THE EFFECT OF INDUSTRY LEVEL CHARACTERISTICS AND CROSS–COUNTRY DIFFERENCES ON EARNINGS MANAGEMENT: A EUROPEAN COMPARATIVE PERSPECTIVE

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Abstract

The current study examines the direction and intensity of the earnings management phenomenon in the firms of four European countries. More specifically, a multiple regression analysis (panel data) is used to investigate firm-level, industry-level, and cross-country differences due to different institutional and legal frameworks with respect to corporate governance. Employing a sample of United Kingdom (UK), German, French, and Italian firms for the period 2010–2019 we estimate the intensity of the earnings management phenomenon using, as a proxy, the magnitude of discretionary accruals. Two models were adopted to analyze the data, namely the modified Jones model (Dechow et al., 1995) and the model of Dechow and Dichev (2002) (DD), as modified by McNichols (2002). Our results indicate that Italian firms exhibit a greater degree of earnings management, followed by German, French, and UK firms. In particular, code law countries manipulate their earnings to a greater extent compared to common law countries (Jiang et al., 2018; Balios et al., 2020). Additionally, our empirical findings suggest that the phenomenon is more intense in competitive industry environments (Datta et al., 2013; Markarian & Santalo, 2014). Sensitivity tests indicate that both firm-specific characteristics and the regulatory framework of each country should be taken into account when assessing the earnings management phenomenon.

Keywords: Earnings Management, Discretionary Accruals, Code Law, Common Law, Industry, Income Smoothing

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1. INTRODUCTION

Earnings management is one of the most interesting and widespread topics in the fields of accounting, financial management, and corporate governance. For this reason, it has attracted the attention of many researchers and practitioners. Earnings management is defined as the process in which managers use their subjective judgment either in the preparation of financial reporting or in the real activities' manipulation of their firm in order to change its financial statement (Healy & Wahlen, 1999; Ye, 2007; Kliestik et al., 2021). The aim is twofold. Executives may attempt to present an 'embellished' picture of the firm's financial statement in an attempt to mislead internal and external stakeholders (e.g., shareholders, potential investors, etc.). Dichev et al. (2013) report that 20% of the firms in their study apply earnings management practices to present a distorted picture of their performance, while in these firms 10% of their earnings per share is due to earnings management practices. In addition, earnings management may also aim to achieve specific results and benefits that are directly dependent on and linked to the published financial statements of the firm (Schipper, 1989; Healy & Wahlen, 1999; Ye, 2007). Therefore, earnings management is classified into accrual-based earnings management (AEM) and real earnings management (REM) (Cohen & Zarowin, 2010; Enomoto et al., 2015; Kim et al., 2020). The relevant literature argues that the earnings management phenomenon and its intensity are not only influenced by top management decisions but also largely determined by the institutional environment of each country, such as the prevailing legal and regulatory framework, the power and functioning of capital markets, the degree of investor protection, etc (Leuz et al., 2003; Wysocki, 2004; Shen & Chih, 2005; Carmo et al., 2016). Previous studies find substantial variations in the intensity of the phenomenon across countries with different legal and institutional regimes (Leuz et al., 2003; Oz & Yelkenci, 2018; Kliestik et al., 2021). In addition, several studies highlight the importance of the sectoral and competitive environment of a firm in the adoption or not of such practices (Goel, 2012; Datta et al., 2013; Markarian & Santalo, 2014; Bolton et al., 2016; Wasiuzzaman, 2018).

This study investigates the degree of earnings management in a data sample consisting of firms operating in four large capital markets on the European continent, namely the UK, Germany, France, and Italy. Our sample includes 17,394 firm-year observations and covers the period 2010–2019. To investigate our propositions, we use the modified Jones model (Dechow et al., 1995) and the Dechow and Dichev (2002) (DD) model, as modified by McNichols (2002). We consider additional analysis to determine the sensitivity of our findings and to confirm that earnings manipulation is evident and intense in the European environment. For the overall assessment of the phenomenon in the four aforementioned European countries, we apply a three-level analysis (firm-level, industry-level, and country-level) and combine different earnings management techniques (i.e., earnings management models and measures). The data analysis led to further conclusions regarding both the intensity of the earnings management phenomenon and the differences between common law and code law countries. Furthermore, we aim to investigate and identify the differences in the intensity of the phenomenon across different sectors of economic activity. To identify these differences, we use specific earnings management practices such as 'income smoothing' and 'accrual manipulations' (Leuz et al., 2003; Balios et al., 2020).

As already discussed, earnings manipulation has been of great concern to the research community. This study contributes to the finance and accounting literature by documenting that industry and institutional frameworks affect managerial financial reporting decisions. For the purposes of this study, we combine firms' characteristics related to earnings management in order to draw reliable conclusions about firm financial reporting policies. More specifically, our study extends the empirical results of the literature on financial disclosure by examining the relationship between cross-country, industry differences, and earnings manipulation. This highlights the importance of institutional characteristics that affect the quality of corporate financial reporting quality.

The limited evidence on the differences across firm industries with respect to earnings management practices is the key motive for this study. Given that earnings management is a dynamic phenomenon that is constantly evolving, we believe that this study attempts to fill the gap in the existing literature. Hence, by examining the impact of earnings management measures on the industry in four European countries, we obtain robust results regarding the multidimensional phenomenon of earnings manipulation. The tendency of firms to manipulate earnings in a highly competitive industry environment becomes apparent. Finally, our findings provide strong evidence that corporate governance mechanisms are necessary, especially in countries with weak investor protection, weak corporate governance systems, and strong government supervision.

The remainder of the paper is as follows. In Section 2, a literature review is conducted, and our research hypotheses are developed. In Section 3, we investigate the models and measures of earnings manipulation. Section 4 describes the data sample and in Section 5, we present the empirical results. Section 6 concludes with a discussion of the conclusions of this study and includes limitations and recommendations for future research.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The phenomenon of earnings management is evident and particularly prevalent in the international business environment (Fama, 1980; Schipper, 1989; Healy & Wahlen, 1999; Ye, 2007; Beyer et al., 2019; Mangala & Isha, 2019; Kliestik et al., 2021). Certainly, the earnings manipulation practices of a firm's top management may be significantly influenced by both the internal environment of the firm and its external characteristics.

More specifically, in terms of the internal environment of the firm, previous studies focus on the influence of factors such as firm size (Scott, 1991; Rutledge, 1995; Shu & Chiang, 2014), degree of financial leverage (Bartov, 1993; Beatty &

Weber, 2003; Jelinek, 2007), managerial or institutional ownership (Balsam et al., 2002; Ebrahim 2007; Cornett et al., 2008; Al-Fayoumi et al., 2010; Mitani, 2010; Alves, 2012; Balios et al., 2022) etc.

The literature concludes that earnings management practices are related to a number of factors (external characteristics) relevant to the country in which the firm operates. These potential influencing factors include, among others, the growth opportunities, the importance of the capital market for the firm, the degree of investor protection by the legislative framework, the culture, the degree and effectiveness of law enforcement, or the wider effectiveness of the legislative framework (Smith & Watts, 1992; Skinner, 1993; Leuz et al., 2003; Burgstahler et al., 2006).

The above summarizes some characteristics of firms that have attracted the interest of several scholars. However, the current study focuses on two additional factors that may affect earnings manipulation. The first characteristic is the industry to which the firm belongs. It was selected because the literature has not dealt — only minimally — with the link between the industry environment of the firm and the occurrence of the earnings management phenomenon. The second characteristic relates to the institutional and regulatory framework that the firm follows in the country where it operates. This factor is examined because it is one of the most critical factors that can influence the phenomenon of earnings manipulation, according to the literature. Therefore, the present study investigates the two characteristics that have attracted the researchers' least and most interest, respectively, in order to draw more robust results. Their analysis is described in subsections 2.1 and 2.2.

