



## How CEOs' overconfidence influences financial statement comparability under competition

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### Abstract

This research investigates the relationship between product market competition, Chief Executive Officers' (CEOs) overconfidence and financial statement comparability. It presents evidence supporting the argument that product market competition diminishes financial statement comparability consistent with the agency problem. Furthermore, it suggests that this negative relationship intensifies when CEOs display overconfidence. A tendency to underestimate risks and have an exaggerated view of one's abilities are indicators of overconfidence leading to the comparability of financial statements. This study analyzes 53,233 data observations spanning from 1992 to 2022 using firm and year-fixed effects panel regressions. The empirical findings confirm a negative relationship between product market competition and financial statement comparability. Moreover, this negative relationship is more pronounced under the leadership of overconfident CEOs. These findings remain robust even after we address other potential measurement concerns related to product market competition. Ultimately, this study highlights the necessity for regulatory institutions to closely monitor firms operating in competitive markets particularly those led by overconfident managers. Additionally, policymakers and regulatory bodies should exercise increased scrutiny when evaluating the financial reporting of such firms to enhance investor confidence. Future research could investigate alternative methods for deriving overconfidence measures from publicly available databases and examine how regulatory and institutional differences in various countries impact the quality of financial reporting including financial statement comparability.

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## 1. Introduction

The empirical literature strongly indicates that external pressures significantly influence managers' decision-making processes (Akdoğu & MacKay, 2012; Datta, Iskandar-Datta, & Singh, 2013). A primary concern is the tendency for firms under such pressures to resort to earnings manipulation. Recent studies have shed light on the widespread prevalence of earnings management practices which not only compromise accounting quality but also exacerbate the agency problem. Therefore, understanding the factors that influence managers' financial reporting behaviors becomes paramount. This is underscored by organizations adhering to established accounting standards such as the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB). Financial statement comparability is a qualitative characteristic of financial information that is indispensable for effectively discerning similarities and differences among various financial items.

This paper examines the influence of overconfident managers on the relationship between product market competition and financial statement comparability. Prior research has largely ignored the direct effect of CEO overconfidence on managers' financial reporting practices in highly competitive environments. Overconfident managers tend to overestimate the accuracy of their decisions and consequently pursue what they perceive as the correct course of action irrespective of its validity or rationale (Garbuio, Lovallo, & Horn, 2010; Kowalczyk & Appels, 2023).

Conflicting evidence exists regarding the impact of competition on management behavior. Some research suggests that heightened competition worsens agency issues (Bae, Driss, & Roberts, 2019; Bebchuk, Cohen, & Hirst, 2017; Salas & Saurina, 2003) while other perspectives posit that competition motivates managers to act by shareholders' interests (Hartley, Sørensen, & Torfing, 2013; Jensen, 2001). However, we seek to explore how their overconfidence affects firms' financial reporting in the face of competitive market pressures considering that managers' traits may shape their financial reporting.

Tinaikar and Xue (2009) posit that intensified product market competition induces managers to engage in earnings manipulation. Managers are facing pressure to manipulate reported results to reduce the gap between the distortion brought about by competitive markets and the intrinsic value as a result of competition reducing profits. Earnings manipulation presents an attractive avenue for managers to uphold high compensation, perks and firm value (Bebchuk, Fried, & Walker, 2002; Patel, Li, Del Carmen Triana, & Park, 2018). However, competition may also serve as a governance mechanism by disciplining managers and enhancing the quality of financial reporting (Armstrong, Guay, & Weber, 2010; Babar & Habib, 2021; Hartarska, 2009).

Examining financial statement comparability within financial reporting processes has represented a significant amount of accounting research in recent years. This focus on comparability arises from its crucial role in facilitating efficient capital allocation when investors make investment decisions as outlined by the SEC rule on Regulation Fair Disclosure in 2000. In 1980, the FASB observed that investment decisions become irrational in the absence of comparative information. De Franco, Kothari, and Verdi (2011) propose that low-level financial statement comparability leads to increased costs associated with acquiring information and capital. Conversely, the prediction accuracy of financial analysts is increased and their target market expands through high-level financial statement comparability. Essentially, high-level financial statement comparability reduces the costs associated with gathering financial information and enhances both its quality and quantity enabling investors to conduct more precise analyses. Consequently, both the debt and equity markets place significant value on financial statement comparability.

