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The Impact of Board Characteristics on Classification Shifting: Evidence from Germany

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Keywords:	Earnings Management, Classification Shifting, Board Characteristics, Corporate Governance

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The Impact of Board Characteristics on Classification Shifting: Evidence from Germany

Abstract

Purpose - This paper examines the relationship between Board Characteristics (BCs) on Classification Shifting (CS) among listed non-financial German firms.

Design/methodology/approach - Using 870 firm-year observations of German non-financial firms from 2010 to 2019 listed on DAX, MDAX and SDAX index, we examine the relationship between BCs (board size, board meetings, board independence and board gender diversity) and CS.

Findings - We found that managers of German firms use CS and move recurring expenses to non-recurring expenses to inflate their core earnings. Also, we found that board characteristics including board size, board independence and board gender diversity has a mitigating effect on CS practices of German non-financial firms. However, number of board meetings doesn't influence EM.

Implications: Our paper recommends that German firms' board must be constituted with more independent members and female representation since these board mechanisms help to curb CS.

Originality/value - The focus of this study is Germany that is a bank-oriented economy with low transparency and investor protection. This paper provides new evidence on how BCs impact CS among German firms, whereas previous CS studies focused mainly on market-oriented economies like US and the UK.

Keywords: Classification Shifting, Earnings Management Board Characteristics, Corporate Governance

Paper Type Research Paper

1. Introduction

Accounting earnings is a major performance statistic, which is of huge interest for companies' stakeholders (Abdou et al., 2021, Ball et al., 2021). Hence, Prior et al. (2008) highlighted that it empowers stakeholders to differentiate between high and low performing firms, thereby enabling them to make financial decisions. However, it is argued that managers misreport earnings either for the company or to benefit themselves and masks the firm's economic condition (Schipper, 1989, McVay, 2006). Previous studies extensively used accrual and real earnings management to measure earnings manipulation (Cohen and Zarowin, 2008, Kothari et al., 2015, Gao et al., 2017). The method of classification shifting recently received considerable attention and it is seen as a viable tool to misreport earnings (McVay, 2006, Fan and Liu, 2017, Zalata et al., 2018, Seve et al., 2019). It allow managers to move items within the statement of profit and loss of the company without having an impact on its bottom-line earnings (McVay, 2006, Behn et al., 2013). The practise of classification shifting is considered as a disclosure issue, which make it generally difficult for outsiders to verify (Athanasakou et al., 2009).

Few studies have documented the impact of board characteristics on classification shifting practices of firms' in the UK and US (Haw et al., 2011, Zalata and Roberts, 2016). However, not much is known about how corporate governance (CG) influence the classification shifting of German non-financial firms which operate within a stakeholder-oriented CG environment. The important question that needs to be answered is whether board characteristics influence the CS practices of German non-financial firms. This question is very relevant given the impact of firms' environment on various organisational outcomes (Levine, 2002, Ezeani et al., 2022, Ezeani et al., 2021). Our study, therefore, examines the impact of board characteristics (BCs) on the classification shifting (CS) of German non-financial firms.

Our motive for examining this relationship is as follows. First, the corporate governance environment of Germany is distinct from those of firms in Anglo-Saxon environment. Unlike the Anglo-American one-tier board system, the German corporate board system formalised the distinction between the supervisory board (Aufsichtsrat) and the management board (Vorstand) (Mintz, 2006). Also, in line with the co-determination principle, employees are represented on the supervisory board, thereby influencing board monitoring (Cromme, 2005, Ezeani et al., 2021). Consequently, it is expected that the two-tier governance system and co-determination of employees may have a mitigating impact on CS. Given the number of employees on the board (Aufsichtsrat) and their material link with the company, managers' are unlikely to move items within the income statement to inflate core earnings of the firm.

Second, unlike USA, the German governance system relies on insider relationship and does not encourage external participation on the board (Cromme, 2005, Sudarsanam and Broadhurst, 2012). Therefore, the presence of powerful insiders (shareholders' representatives and employees) is likely to reduce managers' chance of inflating their core earnings. Third, the recent changes in German corporate governance system, whereby firms are required to appoint 30% of women on supervisory board (Terjesen and Sealy, 2016, Green and Homroy, 2018) is likely to strengthen board monitoring. Previous studies found that female board member mitigate earnings management (Arun et al., 2015, Pucheta-Martínez et al., 2016, Liu et al., 2016, Gull et al., 2018, Komal et al., 2021). Fourth, Leuz et al. (2003) argued that companies operating in code-law nations with lower investor protection rights manipulate earnings more than companies in common-law nations with higher rights of investor protection. La Porta et al. (2002) reported that Germany is a code-law country with lower investor protection rights. Furthermore, International Financial Reporting system (IFRS) was implemented in Germany from 2005. Zalata and Roberts (2017) pointed out that the greater flexibility of International Accounting Standard (IAS 1) under IFRS allow managers to move recurring expenditures to

non-recurring items to report suitable core earnings. Given this greater flexibility offered by IFRS, it is essential to examine the impact on CS practices of German firms. The majority of classification shifting studies are conducted in the UK and the USA, neglecting the importance of corporate governance structure in bank-based economies such as Germany. As a result, Germany provides an interesting environment for investigating the influence of BCs on CS.

