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The Effect of Gender Diversity on Asymmetric Cost Behaviour Using Earnings Management as a Mediating Variable

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ABSTRACT

Examining how gender diversity affects asymmetric cost behaviour in non-financial firms is the goal of the current study. Its primary objective is to ascertain whether earnings management mediates the association between gender diversity and asymmetric cost behaviour. The data utilised in this study came from 455 firm-year observations from 35 non-financial sector businesses registered on the Iraqi Stock Exchange from 2010 to 2022. The study employed ordinary least squares (OLS). The results showed that asymmetric cost behaviour and earnings management are unaffected by gender diversity. On the other hand, the results show that earnings management is negatively associated with asymmetric cost behaviour. Thus, the study fills the gap in the literature, especially in developing countries.

Keywords: Gender Diversity, Earnings Management, Asymmetric Cost Behaviour.

INTRODUCTION

The weakness of corporate governance, represented by board characteristics, had the greatest impact on the collapse of major companies in the USA in 2008. Recent company failures and financial scandals at Satyam in India and SK Networks in South Korea show corporate governance's inability to improve earnings management [1] and [2]. So, earnings management is a topic that worries investors [3]. Management's behaviour in earnings management may either weaken asymmetric cost behaviour because the legal system is not perfect, the agency

problem is serious, or earnings management has become a common way for the management of listed companies to achieve their own goals [4]. Recent research suggests that in environments with inadequate investor protection and ineffective corporate governance, the issue of asymmetric cost behaviour induced by accrual-based earnings management could become more serious [5].

Understanding cost behaviour—how a firm's cost structure is influenced by changes in business activity—is a crucial issue in cost accounting and management accounting; this understanding significantly impacts the decision-making process [6]. However, asymmetric cost behaviour is a topic that has drawn a lot of attention from scholars, particularly in America and Europe and is regarded as a problem by investors. It is influenced by a variety of factors, chief among them being board characteristics [7]. The motivations for asymmetric cost behaviour can be categorised into two groups: one focusing on efficiency considerations related to cost adjustment and emphasising the benefits for companies, and the other centred on managerial opportunism with an emphasis on egoism or agency problems [2].

The first research on asymmetric cost behaviour started in the last century, with [8] presenting evidence that the cost curve differs for the same change of activity; this could be the first evidence of cost stickiness. Despite the recognition of disproportional cost that emerged in the investigation of [9], the definition of cost stickiness was first coined by the (ABJ) Model Anderson, Banker, and Janakiraman (2003) documented evidence of asymmetrical cost behaviour, and it can be defined as a pattern of cost behaviour where costs increase more than decrease, despite the equivalent amount of changes in the company's activity. Attributing it to deliberate managerial decisions in the presence of adjustment costs, i.e., proclaiming that cost stickiness arises from optimal decisions regarding adjustment costs [10].

The main difference between traditional cost classifications and cost stickiness is that the former is based on the relationship between the change in activity level, while the latter considers the direction of the change [11]. This is because costs exhibit stickiness by increasing more steeply with increasing sales revenue compared to the decrease in costs with the same proportionate decrease in sales revenue [12]. The sticky cost model allows managers and management accountants to adjust resources in response to changes in the volume of activity, rather than responding proportionately and symmetrically to volume changes within the relevant range. Cost stickiness is therefore characterized by asymmetric behaviour, as costs tend to react differently to increases and decreases in the volume of activity [11] and [13].

Agency theory predicts that these managers may act opportunistically, leading shareholders to put in a mechanism that can monitor firm managers, which also results in agency costs (ICAEW, 2005) [14]. According to [15], agency problems may lead to sticky behaviour of cost since managers intentionally manipulate cost in reaction to changes in sales. [16] and [17] also argue that managers deliberately manage production, which then leads to the sticky behaviour of cost. Earnings management not only promotes the healthy development of enterprises but also causes the separation of ownership and management rights inside enterprises, which further leads to the conflict of interests between the two rights [18]. If profits decline rapidly, managers tend to take unfair earnings management measures to reduce costs and cover up self-interested behaviours to avoid paying fines and damaging reputations, thus resulting in cost stickiness [19].

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However, to the best of our knowledge, few, if any, studies have examined the link between board gender and asymmetric cost behaviour, particularly in the context of developed countries. We fill this gap in the literature by investigating how board gender relates to asymmetric cost behaviour by employing earnings management as a mediator in 35 non-financial sector businesses registered on the Iraqi Stock Exchange.