2.1. Industry characteristics and earnings management

The industry in which a firm operates plays a very important role in the occurrence of the earnings management phenomenon (Sun & Rath, 2009; Akdoğu & MacKay, 2012; Hassan & Ahmed, 2012; Datta et al., 2013; Wasiuzzaman et al., 2015; Bolton et al., 2016). In particular, factors such as leverage, degree of entrepreneurial risk, asset structure, technology diffusion, legal framework, etc., are common to firms operating in the same industry (Chevalier, 1995). By all means, a firm's overall industry-specific competitive environment and the type of its service, among others, affect all its financial decisions and, by extension, its potential decision to engage in earnings management practices (Akdoğu & MacKay, 2012; Datta et al., 2013; Shi et al., 2018). Therefore, firms in the same industry are expected to adopt common or similar earnings management practices, such as, for example, how they manage accruals (Bolton et al., 2016). In particular, numerous studies (Sun & Rath, 2009; Goel, 2012; Hassan & Ahmed, 2012; Wasiuzzaman et al., 2015; El Diri et al., 2020) conclude that earnings management practices differ across industries and tend to occur more frequently in specific markets. Specifically, Goel (2012), by examining a sample of firms from 12 different industries, concluded that the type of earnings management practices that firms may adopt differs across industries. In particular, firms operating in service industries tend to adopt practices that reduce their declared earnings, while on the contrary, firms in non-service industries tend to adopt practices that increase their declared earnings. Subsequently, Wasiuzzaman (2018), by examining a large sample of firms from 13 different industries in Malaysia, reported that earnings management practices vary across different industries. The author found that while some industries are dominated by earnings smoothing, other industries are mostly characterized by voluntary disclosure of accruals. The analysis showed that capital intensity, the level of profitability, and the degree of volatility of market economic variables are the main factors in changes in earnings management practices.

However, the existing literature has not particularly investigated the relationship between the industry environment and earnings management. In general, two conflicting theories have been put forward regarding the possible impact of intense competition on the occurrence of earnings management. On the one hand, some researchers have argued that in the face of high competition, executives may have an incentive to withhold information or misrepresent financial statements. In doing so, they aim to deliberately mislead investors by making them believe that the firms' prospects are more favourable than they are or that their costs are lower than they are (Bagnoli & Watts, 2010; Datta et al., 2013). On the contrary, it has been argued that high competition is expected to push at least some firms in the industry to publish all their true financial data, dragging the rest towards higher-quality reporting in an attempt to attract investor capital (Gal-Or, 1985; Hoberg & Phillips, 2010; Wasiuzzaman et al., 2015). Among the limited evidence that has focused on this topic, Markarian and Santalo (2014) stand out. They examined a sample of more than 14,000 firms and found that there is a positive and statistically significant relationship between the degree of competition in the product market of an industry and the occurrence of earnings management. An interesting result is that the degree of industry competition has a positive effect on both the firm's accrual manipulations and its real earnings management.

Based on the preceding analysis (Datta et al., 2013; Markarian & Santalo, 2014) and despite the absence of many studies in relation to the existence of an effect of the competitive industry environment on the occurrence of the earnings management phenomenon, we define the following hypothesis:

H1: Industries with high levels of competition are associated with a greater degree of earnings management.

2.2. Institutional framework and earnings management

Literature suggests that the corporate governance system prevailing in each country has a significant impact on the way firms publish and disclose financial information (Alexakis et al., 2006; Calleja et al., 2006; Ozili, 2023). For instance, Ball et al. (2000) argued that firms operating in an institutional framework that follows the Anglo-Saxon law (common law), such as the USA or UK framework,

tend to publish more timely and conservative accounting data compared to firms operating in institutional frameworks based on code law regimes, such as those of Germany or France. Regarding the institutional framework of the Anglo-Saxon countries, corporate governance focuses more on the concept of maximizing value for the shareholder (Kouki, 2018). At the same time, the capital market contributes to the effective operation of the market for corporate control, which top management complies with when it fails to meet the performance targets set. In the UK and the USA, business management is subject to external pressures from external agents in order to protect the interests of shareholders in the decisions they take.

Conversely, the corporate governance systems of countries such as France and Germany are more oriented towards a coalition of both internal and external stakeholders (Calleja et al., 2006). More specifically, the French regulatory framework provides greater social protection for the employees of firms, making their dismissal more costly (O'Sullivan, 2003). Similarly, in Germany, the regulatory framework provides for the presence of employees' representatives on the boards or committees. From these posts, they are given the opportunity to negotiate on wage levels, job security, and other aspects of the employment relationship. This is not usual in countries such as the USA and the UK (Gorton & Schmid, 2000; O'Sullivan, 2003). At the same time, in the aforementioned European countries, the capital market, which in the common law system is a cornerstone of supervision and the market for corporate control, does not play such an important role in corporate governance. On the other hand, in the USA and the UK, banks are not as important, unlike, for example, the German banking economic system (La Porta et al., 2000).

Previous studies (Ali & Hwang, 2000; Leuz et al., 2003; Jiang et al., 2018 Abdou et al., 2021) argue that financial reporting published in common law countries is considered to have higher standards. This is because earnings manipulation occurs to a lesser extent in these countries compared to code law countries. This phenomenon is probably due to the fact that common law countries apply rules and regulations that aim to protect the minority interest, encouraging top management to provide reliable and relevant information (Ball et al., 2000; La Porta et al., 2002). A high degree of investor protection and ensuring the enforcement of laws contribute to the high quality of published information, as they mitigate the ability of management to exploit the benefits of minority shareholders for personal interests (Bushman & Smith, 2001; Jiang et al., 2018). Effective enforcement protects investors' rights through laws regulating financial disclosure.

The majority of the aforementioned studies, which investigate the existence of significant differences in the occurrence of earnings management practices between firms that follow the common law system and those that apply the code law system, conclude that common law countries have a lower degree of earnings manipulation. Based on this assumption, the following hypothesis is developed:

H2: Countries with code law regimes are associated with a greater degree of earnings management.

3. RESEARCH METHODOLOGY

3.1. Earnings management models

Earnings management literature focuses on how top managers manage total accruals to alter the accounting earnings of firms among fiscal periods (Bartov et al., 2000). Over the years, different researchers have proposed various models that use the magnitude of accruals as a proxy for the earnings management phenomenon, and they are divided into discretionary (or abnormal) accruals and non-discretionary (or normal) accruals (Healy, 1985; DeAngelo, 1986; McNichols & Wilson 1988; Jones, 1991).

The first stage of our study is the calculation of the total accruals (*TA*) of each firm, which is estimated as follows (Healy, 1985; Jones, 1991; Bartov et al., 2000):

$$TA_{it} = \Delta CA_{it} - \Delta Cash_{it} - \Delta CL_{it} + \Delta Debt_{it} - DEP_{it} \quad (1)$$

where, ΔCA_{it} corresponds to the change in current assets of firm *i* in year *t*; $\Delta Cash_{it}$ corresponds to the change in cash and short-term investments of firm *i* in year *t*; ΔCL_{it} is the change in current liabilities of firm *i* in year *t*; $\Delta Debt_{it}$ corresponds to the change in short-term debt included in current liabilities of firm *i* in year *t*; and DEP_{it} is depreciation and amortization expense of firm *i* in year *t*.