Financial reporting by overconfident CEOs exhibits several characteristics. Firstly, there is a positive relationship between managerial overconfidence and a proclivity for risk-taking suggesting that companies should be wary of a CEO's overconfidence driving excessive risk-taking tendencies. Secondly, previous research indicates that overconfident managers are less inclined to participate in social activities and are more prone to engaging in dishonest behavior that undermines social integrity (Langevoort, 2017). These managers may foster toxic work environments, avoid information-sharing within organizations and dismiss negative feedback (Nevicka, De Hoogh, Van Vianen, Beersma, & McIlwain, 2011). Thirdly, overconfident CEOs often overestimate their ability to achieve outstanding performance (Hirshleifer, Low, & Teoh, 2012). They may incorrectly evaluate investments with a negative net present value positively. They can manipulate results or reduce the comparability of financial statements because they refuse to acknowledge negative feedback and continue to have unwavering faith in the positive prospects of their investments.

We investigate the impact of both overconfident CEOs and product market competition on financial statement comparability. Our analysis uses data from Compustat, the Center for Research in Security Prices (CRSP) and Execucomp spanning from 1992 to 2022, encompassing a total of 53,233 observations. Our findings initially suggest that product market competition enhances financial statement comparability consistent with concerns related to agency problems.

This research makes significant contributions to the literature in several key aspects. First, our study employs four distinct metrics to evaluate product market competition with the aim of capturing its diverse dimensions. Numerous previous studies have shown a negative relationship between competitiveness and concentration. However, we believe that this adverse relationship might not hold in an international context. As a result, we use several competition proxies (Li, Lou, Otto, & Wittenberg-Moerman, 2021; Titilayo & Victor, 2014). Recognizing the limitations of using a single measure to capture the multidimensional nature of product market competition (Li, 2010; Rahman, Kabir, Ali, & Oliver, 2024), our paper incorporates four proxies to offer a more comprehensive evaluation.

Second, this study contributes to the expanding body of research on financial reporting quality by examining managerial characteristics particularly overconfidence. Our paper takes a distinctive approach by being the first to investigate how managers' overconfidence interacts with product market competition and the consequent impact on financial statement comparability while several existing studies have concentrated on factors influencing the quality of accounting information (Bamber, Jiang, & Wang, 2010; Demerjian, Lev, Lewis, & McVay, 2013). Previous studies have primarily attributed financial statement comparability to accounting standards (Barth, 2013; Wang, 2014). Our research demonstrates that both product market

competition and managers' overconfidence traits significantly contribute to the decline of financial statement comparability as reflected in managers' financial reporting practices.

Finally, these empirical findings underscore the importance of investor caution when navigating competitive industries and making investment decisions based on well-informed assessments. Moreover, the presence of overconfident managers highlights the necessity for investors to remain vigilant. In highly competitive sectors, pervasive managerial overconfidence heightens the risk of financial statement misreporting or manipulation. The strong association between the cost of capital and managerial compensation linked to firm performance metrics often exacerbates this risk as overconfident managers tend to overestimate their ability to excel in such competitive environments. Consequently, companies in these sectors may exhibit reduced comparability presenting investors and analysts with challenges in accurately acquiring and interpreting accounting information. In such scenarios, regulatory bodies should bolster monitoring efforts targeted at companies operating in competitive industries and explore strategies to mitigate the levels of financial statement comparability within these sectors.

The remainder of this study is organized as follows: Section 2 provides theoretical insights and formulates hypotheses based on existing research. Section 3 outlines the models, data and variables used for empirical analysis. Section 4 summarizes the findings of the analysis. Section 5 discusses the implications and limitations of the study.

## **2. Theoretical Background**

Empirical methods offer various approaches to assess product market competition. Traditionally, the Herfindahl–Hirschman Index (HHI) which measures industry concentration has been a common measure of competition (Li et al., 2021; Titilayo & Victor, 2014). This index indicates that industries with fewer firms holding a large market share are less competitive compared to those with a higher number of firms. However, recent research suggests that product market competition is multifaceted and the HHI alone may not adequately capture it (Li, 2010; Rahman et al., 2024). Studies incorporating factors such as product substitutability, market size and entry costs provide a more comprehensive understanding of the multidimensional nature of product market competition. As product substitutability increases, markets expand or entry costs decrease, the intensity of product market competition tends to rise (Karuna, 2007).

According to Healy and Wahlen (1999), earning management involves managers altering a firm's reported performance to deceive shareholders or influence contractual outcomes. Managers often employ earnings management strategies to boost their compensation (Habib, Ranasinghe, Wu, Biswas, & Ahmad, 2022) and to meet or exceed the earnings expectations of the capital market (Huang, Roychowdhury, & Sletten, 2020). In the context of agency problems, numerous studies suggest that competition amplifies the likelihood of earnings management. Frésard and Phillips (2022) demonstrate that competition can lead to heightened managerial shirking, prompting firms to provide managers with stronger incentives to manipulate earnings. Similarly, Babar and Habib (2021) propose that intensified competition raises the likelihood of firm liquidation prompting managers to resort to earnings manipulation as a means to mitigate this risk. Managers may use their discretion to manipulate financial performance by overstating earnings to meet targets or manipulate performance metrics as competition diminishes a firm's profitability due to lower prices (Habib et al., 2022). Furthermore, earning management can negatively impact financial statement comparability, a crucial aspect of accounting quality. Dhole, Liu, Lobo, and Mishra (2021) suggest that a higher degree of earning management diminishes earnings quality and reduces the accounting comparability of firms as managers exercise increased discretion in their financial reporting practices.