We hypothesise that board gender may decrease asymmetric cost behaviour. First, through earnings management as a mediator variable. Secondly, firms with a higher fraction of female directors exhibit lower agency costs since women may be less tolerant of opportunistic conduct than men [20] and [21]. As sales decline, female executives will cut expenses more aggressively, reducing their perquisite usage and resource control, thereby decreasing the asymmetric cost behaviour. In the same vein, women are traditionally more risk-averse than men [22], [23], and less likely to be overconfident [24]. Hence, they are more cautious when forecasting future demand changes.

To the best of the researcher‘s knowledge, no studies have yet investigated the mediating influence of earnings management on the association between board gender and asymmetric cost behaviour. According to, [25], a substantial portion of the published studies on asymmetric cost behaviour have focused on corporations in the United States and other developed countries, while developing market enterprises have gotten less attention. and stressed the importance of research focusing on asymmetric cost behaviour, especially in Arab countries that rely heavily on the oil sector. Further study on ACs in developing countries with distinct economic circumstances, such as Iraq, has thus become urgently necessary. Therefore, this study intends to close a gap in previous research by examining the mediating influence of earnings management on the association between gender diversity and asymmetric cost behaviour in the setting of Iraq.

In this regard, Iraq is considered a developing country; hence, the research findings may not be as important or applicable to Iraq. For instance, prior studies could not be applied to the issue of Iraqi corporations due to the fact that Iraqi corporate governance laws differ from those of other countries. Additionally, Iraq's financial reporting system and institutional structure differ from those of developed countries. In Iraq and other emerging nations with comparable economies, institutions, and legal frameworks, the study may thus have theoretical and practical ramifications. Thus, in the context of Iraq, the primary goal of the study is to examine the mediating influence of earnings management on the association between gender diversity and asymmetric cost behaviour.

The remainder of the paper is structured as follows: The literature is reviewed in the next section. The next part covers the data, sample, research methods, and variable measurement. The next section presents the empirical findings. The final portion discusses the study results and conclusion.

LITERATURE REVIEW

Gender Diversity and Asymmetric Cost Behaviour

The Global Gender Gap Index (GGGI), published by the World Economic Forum, is the most widely used measure of gender disparity. The dataset has been updated annually since its inception in 2006. The GGGI includes four aspects of gender inequality: political empowerment,

health and survival, educational achievement, and economic involvement and opportunity. Globally, the average GGGI score in 2016 was 0.68. Given that the GGGI counts gender equality as one, this outcome supports the UNDP's gender inequality index, which states that more work has to be done because there is still a significant gender gap in the globe in 2016 [26]. Because of their interpersonal skills, female directors are more likely to interact with a variety of stakeholders and respond to their requirements, which lowers corporate asymmetric cost behaviour [27].

Over the past two decades, gender diversity has emerged as a central and challenging issue in academia within the new global economy. [17] confirm that gender diversity in boardrooms, particularly in large European corporations, has become a crucial topic in corporate governance. Numerous empirical studies, particularly in developed capital markets and some Asian economies, have explored the relationship between gender diversity and costs; some studies have found negative relationships. For instance, [17], [28] [29], [30], [31], [32], [33], [34], [35], [36] and [37]. Conversely, some empirical evidence shows a positive relationship (see, e.g., [38], [39], [40], and [41].

[17], Do female directors mitigate asymmetric cost behaviour? Using an international sample of firms across 37 countries from 1999 to 2018, they found that firms with more gender diversity exhibit lower cost stickiness. That means more female directors decrease agency issues and improve corporate governance, both of which alleviate asymmetric cost behaviour. Similarly, [28], in their efforts to meta-analytically investigate the controversial relationship of the impact of board diversity on cost, did an extensive and systematic literature review using a sample of 211 non-financial companies listed on Borsa Istanbul; this study examined how chairperson gender and board characteristics affect the cost of debt by using panel data analysis from 2016 to 2020. A system-generalized method of the moment model was also applied to test the endogeneity issue. The findings showed that the presence of female chairpersons and female directors on the board reduces the cost of debt and the perceptions of default risk by fund providers.

Similarly, [31] examined the impact of gender diversity on board-reducing agency costs. Multiple regression analysis was used. The research used panel data consisting of 2,062 firm-year observations of 226 non-financial firms listed on the PSX from 2008 to 2019. The results indicated that female presence on the board significantly reduces the agency cost and, hence, mitigates the principal-agent conflict. This result supported the findings of [29], who examined female directors and agency costs. This paper used a large sample of 23,340 firm-year observations of Chinese listed companies during 2004–2017. The authors used ordinary least squares regressions as the primary methodology with a wide range of methods, including the fixed-effect method. The evidence revealed that the participation of female directors in corporate boards reduces agency costs, which correlates with conflicts of interest. Moreover, gender-diverse boards are more effective.

