Impact of Earnings Management on the Performance of Oil Companies in India: A Comparative Study

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Abstract: Purpose: Over the past decade, the Indian oil industry has undergone a remarkable transformation, establishing a notable presence on the global stage. This evolution is characterized not only by significant expansion in the industry's capacity but also by the proactive role of government policies in shaping its development. Acknowledging the need for modernization and improved competitiveness, the government has actively promoted private investment in the oil sector, illustrated by initiatives such as the Hydrogen Exploration and Licensing Policy (HELP). Furthermore, the introduction of innovative biofuels, along with relative stability in oil prices despite global market fluctuations, has enhanced India's appeal as an attractive hub for both domestic and international investors. However, research indicates that earnings management plays a crucial for maintaining such stability in stock prices within this sector (Greco, 2012; Hsaio et al., 2016). Sudden declines in oil prices, driven by macroeconomic instability or natural disasters, have prompted oil companies to engage in earnings management (Byard et al., 2007; KjÃ¦rland et al., 2021). As for measures, studies reveal that the government, as a major shareholder, significantly constrains opportunities for earnings manipulation, thereby profoundly influencing the financial landscape.

In India, while the oil industry remains predominantly government-controlled, the involvement of private players adds complexity to market dynamics. This interplay between the state and private sectors is vital for our study, which seeks to explore the intricate relationship between earnings management "analyzed through the Modified Jones Models" and the overall performance of oil companies operating within the country.

Design/Methodology/Approach: The study investigates a diverse sample of 18 oil companies listed on the National Stock Exchange (NSE) over a significant period from 2013 to 2022. These companies were thoughtfully categorised into two groups based on their size: large and small. Comprehensive data for this analysis were gathered from the Prowess database.

Study variables

In this study, a comprehensive analysis of key financial metrics, including cash flow, current assets, current liabilities, and specifically the debt component within current liabilities, was conducted. Additionally, an examination of depreciation, total assets, revenue generation, receivables, and the critical category of property, plant, and equipment (PPE) is conducted. These variables are pivotal for calculating the Modified Jones Model, a robust framework employed to assess the level of accruals within the firm's financial statements. To capture the management of earnings at the operational level, we have done the real earnings management.

Alongside analyzing these accruals, we assessed the firm's performance using various financial indicators such as Return on Assets (ROA), the Price/Earnings Ratio (P/E), and Economic Value Added (EVA). This study uses a multiple regression model, with accruals as the independent variable and the performance metrics as dependent variables, providing a detailed view of the relationship between accrual practices and overall firm performance. We also considered the Economic Political Uncertainty index to examine the impact of political or economic crises on these relationships.

Findings: The results indicate that in large oil companies, managerial behaviour mainly involves manipulating earnings through accounting adjustments rather than changing operations (Hutchinson et al., 2008; Iqbal et al., 2010). However, economic and political uncertainties significantly influence managerial actions in this field. However, in the case of smaller oil firms, the importance of Real Earnings Management (REM) considerably affects their Return on Assets (ROA), as shown by the beta coefficient ($\hat{I}^2$), although the firm's age remains the most significant factor. This disparity underscores the complex dynamics of earnings management, where the consequences can differ greatly based on the size and scope of the business involved. Further, under such conditions, political and economic uncertainties often lead to negative consequences, prompting managers to resort to earnings management via Accrual Earnings Management (AEM). Additionally, a one-sample t-test reveals that larger companies tend to engage more in earnings management compared to the smaller ones.

Originality/Value: This analysis enhances the current body of research by investigating the relationship between accrual-based earnings management and firm performance within the oil industry on India's National Stock Exchange (NSE). This study is essential for regulators, investors, and other stakeholders, as it offers valuable insights that can significantly inform their decision-making processes when considering investments in NSE-listed oil companies.

Keywords: Accruals earnings management (AEM), Firm Performance, Economic Value Added (EVA), Modified Jones Model, Return on Assets (ROA), Price-Earnings Ratio (P/E), Economic Political Uncertainty (EPU), Real Earnings Management (REM), One-Sample t test.