The significant influence of managers' characteristics on their decision-making behaviors mandates exploring how these traits affect corporate policies and financial reporting. Our primary focus is on manager overconfidence which has received limited attention in the existing literature despite its potential impact. While previous studies extensively examine CEO overconfidence (Ben-David, Graham, & Harvey, 2007; Chen, Ho, & Yeh, 2020; Lin, Chen, Ho, & Yen, 2020; Malmendier & Tate, 2008), they do not directly link it to the firm's financial statement comparability.

According to Hackbarth (2008) and Ben-David et al. (2007) overconfidence often functions as a tendency to underestimate variance implying overly constrained individual expectations of future events. Malmendier and Tate (2008) highlight that overconfident managers often receive more frequent promotions due to their willingness to take greater risks. Consequently, overconfident managers particularly CEOs are more likely to engage in earning management activities. Recent literature in behavioral corporate finance has linked CEO overconfidence with various outcomes including reduced investment efficiency leading to increased cash holdings (Chen et al., 2020), elevated investment in innovation (Galasso & Simcoe, 2011), value-destructive mergers (Malmendier & Tate, 2008), accounting fraud, reduced accounting conservatism (Ahmed & Duellman, 2013), heightened short-term debt (Graham, Harvey, & Puri, 2013) and diminished reliance on external finance such as bank loans (Lin et al., 2020). An exaggerated belief in one's abilities and knowledge marks overconfidence causing managers to overestimate the firm's future profitability while underestimating associated risks. This mindset can contribute to behaviors related to discretion in financial reporting and ultimately influence the comparability of financial statements.

Competition may indeed diminish profitability, increasing managers' motivation to exercise more discretion in their financial reporting practices. As product market competition intensifies, profits often become more volatile. The competitive environment frequently erodes firm profitability by driving down prices. Managers commonly inflate earnings to meet target figures or performance expectations (Habib et al., 2022). When managers resort to earning manipulation, financial statement comparability may suffer. Moreover, heightened competition frequently leads to reduced comparability due to earning management aimed at safeguarding a manager's personal benefits. Hence, this study initially proposes a negative relationship between competition and comparability. Additionally, this paper suggests that overconfident CEOs are more prone to using more discretion in their financial reporting because they underestimate the associated risks and overestimate their ability to handle the consequences. Consequently, we hypothesize that the negative relationship may be more pronounced under the leadership of overconfident CEOs.

*H<sub>1</sub>: Product market competition can negatively affect a firm's financial statement comparability.*

*H<sub>2</sub>: CEOs overconfidence can exacerbate the negative relationship between product market competition and financial statement comparability.*

### **3. Research Objective, Methodology and Data**

#### *3.1. Data Sample*

This research used data from Compustat, CRSP and Execucomp from 1992-2022. The study focuses on manufacturing industries with two-digit SIC codes beginning with 20 and 39. Data for both the variables of interest and control variables were collected from Compustat and CRSP. CEO personal characteristics and compensation data were obtained from Execucomp, a source that provides executive compensation details for S&P (Standard and Poors), 1000 firms starting in 1992 including base salary, bonuses and stock options. The sample was Winsorized at the 1st and 99th percentile values to address outliers. Our final dataset comprised 53,233 observations.

#### *3.2. Measure of Market Competition*

This empirical study used the Herfindahl–Hirschman Index (HHI) as a metric for assessing product market competition. The Herfindahl–Hirschman Index (HHI) calculated by summing the squares of market shares within an industry based on the two-digit SIC codes and using sales data from Compustat is inversely related to product market competition. Ranging from nearly 0 (indicating numerous small firms) to 1 (representing a monopoly), a low HHI suggests high-level competition and low-level market concentration while a high HHI suggests the opposite (Laksmana & Yang, 2014). The HHI was multiplied by -1 to ensure associating higher values with greater product market competition.

Prior research commonly used the price–cost margin to assess product substitutability defining it as the negative reciprocal of demand–price elasticity (Nevo, 2001). A low (high) price–cost margin implies high (low) substitutability reflecting substitutability levels. This study computed the price–cost margin by dividing sales by operating costs within the same industry denoting product differentiation as DIFF. Additionally, multiplying DIFF by -1 aided in interpretation. Industry sales were computed by summing the sales of primary industry segments while operating costs were determined by aggregating the operating costs of firms within the industry.