Conversely, [40] examined the effect of the board of directors on the cost of debt and the moderating effect of ownership structure on that relationship. To test the hypothesis that the board of directors reduces the cost of debt and ownership leads to an increase in the cost of debt, the Ordinary Least Squares (OLS) regression method is applied. With a sample of 2,576 European SMEs (8,742 observations) over the period 2013 to 2018, the results reveal that

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board gender is positively associated with the cost of debt. These results suggest that increasing board gender on SMEs' boards leads to a higher cost of debt. Likewise, the results of the studies by [29] and [41] are similar to the results above.

On the other hand, gender has no impact on costs. [38] investigated the impact of CEO gender, firm performance, and costs on firms' financial reports in India. This study particularly focuses on the gender diversity of the board of directors, chief executive officers, and chief financial officers and spans from 1999 through 2015. Data for analysis were obtained from the Prowess database; the results using descriptive statistics and panel regression analysis revealed that the proportion of women on board has no impact on costs in company annual reports. That means our results show that having a female CEO has a negative effect on firm performance in Indian companies.

According to agency theory, proper management and gender diversity enhance oversight functions and reduce agency costs, thereby improving company performance. However, the relationship between gender and costs shows mixed results. Given the above discussion, if gender diversity is associated with stronger monitoring, it should reduce asymmetric cost behaviour. Therefore, the hypothesis is formulated as follows:

- **H1:** Gender on boards has a detrimental effect on asymmetric cost behaviour.

Gender Diversity and Earnings Management

Gender diversity has received growing attention throughout the last decade, and, in general, there is a global call for the presence of women on corporate boards as a means of improving corporate decision-making and governance [42]. Some countries have initiated a spate of legislative changes requiring a predetermined representation of female directors on corporate boards [43]. Indeed, the results of a few studies indicate that female directors tend to have a positive influence on several corporate outcomes, such as earnings management and performance [42] and [44] Nevertheless, earnings management is an important issue that has long plagued corporations and continues to pose major concerns for the broader society.

The appointment of female directors is not only of great interest to policy-makers, politicians and regulatory authorities but also to management, finance and accounting researchers. In addition, the appointment of women to corporate boards is perceived to be ethically appropriate and socially responsible corporate behaviour [45]. On the other hand—and constituting the focus of our study—is that extant research shows that women have different characteristics and skills compared to men (e.g., more vigilant and risk-averse, cautious, conservative, fair, independent, objective and responsible) which place them in a better position to intensely monitor executives compared with the position of male directors [46], [47], and [48]. In this case, they argue that female directors are not only more likely to challenge managerial opportunism but also will be better at doing so than their male counterparts [49].

A priori and due to their superior monitoring abilities (based on the predictions of economic theories), the study expects the presence of female directors on audit committees to restrain earnings management and improve the overall earnings quality. Meanwhile, the relationship between female directors and earnings management is a relatively under-examined issue and the results of the few studies that have attempted to address this question are generally inconclusive (e.g., [50], [51], [52], [53], [54], [55], [56], [57], [58], and [59].

Among studies that have found no discernible relationship, particularly those focusing on the influence of board gender diversity on earnings management, for example [58], the study aims to examine board diversity and its impact on the corporate performance of public companies listed on the Amman Stock Exchange. The sample included 15 banks and 23 insurance companies for the financial period (2010–2015). Results revealed a poor representation of female holders as members of the board of directors. In the same context, the study concluded that there is no impact of gender. These results are consistent with both [50], [51], [52], [53], [54], [55], [56], [57], and [58].

On the other hand, among those studies that found no relationship except through the mediation of accounting expertise, which investigates the impact of board gender on earnings management in firms' financial reports, this study was conducted by [43] and titled Gender Diversity and Earnings Management. The sample starts in 2007 and runs until 2013. The researchers obtain the required financial data from the annual Compustat file in the USA. The study used the two-stage least squares (2SLS). The results show that the participation of female directors just with relevant financial backgrounds improves earnings quality more than the participation of female directors without such backgrounds. These results are consistent with both [51], [54], [67], [59], and [55].