Thus, using a sample of 87 German firms over a 10-year period (from 2010 – 2019), our paper investigates whether German firms engage in classification shifting or not. It also examines the impact of board characteristics on classification shifting. We show evidence of classification shifting among German firms. Furthermore, board characteristics has mitigating impact of classification shifting practices of German firms. We found a negative relationship between board size, board independence and board gender diversity on CS. However, we found that board meeting has no impact on CS. This paper consists of following sections: section 2 covers the relevant literature and presents the research hypothesis. Section 3 explains the data collection, sample selection, methodology used for measurement of classification shifting and the regression model. Section 4 presents regression results and section 5 provides the conclusion.

2.0 Literature Review and Hypothesis Development

2.1 Theoretical Framework

This study used agency theory to justify the association between corporate governance (CG) mechanisms and classification shifting (CS). The information asymmetry issue is associated with the agent-principle relationship which may provide an opportunity for managers (the agents) to serve their own interests instead of the interests of their investors (the principals) (Jensen, 1986). Additionally, it has been argued that earnings manipulation conceals the reality about firms' financial performance and has the potential to damage stakeholders' interests. Hence, the agency theory emphasises the importance of CG in facilitating compliance by

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limiting managers' self-serving motives to mitigate risk through opportunistic actions (Salem et al., 2020).

According to agency theorists, the role of corporate boards is to monitor the senior management staff actions and to protect the interest of owners (Jensen and Meckling, 1976, Fama and Jensen, 1983). Dalton et al. (2003) pointed out that inducements to monitor are the major drivers of a board's supervisory effectiveness. Thus, to the extent that board incentive and reward systems are aligned with shareholders' interest, directors will be more competent monitors of management, hence minimizing the opportunity for financial misreporting. Moreover, Demsetz and Lehn (1985) also stated that the primary aim of effective CG controls is not to enhance the corporate performance but to mitigate principal-agency problems by minimizing the opportunities for accounting malpractices as well as scrutinizing the behaviour of the parties involved in the financial reporting process of the company. In the context of Germany, the supervisory board is the main internal controlling mechanism (Ezeani et al., 2021). The supervisory board have a greater responsibility to monitor the performance of the firms and detect any earnings manipulations that will reduce agency costs.

2.2 Classification Shifting

Healy and Wahlen (1999) claims that managers use their personal judgement when engaging in earnings management and mislead stakeholders about the firm financial performance to fulfilling market expectations, self-interest in compensation schemes and job security. In this regard, Zalata et al. (2018) indicated that managers use CS attempt to shift recurring expenditures to non-recurring expenditures to inflate their core earnings. Also, McVay (2006) stated that managers engage in misclassification of revenue items to increase operational revenues, which does not influence the net income, and therefore, constrained auditors and regulators' monitoring.

Subsequent literature investigated the form of misclassification of core earnings in respect to income-reducing special items (McVay, 2006, Fan et al., 2010, Poonawala and Nagar, 2019). In the context of the US market, McVay (2006) illustrated that managers of US firms divert firms' recurring expenses to special items to boost their core profitability. Likewise, Fan et al. (2010) reported that managers overstate core earnings in the fourth quarter rather than interim periods. Despite the fact that corporate governance is crucial in assuring the existence of control mechanisms in the absence of competition, it has occasionally failed to prevent financial misconduct (El Dirir et al., 2020).

Previous literature focused on Anglo-American context which is characterised by a one-tier CG framework with strong investor protection and greater external engagement on the board. Zalata and Roberts (2016) found that high-quality corporate governance characteristics tend to serve as a replacement for tight accounting requirements and constrain earnings management practices through non-recurring items. Similarly, Zalata and Roberts (2017) found positive link between unexpected core earnings and non-recurring costs, indicating that CS is a feasible manipulation tool used by managers of UK firms. In addition, Malikov et al. (2018) found evidence classification shifting in UK companies that misclassify revenues from non-operating activities as operating revenue. Using a sample of East Asian nations, Haw et al. (2011) concluded that the degree of classification shifting is lower in countries with better investor protection compared with countries with weaker investor protection. Although board characteristics were neglected in their study, they found that Big-4 as a proxy of audit quality has an ineffective role in mitigating CS.