In the next step, using as a dependent variable the magnitude of total accruals calculated in the previous step, we focused on detecting the earnings management phenomenon, utilizing two widely recognized and widespread models based on pooled ordinary least squares (OLS) analysis of the non-discretionary accruals (NDA_{it}) of firm *i* in year *t*. Each regression model was computed using the data of the sample firms and countries. In particular, we conducted two sequential analyses using the modified Jones model as proposed by Dechow et al. (1995) and the DD model, incorporating the modifications suggested by McNichols (2002). The results of the analyses are presented in the following sections.

3.1.1. Modified Jones model

The modified Jones model solves the problem of the Jones model of incorrectly measuring discretionary accruals when managers interfere with the way the firm's revenues and expenses are recognized. Non-discretionary accruals are calculated as follows:

$$NDA_{it}/A_{it-1} = a_1(1/A_{it-1}) + a_2[((\Delta REV_{it} - \Delta REC_{it})/A_{it-1})] + a_3(PPE_{it}/A_{it-1}) \quad (2)$$

where, ΔREV_t corresponds to the annual change in the value of receivables of firm *i* in the year *t*. ΔREC_t corresponds to the annual change in the value of receivables of firm *i* in the year *t*; PPE_{it} corresponds to the gross property plant and equipment of firm *i* in the year *t*.

As can be seen from Equation (2), all terms are deflated by the total assets of year *t-1* (A_{t-1}), in order to ensure that our results are not affected by heteroskedasticity. Completing the linear regression for each firm and each year, we estimated the coefficients a_1, a_2 and a_3, via Eq.:

$$TA_t/A_{it-1} = a_1(1/A_{it-1}) + a_2(\Delta REV_{it}/A_{it-1}) + a_3(PPE_{it}/A_{it-1}) + \varepsilon_{it} \quad (3)$$

The error ε_{it}, represents the discretionary portion of total accruals of each firm (DACCs).

3.1.2. Model of Dechow and Dichev, modified from McNichols

After assessing the occurrence and intensity of the earnings management phenomenon through the modified Jones model, we repeated the same procedure, adopting the DD model of Dechow and Dichev (2002) as modified by McNichols (2002). The original DD model focuses on changes in firms' working capital in order to assess accrual quality. Specifically, the original DD model measures non-discretionary accruals as the residuals from regressions of working capital changes on current, past, and future operating cash flow (CFO).

$$\Delta WC_{it} = \beta_0 + \beta_1 CFO_{it-1} + \beta_2 CFO_{it} + \beta_3 CFO_{it+1} + \varepsilon_{it} \quad (4)$$

where, ΔWC_{it} represents the change in working capital of firm *i* in year *t*; CFO_{it-1} corresponds to the cash flows from operations of firm *i* in year *t-1*; CFO_{it} corresponds to the cash flows from operations of firm *i* in year *t*; CFO_{it+1} corresponds to the cash flows from operations of firm *i* in year *t+1*.

In this model too, all variables have been divided by the total assets of the previous year (*t-1*).

McNichols (2002) incorporated two additional variables into the model function, the factors ΔREV_{it} and PPE_{it}, and the model is defined as follows:

$$\Delta WC_{it} = \beta_0 + \beta_1 CFO_{it-1} + \beta_2 CFO_{it} + \beta_3 CFO_{it+1} + \beta_4 \Delta REV_{it} + \beta_5 PPE_{it} + \varepsilon_{it} \quad (5)$$

3.2. Earnings management measures

This subsection presents the variables used to measure the intensity and the types of practices of earnings management chosen by the firms in the data sample. In previous studies, it has been pointed out that the identification of the earnings management phenomenon exclusively through the measurement of the number of accruals has several drawbacks (Guay et al., 1996; Balios et al., 2020). For this reason, it was considered necessary to adopt a different method. In particular, following the research of Leuz et al. (2003), the four earnings management measures were evaluated by the authors and later ones (Burgstahler et al., 2006; Gopalan and Jayaraman, 2012; Balios et al., 2020), so their reliability is well established. Top managers tend to use a variety of practices in their attempts to manipulate their firms' reported earnings, which include both 'earnings smoothing' and 'accrual manipulations'. Most of the time, the phenomenon of earnings management is not easily understood, as executives circumvent existing legislation in many ways (Balios et al., 2020).

3.2.1. The manipulation of accruals for the 'smoothing' of operating earnings

Regarding the individual measures, the first measure, code-named '*EM1*', aims to measure the extent to which managers use their discretion to reduce or eliminate potential fluctuations in reported earnings. According to previous studies, a higher degree of earnings smoothing is associated with a higher degree of stability in annual reported earnings (Lang et al., 2003; Ball & Shivakumar, 2006; Lang et al., 2006). It is worth emphasizing that the first proxy focuses on the accounting reporting practices used by insiders. The proxy for each country is defined as the median of the ratio of the standard deviation of each firm's operating earnings to the standard deviation of its cash flow from operating activities. Both variables have been scaled by lagged total assets. The reason why the standard deviation of operating earnings is divided by the standard deviation of operating cash flow is that, in this way, the existence of significant deviations in financial performance across different firms can be more effectively identified (Balios et al., 2020). Lower values are indicative of the existence of greater 'earnings smoothing' (Leuz et al., 2003; Gopalan & Jayaraman, 2012; Balios et al., 2020).

$$EM1 = Median\ [\sigma(Operating\ income)/\sigma(Cash\ flow\ from\ operations)] \quad (6)$$

3.2.2. Correlation between changes in accounting accruals and operating cash flows

According to literature (Leuz et al., 2003), the '*EM3*' proxy is referred to as the second measure of 'earnings smoothing' ('*EM2*'). This measurement also focuses on the detection of income smoothing practices. However, it is chosen to be listed third in this section as we follow Balios et al. (2020). As top managers attempt to manipulate the level of accounting accruals in order to influence the level of reported earnings, a negative correlation between these changes and reported cash flows from operating activities is expected, according to theory (Dechow, 1994; Ball & Shivakumar, 2005; Lang et al., 2006; Balios et al., 2020). This measure is defined as

the non-parametric Spearman correlation coefficient between the change in accounting accruals and the change in operating cash flow. Both variables have been scaled by lagged total assets. The closer the values are to 0, the lower the intensity of the earnings management phenomenon is considered to be.

$$EM3 = Spearman\ correlation\ (\Delta Accruals, \Delta Cash\ flow\ from\ operations) \quad (7)$$

3.2.3. The magnitude of accruals compared to the magnitude of operating cash flow

The third earnings management measure, '*EM2*' ('*EM3*' in the Leuz et al., 2003), focuses on the extent to which top managers exercise their discretion in reporting the firm's earnings. Top managers may report inflated earnings in order to influence the firm's image among internal and external stakeholders (Dechow & Skinner, 2000; Leuz et al., 2003). The third proxy, then, measures the magnitude of accruals, which it considers an indication of the extent to which executives have used irregular practices in reporting earnings. This proxy is defined as the median of the ratio of the absolute value of the firm's accruals to the absolute value of the firm's operating cash flow for a country. Both terms have been divided by the total assets. According to the interpretation of the values, they are always expected to be positive. The higher the values, the greater the earnings manipulation (Leuz et al., 2003; Gopalan & Jayaraman, 2012; Balios et al., 2020).

