments can mitigate the negative impact of modern slavery on financial reporting quality.

This paper offers significant implications for policymakers, practitioners, and regulators across all countries and businesses. First, senior and corporate management should commit to addressing modern slavery risks in their supply chains by joining international accords like the UN Global Compact or AIM-Progress. Second, auditors and external monitors should enhance social and financial audits to detect hidden slavery-related crimes. Third, global regulators should enforce laws and strict sanctions against modern slavery, with developed nations aiding emerging economies in strengthening their laws. Fourth, internal governance should be reinforced, with mandatory modern slavery reporting, sustainability reports, and social audits included in annual reports to allow stakeholders to monitor firms'

progress. Additionally, our study supports enhanced external monitoring to complement corporate governance in reducing unethical financial reporting in environments affected by modern slavery. Policymakers should consider improving institutional environments, governance, and audit oversight to boost financial reporting integrity.

This study due to data availability issues includes observations for the period from 2013-2018. Future research could broaden data sources. Also, future research could control for economic and other shocks (like the Covid-19 pandemic) and employ methodologies such as "difference-in-difference". Further research could also explore the impact of modern slavery on other corporate outcomes like investment efficiency, profit shifting, and cash holdings.

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Table 1: List of Developed, Emerging and Developing Economies/Countries

Developed	Emerging & Developing	
Australia	Argentina	Côte d'Ivoire
Austria	Brazil	Croatia
Belgium	Chile	Gabonese Republic
Canada	China	Lebanon
Czech Republic	Colombia	Lithuania
Denmark	Estonia	Malawi
Finland	Hungary	Morocco
France	India	Papua New Guinea
Germany	Korea (South)	Sri Lanka
Greece	Kuwait	Tanzania
Iceland	Malaysia	Vietnam
Ireland	Mexico	
Italy	Namibia	
Japan	Nigeria	
Latvia	Oman	
Luxembourg	Peru	
Malta	Philippines	
Netherlands	Poland	
New Zealand	Russian Federation	
Norway	South Africa	
Portugal	Thailand	
Spain	Tonga	
Sweden	Tunisia	
Taiwan	Turkey	
United Kingdom	United Arab Emirates	
United States of America	Venezuela	

Source: IMF Outlook Groupings and World Bank Country Classification. The IMF classifies a country's economy based on its Gross Domestic Product, Gross Domestic Profit per capita, its export diversification, and its degree of integration into the global financial system.

Table 2: Descriptive Statistics

Panel A: Full Sample

Variables	Count	Mean	Std Dev	Min	Max
SALES	134,205	72619	1180	147574	3161456
UNEXP_CE	134,205	0.001	0.005	-0.066	0.003
REP_CE	134,205	0.016	0.112	0.004	0. 018
SPITEM	134,205	0.001	0.021	0.000	0.031
REM1	134,205	0.0218	2.868	-0.871	1.0001
REM2	134,205	0.095	1.342	0.002	1.002
ATO	134,205	3.947	2.605	0.188	8.432
ACCRUALS	134,205	-0.024	-0.021	-0.370	0.107
ΔSALES	134,205	0.136	0.069	-0.042	0.393
NEG_ΔSALES	134,205	0.106	0.049	-0.027	0.360
Control Variables					
SIZE	134,205	7.176	2.851	0.118	15.61
ROA	134,205	0.037	0.051	0.009	0.150
MBV	134,205	2.731	2.030	1.477	9.223
LEV	134,205	0.257	0.565	0.196	1.129
GDP	134,205	2.8648	0.139	1.021	3.101
BIG4	134,205	0.5690	0.4952	0	1
ESGSCORE	134,205	49.640	22.570	0.12	99.33
AUDIT	134,205	55.613	14.331	0	100
CSR	134,205	0.5048	0.499	0	1
INDBOARD	134,205	54.610	27.002	0	100
Independent Variables					
SLAVE	46,400	3.722	0.264	2.375	4.460
LEGAL	46,400	7.833	0.241	1.00	10.00

Panel B: Developed Countries

Variables	Count	Mean	Std Dev	Min	Max
SALES	92,456	56312	276596	68372	9643276
UNEXP_CE	92,456	0.003	0.135	-0.032	0.074
REP_CE	92,456	0.005	0.109	0.001	0.007
SPITEM	92,456	0.002	0.030	0.010	0.006
REM1	92,456	0.046	2.868	-0.371	0.891
REM2	92,456	0.089	1.853	0.001	1.098
ATO	92,456	3.852	2.968	2.337	5.561
ACCRUALS	92,456	-0.049	0.352	-0.027	0.282
ΔSALES	92,456	0.118	0.380	0.051	0.161