Using annual industry sales at the four-digit SIC code level yields market size indicating the concentration of consumers within a market or industry. This variable labeled MKTSIZE was log-transformed for analytical purposes aligning mean and median values more closely (Karuna, 2007). This transformation reflects that as demand for a product within a market grows, sales in that market also increase. Applying the log transformation adjusted the variable to a more normally distributed pattern; higher MKTSIZE values signify greater competition within the product market which is typical in industries with high-demand sales.

#### *3.3. Measure of CEO Overconfidence*

According to Zhao and Ziebart (2017) firms are categorized into two groups: the overconfident group and the general group. The *Overcon* variable, a binary indicator set to 1 if the actual earnings per share (EPS) measurement falls below the estimated EPS or lower bound and 0 otherwise, determines this classification. Forecasts must be issued at least 30 days before the end of the fiscal year. However, if multiple forecasts appeared within the same fiscal year, only the last forecast appearing at least 30 days before the end of the fiscal year was considered.

Zhao and Ziebart (2017) use optimistic management earnings forecasts to measure CEO overconfidence suggesting that overconfident CEOs generally provide less accurate information than other CEOs. Consequently, overconfident CEOs are more likely to overestimate their ability to influence financial performance and exhibit excessive optimism regarding future firm performance leading to upwardly biased earnings forecasts. Furthermore, empirical findings from Malmendier and Tate (2008) indicate an association between CEO overconfidence and an increased likelihood of management forecast errors. Hence, CEO overconfidence was assessed using forecast errors related to firm performance.



### 3.4. Measure of Financial Statement Comparability

We used the earnings-based metric for financial statement comparability introduced by De Franco et al. (2011) which regards accounting systems as tools for translating economic transactions into financial reports.

The accounting comparability between firms  $i$  and  $j$  is evaluated based on the similarity between their accounting procedures where these procedures forecast a company's earnings using its returns (economic income). Specifically, we calculated the predicted earnings of firm  $i$  using its own accounting methods and returns as well as the accounting methods of firm  $j$  using the returns of firm  $i$ .

$$\begin{aligned} E(\text{Earnings})_{iit} &= \hat{\alpha}_i + \hat{\beta}_i \text{Returns}_{it} \\ E(\text{Earnings})_{ijt} &= \hat{\alpha}_j + \hat{\beta}_j \text{Returns}_{it} \end{aligned}$$

where  $E(\text{Earnings})_{iit}$  represents the forecasted earnings of firm  $i$  using its own function and return in period  $t$ , and  $E(\text{Earnings})_{ijt}$  denotes the forecasted earnings of firm  $i$  using firm  $j$ 's function and firm  $i$ 's return in period  $t$ . It is important to note that both firms belong to the same industry.

The financial statement comparability between firms  $i$  and  $j$  was quantified as the negative absolute difference between the forecasted earnings. This calculation is represented by the following formula:

$$\text{Comp}_{ijt} = \left(-\frac{1}{4}\right) \times \sum_{t=3}^t |E(\text{Earnings})_{iit} - E(\text{Earnings})_{ijt}|$$

We derived a firm-level metric of financial statement comparability by considering all possible combinations of firm  $i$  and firm  $j$  within each industry. We evaluated the degree of comparability between the accounting systems of firms  $i$  and  $j$  by taking the absolute value of the difference between the earnings forecasted and then multiplying the result by  $-1$ . This comparability metric produces non-positive values with higher scores indicating a greater level of comparability among the accounting systems of firms operating within the same industry. Finally, we measured comparability  $\text{Comp}_m$ , which represents the median of all comparability scores for firms  $i$  and  $j$  within the same industry during period  $t$ .

### 3.5. Empirical Models

We used fixed effects panel regression to examine the relationship between product market competition and financial statement comparability. This regression technique is applied in panel data analysis where data are collected across multiple time periods and entities such as firms and industries. The model adjusts for unobserved heterogeneity that may vary across entities or time periods by incorporating fixed effects. Hence, fixed effects panel regression is better suited for analyzing panel data where such effects need to be controlled while Ordinary Least Squares (OLS) regression is suitable for analyzing cross-sectional data without accounting for individual or time-specific effects. Accordingly, our empirical model was constructed based on fixed effects panel regression as follows:

$$\text{Comp}_{ijt} = \alpha_0 + \alpha_1 \text{PMC}_{it} + \alpha_2 \text{Controls}_{it} + \text{Fixed Effects} + \varepsilon_{it} \quad (1)$$

Where  $\text{Comp}_{ijt}$  denotes the level of comparability, a firm-level metric as De Franco et al. (2011) defined it. We measured the variable representing product market competition,  $\text{PMC}_{it}$  using HHI, DIFF and MKTSIZE. We incorporated controls for various determinants of financial statement comparability including size, book-to-market ratio, leverage ratio, cash flows from operations, cash flow variance, sales, sales growth, stock returns and accrual quality (Francis, Pinnuck, & Watanabe, 2014; Lang, Maffett, & Owens, 2010). Furthermore, we incorporated fixed effects for both the year and firm. We anticipated observing a statistically significant negative coefficient  $\alpha_1$  supporting our first hypothesis.