It has been argued that companies that operate in market-oriented economies such as the UK and US have better levels of investor protection and transparency compared with those of bank-oriented economies like Germany. Antoniou et al. (2008) indicated that companies listed in bank-oriented economies have low level of transparency and investor protection.

Nevertheless firms in stakeholder-oriented economies such as Germany, does not consider the stock market as their essential source of funds because financial institutions play a critical role in supplying external funds (Ezeani et al., 2021, Ezeani et al., 2022) . Therefore, it is expected that debtholders' role in the monitoring process may reduce the likelihood of classification shifting. In stakeholder-oriented economies, companies address agency disputes by incorporating a diverse range of stakeholders in the monitoring process. In addition, Germany has a two-tier board system, which means that management is subjected to more scrutiny and supervision (Tran, 2014). Hence, we propose the following hypothesis:

H₁: Ceteris paribus, Managers of German firms engage in CS.

Another factor that influences a board's capacity and effectiveness to monitor management activities is board size. A considerable literature largely agreed that having a larger board enhances reporting quality and scrutiny, which decreases the possibility of management engaging in earningsmanagement (Xie et al., 2003, Peasnell et al., 2005, González and García-Meca, 2014). Large and small boards have shortcomings and benefits. For instance, smaller boards are easier to organise, and directors are likely to know each other well, making dialogues more productive and allowing them to establish effective consensus. In this regard, Jensen, (1993) indicated that due to coordination and communication issues, boards of directors may become less effective in regulating management as board size grows.

On the other hand, Xie et al. (2003) argue that larger boards include more independent directors with diverse expertise who have the capacity to demand private information to be disclosed by inside members which in turn improves the control mechanisms and mitigates earnings manipulation. Although, Abbott et al. (2004) documented a significant and positive relationship between board size and earnings management, Xie et al. (2003), Peasnell et al. (2005) found a negative and significant association between board size an earnings manipulation, and insignificant correlation is found by Bradbury et al. (2006) and Zalata and

Roberts (2016). Firms in Germany have a larger number of board members compared to those of UK firms. Consequently, we anticipate that higher board sizes will assist companies in restraining classification shifting and suggest the following hypothesis:

H₂: Ceteris paribus, there is a statistically significant and negative relationship between board size and classification shifting.

The number of board meetings is an important corporate governance mechanism since it is suggested that boards that hold frequent board meetings fulfil their task efficiently and address concerns such as earnings manipulation (Qu et al., 2015, Alotaibi and Hussainey, 2016). Prior studies have found that board meetings frequency has a significant and negative relationship with earnings manipulation (Xie et al., 2003, Anglin et al., 2013). This is consistent with the notion that frequent board meetings allow directors to resolve significant concerns that the company may face (Basiruddin, 2011). Furthermore, Salem et al, (2020) suggested that proactive boards raise the amount of monitoring, resulting in higher-quality financial reporting. Board meetings frequency signify effective monitoring through adequate preparation pre and post meetings allowing the board to exert control conflicts of interest, earnings management and improve the financial reporting's integrity (Sun et al., 2010; Qu et al., 2015). Following prior studies, we investigate the impact of board meetings by taking into account the overall number of board meetings held during the financial period (Anglin et al., 2013, Obigbemi et al., 2016). This discussion leads to the following hypothesis:

H₃: Ceteris paribus, there is a statistically significant and negative relationship between frequency of board meetings and classification shifting.

Previous literature documented that the board of directors is considered as one of the most essential corporate governance structures which strengthen the monitoring mechanisms of management actions (Fama and Jensen, 1983, Peasnell et al., 2005). The independence of board

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members is a vital characteristic for the board to perform its oversight duty, which includes monitoring of the internal control system and financial statements (Patrick et al, 2015). In this regard, Bhagat and Black (2002) illustrated that the participation of non-executive board members who evaluate management performance makes it more attentive to any agency problems. In line with the agency theory, the board's capacity to function as an effective monitoring mechanism relies on its independence from management (Beasley, 1999).

Germany's CG structure supports employee co-determination by incorporating their views into its supervisory process (Ezeani et al., 2021). Several studies documented that the existence of independent members on the board ensures a better quality of reported earnings by restricting opportunistic earnings management (Abbott et al., 2004, Osma, 2008). In addition, Beasley (1996) reported that companies with a smaller percentage of non-executive directors on their boards are more inclined to commit fraud. We define board independence as the proportion of non-executive directors to the total number of board members, in line with prior literature and the German two-tier structure. As a result, the following hypothesis is formulated;

H₄: Ceteris paribus, there is a statistically significant and negative relationship between board Independence and classification shifting.