NEG_ΔSALES	92,456	0.127	0.389	-0.020	0.158
Control Variables					
SIZE	92,456	8.567	2.849	2.911	16.321
ROA	92,456	0.068	0.085	0.012	0.134
MBV	92,456	3.019	4.194	2.965	4.391
LEV	92,456	0.419	0.252	0.339	0.732
GDP	92,456	2.746	3.139	0.214	8.301
BIG4	92,456	0.6461	0.3608	0	1
ESGSCORE	92,456	46.365	16.598	1.76	87.67
AUDIT	92,456	66.882	9.890	0	100
CSR	92,456	0.5119	0.376	0	1
INDBOARD	92,456	56.203	27.113	0	100
Independent Variables					
SLAVE	26,790	1.067	0.264	0.375	1.089
LEGAL	26,790	8.840	0.1319	1.00	10.00

Panel C: Emerging and Developing Countries

Variables	Count	Mean	Std Dev	Min	Max
SALES	41,749	63117	315458	0.000	2643166
UNEXP_CE	41,749	0.006	0.713	-0.059	0.060
REP_CE	41,749	0.004	0.087	0.001	0.206
SPITEM	41,749	0.002	0.027	0.000	0.004
REM1	41,749	-0.896	2.150	-0.081	1.011
REM2	41,749	0.347	0.099	0.298	1.708
ATO	41,749	1.521	2.619	-1.337	3.561
ACCRUALS	41,749	-0.008	0.330	-0.297	0.282
ΔSALES	41,749	0.181	0.390	-0.651	1.613
NEG_ΔSALES	41,749	0.146	0.128	-0.047	0.308
Control Variables					
SIZE	41,749	7.543	2.542	4.119	15.618
ROA	41,749	0.072	0.085	0.018	0.134
MBV	41,749	2.499	2.793	1.965	2.991
LEV	41,749	0.291	0.276	0.121	0.432
GDP	41,749	2.179	2.112	0.016	12.310
BIG4	41,749	0.5091	0.487	0	1
ESGSCORE	41,749	44.172	21.295	0.11	95.14
AUDIT	41,749	50.613	12.289	0	100
CSR	41,749	0.5040	0.499	0	1
INDBOARD	41,749	52.359	26.614	0	100
Independent Variables					
SLAVE	19,610	3.745	0.196	3.131	4.441
LEGAL	19,610	6.609	0.174	1.00	10.00

Source: Authors' estimations: Notes: Appendix A outlines variables definition and data sources for all variables. We also report the correlation matrix and the number of firms per country in Appendix B.

Table 3: The impact of slavery on classification shifting

VARIABLES	Global	Developed	Eme. &Dev.
SPITEM	0.024*	0.038*	0.104*
	(1.908)	(1.906)	(1.937)
SLAVE	0.022*	0.074***	0.031***
	(1.702)	(2.855)	(3.039)
ROA	0.325***	1.078***	0.168**
	(5.102)	(4.238)	(2.371)
SIZE	0.054***	0.001***	0.009***
	(3.311)	(2.4640)	(-2.541)
MBV	0.001*	0.006***	0.001
	(1.920)	(2.901)	(1.115)
LEV	-0.138***	-0.045	-0.165***
	(-3.934)	(-0.291)	(-4.623)
GDP	0.138***	0.064	0.156***
	(3.156)	(1.025)	(2.242)
BIG4	-0.016*	-0.169**	-0.007***
	(-1.821)	(-2.074)	(-2.703)
ESGSCORE	-0.003	-0.001	-0.004**
	(-0.568)	(-0.377)	(-2.055)
CSR	-0.001	0.002	-0.001
	(-0.028)	(1.321)	(-0.723)
AUDIT	0.013	0.087	0.005
	(1.147)	(1.495)	(0.457)
INDBOARD	-0.108**	-0.001	0.011*
	(-2.069)	(-0.165)	(1.907)
CONSTANT	2.007***	2.221***	1.925***
	(6.661)	(3.781)	(4.248)
Observations	134,205	92,456	41,749
Adjusted R^2	0.392	0.374	0.317
Year FE	YES	YES	YES
Country FE	YES	YES	YES
Industry FE	YES	YES	YES

Source: Authors' estimations: Notes: *,** and *** are used in a two tailed test to respectively indicate statistical significance at 10 percent, 5 percent and 1 percent levels.