Introduction

The oil industry has a long history marked by significant volatility. Key events such as the 1970 OPEC oil embargo and the 1979 Iranian Revolution caused notable declines in oil prices, which were subsequently followed by rapid recoveries—most notably, the increase from $49.32 per barrel in 2007 to $147.27 in 2008. These price fluctuations are mainly linked to geopolitical developments, including the 2011 Arab Spring (Hsiao et al., 2016), speculative trading, supply disruptions, and other major economic shocks. Bugshan et al. (2020) have shown that, in Gulf Cooperation Council countries (Bahrain, Kuwait, Oman, Saudi Arabia, Qatar, and the United Arab Emirates), managers tend to reduce earnings management practices during crises due to increased regulatory oversight. However, they also often engage in deliberate earnings reductions through Real Earnings Management (REM) to emphasise the adverse effects of political uncertainty and to build reserves for future needs.

India, currently ranked as the fifth-largest economy globally, is also the third-largest consumer of oil, after the United States and China, with approximately 85% of its oil needs imported domestically. The Indian oil industry is a crucial component of the national economy, accounting for 12.12% of the market capitalisation on the National Stock Exchange (NSE) and contributing over 15% to the country's gross domestic product (GDP) in 2024. The oil and gas sector is among India's eight core industries and plays a significant role in propelling economic growth. Within the financial framework, listed Indian companies are mandated to adhere to the Indian Accounting Standards (Ind AS) when preparing financial reports. Furthermore, modern corporate governance principles underscore the importance of precise financial reporting in influencing investor decisions; thus, earnings management may pose a risk of misleading investors. Research by Gogineni (2010) and Nath et al. (2012) indicates that fluctuations in oil prices have minimal impact on the Indian stock market (NSE), although sectors heavily reliant on oil, such as mining, tend to be more responsive to oil price variations. International studies, such as Lin and Wu (2022), focusing on China, suggest that shocks to overall oil demand can result in downward revisions of earnings. Additionally, while oil prices can influence negative accruals, shocks to oil prices and sales generally exert a significant positive effect (Zamanianfar et al., 2026). Also,the organisational structure of corporate boards also influences earnings management in the oil sector; for instance, increased board independence has been associated with reduced earnings management (Al Azeez et al., 2019). Moreover, earnings smoothing—a practice employed by managers of financially distressed firms to inflate reported performance—has been positively linked to earnings management within the oil industry (Shubita, 2015). Furthermore, factors such as high corporate taxes imposed by government authorities and the necessity for corporate profits to meet shareholder expectations motivate managers to engage in earnings management through corporate social responsibility (CSR) initiatives (Miko & Kamardin, 2016). Consequently, the debate persists among researchers regarding the influence of earnings management on volatility within the oil sector. Understanding the extent to which oil share prices are affected by earnings management is essential, as such practices have the potential to obscure the actual state of a country's

economy. This study aims to address this research gap by analysing the factors of oil's financial health and the modified discretionary accruals.

2. Literature Review and Hypothesis Building

Earnings management has a detrimental effect on the firm's value and can undermine the financial results of any corporation (Jiraporn et al., 2008). Lo (2008) has segregated earnings management into two broad categories: real-based earnings management and accrual-based earnings management. While real earnings management involves manipulating actual daily operations affecting the company's cash flow, accrual earnings management refers to modifying or adjusting accruals by changing accounting estimates (Miko & Kamardin, 2016).

Maximising shareholders' wealth has become the primary focus of corporate strategy. Shareholders' wealth reflects the returns they receive from their investments, including dividends, capital gains, or both. Additionally, capital appreciation is directly linked to the stock's value, which can be affected by company-specific factors or broader market conditions (Sharma & Kumar, 2010). Economic Value Added (EVA) is a measure of a company's genuine economic profit, calculated by subtracting the total cost of all capital—including debt and equity—from its earnings from operations. This performance metric indicates whether a business is yielding returns exceeding its minimum required rate for investors, thereby generating value for shareholders. Investors often use information from financial reports to guide their decisions about a company's performance. Aderemi et al. (2017), in their study of the Nigerian market, noted that most shareholders are generally sufficiently financially literate to interpret International Financial Reporting Standards (IFRS) reports before investing in a company's stock, highlighting the need for managers to be ethically committed to providing accurate and fair reports. In such a scenario, Cahan et al. (1997) identified 'political cost' as a significant factor that motivates firms to engage in earnings management. Al-Hadi et al. (2020) further explored this issue, revealing that during periods of political uncertainty, firms tend to engage more in real earnings management (REM) by adjusting cash-flow operations and discretionary expenses rather than accrual-based earnings management (AEM). Zang (2012) concluded that the choice between AEM and REM depends on managers' assessment of the costs and effectiveness of each method. However, Azizi et al. (2025) found a positive relationship between oil price volatility and accrual-based management in the Tehran market. While existing literature supports the idea that managers in the global oil industry engage in earnings management, there is a lack of studies regarding the impact of earnings management on the performance of the firms. This research specifically investigates this relationship by analysing the impact of accrual-based and real earnings management on the oil firms' performances.