Gender diversity on the board is seen as a critical attribute that influences the board's performance (Liao et al., 2015). In line with corporate governance literature, Ntim, (2015) claimed that having a female on the board improves managerial scrutiny and increases the board's independence, resulting in a lower degree of earnings management. According to previous research, the existence of female members on the board strengthens the board's efficiency and effectiveness (Carter et al., 2003, Carter et al., 2010). In the USA, the NACD¹ and Blue-Ribbon Commission proposed that age, gender, race and nationality diversity should

¹ National Association of Corporate Directors and Blue-Ribbon Commission

be considered when recruiting directors. Gender diversity on the board might provide several benefits to the firm by minimising the conflict of interest among shareholders and managers which is in line with the perspective of agency theory (Zalata et al., 2021, Usman et al., 2022). In this regard, Jamali et al. (2007) found that the existence of females on the board helps the firm's governance by introducing fresher dynamics to the board debate and an infusion of abilities and skills. In addition, Yu et al. (2010) and Zahra et al. (2007) documented that female board member is unlikely to tolerate unethical behaviour such as manipulating financial earnings compared with their male counterparts. Likewise, Na and Hong (2017) revealed that the presence of a female on the board increases financial reporting quality. Furthermore, gender socialization theory suggests that female board member is less likely to involve in unethical practices such as earnings management due to female natural risk aversion compared with a male board member (Harris et al., 2019). Based on the above-discussed literature, we propose the following hypothesis:

H₅: Ceteris paribus, there is a statistically significant and negative relationship between the presence of female directors and classification shifting.

3.0 Methodology

Sample Size

We selected Germany to investigate the impact of board characteristics on CS and used DAX, MDAX, SDAX indexes to collect the data for German firms. The indexes present the largest 130 German companies (Gamerschlag et al., 2011, Böcking et al., 2015), and it is selected to ensure that the sample size is large enough to run the statistical procedures. The period used in this study is from 2010 to 2019. We collected firm-level and board-level data from DataStream. The total firm-year observation is 1300. Following previous studies, we excluded financial and utilities firms due to their unique regulations related to their financial reporting (McVay, 2006, Campa, 2019). The reason behind the exclusion is that the leverage of financial firms such as

banks is explicitly or implicitly impacted by the insurance schemes and investors. Therefore, it is not possible to compare the debt of financial firms to the debt-like liabilities of financial firms. To avoid outliers, German firms whose sales are less than 500,000 euros are eliminated since sales is used as a deflator for most of the variables (McVay, 2006, Zalata and Roberts, 2016, Usman et al., 2022). The final sample consists of 870 firm-year observations due to missing data and firms established after 2010.

Classification Shifting (Dependent Variable)

To find evidence of CS among German firms, we investigated the association between abnormal core earnings i.e., unexpected core earnings and non-recurring items. Hence, the core earnings of the firm are expected to be overstated when there is a misclassification of non-recurring items. In line with McVay (2006), Zalata and Roberts (2017) and Usman et al. (2022), the following model is used to estimated normal core earnings:

$$CES_{i,n} = \alpha_0 + \alpha_1 CES_{i,n-1} + \alpha_2 AT_{i,n} + \alpha_3 ACCS_{i,n-1} + \alpha_4 ACCS_{i,n} + \alpha_5 \Delta SALES_{i,n} + \alpha_6 N\Delta SALES_{i,n} + \mu_{i,n} \tag{1}$$

Where CEs stands for core earnings, and it is measured as core earnings scaled by sales. We calculated core earnings as sales less cost of goods sold less selling, general and administrative expenses, scaled by sales. We used sales as a scales as McVay (2006) pointed out that the company’s total assets are likely to misstated systematically with the non-recurring items. Also, the core earnings are usually persistent that is the reason for the inclusion of lagged core earnings ($CES_{i,n-1}$). The asset turnover (AT) is estimated as sales scaled by average net operating assets. We measured net operating assets as operating assets less operating liabilities. Also, operating assets are calculated as total assets less cash and cash equivalent. Operating liabilities are measured as total assets less total debt less book value of common equity less preferred equity less minority interests. To control inverse association between asset turnover

and profit margin, we included asset turnover (AT). The AT is an important variable since it is likely for firms to modify their operating strategies if they have large income increasing non-recurring items (Zalata and Roberts, 2016).