We employed model 2 to investigate how CEO overconfidence affects the relationship between competition and financial statement comparability. This model incorporates an interaction term between overconfidence and competition to analyze their combined influence on financial statement comparability.

$$\text{Comp}_{ijt} = \alpha_0 + \alpha_1 \text{PMC}_{it} + \alpha_2 \text{Overcon}_{it} + \alpha_3 \text{PMC}_{it} \times \text{Overcon}_{it} + \alpha_4 \text{Controls}_{it} + \text{Fixed Effects} + \varepsilon_{it} \quad (2)$$

Where  $\text{Comp}_{ijt}$  represents the comparability measure that De Franco et al. (2011) introduced, a firm-level variable while  $\text{PMC}_{it}$  denotes the product market competition variable measured by HHI, DIFF and MKTSIZE.  $\text{Overcon}_{it}$  represents CEO overconfidence coded as 1 if the actual EPS falls below the estimated EPS or the lower bound and 0 otherwise. Regarding model 2, we expected the coefficient of the interaction term,  $\alpha_3$ , to be significantly negative. Model 2 controls for the same variables and incorporates year and firm fixed effects as model 1 does.

## 4. Results and Discussion

### 4.1. Main Results

Table 1 provides descriptive statistics for the variables this study analyzed from 1992-2022. The total number of firm-year observations was 53,233. Notably, the  $\text{Comp}$  variable shows negative values following the approach of De Franco et al. (2011). Similarly, the  $\text{HHI}_{conv}$  variable presented negative figures after

multiplying HHI by  $-1$  for easier interpretation where higher values signify increased competition. The *Overcon* variable exhibited mean and median values of 0.559 and 1 respectively suggesting the prevalence of overconfident CEOs compared to non-overconfident ones in manufacturing industries.

**Table 1.** Descriptive statistics.

Variables	Mean	Median	Std. dev.	Q1	Q3
Comp	-0.109	-0.094	0.993	-0.096	-0.089
HHI_conv	-0.191	-0.137	0.173	-0.214	-0.087
DIFF	0.581	0.186	1.101	0.043	0.625
MKTSIZE	3.180	3.001	1.221	1.311	4.022
Overcon	0.559	1	0.497	0	1
R&D expenses	3.626	5.185	3.007	0.065	34.760
SG&A expenses	7.548	7.018	0.701	0.088	14.812
Accrual quality	0.020	0.013	0.018	0.007	0.027
LEV	0.698	0.415	0.974	0.097	0.880
Std_cash flow	0.287	0.289	0.031	0.270	0.307
Std_sale	0.297	0.300	0.040	0.274	0.318
Std_sale growth	0.161	0.159	0.027	0.149	0.174
Stock return	1.471	1.063	0.597	0.434	1.564
MTB	2.862	1.730	1.061	0.100	3.080
ROA	0.020	0.018	0.008	0.002	0.025
Analyst following	7.231	6	3.487	2	9

Table 2 displays the Pearson correlation matrix for the firm-level variables encompassing 53,233 observations from 1992-2022. Significant correlation coefficients at the 10% level are highlighted in bold. The comparability variable exhibits negative relationships with product market competition variables aligned with our hypotheses. Moreover, the comparability variable is also negatively associated with CEO overconfidence which is also in line with our hypotheses. Additionally, we note a positive relationship between the comparability variable and leverage but a negative relationship with market-to-book ratios. However, it is important to interpret these relationship results cautiously as they arise from univariate analyses.

**Table 2.** Pearson correlation matrix.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1: Comp	1													
2: HHI_conv	-0.010	1												
3: DIFF	-0.027	0.036	1											
4: MKTSIZE	-0.005	0.003	0.037	1										
5: Overcon	-0.021	0.006	0.008	0.004	1									
6: Accrual quality	0.016	-0.098	-0.088	-0.033	0.025	1								
7: LEV	0.017	-0.109	-0.000	-0.005	0.109	0.144	1							
8: Std_cashflow	0.027	-0.090	0.099	-0.005	-0.090	0.166	0.171	1						
9: Std_sale	0.044	-0.050	-0.045	-0.006	0.050	0.121	0.058	0.448	1					
10: Std_sale growth	-0.010	0.032	0.037	0.010	-0.032	-0.045	-0.007	0.026	-0.082	1				
11: Stock return	-0.016	0.130	0.002	0.008	-0.130	-0.013	-0.040	0.002	-0.055	0.677	1			
12: MTB	-0.021	0.065	0.047	-0.007	0.065	-0.099	-0.050	0.037	-0.022	0.096	0.201	1		
13: ROA	-0.116	0.025	0.164	-0.002	-0.025	0.051	-0.033	0.048	-0.020	0.021	0.012	0.040	1	
14: Analyst following	0.004	0.040	-0.015	0.007	-0.040	-0.070	-0.109	0.129	0.045	-0.020	-0.054	0.016	-0.003	1