$$EM2 = Median\ (|Accruals|/|Cash\ flow\ from\ operations|) \quad (8)$$

3.2.4. Discretion of reported earnings to avoid small losses

The fourth and last earnings management proxy, '*EM4*' (a common name in the studies of Leuz et al. (2003) and Balios et al. (2020)), focuses, like '*EM2*', on the accounting discretion implemented by managers. In particular, according to previous researchers (Burgstahler & Dichev, 1997; Degeorge et al., 1999; Leuz et al., 2003; Balios et al., 2020), managers seem to avoid reporting small losses. This proxy is calculated for a country as the ratio of the number of small reported profits to small reported losses by a firm. Special reference is required to the definition of 'small profits' or 'small losses' and to the way they are calculated. According to Leuz et al. (2003), for each country in the sample, after-tax earnings are calculated by dividing by the total assets. When the resulting value is placed in the range [-0.01 to 0.00], the result is characterized as a 'small loss'. Similarly, when the resulting value is in the range [0.00 to 0.01], then the result is described as a 'small profit'. As regards the interpretation of the final value of the ratio, the higher the ratio, the higher the degree of manipulation of the firm's profits.

$$EM4 = Number\ of\ small\ profits\ /\ Number\ of\ small\ losses \quad (9)$$

3.2.5. Aggregate measure of earnings management

Finally, an overall measure of the earnings management phenomenon is calculated for each country in the sample. The aggregate score was calculated using the average rank of the four sub-indices mentioned above for each country. The higher the value of the aggregate score, the more intense the earnings management phenomenon is considered to be in the country in question (Leuz et al., 2003). The calculation of the four individual measures was also carried out for each industry in the data sample.

3.3. Data and summary statistics

3.3.1. Sample selection

The data were extracted from the Thomson Reuters Eikon database. The observations are obtained from the published annual financial statements of the firms, in particular the balance sheet, the income statement, and the cash flow statement. The data sample covers the period from 2010 to 2019. Financial data for the year 2009 were also used in order to calculate a series of lag ratios. This decade was chosen as it covers the period following the end of the 2008–2009 global recession, although in some of the countries included (see Italy), the crisis and its side effects continued during this decade. The data are extracted from four major European economies, namely Germany, Italy, France, and the UK. The first three are part of both the European Union (EU) and the Eurozone and share a common line in terms of the legislative and regulatory framework (code law regimes) on corporate governance and earnings management. On the other hand, the UK at the end of this period, left the EU while maintaining an autonomous monetary system and following the common law system. The study focuses exclusively on the European area, following the example of previous scholars in the field of earnings management (García Lara et al., 2005; Velte, 2021; van Tendeloo & Vanstraelen, 2005).

The financial institutions were excluded as they are governed by a very strict regulatory framework compared to other sectors of the economy (Thompson & Cowton, 2004; Gerged et al., 2023). Similarly, the operation of the industry directly and/or indirectly affects the external environment in which it operates (Thompson & Cowton, 2004; Chang et al., 2015; Gerged et al., 2023). Finally, the exclusion of banks and financial institutions is very widespread among existing literature (Haniffa & Hudaib, 2006; Hong & Andersen, 2011; Gerged et al., 2023). In addition, to be included in the study, a country should have at least 1,000 firm-year observations. In addition, firm-year observations of firms whose financial data belonged to the top or bottom 1% of the total distribution of the sample and therefore represented outliers were not included.

Initially, the sample consisted of 28,773 firm-year observations. The elimination of missing values, duplicates, and outliers resulted in a sample of 17,896 firm-year observations. Subsequently, observations concerning the utilities and academic & educational services sectors were excluded. Finally, all firms for which less than six firm-year observations were available were also excluded (García Lara et al., 2005). The final sample consists of 17,394 observations, which represent 2,248 firms spanning eight economic industries. The above data are presented in Table 1.

Table 1. Sample selection

Sample	*Observations deleted*				*Total number of obs.*	*Observations remaining*				*Total number of obs.*
Countries	*UK*	*France*	*Germany*	*Italy*		*UK*	*France*	*Germany*	*Italy*	
Initial sample: firm-year observations	-	-	-	-		13,341	6,705	6,204	2,523	**28,773**
Eliminate missing values and outliers for all firms	5,065	2,348	2,133	864	**10,410**	8,276	4,357	4,071	1,659	**18,363**
Exclude duplicates observations	389	44	29	5	**467**	7,887	4,313	4,042	1,654	**17,896**
Exclude those firm-years which belong to the Utilities sector	90	47	108	53	**298**	7,797	4,266	3,934	1,601	**17,598**
Exclude those firm-years which belong to the Academic & Educational Services sector	36	28	0	0	**64**	7,761	4,238	3,934	1,601	**17,534**
Delete all firms that had less than six observations	68	19	35	18	**140**	7,693	4,219	3,899	1,583	**17,394**

Data are collected from the UK (7,693 observations), France (4,219 observations), Germany (3,899 observations), and Italy (1,583 observations). Although not every country has the same number of firms in the sample, this is not considered a disadvantage for the representativeness of the data, as observed in previous studies.

Table 2 shows that, regarding the structure of the sample, the majority of firm-year observations derive from the consumer cyclicals, technology, and industrial sectors, with percentages of 21.4%, 20.77%, and 20.06%, respectively. Energy and consumer non-cyclicals have the lowest participation, with 5.22% and 5.82%, respectively. No dominant sector appears, and therefore the data are considered suitable for an overall analysis of all sectors.

Table 2. Number and percentage of observations and firms per industry

Industry	*Number of observations*	*Number of firms*	*Percentage of observations*	*Percentage of firms*
Industrials	3,490	443	20.06%	9.71%
Consumer cyclicals	3,723	482	21.40%	21.44%
Consumer non-cyclicals	1,013	126	5.82%	5.60%
Healthcare	1,699	223	9.77%	9.92%
Basic materials	1,622	211	9.33%	9.39%
Energy	908	128	5.22%	5.69%
Technology	3,612	452	20.77%	20.11%
Real estate	1,327	183	7.63%	8.14%
Total	**17,394**	**2,248**	**100.00%**	**100.00%**

3.3.2. Descriptive statistics

In this section, the main descriptive statistics of the firms included in the data sample from the four countries under review are summarized. Table 3 shows for each of the four sample countries the number of firms, the mean, median, standard deviation, minimum, and maximum values for the key financial variables, including *total assets*, *total current assets*, *total current liabilities*, *property plant and equipment gross*, *cash and short-term investments*, *depreciation and amortization*, *total receivables net*, *short-term debt*, *net sales*, and *cash flow from operating activities*.

Regarding the above variables, Italy is in first place and Germany is in second, followed by France and the UK. Indicatively, the mean value of *total assets* of the Italian firms in the sample is 25% higher than that of the German firms and 63% higher than that of the UK firms. There is low variation in the variables *total current liabilities* and *short-term debt,* where French firms are in second place, followed by German firms in third place. Based on the analysis of the variables, it appears that the *total current liabilities* of the Italian firms in our sample are 42% higher than the liabilities of the French firms and 57.4% higher than the liabilities of the German firms. On the contrary, UK firms face lower pressure to repay *short-term debt* (mean = €11.6 million, median = €1.73 million). The only variable in which German firms (mean = €263 million, median = €73.1 million) have the lead is *net sales*, followed by Italian firms (mean = €261 million, median = €85.2 million). More specifically, the *net sales* of German and Italian firms are higher by 24.6% and 34.2% compared to the *net sales* of French and British firms. Much lower levels are found in France (mean = €211 million, median = €38.5 million) and the UK (mean = €196 million, median = €28.4 million). In conclusion, Italian firms, although they constitute the smallest percentage of the sample, are characterized by higher mean values in both asset and liability accounts. In addition, it can be observed that, although the financial accounting data of UK firms are lower, they show the smallest standard

deviations for almost all financial variables compared to firms from the other three countries. This is likely to mean that UK observations are more evenly clustered around their mean values.