Contrarily, some empirical studies were conducted; for instance, a study conducted by [68] titled The Gender Diversity and Earnings Management Practices used a sample of 100 listed non-financial firms in Pakistan from 2013 to 2018. Interestingly, the results show that gender-diverse corporate boards further strengthen the effectiveness of women as members of the audit committee in curtailing earnings management practices. Further, female CEOs are strongly inclined to reduce earnings management, thereby ensuring an effective and transparent managerial decision. In the same vein, research was conducted by [69] titled The Relation between Audit Committee Characteristics and Earnings Management. Using a sample of 80 non-financial Egyptian companies listed on the Egyptian Stock Exchange for the eight financial years from 2012 to 2019. Using a multiple regression model to test the relationship among the variables, the results provide evidence that Audit Committee gender has a negative relationship with earnings management. These results are consistent with both [70], [71], [49], [72], [73], [45], and [48].

According to what was mentioned, there are mixed results between gender and earnings management. Although some extant literature suggests that the participation of female directors within boardrooms is associated with less earnings management, it would be interesting to see empirical evidence supporting or refuting this hypothesis in the context of Iraqi companies. Therefore, the hypothesis will be as follows:

- **H2:** Board gender has a detrimental effect on earnings management.

Earnings Management and Asymmetric Cost Behaviour

The primary distinction between cost stickiness and traditional cost categories is that the latter takes into account the direction of the change, while the former is based on the link between the change in activity level [11]. This is due to the fact that expenses show stickiness, rising more sharply as sales revenue rises than when costs fall proportionately with a drop in sales revenue [12]. However, according to agency theory, these managers may take advantage of opportunities, which would force shareholders to install a system that could keep an eye on

company managers. This would also result in agency costs (ICAEW, 2005) [14]. Since managers purposefully alter costs in response to shifts in sales, agency difficulties may result in the sticky behaviour of costs [15].

Cost stickiness results from managers' tendency to use unethical earnings management techniques to cut expenses and hide self-serving activity in order to avoid paying fines and harming their reputations if profits drop off quickly [19]. Indeed, a few studies indicate that earnings management tends to influence asymmetric cost negatively, for example [4], [7], [74], [75], [76], [77], [4], and [78]. On the contrary, some studies have confirmed that earnings management does not affect asymmetric cost, for example [13] and [77].

Likewise, referring to the study conducted by [76], this study empirically analyses the relationship between cost stickiness and earnings transparency. The Korea Corporate Governance Service (KCGS) evaluation scores are employed to measure CSM activities. This study analyses 4383 firm observations during the 2011–2017 period. The empirical results show that the relationship between cost stickiness and earnings transparency is significant in the negative direction. This means that the stickier the costs of a firm, the lower the earnings transparency of the firm. Similarly, a study by [4] titled The Influence Mechanism of Executive Compensation Incentives on the Relationship Between Real Earnings Management and Expense Stickiness, based on data from Chinese A-share-listed manufacturing companies from 2018 to 2020, a total of 378 listed companies. The study used the Pearson correlation coefficient. The empirical results show that Chinese manufacturing enterprises' real earnings management level is negatively correlated with cost stickiness. In a similar vein, [74] examined earnings quality and asymmetric cost behaviour on the Jakarta (JKSE). Earnings quality has negative influences on asymmetric cost behaviour, according to this study. Similarly, [80] found evidence indicating that both earnings management and sticky cost move in the opposite direction, meaning as earnings management increases sticky cost diminishes. Consequently, the more a firm indulges in earnings management, the less sticky its cost will be.

Contrary to a study by [14], this research was titled The Relationship between Real Earnings Management and Cost Behaviour. The study employed a purposive sampling method. Fifteen firms listed on the Ghana Stock Exchange were selected for the study. Data from the period of 2005 to 2014 was collected. The study finds Ghanaian listed firms' SG&A costs to be sticky and also sees these firms manipulating earnings through REM. This study finds that REM through discretionary expenses and production costs increases sticky SG&A costs. In accordance with agency theory, this study proposes the following hypothesis in light of the inconsistent findings of earlier research and the imperfections in Iraq's present legal system:

- **H3:** There is an inverse relationship between earnings management and asymmetric cost behaviour.
- **H4:** Earnings management mediates and enhances the relationship between gender diversity and asymmetric cost behaviour.

The theoretical framework of the study is shown in Figure 1.