The accruals (ACCs) are calculated as the different between cash flow from operating activities and earnings before extraordinary items, scaled by sales. The lagged accruals ($ACC_{s,t-1}$) capture the information of the accruals related to the last period for the earnings of current period as Zalata and Roberts (2017) pointed out that there is a connected between past accruals and future performance. Also, the accruals of current period ($ACC_{s,t}$) curbs the extreme performance of the firm that arises due to accruals management. The $\Delta SALES$ presents the percentage change in sales and estimated as the difference between sales and lag of sales, scaled by lag of sales. It controls impact of sales growth on the fixed costs as Zalata and Roberts (2016) pointed out that sales increase lead to reduction of fixed cost per unit. The $NEG\Delta SALES$ is $\Delta SALES$, if the value is less than zero, otherwise zero. It is included to allow for different slopes related to sales increase and decrease (McVay, 2006, Fan et al., 2010, Zalata et al., 2019).

We estimated the model (1) cross-sectionally to obtain the coefficients and then employed them into model (1) to calculate expected core earnings. In line with Zalata and Roberts (2016) and Zalata and Roberts (2017), we used to following model to estimate whether German companies manipulate their earnings using CS:

$$UCES = \alpha_0 + \alpha_1 NRIS_n + \alpha_2 FS_n + \alpha_3 CF_n + \alpha_4 LEV_n + \alpha_5 RA_n + \alpha_6 BMV_n \quad (b)$$

We measure unexpected core earnings (UCEs) as reporting core earnings (CEs) less expected core earnings (ECEs), scaled by sales. In line with Athanasakou et al. (2009) and Zalata and Roberts (2017), non-recurring items (NRIs) are estimated as the difference between core earnings and bottom-line earnings, scaled by sales. The UCEs and NRIs are expected to be

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positively linked with each other when companies use CS to manipulate earnings. We used firm size (FS), operating cash flows (CF), leverage (LEV) , return on assets (RA) and book-to-market value (BMV) as control variables (Barua et al., 2010, Zalata and Roberts, 2017). The definition of the variables is presented in appendix 1.

We included four BCs: board size (BS), board meeting (BM), board independence (BI), and board gender diversity (BGD). The following regression model is used to examine the impact of BCs on CS:

$$UCEs = \alpha_0 + \alpha_1 NRIs_n + \alpha_2 BS_n + \alpha_3 BM_n + \alpha_4 BI_n + \alpha_5 BGD_n + \alpha_6 NRIs \times BS_n + \alpha_7 NRIs \times BM_n + \alpha_8 NREC \times BI_n + \alpha_9 NREC \times BGD_n + \alpha_{10} FS_n + \alpha_{11} CF_n + \alpha_{12} LEV_n + \alpha_{13} RA_n + \alpha_{14} BMV_n + \mu_{i,t} \quad (c)$$

Where UCEs are the unexpected core earnings, NRIs is non-recurring items, BS stands for board size, BM is the number of board meetings held in a year, BI presents the proportion of independent board directors and BGD stands for board diversity measured as the number the female members on the board. Following prior literature, we used the interaction terms to investigate where NRIs and BCs are associated with UCEs (Haw et al., 2011, Behn et al., 2013, Zalata and Roberts, 2017). It is essential to use the interaction term since it identifies whether BCs influence the relation between NRIs and UCEs. We used firm size (FS), operating cash flow (CF), leverage (LEV), return on assets (RA) and book-to-market value (BMV) as control variables.

Descriptive Statistics:

Table I presents the descriptive statistics for the main variables used in this study. In line with previous studies, the mean of UCEs is 0.00 % (McVay, 2006, Fan et al., 2010, Zalata and Roberts, 2017). Hence, it is expected since they are residuals from the expectation model. The mean of NRIs is 13% that is substantially larger than the ones reporting whereas Zalata and

Roberts (2016) and Zalata and Roberts (2017) reported 6% and 6.1% in the UK. The larger mean shows that the misclassification of recurring items among German firms is more intense compared to the UK. Also, it can be seen that German firms engage in CS after the implementation of International Financial Reporting Standards (IFRS) (Van Tendeloo and Vanstraelen, 2005).

In terms of BCs, the mean value of board size (BS) is 14.72 and is significantly larger than the mean value (8.47) reported by Zalata and Roberts (2016) in the UK. This result suggests that German firms have large board size. Also, the mean value of board meetings (BM) is 5.68 that is lower than 9.24 reported by Zalata and Roberts (2016), showing that German firms hold less board meetings compared to the UK firms. The mean value of board independence and board gender diversity (BGD) is 19.84 and 18.92 respectively.

Insert table I

Table II presents the correlation matrix among the main variables used in this study. To avoid multicollinearity, Gujarati (2009) pointed out that no Pearson correlation coefficients must be greater than 80 percent. The highest reported correlation is between RA and CF i.e., 0.63, confirming that there is no problem of multicollinearity.