Table 3. Descriptive statistics of variables

United Kingdom						
Variables	***Number of observations***	***Mean (in millions of €)***	***Median (in millions of €)***	***Std. dev. (in millions of €)***	***Minimum (in millions of €)***	***Maximum (in millions of €)***
Total assets	7,617	214	46.4	459	0.268	12,100
Total current assets	7,617	76.8	16.8	181	0.128	3,610
Total current liabilities	7,617	54.1	9.248	130	0.061	2,170
Property plant and equipment gross	6,077	102	10.9	270	0.012	5,070
Cash and short-term investments	7,597	21	5.048	50.4	0.010	1,150
Depreciation and amortization	3,213	5.765	1.194	13.4	0.001	158
Total receivables net	7,584	28.9	4.447	76.4	0.018	1,330
Short-term debt	4,588	11.6	1.73	34.6	0.000	942
Net sales	7,163	196	28.4	463	0.000	4,540
Cash flow from operating activities	7,612	16	1.731	35	-23.9	262
France						
Total assets	4,179	252	58.2	487	0.322	5,250
Total current assets	4,179	118	30.4	233	0.138	3,630
Total current liabilities	4,169	84.5	18.6	182	0.063	2,690
Property plant and equipment gross	3,337	120	12.9	290	0.016	2,620
Cash and short-term investments	4,171	28.5	7.561	58.3	0.009	721
Depreciation and amortization	3,862	7.176	1.449	17.3	0.000	176
Total receivables net	4,158	50.7	10.9	107	0.017	1,290
Short-term debt	3,238	22.8	4.974	51	0.000	689
Net sales	4,159	211	38.5	471	0.000	4,610
Cash flow from operating activities	3,698	17.4	3.274	39.6	-23.7	263
Germany						
Total assets	3,889	279	79	534	0.288	5,420
Total current assets	3,819	124	39.1	243	0.139	2,560
Total current liabilities	3,790	76.2	20.8	154	0.062	1,780
Property plant and equipment gross	3,079	158	30.3	327	0.011	3,830
Cash and short-term investments	3,865	34.6	9.243	74.4	0.012	1,150
Depreciation and amortization	3,372	8.223	2.158	16.5	0.000	177
Total receivables net	3,818	47.2	10.9	106	0.018	1,520
Short-term debt	2,816	21.4	5.043	53.4	0.000	900
Net sales	3,783	263	73.1	514	0.000	4,500
Cash flow from operating activities	3,562	21.4	5.541	39	-24	251
Italy						
Total assets	1,577	349	138	571	0.580	5,890
Total current assets	1,577	151	61.8	231	0.270	2,520
Total current liabilities	1,577	120	46.8	191	0.082	2,320
Property plant and equipment gross	1,016	236	72.4	477	0.012	7,390
Cash and short-term investments	1,579	40.3	10.1	78	0.009	731
Depreciation and amortization	1,495	12.6	3.597	24.1	0.000	232
Total receivables net	1,580	65.5	27.3	109	0.046	1,530
Short-term debt	1,472	37.3	12.8	65	0.000	779
Net sales	1,548	261	85.2	445	0.000	3,950
Cash flow from operating activities	1,552	24	6.485	42.3	-24.2	255

4. EMPIRICAL RESULTS

4.1. Results from the modified Jones model

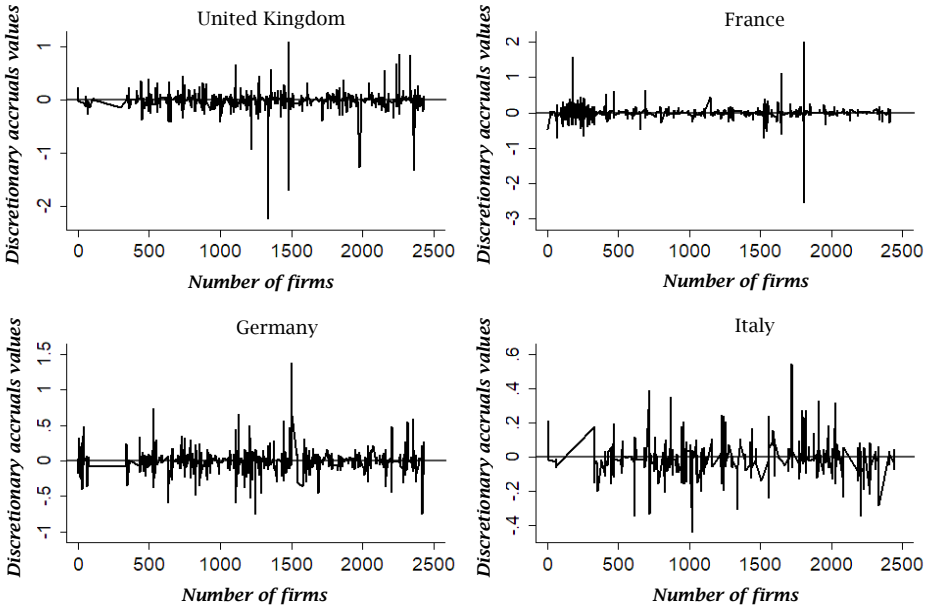
Linear regression models applied for the total sample of firms and the four individual countries are characterized by significant explanatory power, with values greater than 9%, according to adjusted R^2 (Table 4). In particular, the adjusted R^2 equals 9.52% for the overall sample, 17.88% for the UK, 9.17% for France, 9.32% for Germany, and 23.69% for Italy. In general, adjusted R^2 is satisfactory for the scientific field of earnings management, given that previous studies have achieved similar or even lower values (Kliestik et al., 2021). In addition, previous researchers have supported the drawing of reliable conclusions in the presence of low values of adjusted R^2 (Neter & Wasserman, 1974; Wellalage & Locke, 2014).

Table 4. Results for regression coefficients: The modified Jones model

Variables	*Sign*	*Coefficient estimates for full sample*	*Coefficient estimates for the UK*	*Coefficient estimates for France*	*Coefficient estimates for Germany*	*Coefficient estimates for Italy*
a_1	+/-	-235,807.3 (17,285.18)	-424,751.5 (27,114.43)	-99,406.77 (36,857.11)	8,304.35 (33,347.98)	376,781.7 (96,044.86)
a_2	+	-0.020 (0.0055)	0.001 (0.0104)	-0.116 (0.0116)	0.009 (0.0083)	-0.081 (0.0176)
a_3	-	-0.041 (0.0025)	-0.028 (0.0064)	-0.035 (0.0049)	-0.047 (0.0036)	-0.057 (0.0044)
Number of observations		5,703	1,486	1,906	1,610	701
Adj. R-squared		0.0952	0.1788	0.0917	0.0932	0.2369
Modified Jones model (Dechow et al., 1995)		$\frac{NDACC_{it}}{A_{it-1}} = \frac{TA_{it}}{A_{it-1}} = a_1 \frac{1}{A_{it-1}} + a_2 \frac{(\Delta REV_{it} - \Delta REC_{it})}{A_{it-1}} + a_3 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it}$				

As illustrated in Figure 1, the earnings management phenomenon is intense in all four countries of our sample. In particular, we observe a large number of firms reporting positive or negative discretionary accruals, deviating from the horizontal axis representing the zero level of discretionary accruals. Consequently, the divergence appears most pronounced in Italy, with Germany and the UK following. On the contrary, France seems to face less intense problems.