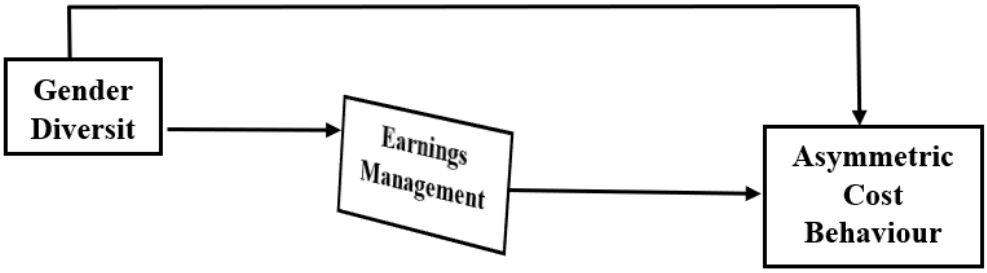

Figure 1: Theoretical framework

RESEARCH METHODOLOGY

Sample and Data

The sample covered some non-financial listed firms on the Iraq stock exchange. Data collection primarily employed quantitative methodologies. The target population for this research comprises 35 non-financial firms. The study period spans 13 years, from 2010 to 2022. A 13-year timeframe was selected to ensure the acquisition of ample data for generating consistent findings. Two conditions were applied in the selection of the sample. First, firms must have sufficient data to estimate the discretionary accruals during the sample period. Second, firms should not be involved in any merger or acquisition events for the data to be consistent. The data was extracted manually from the annual reports of the selected firms. Data on assets, liabilities, cash, debt, and sales were lagged for one period as suggested by the Modified Jones model. These processes yielded a final data set of 455 firm-year observations, representing 35 firms over 13 years.

Measurement of Variables

Dependent Variable: Asymmetric Cost Behaviour (ACB):

ABJ Model by Anderson, Banker, and Janakiraman (2003) uses the term cost stickiness to refer to asymmetric cost behaviour where the cost increases more than they decrease as demand changes. The model refers to changes in SG&A costs to fluctuations in net operating revenue. The independent variable is the logarithmic ratio of current to the preceding net sales revenue and the dependent variable is the logarithmic ratio of current SG&A to SG&A costs from the previous period. Many proxies were used across the literature to test asymmetric cost behaviour. Among most of the common proxies is SG&A [78], [15], [81], [82] and [83]. Following their lead, the proxy used in this study for cost is SG&A and for activities is the sales revenue. The components of the regression model for cost stickiness are shown below.

The researcher uses the following logarithmic model to measure asymmetric cost behaviour. Which was used by a group of studies such as [17], [35], [84], [85], [13] and [78].

Model (1)

$$\log\left[\frac{SGA_{i,t}}{SGA_{i,t-1}}\right] = \beta_0 + \beta_1 \log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \left\{Y_0 + \sum_{j-1}^{n} y_j CON_{i,t,j}\right\} * DUM * \log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \varepsilon_{i,t}$$

Here

SGA = natural log of total sales, general and administrative

REV = Natural log of revenue.
DUM = A dummy variable with a value of 1 if the current year REV decreases (REV i,t / REV i, t-1 < 1), and 0 otherwise.
CON = control variables. Here, the researcher mainly uses CAPR and TOBQ as control variables because most of the variables used by existing studies have already been considered about corporate governance. The details of CAPR and TOBQ are as follows:
CAPR = capital intensity, measured as the net value of fixed assets scaled by operating revenue; TOBQ = growth rate, measured as Tobin's Q, where i indicates firm and t indicates year Hence, the researcher restates model (1) as follows:

Model (2)

$$\log\left[\frac{SGA_{i,t}}{SGA_{i,t-1}}\right] = \beta_0 + \beta_1 \log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \beta_2 DUM * \log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \beta_3 DUM * CAPR_{i,t} * \log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \beta_4 DUM * TOBQ_{i,t} * \log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \varepsilon_{i,t}$$

In this model, the coefficient β1 represents the percentage increase in selling, general and administrative expenses as a result of a 1% increase in revenue, and β1 + β2 represents the percentage decrease in selling, general and administrative expenses as a result of a 1% decrease in sales revenue. If selling, general, and administrative expenses are sticky, the percentage increase in expenses during periods of increasing revenue should be greater than the percentage decrease in expenses during periods of decreasing revenue.

According to the definition of asymmetric cost behaviour, a significant negative sign of $\beta 2$ in a model (2) indicates the existence of asymmetric cost behaviour.