Table 4: The impact of slavery on classification shifting: interaction between SLAVE and SPITEM

VARIABLES	Global	Developed	Eme. & Dev.
SPITEM	0.108***	0.105***	0.165*
	(2.981)	(3.093)	(1.902)
SLAVE	0.221***	0.307***	0.315***
	(2.269)	(3.193)	(2.868)
SLAVE x SPITEM	0.001*	0.007**	0.011***
	(1.901)	(2.106)	(3.432)
ROA	-0.325***	-0.685***	-0.172**
	(-5.101)	(-3.909)	(-2.536)
SIZE	0.001*	0.009***	0.001
	(1.874)	(2.957)	(0.127)
MBV	0.001	0.010	0.002
	(0.691)	(0.828)	(0.008)
LEV	-0.126***	-0.053	-0.153***
	(-3.178)	(-0.345)	(-3.879)
GDP	0.139***	0.074	0.149***
	(9.163)	(1.459)	(9.868)
BIG4	-0.003*	-0.014*	-0.005*
	(-1.910)	(-1.903)	(-1.935)
ESGSCORE	-0.016*	-0.037	-0.010
	(-1.802)	(-0.911)	(-1.045)
CSR	-0.001	-0.001	0.002
	(-0.584)	(-0.427)	(0.011)
AUDIT	-0.00001	0.001	-0.00001
	(-0.042)	(0.958)	(-0.868)
INDBOARD	-0.094**	-0.035	0.016*
	(-2.186)	(-0.911)	(1.862)
CONSTANT	12.006***	11.846***	11.961***
	(6.316)	(5.843)	(5.797)
Observations	134,205	92,456	41,749
Adjusted R^2	0.393	0.307	0.440
Year FE	YES	YES	YES
Country FE	YES	YES	YES
Industry FE	YES	YES	YES

Source: Authors' estimations: Notes: *,** and *** are used in a two tailed test to respectively indicate statistical significance at 10 percent, 5 percent and 1 percent levels.

Table 5: Interaction between SLAVE× LEGAL on Classification Shifting

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All Obs	Developed	Eme.&Dev.	All Obs	Developed	Eme.&Dev.	All Obs	Developed	Eme.&Dev.
SPITEM	0.126*	0.101***	0.112**	0.126*	0.135**	0.104***	0.221*	0.211***	0.107**
	(1.730)	(2.979)	(1.815)	(1.835)	(2.123)	(3.040)	(1.857)	(3.121)	(2.110)
SLAVE	0.259**	0.104**	0.188*	0.220***	0.216***	0.224**	0.141***	0.201*	0.188***
	(2.015)	(2.072)	(1.860)	(2.910)	(2.648)	(2.026)	(3.210)	(1.890)	(3.816)
LEGAL	-0.416*	-0.452*	-0.569*	-0.510*	-0.889*	-0.320***	-0.505***	-0.438***	-0.435***
	(-1.846)	(-1.856)	(-1.872)	(-1.918)	(-1.835)	(-4.546)	(-3.314)	(-3.181)	(-2.916)
SLAVE x LEGAL	-0.104***	-0.017*	-0.142*	-0.132**	-1.257	-0.137***	-0.125***	-0.190**	-0.111***
	(-2.974)	(-1.824)	(-1.918)	(-2.099)	(-1.038)	(-4.657)	(-2.913)	(-3.012)	(-3.097)
LEGAL x SPITEM				0.023	0.101*	0.132**	0.001***	0.076	0.111
				(0.593)	(1.877)	(2.346)	(2.985)	(1.287)	(0.731)
SLAVE x SPITEM				0.023	0.101*	0.132**	0.016	0.076	0.111
				(0.593)	(1.877)	(2.346)	(0.818)	(1.287)	(0.731)
SLAVExLEGAL							-0.108*	-0.0109**	-0.102***
xSPITEM							(-1.874)	(-2.083)	(-2.986)
ROA	-0.324***	-0.588***	-0.178***	-0.279***	-0.536***	-0.139**	-0.217***	-0.104*	-0.218*
	(-5.032)	(-3.742)	(-2.618)	(-4.266)	(-3.337)	(-1.992)	(-2.763)	(-1.809)	(-1.866)
SIZE	0.002	0.009	0.002	0.001	0.006	0.003	-0.001	0.002***	-0.002**
	(0.574)	(0.969)	(0.408)	(0.375)	(0.680)	(0.600)	(-1.330)	(2.107)	(-2.001)
MBV	0.002	0.005	0.001	0.002	0.006	0.001	0.001	-0.001***	0.003***
	(0.796)	(0.408)	(0.194)	(0.981)	(0.491)	(0.271)	(0.570)	(-3.392)	(6.272)
LEV	-0.143***	-0.077	-0.175***	-0.142***	-0.098	-0.172***	-0.122***	-0.158***	-0.109***
	(-4.043)	(-0.678)	(-4.826)	(-4.069)	(-0.861)	(-4.774)	(-3.765)	(-3.063)	(-2.929)
GDP	0.137***	0.069	0.148***	0.140***	0.074	0.149***	0.144***	0.117***	0.119***
	(9.060)	(1.367)	(9.774)	(9.358)	(1.489)	(9.924)	(3.453)	(3.466)	(3.479)
BIG4	-0.013	-0.054	-0.006	-0.010	-0.048	-0.006	-0.001**	0.002***	-0.002***
	(-1.339)	(-1.335)	(-0.635)	(-1.095)	(-1.183)	(-0.616)	(-2.633)	(3.207)	(-3.104)
ESGSCORE	-0.001	-0.001	-0.001	-0.001	-0.002	0.001	0.001	-0.001***	0.003***
	(-0.435)	(-1.203)	(-0.007)	(-0.199)	(-0.981)	(0.156)	(0.570)	(-3.392)	(6.272)
CSR	-0.001	0.001	-0.001	-0.021	0.004*	-0.001	-0.0122	-0.008	-0.009
	(-0.089)	(1.593)	(-0.795)	(-0.035)	(1.873)	(-0.789)	(-1.075)	(-1.063)	(-0.529)
AUDIT	0.011	0.031	0.004	0.007	0.011	0.004	0.001	0.0017	0.0029
	(0.955)	(0.832)	(0.354)	(0.565)	(0.278)	(0.322)	(1.459)	(1.342)	(1.279)
INDBOARD	-0.111*	0.001*	0.001	0.0002	0.006	0.004	0.012*	0.001****	0.006
	(-1.891)	(1.871)	(0.260)	(0.991)	(1.248)	(1.202)	(1.883)	(2.490)	(0.814)
CONSTANT	3.868***	4.749	1.671	2.450***	4.622	1.156	2.763***	5.421***	2.451***