Insert table II

Evidence of Classification Shifting (CS)

We examine whether German companies engage in CS to manipulate their earnings before investigating the impact of BCs on CS. Table III shows that there is significant positive association between UCEs and NRIs, confirming that German firms inflate their core earnings. It is expected that not all the firms engage in CS. In line with Zalata and Roberts (2016), we conducted the analysis into two samples: a full sample of 870 firm-year observations and a sub-sample of 760 firm-year observations. For the second sample, we excluded the firms with non-

recurring revenues as McVay (2006) pointed out that managers misclassify their recurring items in the year when non-recurring items are recognised. Also, Zalata and Roberts (2016) highlighted that it is likely for companies to engage in CS who have non-recurring expenses. The sample has not reduced significantly after excluded non-recurring revenue firms, which shows that most of German firm engage in non-recurring decreasing items. Similarly, we found positive and significant association between NRIs and UCEs as reported in Table IV.

Insert Table III

Insert Table IV

Regarding control variables, it is found that UCEs and FS is significantly positively linked with each other. This shows that large German firms are likely to use CS to misrepresent their earnings (Barua et al., 2010). It is argued that firms in bank-oriented economies such as Germany have less investor protection and a lower level of transparency (Ezeani et al., 2021). This low level of transparency allows them to manipulate their earnings using CS. In line with Zalata and Roberts (2016) and Zalata and Roberts (2017) ,we found positive relationship between UCEs and RA, showing that large German firms who perform well engage in CS. Hence, the control variables exhibit similar association reported by prior CS studies (Barua et al., 2010, Zalata et al., 2019).

Board Characteristics and Classification Shifting

After finding the evidence of CS among German firms, we examine the impact of board characteristics on classification shifting. As expected, we found a positive association between NRIs and UCEs. Table V presents the regression results of this study. We used the interaction terms to examine whether BCs and NRIs are linked with UCEs. In terms of board size (BS), we found that it is negatively significantly related with UCEs. In line with the agency theory perspective, this result shows that larger board help firms to mitigate CS since they have

diverse experience and expertise that leads to synergetic and effective monitoring (Xie et al., 2003, Brick et al., 2006). In line with Zalata and Roberts (2016), the interaction term (NRIs x BM) is negative but insignificantly related with UCEs. The result shows that the number of board meetings are ineffective to mitigate CS.

Insert Table V

In terms of board independence (BI), the interaction term (NRIs x BI) is significantly and negatively associated with UCEs, confirming that independent directors enable German firms to reduce the extent of earnings management using CS. In line with previous literature, the result indicates that a higher proportion of independent directors challenge the aggressive manipulation of recurring items (Zalata and Roberts, 2016, Zalata and Abdelfattah, 2021). Hence, our result show that more independent directors improve the overall monitoring process of German non-financial firms. Regarding board gender diversity (BGD), we found that the interaction term (NRIs x BGD) is negatively significantly associated with UCEs that is in line with the hypothesis. The result confirms that female directors are more likely to reduce CS compared to male counterparts (Arun et al., 2015, Zalata et al., 2019). Similarly, the presence of female directors on the board encourages openness and improves the overall information flow, hence restraining managers' ability to engage in earnings management and exploit the information gap for their own advantage (Gul et al., 2011, Ezeani et al., 2021). Overall, the results are in line with the notion that BCs encourages more transparency and improves the financial reporting quality. Table VI presents the regression results of the second sample after the exclusion of non- recurring revenues. We found similar results in both samples, confirming that BCs are an effective monitoring mechanism to curb CS.

Insert Table VI

Robustness:

For robustness, we employed a two-step generalised method of moments (GMM) regression method. The purpose of using this method is to ensure consistent estimation and improve the efficiency of the estimates by eliminating any issues arising from weaker instruments (Salem et al., 2021). Furthermore, the GMM method also resolve any issues related to endogeneity. Table VII presents the results of the GMM regression, and the results are in line with the main findings of the study, confirming the main results validity. Hence, we conclude that the main finding of this study is not likely to be driven by endogeneity issues. The results also confirm that BCs including board size, board independence and board gender diversity provide effective monitoring and restrain German firms to engage in CS.

Insert table VII

Conclusion

This paper examines whether managers of German firms use CS to manipulate their earnings. We also investigate the association between BCs and CS among non-financial German firms from 2010 till 2019. We used two samples: a full sample of 870 firm-years observations and a small sample of 760 firm-year observations after excluding the non-recurring revenue items. The result shows that managers use CS as a method to inflate their core earnings in both samples. In terms of BCs, we used board size, number of board meetings, board independence and board gender diversity. We found that board size is negatively significantly associated with CS, confirmed that larger boards curb CS due to wider experiences and skill set. However, board meetings have no significant impact on CS.