Mediator Variable: Earnings Management (EM):
Earnings management is a mediator variable. Drawing from previous literature, this study uses the modified Jones model to estimate discretionary accruals as a measure for the extent of EM [86] [59] [87] .

$$\frac{\text{TAt}}{\text{At}-1} = a_1\left(\frac{1}{\text{At}-1}\right) + a_2\left[\frac{(\Delta\text{REVt} - \Delta\text{RECt})}{\text{At}-1}\right] + a_3\left(\frac{\text{PPEt}}{\text{At}-1}\right) + \varepsilon_{it}$$

Where:
TAt—total accruals, measured as the difference between net profit and operating cash flows from activities; At-1—total assets at the end of year t-1; ΔREVt—the difference in operating revenues in year t and year t – 1; ΔRECt—the difference in net receivables in year t and year t-1; PPEt—property plant and equipment at the end of year t.

Independent Variables: Gender Diversity (GD):

Board gender is the study's independent variable. Prior research indicates that the study assessed this variable. If a female board member is present, 1; if not, 0. [28], [88], [89] and [45].

Control Variables:

This paper controls the impact of three firm-specific characteristics as suggested by prior studies: firm size (FS), leverage (LEV), and (Tobin's Q). In line with previous research aligning with the size hypothesis, this study incorporates firm size as a control variable, recognizing its potential influence on earnings manipulation [73], [78], [90], [91] and [92]. Firm size is quantified through the natural logarithm of a firm's total assets. In the same vein, previous investigations, such as those by [76], establish a positive correlation between leverage ratios and earnings manipulation. Consequently, the study incorporates the leverage ratio as a control variable; the leverage ratio measures a firm's total liabilities to its total assets. Finally, firm value and performance are included as control variables, measured by Tobin's Q and the natural logarithm of total assets [78], [35] and [27].

Regression Model

The association between gender and asymmetric cost behaviour using earnings management as a mediating variable of Iraq-listed non-financial firms was examined using four models in this study. Using model 1, the following analysis was done to assess the direct association between gender and asymmetric cost behaviour. Using model 2, the following analysis was done to assess the direct association between board gender and earnings management. Using model 3, the following analysis was done to assess the direct association between earnings management and asymmetric cost behaviour. Finally, using model 4, the following analysis was done to assess the non-direct association of the effect of gender on asymmetric cost behaviour using earnings management as a mediating variable.

The first regression model will examine the relationship between board gender and asymmetric cost behaviour.

Model 1

$$STICKY_{i,t} = \beta 0 + \beta 1\ GD_{i,t} + \beta 2\ SIZE_{i,t} + \beta 3\ LEV_{i,t} + \beta 4\ TOBQ_{i,t} + \varepsilon_{i,t}$$

The second regression model will examine the relationship between board gender and earnings management.

Model 2

$$EM_{i,t} = \beta 0 + \beta 1\ GD_{i,t} + \beta 2\ SIZE_{i,t} + \beta 3\ LEV_{i,t} + \beta 4\ TOBQ_{i,t} + \varepsilon_{i,t}$$

The third regression model will examine the relationship between earnings management and asymmetric cost behaviour.

Model 3

$$STICKY_{i,t} = \beta 0 + \beta 1\ EM_{i,t} + \beta 2\ SIZE_{i,t} + \beta 3\ LEV_{i,t} + \beta 4\ TOBQ_{i,t} + \varepsilon_{i,t}$$

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The fourth regression model will examine the relationship between board gender and asymmetric cost behaviour through earnings management as an intermediary variable.

Model 4

$$STICKY_{i,t} = \beta 0 + \beta 1\ EM_{i,t} + \beta 2\ GD_{i,t} + \beta 3\ SIZE_{i,t} + \beta 4\ LEV_{i,t} + \beta 5\ TOBQ_{i,t} + \varepsilon_{i,t}$$

Where:

Due to its widespread usage and acceptability in panel data estimation techniques, Eviews 13 was used to analyse the data. Ordinary least squares (OLS) were used in this investigation. Drawing from earlier research [27] and [78].

RESULTS

Table 1 displays the descriptive statistics from 2010–2022 research variables. Asymmetric cost behaviour had a mean value of 0.01. Earnings management had a mean value of 0.127. The average percentage of women on the board was 0.424. 22.361 was the mean (FSIZE), while 1.384 was the standard deviation. 0.591 was the mean (LEV), while 1.496 was the standard deviation. 0.62 was the mean (TOBQ), while 0.16 was the standard deviation.