Figure 1. Earnings management and discretionary accruals



Time period: 2010–2019

As a final step, regarding the sign and direction of the discretionary accruals, we calculated the percentage of firms with positive or negative discretionary accruals relative to the total number of firms in the sample or in each country. The majority of all firms in our sample seem to prefer managing their earnings downwards with the exception of 2011. This trend peaks in 2019 when 63% of total firms opt for this practice (Table 5).

Table 5. Percentage of firms with non-zero discretionary accruals per year and per country based on the modified Jones model

Year	*Percentage of firms with positive DACCs*					*Percentage of firms with negative DACCs*				
	UK	*France*	*Germany*	*Italy*	*Total*	*UK*	*France*	*Germany*	*Italy*	*Total*
2010	5.43%	16.52%	18.10%	5.43%	45.48%	7.69%	21.95%	18.55%	6.33%	54.52%
2011	13.11%	21.33%	16.78%	4.55%	55.77%	8.57%	17.48%	12.94%	5.24%	44.23%
2012	10.58%	17.52%	14.96%	3.10%	46.17%	12.41%	20.07%	14.42%	6.93%	53.83%
2013	14.13%	15.90%	14.66%	2.47%	47.17%	11.66%	18.73%	14.31%	8.13%	52.83%
2014	12.64%	16.79%	13.36%	5.05%	47.83%	13.36%	15.70%	16.79%	6.32%	52.17%
2015	13.03%	13.98%	14.18%	5.36%	46.55%	14.75%	17.24%	15.13%	6.32%	53.45%
2016	15.02%	14.47%	11.36%	5.13%	45.97%	16.12%	14.84%	15.20%	7.88%	54.03%
2017	15.11%	14.41%	11.60%	6.33%	47.45%	15.64%	15.82%	13.88%	7.21%	52.55%
2018	15.44%	15.76%	11.39%	7.18%	49.77%	13.10%	16.69%	12.64%	7.80%	50.23%
2019	12.92%	10.23%	9.02%	4.98%	37.15%	16.02%	20.59%	16.42%	9.83%	62.85%
Mean value	**12.74%**	**15.69%**	**13.54%**	**4.96%**	**46.93%**	**12.93%**	**17.91%**	**15.03%**	**7.20%**	**53.07%**

4.2. Results from the McNichols model

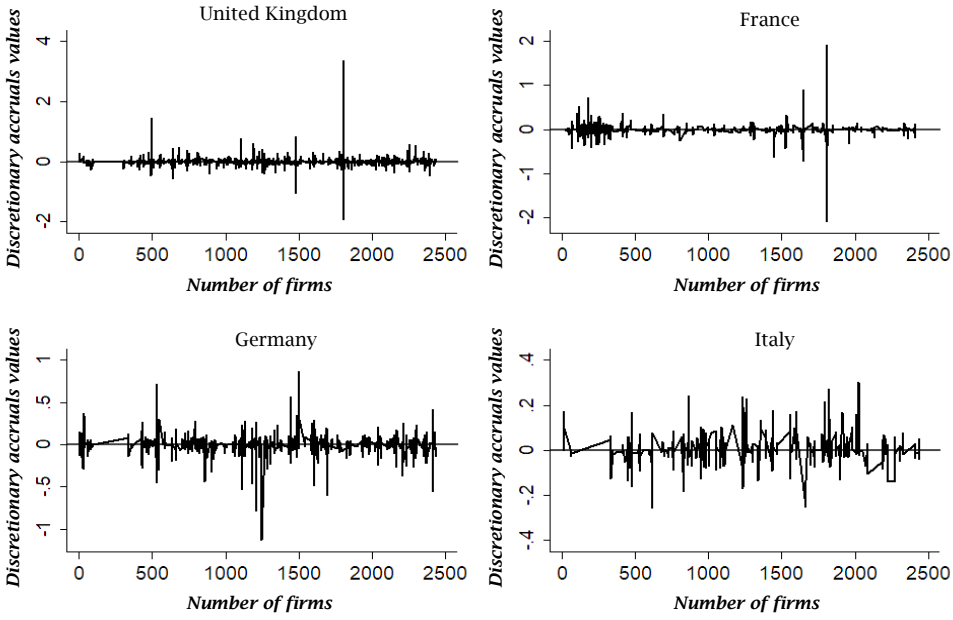
In this case too, individual pooled regression models were computed for all the firms in our sample and for each of the four countries included (UK, France, Germany, and Italy). Starting from the interpretation of the Adjusted R^2, the regression models for France (14.17%), Germany (18.59%), and Italy (19.52%) are characterized by a significant explanatory power, while the regression model for the overall sample also shows a satisfactory explanatory power (8.37%). On the contrary, the regression model for UK firms is characterized by a very low adjusted R^2 (only 3.59%) and may not be suitable for drawing reliable conclusions.

Table 6. Results for regression coefficients: The McNichols model

Variables	*Sign*	*Coefficient estimates for full sample*	*Coefficient estimates for the UK*	*Coefficient estimates for France*	*Coefficient estimates for Germany*	*Coefficient estimates for Italy*
Intercept		0.007 (0.0020)	0.008 (0.0038)	0.006 (0.0037)	0.003 (0.0035)	0.003 (0.0043)
b_1	+	0.238 (0.0133)	0.172 (0.0229)	0.394 (0.0279)	0.175 (0.0221)	0.218 (0.0376)
b_2	-	-0.313 (0.0141)	-0.215 (0.0246)	-0.413 (0.0290)	-0.379 (0.0233)	-0.421 (0.0392)
b_3	+	0.078 (0.0094)	0.039 (0.0144)	0.073 (0.0182)	0.218 (0.0225)	0.222 (0.0361)
b_4	+	0.022 (0.0034)	0.015 (0.0045)	0.019 (0.0109)	0.063 (0.0079)	0.050 (0.0144)
b_5	-	-0.005 (0.0031)	-0.007 (0.0064)	-0.003 (0.0064)	-0.004 (0.0043)	-0.003 (0.0056)
Number of observations		6,039	2,363	1,586	1,515	575
Adj. R-squared		0.0837	0.0359	0.1417	0.1859	0.1952
McNichols Approach (2002)		$WCA_{it} = a + b_1 CFO_{it-1} + b_2 CFO_{it} + b_3 CFO_{t+1} + b_4 \Delta REV_{it} + b_5 PPE_{it} + \varepsilon_{it}$				

As shown in Figure 2, the results of the analyses based on the DD model confirm that the earnings management phenomenon is intense in all four individual countries in our sample. As was the case in the graphs obtained using the modified Jones model, the graphs attest that the earnings management phenomenon appears most intense in Italy, with Germany and the UK following. In this analysis, it is also confirmed that France does not seem to face such an intense earnings management phenomenon compared to the other three countries in our sample.

Figure 2. Earnings management and discretionary accruals



Moving on, in terms of positive or negative discretionary accruals, contrary to the findings of the modified Jones model analysis, it appears that in half of the years (2011, 2012, 2014, 2016, and 2018), the majority of firms preferred upward manipulation, in contrast to the remaining years (2010, 2013, 2015, 2017 and 2019), in which the majority preferred downward manipulation. Overall, for the total sample and all years, there is a marginal preference (51%) for the occurrence of negative discretionary accruals. The above data are presented in Table 7.