	(10.943)	(1.266)	(0.142)	(10.554)	(1.244)	(1.013)	(3.021)	(3.151)	(4.169)
Observations	134,205	92,456	41,749	134,205	92,456	41,749	134,205	92,456	41,749
Adjusted R^2	0.396	0.564	0.441	0.414	0.583	0.451	0.335	0.338	0.335
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Source: Authors' estimations: Notes: *,** and *** are used in a two tailed test to respectively indicate statistical significance at 10 percent, 5 percent and 1 percent levels. The study shows co-efficient estimates and t-statistics (in brackets).

Table 6: Impact of Slavery on Real Activities Management

VARIABLES	Full Sample	Full Sample	(REM1) Developed	(REM1) Developed	(REM2) Developed	(REM2) Developed	(REM1) Eme.&Dev.	(REM1) Eme.&Dev.	(REM2) Eme.&Dev.	(REM2) Eme.&Dev.
SLAVE	0.153***	0.807***	0.103*	0.461**	0.804***	0.463*	0.013***	0.625	0.201***	3.632**
	(2.819)	(3.187)	(1.855)	(2.023)	(3.376)	(1.870)	(4.464)	(0.793)	(2.832)	(2.028)
ROA	-3.637***	-0.440***	-0.073***	0.189***	-0.931	-0.006***	-0.116***	0.146	0.007	-0.200***
	(-3.822)	(-3.434)	(-3.290)	(3.512)	(-1.363)	(-2.734)	(-4.982)	(0.218)	(1.136)	(-2.815)
SIZE	-0.012	0.163	-0.001	1.230	-0.286	-0.225	0.000	0.029	0.000	-0.243
	(-0.431)	(1.115)	(-1.568)	(1.215)	(-0.955)	(-1.101)	(0.339)	(0.057)	(1.094)	(-1.221)
MBV	-0.006	-0.634	0.000	-0.710	-0.042	0.089	0.000**	0.031	0.000	0.109
	(-0.705)	(-0.249)	(0.187)	(-0.282)	(-1.150)	(0.179)	(2.344)	(0.267)	(0.990)	(0.220)
LEV	0.658	0.279	0.046**	0.691	0.040	-0.143	0.054***	10.679	0.011	-0.250
	(0.825)	(0.014)	(2.014)	(0.035)	(0.030)	(-0.037)	(3.458)	(1.633)	(1.611)	(-0.064)
GDP	-0.831*	-0.308	-0.432	-6.465	-0.179**	1.382	-0.183	0.955*	-0.125**	1.423
	(-1.769)	(-1.147)	(-1.550)	(-1.186)	(-2.441)	(1.280)	(-1.322)	(1.910)	(-2.460)	(1.329)
BIG4		-0.347*		-0.476*		-0.593***		-0.509*		-0.626*
		(-1.906)		(1.852)		(-2.819)		(-1.805)		(-1.874)
ESGSCORE		-0.063*		-0.383*		0.016		-0.079*		-0.062
		(-1.827)		(-1.832)		(0.378)		(-1.834)		(-1.140)
CSR		-0.633*		-0.572**		-0.128*		0.137		0.112**
		(-1.842)		(-2.132)		(-1.898)		(1.416)		(2.131)
AUDIT		-0.395*		-0.408*		0.073		-0.052*		0.076
		(-1.868)		(-1.852)		(1.474)		(-1.899)		(1.572)
INDBOARD		-0.132*		-0.138*		-0.136		-0.128*		-0.125
		(-1.859)		(-1.862)		(1.474)		(-1.827)		(1.121)
CONSTANT	0.931	0.803**	0.937***	0.471**	0.476***	0.207**	0.327**	0.861	0.322***	0.896**
	(0.936)	(2.390)	(6.948)	(2.512)	(3.261)	(2.283)	(11.983)	(1.187)	(3.256)	(2.421)
Observations	134,205	134,205	92,456	92,456	92,456	92,456	41,749	41,749	41,749	41,749
Adjusted R^2	0.003	0.124	0.160	0.123	0.001	0.143	0.177	0.148	0.022	0.148
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Source: Authors' estimations: Notes: *,** and *** are used in a two tailed test to respectively indicate statistical significance at 10 percent, 5 percent and 1 percent levels. The study shows co-efficient estimates and t-statistics (in brackets).