Furthermore, we found negative and significant relationship between board independence and CS, which implies that independent directors provide effective monitoring to reduce the extent of CS and agency costs. Also, we found that female directors are more effective to reduce CS compared to male directors since they tend to be more ethical and risk averse. We found similar

results in the second sample. For robustness, we used two-step generalised method of moments (GMM) regression method and found similar result. This study provides implications for German CG system that there is a need to improve the financial reporting process and highlights the importance of BCs.

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Table I Descriptive Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
UCEs	870	0	.04	-.06	.17
NRIs	870	.12	.12	-.84	.25
BS	870	14.72	6.12	3	31
BM	870	5.68	1.71	3	16
BI	870	19.84	33.31	0	100
BGD	870	18.92	14.34	0	50
FS	870	15.57	1.7	12.26	19.84
CF	870	.1	.07	-.16	.42
LEV	870	.24	.15	0.1	.28
RA	870	.05	.06	-.18	.08
BMV	870	1.67	1.31	.07	3.19

Table II Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) UCEs	1.00										
(2) NRIs	0.29*	1.00									
(3) BS	-0.57*	-0.26*	1.00								
(4) BM	-0.12*	-0.07	0.12*	1.00							
(5) BI	-0.48*	-0.09	0.46*	-0.02	1.00						
(6) BGD	-0.49*	-0.15*	0.52*	0.11*	0.45*	1.00					
(7) FS	-0.13*	-0.05	0.22*	0.04	0.00	0.06	1.00				
(8) CF	0.07	0.36*	0.02	0.02	-0.02	-0.06	0.12*	1.00			
(9) LEV	0.08	0.23*	-0.09	0.02	-0.04	-0.09	-0.08	-0.13*	1.00		
(10) RA	-0.06	-0.02	0.08	0.01	0.00	-0.05	0.10	-0.63*	-0.37*	1.00	
(11) BMV	0.10	-0.09	-0.15*	0.01	-0.07	-0.10	-0.06	0.31*	-0.40*	-0.51*	1.00

* Shows significance at the .01 level

Table III: Evidence of CS (full sample)

Variables	Co-efficient	T-statistic
Constant	0.101	4.25***
NRIs	0.234	7.92***
FS	-0.095	-6.82***
LEV	0.035	1.45
CFO	-0.091	-2.05**
ROA	0.345	6.83***
BMV	-0.003	-1.91**
Year Fixed Effect	YES	
Adjusted R-sq.	0.17%	
Number of Obs.	870	
Period	2010-2019	

Note. ***, **, *, indicate significance at 1%, 5% and 10%.

Table IV: Evidence of CS (Positive NRIs)

Variables	Co-efficient	T-statistic
Constant	0.112	4.35***
NRIs	0.291	.54***
FS	-0.009	-6.92***
CF	-0.049	-1.46
LEV	0.033	1.18
RA	0.245	4.97***
BMV	-0.005	-2.48*
Year Fixed Effect	YES	
Adjusted R-sq.	0.19%	
Number of Obs.	760	
Period	2010-2019	

Note. ***, **, *, indicate significance at 1%, 5% and 10%.

Table V Impact of BCs on CS

VARIABLES	(1) UCEs	(2) UCEs	(3) UCEs	(4) UCEs
NRIs	0.128*** (0.028)	0.098* (0.058)	0.085*** (0.021)	0.078*** (0.021)
BS	-0.004*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.004*** (0.001)
BM	-0.020 (0.046)	-0.054 (0.052)	-0.067 (0.059)	-0.049 (0.049)
BI	-0.038*** (0.014)	-0.063*** (0.017)	-0.049*** (0.015)	-0.033** (0.014)
BGD	-0.164** (0.073)	-0.224** (0.095)	-0.203** (0.087)	-0.207** (0.082)
NRIs x BS	-0.008*** (0.002)			
NRIs x BM		-0.005 (0.007)		
NRIs x BI			-0.042*** (0.014)	
NRIs x BGD				-0.068*** (0.017)
FS	-0.004*** (0.001)	-0.005*** (0.001)	-0.003** (0.001)	-0.004*** (0.001)
CF	-0.017 (0.026)	-0.050 (0.036)	-0.066** (0.031)	-0.020 (0.033)
LEV	0.031 (0.019)	0.035* (0.019)	0.034 (0.021)	0.036** (0.018)
RA	0.047 (0.034)	0.055 (0.044)	0.061 (0.044)	0.017 (0.040)
BMV	-0.001 (0.001)	-0.001 (0.001)	-0.002 (0.001)	-0.001 (0.001)
Constant	0.114*** (0.027)	0.143*** (0.030)	0.114*** (0.026)	0.099*** (0.029)
Observations	870	870	870	870
R-squared	0.574	0.449	0.519	0.545