Table 3 reports the findings from regression models relevant to hypothesis 1. In the first column, the HHI\_conv variable demonstrates a negative relationship with financial statement comparability with a strongly significant coefficient of  $-0.013$ . Moving to the second column, the coefficient of DIFF is  $-0.014$  also significant. The third column reveals a negative relationship between MKTSIZE and Comp with a significant coefficient of  $-0.012$ . These results align with H1 indicating that competition tends to undermine financial statement comparability.

Table 4 presents the findings from investigating the joint impact of specific CEO characteristics and product market competition on the firm's financial statement comparability. Consistent with previous studies by Zhao and Ziebart (2017), the findings reflected the assessment of CEO overconfidence. In this table, we assessed hypothesis 2 by estimating model 2. Columns 1, 2 and 3 display the outcomes using HHI\_conv, DIFF and MKTSIZE as the indicators for product market competition. Additionally, following empirical model 2, we incorporated the CEO overconfidence variable (overcon) and the interaction term (PMC  $\times$  overcon) to explore the combined impact of product market competition and CEO overconfidence on comparability.

Table 3. Results concerning hypothesis 1.

Variables	Expected Sign	Dependent variable = Comp		
		Column (1)	Column (2)	Column (3)
HHI_conv	(-)	-0.013*** (0.003)		
DIFF	(-)		-0.014*** (0.002)	
MKTSIZE	(-)			-0.012*** (0.003)
LEV		0.002* (0.001)	0.002** (0.001)	0.001* (0.001)
Accrual quality		0.001* (0.001)	0.001* (0.001)	0.001** (0.000)
Std_cashflow		0.005 (0.003)	0.005 (0.003)	0.005* (0.003)
Std_sale		0.009** (0.004)	0.010** (0.004)	0.011** (0.004)
Std_sale growth		-0.006** (0.002)	-0.006** (0.002)	-0.007** (0.003)
Stock return		0.005*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
MTB		-0.007*** (0.001)	-0.007*** (0.001)	-0.008*** (0.001)
ROA		0.004** (0.002)	0.005** (0.002)	0.004** (0.002)
Analyst following		0.002** (0.001)	0.003** (0.001)	0.003** (0.001)
Observations		53,233	53,233	53,233
Adj. R-squared		0.165	0.164	0.164
Fixed effects (year and firm)		Y	Y	Y

Note: \*\*\*, \*\*, \* denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively. The standard errors are reported in parentheses ( see Appendix 1 for detailed variable definitions).

In column 1 of Table 4, the interaction term between HHI\_conv and overcon exhibits a significant negative coefficient (-0.028, p-value < 0.01). Similarly, in column 2, the interaction term demonstrates a significant negative coefficient (-0.029, p-value < 0.01). In column (3), the interaction term displays a significant negative coefficient (-0.025, p-value < 0.01).

Table 4. Results concerning hypothesis 2.

Variables	Expected sign	Dependent variable = Comp		
		Column (1)	Column (2)	Column (3)
HHI_conv	(-)	-0.013*** (0.003)		
DIFF	(-)		-0.014*** (0.002)	
MKTSIZE	(-)			-0.011*** (0.003)
Overcon	(-)	-0.007** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)
PMC × Overcon	(-)	-0.028*** (0.008)	-0.029*** (0.008)	-0.025*** (0.007)
LEV		0.002 (0.001)	0.002 (0.001)	0.001* (0.001)
Accrual quality		0.001* (0.001)	0.001* (0.001)	0.001* (0.001)
Std_cashflow		0.006* (0.003)	0.005 (0.003)	0.005* (0.003)
Std_sale		0.010** (0.004)	0.010** (0.004)	0.011** (0.005)
Std_sale growth		-0.006** (0.002)	-0.006** (0.003)	-0.007** (0.003)

Variables	Expected sign	Dependent variable = Comp		
		Column (1)	Column (2)	Column (3)
Stock return		0.005*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
MTB		-0.007*** (0.001)	-0.007*** (0.002)	-0.008*** (0.001)
ROA		0.004 (0.002)	0.005* (0.003)	0.004* (0.002)
Analyst following		0.002* (0.001)	0.003* (0.001)	0.003* (0.001)
Observations		53,233	53,233	53,233
Adj. R-squared		0.123	0.123	0.123
Fixed effects (Year and firm)		Y	Y	Y

Note: \*\*\*, \*\*, \* denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively. The standard errors are reported in parentheses (see Appendix 1 for detailed variable definitions).