Table 7: Impact of Slavery & legal environment on Real Activities Management

VARIABLES	REM1, Full Sample	REM1, Full Sample	(REM1) Developed	(REM1) Developed	(REM2) Developed	(REM2) Developed	(REM1) Eme.&Dev.	(REM1) Eme.&Dev.	(REM2) Eme.&Dev.	(REM2) Eme.&Dev.
SLAVE	0.037**	0.0953*	0.577*	0.0799	0.0798*	0.186*	0.127*	0.344	0.041*	0.714**
	(2.015)	(1.905)	(1.947)	(1.308)	(1.837)	(1.718)	(1.806)	(1.316)	(1.820)	(2.681)
LEGAL	-0.643*	0.078	-0.233*	0.844	-0.143**	-0.928*	-0.634*	-0.534	-0.062*	-0.865*
	(-1.941)	(0.980)	(-1.940)	(0.344)	(-2.046)	(-1.701)	(-1.710)	(-1.266)	(-1.829)	(-1.887)
SLAVE x LEGAL	-0.101*	-0.412*	-0.528***	-0.185*	-0.903***	0.001	-0.872*	0.140	-0.017**	-0.478*
	(-1.945)	(-1.805)	(-3.067)	(-1.839)	(-3.253)	(0.718)	(-1.691)	(1.324)	(-2.126)	(-1.780)
ROA	-0.317***	-0.660***	-3.313***	0.613	-0.008	0.001	-0.657***	-0.154	-0.001**	0.023
	(-3.881)	(-3.473)	(-2.648)	(0.035)	(-0.036)	(0.770)	(-4.565)	(-1.357)	(-2.156)	(0.742)
SIZE	-0.039	1.705	-0.066	-0.115	0.013*	-0.111**	0.004	-0.145*	-0.000	-4.219**
	(-0.917)	(1.541)	(-0.922)	(-0.151)	(1.823)	(-2.288)	(0.507)	(-1.909)	(-0.122)	(-2.318)
MBV	-0.009	-0.448	-0.019	0.046	0.004*	0.033	-0.000	0.0024	0.001	0.006
	(-0.905)	(-0.176)	(-0.878)	(0.341)	(1.893)	(0.337)	(-0.063)	(0.292)	(0.942)	(0.058)
LEV	0.778	-3.098	2.093	9.476	-0.346	-0.159	-0.568	0.000	-0.006	-0.099
	(0.876)	(-0.153)	(1.375)	(1.210)	(-1.356)	(-0.709)	(-0.822)	(0.031)	(-1.106)	(-0.444)
GDP	-0.720*	-6.344	-0.321	4.879	-0.168**	0.668	-0.172	0.001	-0.113**	-0.014
	(-1.876)	(-1.155)	(-1.440)	(1.730)	(-2.330)	(0.219)	(-1.211)	(0.046)	(-2.352)	(-0.005)
BIG4		-0.089*		-2.267***		0.911		-0.005*		-0.039*
		(1.801)		(-2.745)		(1.590)		(-1.823)		(-1.834)
ESGSCORE		-0.334		-0.438***		-0.716*		-0.002		0.024
		(-1.195)		(-2.618)		(-1.783)		(-0.419)		(0.692)
CSR		-0.633*		-0.572**		-0.028		-0.001**		0.023
		(-1.842)		(-2.132)		(-1.527)		(-2.719)		(1.063)
AUDIT		-0.395*		-0.408*		-0.090*		-0.002*		0.134
		(-1.868)		(-1.852)		(-1.689)		(-1.866)		(0.687)
INDBOARD		-0.111*		-0.081*		-0.343		-0.202*		-0.258
		(-1.891)		(-1.88)		(1.214)		(-1.889)		(0.951)
Constant	36.351**	0.803**	74.877	0.471**	-2.204	0.051	38.190*	0.301	0.481***	0.896**
	(1.980)	(2.390)	(0.912)	(2.512)	(-1.197)	(1.336)	(1.811)	(0.096)	(5.046)	(2.421)
Observations	134,205	134,205	92,456	92,456	92,456	92,456	41,749	41,749	41,749	41,749
Adjusted R^2	0.008	0.124	0.010	0.123	0.008	0.214	0.036	0.222	0.036	0.214
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	(0.805)	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Source: Authors' estimations: Notes: *,** and *** are used in a two tailed test to respectively indicate statistical significance at 10 percent, 5 percent and 1 percent levels. The study shows co-efficient estimates and t-statistics (in brackets).