Table 1: Research Descriptive

Variable	Mean	Std. Dev.	Minimum	Maximum
SG&A	0.01	0.29	-1.61	1.47
EM	0.127	0.161	0.000	1.428
GD	0.424	0.495	0.000	1.000
FSIZE	22.361	1.384	18.996	26.895
LEV	0.591	1.496	0.002	19.782
TOBQ	0.62	0.16	0.09	5.83

Correlation Analysis

Understanding the kind and strength of the link between study variables is the aim of correlation analysis. Table 2 displays the findings of the correlation analysis: The correlation between board gender and asymmetric cost behaviour was (r = 0.191, ρ-value > 0.05). In a similar vein, the correlation between board gender and earnings management was (r = 0.415, ρ-value > 0.05). In addition, table (2) shows that the correlation between earnings management and asymmetric cost behaviour is at a level greater than 0.05 (r = 0.088, ρ-value > 0.05). Furthermore, the findings showed comparable outcomes for the control variables, including FSIZE (r = 0.735; ρ > 0.05), LEV (r = 0.098; ρ > 0.05), and Tobin's Q (r = 0.788; ρ > 0.05).

Table 2: Pairwise Correlation.

	(1)	(2)	(3)	(4)	(5)	(6)
SG&A	1.000					
EM	0.088	1.000				
GD	0.191	0.415	1.000			
FSIZE	0.735	0.093	0.1132	1.000		
LEV	0.098	0.323	0.525	0.1998	1.000	
TOBQ	0.788	0.887	0.111	0.821	0.772	1.000

Regression Results

According to the results of the regression analysis performed to test H1, the results of gender diversity do not affect asymmetric cost behaviour (β = 0.167, ρ-value > 0.05), so H1 is rejected. The results are consistent with research by [38], [51], [67], [41] and [59]. The findings go against agency theory, which holds that having more women on the board enhances its ability to keep an eye on the calibre of financial reporting procedures and discourages manipulation of earnings.

Table 3: Recreation analysis results for the impact of gender diversity on asymmetric cost behaviour.

Variable	Coefficient	Std. Error	t-Statistic	Prob	VIF
C	1.026	0.412	-0.616	0.032	-
GD	0.020	0.063	0.215	0.167	1.158
F Size	0.011	0.019	0.612	0.037	1.214
LEV	-0.013	0.007	-1.947	0.049	1.192
TOBQ	0.031	0.008	1.064	0.009	1.297
R-squared	0.199	Adjusted R-squared		0.181	
F-statistic	5.184	Prob (F-statistic)		0.000	
Durbin-Watson stat		1.969			

According to the results of the regression analysis performed to test H2, gender diversity does not affect earnings management (β = 0.307, ρ-value > 0.05), so H2 is rejected. The results are consistent with research by [57], [50] [53] and [55]. In a similar vein, there are studies in advanced countries such as America and Europe that confirmed that there is no relationship between gender and profit management and stipulated the availability of accounting experience, for example, [43] and [54]. Similarly, [59] and colleagues' recent investigation in Iraq supported the same findings.

Table 4: Recreation analysis results for the impact of gender diversity on earnings management.

Variable	Coefficient	Std. Error	t-Statistic	Prob.	VIF
C	1.417	0.662	2.140	0.048	-
GD	0.003	0.023	-0.120	0.307	2.324
F Size	0.058	0.029	-1.970	0.049	1.725
LEV	-0.019	0.007	-1.390	0.063	2.610
TOBQ	0.032	0.009	2.525	0.001	1.322
R-squared	0.182	Adjusted R-squared		0.197	
F-statistic	4.866	Prob (F-statistic)		0.000	
Durbin-Watson stat		1.684			

According to the results of the regression analysis performed to test H3, earnings management had a negative and substantial impact on asymmetric cost behaviour (ACB). The results of the investigation into the link between EM and ACB show that the ACB variable (dependent variable) is significantly influenced by the EM variable. The fact that the p-value error level is less than 0.05 makes this noteworthy. H3 is therefore admissible. These findings are in agreement with [74], [78], [27], [35], [76], [4], [93] and [80].

Table 5: Recreation analysis results for the impact of earnings management on asymmetric cost behaviour.