These findings suggest that management by overconfident CEOs exacerbates the negative impact of product market competition on financial statement comparability. These results support H2 indicating that overconfident CEOs exhibit less hesitation in exercising discretion in a psychological context, thereby exacerbating the adverse impact of competition on comparability.

#### 4.2. Robustness Tests

Firms often allocate resources to different areas like advertising, research and development (R&D) as well as selling, general and administrative (SG&A) expenses as part of their competitive strategy to discourage potential competitors from entering the market.

**Table 5.** Robustness check using other potential proxies of product market competition.

Variables	Expected sign	Dependent variable = Comp	
		Column (1)	Column (2)
R&D	(-)	-0.019*** (0.006)	
SG&A	(-)		-0.011*** (0.003)
Overcon	(-)	-0.007** (0.002)	-0.007*** (0.002)
PMC × Overcon	(-)	-0.026** (0.009)	-0.018** (0.008)
LEV		0.002** (0.001)	0.002** (0.001)
Accrual quality		0.002* (0.001)	0.001* (0.001)
Std_cashflow		0.006* (0.003)	0.005* (0.003)
Std_sale		0.011** (0.004)	0.012** (0.004)
Std_sale growth		-0.006** (0.002)	-0.006** (0.002)
Stock return		0.004*** (0.001)	0.004*** (0.001)
MTB		-0.006*** (0.002)	-0.005*** (0.002)
ROA		0.003** (0.002)	0.004** (0.002)
Analyst following		0.003* (0.002)	0.004* (0.002)
Observations		53,233	53,233
Adj. R-squared		0.103	0.103
Fixed effects (year and firm)		Y	Y

Note: \*\*\*, \*\*, \* denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively. The standard errors are reported in parentheses ( see Appendix 1 for detailed variable definitions).



For instance, Ellis, Fee, and Thomas (2012) offer evidence suggesting that in competitive environments, companies tend to allocate greater resources towards research and development (R&D). Additionally, innovative firms often invest in intangible capital (Lev, 2001) leading to higher SG&A expenses. Consequently, as competition intensifies, firms incline more towards higher SG&A expenses. Therefore, we employed R&D and SG&A variables as alternative indicators for competition. These variables are calculated by scaling both R&D and SG&A expenses by total assets. Table 5 displays the results of our analyses using R&D and SG&A expenses as alternative competition proxies. These findings aligned with our main results indicating that increased competition corresponds to decreased financial statement comparability. Furthermore, overconfident CEOs exacerbate this relationship.

The managerial discretion used within accounting rules has been recognized in this study. Hence, we explored an alternative comparability measure proposed by Francis et al. (2014) that focuses on accruals. Their metric measures financial statement comparability as the disparity between total accruals for pairs of firms within the same SIC two-digit industry classification. Total accruals are calculated as the variance between income before extraordinary items and cash flows from operations adjusted for cash flows from extraordinary items, then normalized by beginning-of-year total assets. We reversed this measure to facilitate result interpretation. Table 6 presents the outcomes of our analyses using this alternative financial statement comparability measure, thereby demonstrating the robustness of our primary findings.

**Table 6.** Robustness check using other potential proxies of financial statement comparability.

Variables	Expected sign	Dependent variable = Diff_acc		
		Column (1)	Column (2)	Column (3)
HHI_conv	(-)	-0.011** (0.005)		
DIFF	(-)		-0.012** (0.004)	
MKTSIZE	(-)			-0.012** (0.005)
Overcon	(-)	-0.006** (0.002)	-0.007*** (0.002)	-0.007** (0.003)
PMC × Overcon	(-)	-0.016** (0.007)	-0.017** (0.006)	-0.019** (0.006)
LEV		0.008*** (0.003)	0.007*** (0.002)	0.007*** (0.002)
Accrual quality		0.014*** (0.005)	0.013** (0.005)	0.014** (0.005)
Std_cashflow		0.005** (0.003)	0.006** (0.002)	0.006** (0.002)
Std_sale		0.008** (0.004)	0.009** (0.004)	0.008** (0.003)
Std_sale growth		-0.006** (0.003)	-0.006** (0.003)	-0.006** (0.003)
Stock return		0.007*** (0.002)	0.008*** (0.002)	0.007*** (0.002)
MTB		-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)
ROA		0.002* (0.001)	0.002** (0.001)	0.002* (0.001)
Analyst following		0.003** (0.001)	0.006** (0.001)	0.006** (0.002)
Observations		53,233	53,233	53,233
Adj. R-squared		0.133	0.133	0.133
Fixed effects (year and firm)		Y	Y	Y

**Note:** \*\*\* \*\* \* denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively. The standard errors are reported in parentheses ( see Appendix 1 for detailed variable definitions).