Table 8: Impact of High/Low Slavery & legal environment on classification shifting

VARIABLES	Full Sample LOW	Full Sample HIGH	Developed LOW	Developed HIGH	Eme.&Dev. LOW	Eme.&Dev. HIGH
SPITEM	0.113***	0.111***	0.736***	0.139***	0.152***	0.728***
	(2.716)	(3.533)	(4.024)	(4.574)	(2.975)	(4.993)
SLAVE	0.167***	0.884***	0.439***	0.107***	0.131***	0.267***
	(3.349)	(13.444)	(2.952)	(3.057)	(3.383)	(12.737)
SLAVE x SPITEM	0.101***	0.114***	0.194***	0.109***	0.140***	0.459***
	(3.698)	(3.464)	(3.999)	(4.572)	(2.974)	(4.993)
LEGAL	-0.105**	-0.101***	-0.706***	-0.048	-0.135**	-0.610***
	(2.193)	(12.461)	(2.923)	(-0.292)	(-2.260)	(-11.246)
SLAVE x LEGAL	-0.120	-0.085***	-0.163***	-0.006	-0.046	-0.124***
	(-1.126)	(-12.350)	(-2.989)	(0.137)	(0.334)	(-11.463)
ROA	-0.252***	-0.328***	-0.261***	-0.326***	-0.251***	-0.313***
	(21.857)	(26.183)	(13.874)	(19.153)	(15.209)	(15.903)
SIZE	0.001	-0.001	-0.040***	-0.002***	-0.002*	-0.006***
	(0.735)	(-1.422)	(-4.236)	(-3.018)	(-1.770)	(-7.618)
MBV	-0.001	0.001	-0.001***	-0.001***	-0.020	-0.003***
	(-0.695)	(1.236)	(-3.832)	(-3.021)	(-0.556)	(-5.326)
LEV	0.177***	0.106***	0.169***	0.148***	0.201***	0.105***
	(21.294)	(12.556)	(13.155)	(12.410)	(16.735)	(8.316)
GDP	0.155***	0.142***	0.175***	0.171***	0.145***	0.127***
	(55.929)	(42.998)	(31.881)	(31.844)	(42.876)	(30.848)
CONSTANT	11.610***	8.539***	6.625***	11.994***	12.341***	7.161***
	(63.398)	(33.972)	(3.610)	(24.521)	(9.657)	(18.673)
Observations	109,329	24,876	62,871	29,585	22,961	18,786
Adjusted R^2	0.378	0.339	0.402	0.372	0.379	0.358
Control variables	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Source: Authors' estimations: Notes: *,** and *** are used in a two tailed test to respectively indicate statistical significance at 10 percent, 5 percent and 1 percent levels. The study shows co-efficient estimates and t-statistics (in brackets).

Appendix B, Table B2 Number of Firms per Country (% of the sample in parenthesis).

Country	N	Country	N	Country	N
ARE	2,023 (0.42%)	HRV	2,504 (0.52%)	NLD	2,022 (0.42%)
ARG	1,589 (0.33%)	HUN	608 (0.13%)	NOR	2,573 (0.53%)
AUS	44,435 (9.14%)	IND	42,583 (8.7%)	NZL	1,773 (0.36%)
AUT	2,329 (0.48%)	IRL	839 (0.17%)	OMN	1,737 (0.36%)
BEL	4,010 (0.82%)	ISL	298 (0.06%)	PER	4,654 (0.96%)
BRA	7,146 (1.47%)	ITA	3,469 (0.71%)	PHL	3,040 (0.63%)
CAN	8,049 (1.66%)	JPN	36,545 (5.7%)	PNG	52 (0.01%)
CHL	9,478 (1.95%)	KOR	14,389 (2.9%)	POL	8,074 (1.66%)
CHN	68,622 (14.1%)	KWT	1,924 (0.4%)	PRT	529 (0.11%)
CIV	746 (0.15%)	LBN	8,153 (1.7%)	RUS	2,765 (0.57%)
COL	2,123 (0.44%)	LKA	3,823 (0.79%)	SWE	21,538 (4.3%)
CZE	11,426 (2.35%)	LTU	575 (0.12%)	THA	7,221 (1.49%)
DEU	9,654 (1.99%)	LUX	733 (0.15%)	TTO	197 (0.04%)
DNK	2,268 (0.47%)	LVA	265 (0.05%)	TUN	863 (0.18%)
ESP	2,099 (0.43%)	MAR	790 (0.16%)	TUR	4,236 (0.87%)
EST	2,250 (0.46%)	MEX	1,531 (0.31%)	TWN	19,380 (3.99%)
FIN	1,948 (0.40%)	MLT	259 (0.05%)	TZA	1,892 (0.39%)
FRA	10,550 (2.17%)	MWI	640 (0.13%)	USA	44,851 (9.22%)
GAB	1,027 (0.21%)	MYS	11,540 (2.4%)	VEN	157 (0.03%)
GBR	20,247 (4.16%)	NAM	2,485 (0.51%)	VNM	4,756 (0.98%)
GRC	2,317 (0.48%)	NGA	2,169 (0.45%)	ZAF	3,434 (0.71%)