Table 7. Percentage of firms with non-zero discretionary accruals per year and per country based on the DD model

Year	Percentage of firms with positive DACCs					Percentage of firms with negative DACCs				
	UK	France	Germany	Italy	Total	UK	France	Germany	Italy	Total
2010	12.21%	12.98%	16.28%	4.26%	45.74%	13.37%	18.22%	17.05%	5.62%	54.26%
2011	18.74%	15.38%	14.27%	4.06%	52.45%	19.02%	13.57%	11.19%	3.78%	47.55%
2012	19.01%	14.18%	14.18%	2.84%	50.21%	20.00%	13.62%	10.92%	5.25%	49.79%
2013	17.87%	11.77%	12.88%	2.77%	45.29%	21.47%	14.82%	12.33%	6.09%	54.71%
2014	18.56%	14.68%	13.67%	4.17%	51.08%	21.58%	11.22%	11.80%	4.32%	48.92%
2015	20.15%	11.06%	13.03%	4.85%	49.09%	23.03%	12.58%	11.52%	3.79%	50.91%
2016	20.99%	11.54%	13.19%	4.50%	50.22%	22.19%	11.54%	10.04%	6.00%	49.78%
2017	19.69%	12.82%	11.45%	4.89%	48.85%	22.75%	10.84%	11.60%	5.95%	51.15%
2018	20.74%	12.78%	11.22%	6.82%	51.56%	17.90%	13.49%	11.08%	5.97%	48.44%
2019					0.00%					0.00%
Mean value	**18.66%**	**13.02%**	**13.35%**	**4.35%**	**49.39%**	**20.15%**	**13.32%**	**11.95%**	**5.20%**	**50.61%**

4.3. Evaluation of the intensity of earnings management by country

To examine the validity of our baseline model findings we conduct additional analyses, in order to determine four additional measures of earning management. The results are presented in Tables 8 and 9.

The '*EM1*' and '*EM3*' proxies (Leuz et al., 2003; Balios et al., 2020) show that the income smoothing is more intense in Italy since the lowest value is recorded in the '*EM1*' proxy (0.818) and the highest negative value in the '*EM3*' proxy (-0.609). On the contrary, income smoothing practices do not seem to be as widespread in UK firms, with the highest value for the '*EM1*' proxy (1.068) and the lowest negative value for the '*EM3*' proxy. France is ranked second and Germany third, based on the two indices mentioned above. We computed Aggregate Score Smoothing using the average rank of countries on the two sub-indices '*EM1*' and '*EM3*'. Aggregate score smoothing confirms the rank of countries according to both the sub-indices '*EM1*' and '*EM3*'.

Moving on, we calculated the '*EM2*' proxy, the results of which reveal that the firm's accrual manipulations are most intense in Italy (0.712). Germany ranks second (0.590), while France ranks third (0.579). However, the ranking of countries seems to vary slightly according to the '*EM4*' proxy, with Germany (2.550) ranking first, followed by Italy (2.392) and France (2.322) in second and third place, respectively. In this case too, we calculated the aggregate score discretion, which was again obtained as the average of the ranking of the four countries on the two individual accrual manipulations proxies '*EM2*' and '*EM4*'. Italy and Germany are tied for first place, followed by France and the UK in last place. From the above, it can be seen that the level of earnings management does vary across the European countries in our sample. Finally, following Leuz et al. (2003), we computed an overall earnings management measure, which was obtained as the average of the ranking of the four countries in the sample on the four earnings management proxies '*EM1*', '*EM2*', '*EM3*', and '*EM4*'. This once again confirms the fact that the UK is less affected by the earnings management phenomenon than the other European countries in our sample. Next, earnings management is more intense in Italian firms, followed by firms from Germany and France (Table 8). Overall, it appears that the phenomenon of earnings management is more intense in code law countries and the results provide support for *H2*.

Table 8. Earnings management measures: Score by country

Country	Earnings smoothing measures		Aggregate score smoothing	Earnings discretion measures		Aggregate score discretion	Total aggregate score
	EM1	EM3		EM2	EM4		
UK	1.068	-0.411	1.00	0.461	1.641	1.00	1.00
France	0.867	-0.550	3.00	0.579	2.322	2.00	2.50
Germany	0.915	-0.535	2.00	0.590	2.550	3.50	2.75
Italy	0.818	-0.609	4.00	0.712	2.392	3.50	3.75
Mean	0.917	-0.526		0.586	2.226		
Median	0.891	-0.542		0.585	2.357		
Std. dev.	0.108	0.083		0.103	0.402		
Minimum value	0.818	-0.609		0.461	1.641		
Maximum value	1.068	-0.411		0.712	2.550		

4.4. Evaluation of the intensity of earnings management by activity sector

Subsequently, we calculated all the above-mentioned proxies, both individual and aggregate, by distinguishing the firms in our sample by activity sector. In particular, the values of the measures were calculated for each of the eight industries included in our data sample. More specifically, Table 9 illustrates the individual proxies for each of the eight industries in our analysis. Income smoothing practices are indicative of greater manipulation in the consumer non-cyclicals sector, where the lowest value of the '*EM1*' proxy (0.811) is recorded. The first place in 'earnings smoothing' is also recorded by the same sector, based on the values of the '*EM3*' proxy, where it shows the highest negative value (-0.664). The second place is occupied by the Industrial sector, based on the '*EM1*' proxy (0.893), and the Energy sector, based on the '*EM3*' proxy (-0.646). Interpreting the values recorded in the two sub-indices, we conclude that the technology, consumer cyclicals, and basic materials sectors tend to make high use of

income-smoothing practices in their reported earnings. On the other hand, the healthcare and real estate sectors do not appear to adopt such practices to any significant degree. The results are also confirmed by Aggregate Score Smoothing. We conclude that the results provide support for *H1*, and the phenomenon of earnings management is more intense in the most competitive industries.

According to the results of our analysis of the '*EM2*' measure, accrual manipulations appear to be most intense in energy (0.682), real estate (0.660) and basic materials (0.640). The intensity of the phenomenon appears to be lower in consumer cyclicals (0.607), technology (0.588), and consumer non-cyclicals (0.570). According to the first proxy, the 'healthiest' sectors are healthcare (0.458) and industrials (0.527). Moving on to the '*EM4*' earnings management measure, the ranking of sectors is more diverse, with consumer non-cyclicals (3.389) taking first place, followed by technology (2.649), consumer cyclicals (2.305), basic materials (1.917), industrials (1.779), and energy (1.138). In order to draw conclusions, the calculation of aggregate score discretion was also preferred in this case. Thus, a four-way tie for the highest aggregate score discretion was obtained for the technology, consumer circular, consumer non-circular, and real estate sectors. On the other hand, the 'healthiest' sector is considered to be that of industrial products, followed by healthcare. As previously, *H1* is confirmed.

In order to reach final conclusions, we recalculated the overall earnings management measure, which was obtained as the average of the ranking of the eight industries in the sample on the four sub-indices '*EM1*', '*EM2*', '*EM3*', and '*EM4*'. The above shows that the earnings management phenomenon is more intense in the consumer non-cyclical sector (6.75) and in the consumer cyclicals (5.50). As regards the sector that is comparatively less affected by the phenomenon of earnings management, this is the healthcare sector (2.50), while there is also low evidence of manipulation in real estate (3.75). All the other industries included in our analysis are characterized by moderate to high levels of earnings manipulation.