Variable	Coefficient	Std. Error	t-Statistic	Prob.	VIF
C	1.235	0.192	-1.226	0.047	-
EM	-0.257	0.112	-2.294	0.028	1.133
F Size	0.010	0.008	1.137	0.039	1.043
LEV	-0.015	0.011	-1.412	0.047	1.059
TOBQ	0.041	0.0055	3. 375	0.002	1.235
R-squared	0.565	Adjusted R-squared		0.513	
F-statistic	5.865	Prob (F-statistic)		0.000	
Durbin-Watson stat		2.016			

The fourth hypothesis in this study is the effect of board gender (BG) on asymmetric cost behaviour (ACB) using earnings management (EM) as an intermediary variable. The model used is the (ABJ) Anderson, Banker, and Janakiraman (2003). The results of the investigation GD: The coefficient of GD is shown to be 0.030 and positive, indicating a slight but not statistically significant positive effect (Prob = 0.172). In a similar vein, EM (earnings management): The impact of EM on the dependent variable is positive and estimated at 0.316, with relative statistical significance (Prob = 0.086). Also, the interactive variable EM*GD has a negative coefficient (-0.110) and a non-statistical significance (Prob = 0.286), indicating that the interactive effect between gender and earnings management is not strongly significant in influencing irregular costs. The fact that the p-value is greater than 0.05. The H4 is therefore rejected. According to the results of the regression analysis conducted to test hypothesis No. 4, Table 6 demonstrates that after moderating the influence of board gender on ACB, the data indicate that EM has no discernible effect on it. The findings are that EM has a stronger direct effect on ACB than the indirect effect of gender.

Table 6: Recreation analysis results for the impact of gender diversity on earnings management and asymmetric cost behaviour.

Variable	Coefficient	Std. Error	t-Statistic	Prob.	VIF
C	1.315	0.408	-0.772	0.098	-
EM	0.316	0.206	1.535	0.086	3.627
GD	0.030	0.039	0.213	0.172	1.184
EM*GD	-0.110	0.174	-0.202	0.286	4.086
F Size	0.012	0.018	0.688	0.047	2.175
LEV	-0.015	0.007	-2.253	0.048	1.481
TOBQ	0.000	0.000	1.063	0.031	1.324
R-squared	0.453	Adjusted R-squared		0.426	
F-statistic	4.075	Prob (F-statistic)		0.000	
Durbin-Watson stat		1.972			

CONCLUSIONS

Gender diversity has become a major topic of interest around the world in recent years due to its positive effects on companies. The existence of gender inequality and the possible causes thereof remain an important topic due to intense debate in recent years among academics and practitioners. Empirical evidence has shown that corporate governance mechanisms in many companies, particularly in developed markets, play an important role in reducing the cost and

financial distress of companies. Asymmetric Cost Behaviour (ACB) is an important issue in accounting and economics research. The literature has shown that ACB cannot be separated from managers' motivations. This study extends the asymmetric cost behaviour literature by providing new evidence from emerging economies and by investigating the influence of board characteristics as one of the CG mechanisms. Using the Iraqi market setting, the present study investigates board gender matters in reducing earnings management and asymmetric cost behaviour of non-financial companies listed in Iraq for the period 2010 to 2022. Results indicate that COGS behaviour is sticky; it increases (1.05%) more than it decreases (0.85%) with a 1% activity change. Further, board gender did not affect earnings management and asymmetric cost behaviour. We also analyze the influence of earnings management on asymmetric cost behaviour. Find that EM has a negative effect on ACB. Additionally, the data show that EM has no appreciable impact on ACB after controlling for the role of board gender. The results show that EM has a greater direct impact on ACB than gender's indirect influence. Investors and analysts should take into consideration asymmetric cost behaviour when conducting earnings forecasts. The overall conclusion is that ACB is a prevalent cost behaviour in emerging economies and in developed ones and that CG could affect managers' decisions regarding resource adjustment when activity changes.

LIMITATIONS AND FUTURE RESEARCH

There are several restrictions on this study. They must specifically take into account board characteristics that strengthen board oversight procedures and raise the calibre of results since they might boost investor trust. We did not include characteristics of the board directors, such as accounting expertise, nationality, education, and independence. Further research is still needed to investigate the relationship between gender and earnings management and asymmetric cost behaviour. The researcher finds a paucity of studies that investigate this relationship. Future studies may use these data to offer more insightful results. The results of this one should be treated with caution. First, there can be potential inaccuracies in the variables' measurements. Discretionary accruals, for example, served as a stand-in for EM. Furthermore, given the limitations of the modified Jones model utilised in this study to quantify EM, future research may examine alternative models to estimate EM. Measuring methods may have varied in earlier research. Second, more research can take into account the potential omission of other control factors that could influence earnings management (EM) and asymmetric cost behaviour (ACB). Third, the sample came from a developing nation with comparatively weak institutional and legal frameworks. Fourth, the current study only looked at non-financial companies; further research on financial and non-financial companies may be conceivable. Fifth, the present study focuses only on Iraq; future research could cover other emerging markets. Lastly, because institutional frameworks and corporate governance norms are always changing, the results might not be applicable to other eras.

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