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table VI Impact of BCs on CS (Positive NRIs)

VARIABLES	(1) UCEs	(2) UCEs	(3) UCEs	(4) UCEs
NRIs	-0.148** (0.062)	-0.132** (0.059)	-0.181** (0.077)	-0.164** (0.068)
BS	-0.003*** -0.005	-0.002*** -0.006	-0.002*** -0.024	-0.002*** -0.028
BM	(0.003)	(0.003)	(0.030)	(0.033)
BI	(0.001) 0.070*** (0.014)	(0.001) 0.059*** (0.017)	(0.001) 0.058*** (0.014)	(0.001) 0.064*** (0.016)
BGD	-0.181*** (0.058)	-0.149*** (0.055)	-0.142** (0.054)	-0.160*** (0.053)
NRIs x BS	-0.017*** (0.004)			
NRIs x BM		-0.009 (0.007)		
NRIs x BI			-0.016*** (0.006)	
NRIs x BGD				-0.040*** (0.009)
FS	-0.005*** (0.001)	-0.004*** (0.001)	-0.007*** (0.003)	-0.006*** (0.002)
CF	-0.034 (0.053)	-0.038 (0.053)	-0.043 (0.049)	-0.042 (0.053)
LEV	0.030* (0.017)	0.032* (0.018)	0.021 (0.017)	0.038* (0.019)
RA	0.024 (0.032)	0.033 (0.035)	0.021 (0.032)	0.026 (0.034)
BMV	-0.004*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.004*** (0.001)
Constant	0.125*** (0.026)	0.131*** (0.031)	0.131*** (0.026)	0.127*** (0.026)
Observations	760	760	760	760
R-squared	0.516	0.456	0.476	0.482

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table VII Robustness test with GMM

VARIABLES	(1) UCEs	(2) UCEs	(3) UCEs	(4) UCEs
L.UCEs	-0.046** (0.023)	-0.092*** (0.023)	-0.083*** (0.023)	-0.085*** (0.023)
NRIs	0.341*** (0.034)	0.328*** (0.057)	0.348*** (0.034)	0.360*** (0.035)
BS	-0.057** (0.023)	-0.076*** (0.023)	-0.068*** (0.023)	-0.068*** (0.023)
BM	-0.032 (0.035)	-0.052 (0.034)	-0.047 (0.035)	-0.044 (0.035)
BI	-0.095*** (0.023)	-0.091*** (0.023)	-0.093*** (0.023)	-0.080*** (0.024)
BGD	-0.200*** (0.045)	-0.185*** (0.045)	-0.181*** (0.045)	-0.197*** (0.045)
NRIs x BS	-0.018*** (0.006)			
NRIs x BM		0.010 (0.008)		
NRIs x BI			-0.046** (0.023)	
NRIs x BGD				-0.053** (0.024)
FS	-0.002* (0.001)	-0.003** (0.001)	-0.001 (0.001)	-0.002* (0.001)
CF	-0.070** (0.034)	-0.106*** (0.035)	-0.121*** (0.034)	-0.075** (0.035)
LEV	0.012 (0.027)	0.007 (0.028)	0.011 (0.027)	0.011 (0.027)
RA	0.387*** (0.060)	0.523*** (0.061)	0.465*** (0.058)	0.468*** (0.061)
BMV	-0.004** (0.002)	-0.003 (0.002)	-0.004* (0.002)	-0.003 (0.002)
Constant	0.218*** (0.076)	0.364*** (0.059)	0.403*** (0.038)	0.319*** (0.042)
Observations	870	870	870	870
Sargan (%)	26.24	21.17	26.63	19.82
AR1	0.197	0.202	0.237	0.214
AR2	0.432	0.438	0.416	0.426

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix 1: List of Variables

Variables	Description
UCEs	Unexpected core earnings measured as reported core earnings less expected core earnings, scaled by sales
NRIs	Non-recurring items measured as core earnings less bottom-line earnings, scaled by sales.
BS	Board size is measured as the total number of members on the board committee
BM	Board meetings are measured as the number of meetings held in a financial year.
BI	Board independence measured as the proportions of independent directors on the board.
BGD	Board gender diversity measured as the proportion of female directors on the board.
FS	Firm size is measured as the natural logarithm of total assets.
CF	Cash flow from operations scaled by lagged total assets.
LEV	Total liabilities/total assets.
RA	Net income/average total assets.
BMV	Total assets/market capitalization.