Table 9. Earnings management measures: Score by industry

Industry	*Earnings smoothing measures*		*Aggregate score smoothing*	*Earnings discretion measures*		*Aggregate score discretion*	*Total aggregate score*
	EM1	*EM3*		*EM2*	*EM4*		
Healthcare	1.073	-0.404	2.00	0.458	2.235	3.00	2.50
Real estate	1.153	-0.435	2.00	0.660	1.943	5.50	3.75
Industrials	0.893	-0.548	6.50	0.527	1.779	2.00	4.25
Basic materials	1.067	-0.533	4.00	0.640	1.917	4.50	4.25
Energy	1.214	-0.646	4.00	0.682	1.138	4.50	4.25
Technology	0.928	-0.497	4.00	0.588	2.649	5.50	4.75
Consumer cyclicals	0.910	-0.543	5.50	0.607	2.305	5.50	5.50
Consumer non-cyclicals	0.811	-0.664	8.00	0.570	3.389	5.50	6.75
Mean	1.006	-0.534		0.591	2.169		
Median	0.998	-0.538		0.598	2.089		
Std. dev.	0.141	0.091		0.074	0.662		
Minimum value	0.811	-0.664		0.458	1.138		
Maximum value	1.214	-0.404		0.682	3.389		

5. DISCUSSION

The findings indicate that the phenomenon of earnings management is undeniably intense in the European countries of our sample. A large number of studies confirm the findings (García Lara et al., 2005; van Tendeloo & Vanstraelen, 2005; Chen et al., 2010; Dimitras et al., 2015; Gray et al., 2015; Kliestik et al., 2021) and justify our choice to examine the phenomenon in the specific data sample in the given time period. Afterwards, we observed a high number of firms reporting positive or negative discretionary accruals. It was concluded that the highest levels of manipulation occur in Italy, with Germany and the UK following. In the opposite direction, France seemed to have less of a problem. The majority of the firms in our sample prefer to manage their earnings downward. The results were confirmed by both the modified Jones model and the DD model. However, looking at the existing literature on this topic, there is no consensus among scholars. Kliestik et al. (2021) reported that the firms in their sample showed a preference for upward accrual management, while García Lara et al. (2005) argued that managers of firms in continental European countries tend to prefer downward manipulation.

In the next step of our analysis, we investigated the intensity of earnings management in the individual countries of the sample and found that in Italy, the manipulation is more intense, followed by Germany, France, and the UK. In conclusion, earnings management practices are more intense in code law countries (Italy, Germany, France) providing strong support for *H2*. On the contrary, firms applying a common law system (UK) are less prone to earnings manipulation due to the lack of stringent regulatory supervision. This finding is fully consistent with previous studies (La Porta et al., 1998; Ball et al., 2000; Gopalan & Jayaraman, 2012; Jiang et al., 2018; Kouki, 2018; Oz & Yelkenci, 2018; Balios et al., 2020), which argue that in countries following the Anglo-Saxon law, there is a higher degree of conservatism in the reported earnings of firms, more timely and prompt adjustment to the performance of firms, a higher degree of investor and creditor protection, and more developed and efficient capital markets. Based on the aforementioned argumentation, it appears that the institutional framework plays an important role in earnings manipulation. Depending on the system followed by countries, accruals management is likely to be less (more) intense.

Finally, we assessed the earnings management practices, both 'earnings smoothing' and 'accrual manipulations', in the eight industries included in our analysis. We found that the intensity of the phenomenon is greater in the consumer non-

cyclicals sector. The consumer cyclicals sector is ranked second, with technology, energy, basic materials ranked third and real estate and healthcare ranked last. The findings seem to converge with previous studies (Datta et al., 2013; Markarian & Santalo, 2014), which have emphasized that the earnings management phenomenon is more intense in industries characterized by a high degree of competition, while at the individual firm level, it is recorded in firms that maintain low product market pricing power. Based on the above analysis, *H1* is not rejected.

6. CONCLUSION

The current study examines the earnings management phenomenon in the European business environment. In particular, it investigates firm-level, industry-level, and cross-country differences due to different institutional and legal frameworks with respect to corporate governance. In addition to the overall assessment of the phenomenon, the present study explores accruals management by adopting panel data analysis. The data sample includes 17,394 firm-year observations during the period spanning 2010-2019. Subsequently, two models were adopted to analyze the data and draw further conclusions, namely the modified Jones model (Dechow et al., 1995) and the model of Dechow and Dichev, as modified by McNichols (2002). Furthermore, specialized proxies were used, which capture earnings management practices such as 'earnings smoothing' and 'accrual manipulations' (Leuz et al., 2003; Burgstahler et al., 2006; Gopalan & Jayaraman, 2012; Balios et al., 2020).

Our results indicate that Italian firms exhibit a greater degree of earnings management, followed by German, French, and UK firms. In particular, code law countries manipulate their earnings to a greater extent compared to common law countries (Jiang et al., 2018; Balios et al., 2020). Additionally, our empirical findings suggest that the phenomenon is more intense in competitive industry environments (Datta et al., 2013; Markarian & Santalo, 2014).

The results of the current study contribute to the earnings management literature by investigating firm, industry, and cross-country levels of these practices in the European environment due to different institutional and legal frameworks with respect to corporate governance. At the minimum, our findings could be interesting to managers, policy-making institutions, and government agencies in order to understand the implications of earnings manipulation and avoid such practices along with the corresponding risks. Moreover, it appears that incorporating the legislative, regulatory, and institutional frameworks of countries into financial analysis will expand the usefulness of financial accounting information by taking into consideration the cross-sectional variability of these practices. According to our analysis, the earnings management phenomenon is intense in firms operating in the large European capital markets, and it is more prevalent in those from countries that have not adopted the Anglo-Saxon system. Consequently, executives operating in such environments are required to comply with all laws and regulations of financial reporting. At the same time, the regulatory authorities of countries need to adopt, to a greater extent, the International Accounting Standards and the best corporate governance practices to protect the market or investors from financial risk. Finally, it is useful to investigate the role of the Committee of European Securities Regulators (CESR) in limiting earnings manipulation and distorted information.

As in any research effort, in the case of this study, there may be certain limitations that require attention, despite the systematic research methodology we followed. Initially, our findings are based on a data sample exclusively extracted from four European countries (the UK, France, Italy, and Germany). Hence, there is a possibility that our conclusions represent only these four countries. However, they may not highlight either the intensity of the earnings management phenomenon or the earnings manipulation practices in the rest of Europe. Moreover, it is possible that we may not reach the same conclusions even for countries that follow the same legal and institutional framework. Furthermore, data, referring to the 2010–2019 period, were analyzed. It is therefore possible that our findings would have been different if the examined period had extended beyond this particular decade. Afterwards, two models were chosen to evaluate the earnings management phenomenon, the modified Jones model (Dechow et al., 1995) and the Dechow and Dichev (DD) model, incorporating the modifications of McNichols (2002), which use the magnitude of discretionary accruals. There is, therefore, the possibility that our findings might have been different if alternative models proposed by the existing literature in the scientific field were used.

This study enriches the growing literature on earnings management. However, it is deemed necessary to conduct further research on the earnings management phenomenon in order to confirm our findings. In this direction, future research could broaden their analyses by including more European countries in their samples. Subsequently, it would be of great interest to conduct similar research using data from firms operating in countries with a common institutional framework, similar macroeconomic characteristics and culture, and economic homogeneity. In addition, new scholarly research could extend the time period of the study of the phenomenon. Finally, future research could examine not only the manipulation of accruals but also the real earnings management practices of the firms.

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