Source: Authors' estimations. For abbreviations of countries in the sample see ISO 3166-1, ALPHA-3.

Appendix: A - Variable Definitions and Source of Data

Variable	Definition	Source of Data
REP_CE	Estimated as sales – cost of goods sold (COGS) – selling, general and administration expenses (SG&A) scaled by sales. Consistent with Behn et al. (2013), where firms fail to disclose COGS and SG&A, REP_CE is calculated as (sales – total operating expenses)/sales.	Compustat Global
UNEXP_CE	Calculated as the difference between expected core earnings (estimated from model 1) and reported core earnings by industry and fiscal year. A minimum of 10 firm year observations are required per industry group.	Compustat Global
SPITEM	Income-decreasing special items scaled by sales.	Compustat Global
ATO	Calculated as $Sales_t$ scaled by average net operating assets $[NOA_t+NOA_{t-1}]/2$; average NOA is required to be > 0.	Compustat Global
NOA	Calculated as the difference between operating assets (OA) and operating liabilities (OL).	Compustat Global
OL	Calculated as total assets – total debt (debt in current liabilities + long-term debt) – book value of common and preferred equity – minority interests.	Compustat Global
OA	Calculated as total assets – cash and short-term investments.	Compustat Global
$ACCRUALS_{t-1}$	Calculated as in Francis and Wang (2008), as detailed above.	Compustat Global
TACC	Difference between earnings before extraordinary items and discontinued operations and the cash flow from operational activities scaled by lagged total assets, like Behn et al (2013).	Compustat Global
WC_ACC	Calculated as a change in current assets net of a change in cash, minus a change in current liabilities net of a change in the current portion of long-term debt, like Behn et al (2013).	Compustat Global
$\Delta SALES_t$	Calculated as $(Sales_t – Sales_{t-1})/Sales_{t-1}$	Compustat Global
$NEG\_\Delta SALES_t$	Indicator variable equal to 1 if change in sales < 0, and 0 otherwise.	Compustat Global
SLAVE	Estimated population in modern slavery divided by total population.	Global Slavery Index
SLAVESPI	Interaction term between income-decreasing special items and a country's level of slavery.	Global Slavery Index/ Compustat Global
LEGAL	A measure of legal environnent score taking values from zero to ten for all the three main indicators.	International Country Risk Guide (ICRG)
LEGALSPI	Interaction term between legal environment and income-decreasing special items	International Country Risk Guide (ICRG)/ Compustat Global

SIZE	Natural log of market value of equity (Behn et al., 2013).	Compustat Global
ROA	Calculated as net income plus interest expenses scaled by total assets at the beginning of the period (Behn et al., 2013).	Compustat Global
MBV	Natural log of book value of equity scaled by market value of equity (Behn et al., 2013).	Compustat Global
LEV	Calculated as total liabilities scaled by total assets (Behn et al., 2013).	Compustat Global
BIG4	A value of 1 if the firm was audited by big 4/5 auditors, otherwise zero.	Thomson Reuters Asset4
ESGSCORE	A measure of sustainability reporting/environmental, social and governance (ESG) dimension disclosure	The Bloomberg
AUDIT	A measure of social audit disclosure and the quality of the enforcement in each country, calculated using the index measuring the quality of the auditing environment (Brown et al., 2014)	The Bloomberg
CSR	An index measuring corporate social responsibility disclosure	The Bloomberg
INDBOARD	An index measuring the number of independent board members	Thomson Reuters Asset4
LOSS	An indicator variable that equals 1 if income before extraordinary items was negative in the current or previous two fiscal years, and 0 otherwise;	Compustat Global
TA	Measured as total Non-current assets plus total current assets	Compustat Global
GDP	Annual GDP growth rate (GDP per capita U.S. $).	World Development Indicators
D_EXP	Measured as the aggregate of advertising expenses, R& D expenses, SG & A expenses scaled by lagged total assets (Rowchowdhury, 2006)	Compustat Global
ABNOR_DEXP	Abnormal discretionary expenses, measured as deviations from the predicted values from the corresponding industry-year regression (Rowchowdhury, 2006).: The figure for *(ABNOR_DEXP)* is multiplied by negative one (-1), consequently, a higher *(ABNOR_DEXP)* figure represents higher real earnings management.	Compustat Global
CASFO	Is the cash flow from operational activities scaled lagged total assets	Compustat Global
ABNOR_CASH	Abnormal cashflow measured as deviations from the predicted values from the corresponding industry-year regression (Rowchowdhury, 2006). The figure for *(ABNOR_* CASH*)* is multiplied by negative one (-1), consequently, a higher *(ABNOR_* CASH*)* figure represents higher real earnings management.	Compustat Global
PCOST	Measured as the aggregate of cost of production/sales and change in inventory during the year scaled by lagged total assets.	Compustat Global
ABNOR_PCOST	Abnormal production costs measured as deviations from the predicted values from the corresponding industry-year regression (Rowchowdhury, 2006). A higher *(ABNOR_PCOST)* figure represents higher real earnings management.	Compustat Global
REM1	Calculated as the aggregate of abnormal discretionary expenditures *(ABNOR_DEXP)* and abnormal production costs *(ABNOR_PCOST).* The higher the value, the higher the levels of real earnings management	Compustat Global
REM2	Calculated as the aggregate of abnormal discretionary expenditure *(ABNOR_DEXP*) and abnormal cash flows (*ABNOR_CASH*). The higher the value, the higher the level of real earnings management	Compustat Global