## 5. Conclusion

### 5.1. Summary and Implications

This study investigates how managers' characteristics influence their financial reporting practices revealing two significant findings. First, it reveals a negative influence of product market competition on financial statement comparability. Second, it highlights that this negative relationship is more pronounced

when overconfident CEOs lead firms. These findings maintain their robustness even after accounting for alternative measures of competition.

This study significantly contributes to the literature by focusing on managers' characteristics particularly their overconfidence. We provide unique insights into the interaction between overconfidence and competition revealing their impact on financial statement comparability. These findings emphasize the importance of prudent investor decision-making in competitive industries given the heightened risk of misreporting associated with managerial overconfidence. Regulatory bodies should enhance monitoring and mitigation efforts in these sectors to address the challenges posed by reduced financial statement comparability. Additionally, policymakers should seek ways to mitigate the adverse effects of managers' overconfident behavior on financial reporting especially in competitive markets.

### *5.2. Limitations and Future Research*

This research has some limitations. First, the lack of validated metrics for overconfidence in the literature limited the study's potential variables for evaluation. Recent studies have introduced novel measures of CEO overconfidence. For instance, Hatoum, Moussu, and Gillet (2022) use Bayesian networks to develop a probability-based measure of CEO overconfidence. However, in many instances, data availability poses a challenge as these studies often rely on manually collected data or text analysis using Python or R. Future studies could investigate different approaches to obtaining overconfidence measures from publically accessible databases based on this limitation which would add significant knowledge to the body of literature.

Second, prior research highlights that managers' financial reporting practices may be influenced by the distinctive institutional frameworks of different countries. Leuz (2010) presents evidence that regulatory and institutional variations among countries can influence firms' financial reporting practices. However, this study solely relies on data from the US which boasts one of the most advanced capital markets globally. Future studies could adopt an international perspective to examine how regulatory and institutional differences in each country affect the quality of financial reporting including aspects like financial statement comparability.

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**Appendix 1. Variable definition.**

<b>Variable</b>	<b>Definition</b>
Financial statement comparability measurement:	
Comp	We calculate the financial statement comparability between firm i and firm j by taking the negative of the average absolute difference between the predicted earnings using the accounting functions of firm i and firm j. We quantify comparability, denoted as Comp, as the median of all comparability scores of firm i in period t within the same industry.
Product market competition measurement:	
HHI_conv	The Herfindahl–Hirschman index (HHI) is computed by squaring each firm's market share in the industry and summing these squares. We multiply the HHI by -1 to ensure that higher values indicate greater competition, resulting in a new variable termed HHI_conv. This adjustment facilitates easier interpretation of the index.
DIFF	The price-cost margin is calculated as the ratio of total industry sales to total industry operating costs at the four-digit SIC code level and by fiscal year. This metric encompasses such costs as COGS, SG&A expenses, and depreciation, amortization, and depletion expenses. To facilitate interpretation, we multiply the price-cost margin (DIFF) by -1, ensuring that higher values correspond to greater competition within the industry.
MKTSIZE	Industry sales are determined by aggregating the sales figures of all firms listed in Compustat within the industry. To gauge the size of the product market, this study employs the natural logarithm of industry sales, denoted as MKTSIZE.
R&D expenses	Ellis et al. (2012) showed that firms with larger R&D expenses tend to disclose less information about their customers, resulting in higher proprietary costs. This study scales R&D expenses by beginning total assets. Higher R&D expenses indicate higher proprietary costs.
SG&A expense	Innovative firms invest in intangible capital by incurring larger SG&A expenses (Lev, 2001). Higher SG&A expenses indicate higher proprietary costs. This study scales SG&A expenses by beginning total assets.
CEO overconfidence measurement:	
Overcon	Overcon is coded as 1 if the actual EPS falls below the estimated EPS or the lower bound, and 0 otherwise.
Control variables:	
LEV	Long-term debt divided by total assets, both at the end of fiscal year t
Accrual quality	Absolute value of discretionary accruals, calculated using the Jensen (2001) model, as modified by Kothari, Leone, and Wasley (2005).
Std_cash flow	Standard deviation in quarterly cash flows from operations, scaled by total assets for the preceding 4 years.
Std_sale	Standard deviation of the preceding 4 years' sales, scaled by total assets.
Std_sale growth	Standard deviation of growth in quarterly sales for the preceding 4 years.
Stock return	12-month stock return for the current fiscal year.
MTB	Market-to-book ratio at the end of fiscal year t
ROA	Income before extraordinary items scaled by total assets
Analyst following	The number of analysts covering a company.