Appendix B, Table B1: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(1) SALES	1.000																					
(2) UNEXP_CE	0.017	1.000																				
(3) REP_CE	0.010	0.000	1.000																			
(4) SPITEM	-0.039	-0.073	-0.031	1.000																		
(5) REM1	0.001	0.106	0.000	0.000	1.000																	
(6) REM2	-0.004	-0.156	-0.005	0.016	0.009	1.000																
(7) ATO	0.012	0.000	0.005	-0.007	0.038	-0.021	1.000															
(8) ACCRUALS	0.034	-0.001	0.032	-0.403	0.001	-0.004	0.007	1.000														
(9) ΔSALE	0.006	-0.003	-0.010	-0.086	0.003	0.001	-0.004	0.039	1.000													
(10) NEG_ΔSALES	0.032	-0.850	0.001	-0.002	-0.004	-0.002	0.124	0.000	0.006	1.000												
(11) SIZE	0.459	0.135	-0.045	-0.112	0.003	-0.021	0.022	0.113	-0.045	0.064	1.000											
(12) ROA	0.097	-0.263	0.061	-0.528	0.003	-0.027	0.264	0.459	0.163	-0.001	0.143	1.000										
(13) MBV	0.036	0.014	-0.007	-0.024	0.001	-0.002	0.022	0.024	-0.012	0.000	0.049	0.026	1.000									
(14) LEV	0.070	-0.022	-0.063	-0.087	-0.001	-0.010	0.036	0.142	0.026	0.001	0.089	-0.048	0.111	1.000								
(15) GDP	0.014	0.003	-0.007	-0.112	0.003	-0.001	-0.002	0.063	0.975	0.005	-0.026	0.216	-0.013	0.034	1.000							
(16) BIG4	0.069	-0.001	-0.054	-0.105	-0.024	0.025	-0.004	0.066	-0.003	-0.008	-0.024	-0.042	0.052	0.319	-0.002	1.000						
(17) ESGSCORE	0.001	0.010	0.049	0.129	0.009	0.006	-0.002	-0.123	-0.035	0.002	0.007	-0.084	-0.038	-0.241	-0.050	-0.282	1.000					
(18) AUDIT	0.020	0.015	-0.005	0.090	-0.002	-0.015	-0.004	-0.013	-0.028	0.025	0.039	0.068	-0.006	-0.094	-0.045	0.291	0.138	1.000				
(19) CSR	-0.039	0.014	0.084	0.180	0.008	-0.021	0.001	-0.229	-0.048	0.003	-0.052	-0.063	-0.061	-0.450	-0.070	-0.229	0.665	0.185	1.000			
(20) INBOARD	-0.025	0.000	0.054	0.139	0.005	-0.004	-0.002	-0.174	0.007	0.002	-0.029	-0.085	-0.054	-0.304	-0.005	-0.174	0.902	0.080	0.633	1.000		
(21) SLAVE	-0.078	-0.089	-0.031	0.043	0.000	0.012	0.039	-0.114	0.013	-0.001	-0.024	-0.092	0.030	0.048	0.011	0.124	0.020	-0.101	0.010	0.014	1.000	
(22) LEGAL	0.041	-0.015	-0.022	0.039	-0.009	0.025	-0.011	-0.094	-0.054	-0.107	-0.118	-0.126	0.082	0.052	-0.073	0.324	-0.044	-0.029	-0.071	-0.060	0.228	1.000