H_{1a1}: There is an impact of AEM on the ROA of large oil firms.
H_{1b1}: There is an impact of AEM on the sales growth of large oil firms.
H_{1c1}: There is an impact of AEM on the EVA of large oil firms
H_{2a1}: There is an impact of REM on the ROA of small oil firms.
H_{2b1}: There is an impact of REM on the sales growth of small oil firms.
H_{2c1}: There is an impact of REM on the EVA of small oil firms.

3. Data and Research Methodology

Data from 18 selected oil companies listed on the National Stock Exchange (NSE) was obtained from the Prowess database, covering the period from 2014 to 2023. This timeframe is particularly important for the Indian oil industry, as the government launched the Pradhan Mantri Ujjwala Yojana (PMUY) in 2016, aiming to provide clean cooking oil and gas to every household, which increased demand for oil domestically. Additionally, the industry experienced significant changes due to the coronavirus pandemic and the Russo-Ukrainian War in 2020 and 2022. To measure earnings management, both Absolute Earnings Management (AEM) and Real Earnings Management (REM) are considered.

The industry was divided into large and small companies based on company size to assess performance. Metrics such as Return on Assets (ROA), Economic Value Added (EVA), and sales growth were analysed for each sector. The study also examined the effects of company age, size, and Price-Earnings Ratio (P/E) as control variables. Based on insights from existing literature, the impact of political uncertainty on the industry was also explored.
The regression models of the analysis are as follows:

$$ROA_{i,t} = \beta_0 + \beta_1 REM_{i,t} + \beta_2 EPU_t + Controls_{i,t} + \epsilon_{i,t} \dots (1)$$
$$Sales\ Growth_{i,t} = \beta_0 + \beta_1 REM_{i,t} + \beta_2 EPU_t + \epsilon_{i,t} \quad \dots. (2)$$
$$EVA_{i,t} = \beta_0 + \beta_1 REM_{i,t} + \beta_2 EPU_t + Controls_{i,t} + \epsilon_{i,t} \dots (3)$$

$$ROA_{i,t} = \alpha_0 + \alpha_1 AEM_{i,t} + \alpha_2 EPU_t + Controls_{i,t} + \epsilon_{i,t} \dots (4)$$
$$Sales\ Growth_{i,t} = \alpha_0 + \alpha_1 AEM_{i,t} + \alpha_2 EPU_t + \epsilon_{i,t} \quad \dots. (5)$$
$$EVA_{i,t} = \alpha_0 + \alpha_1 AEM_{i,t} + \alpha_2 EPU_t + Controls_{i,t} + \epsilon_{i,t} \dots (6)$$

Ultimately, we conducted a comparative analysis using a one-sample t-test on the results of AEM and REM to determine which type of firm practices higher earnings management.

4. Analysis and Results

Part A (Large Firms)

Multiple regression analysis was performed. In the case of large firms, the Pearson correlation indicates that return on assets (ROA) is inversely related to discretionary accruals for credit covenants (DACC). This relationship suggests that higher profitability diminishes managers' incentives to inflate earnings, thereby supporting the Income Smoothing Hypothesis (or Opportunistic Behaviour) as well as the Debt Covenant Hypothesis. The first hypothesis posits that when ROA is high or increasing, managers are inclined to engage in income-decreasing DACC, establishing a 'cookie jar' reserve to cushion against future uncertainties and to minimise political costs. The second hypothesis asserts that, to uphold a positive perception of the firm's financial stability amid declining ROA, managers are more likely to manipulate earnings to meet shareholder expectations and facilitate financing activities.

Whereas, in the case of REM, the relationship is positive with ROA. This implies that the firms having better performance will be more inclined to do cash flow management, as with high performance, the managers can take the risk of shadowing the firm's cost incurred on over-production or any other such related issues to give the impression of maintaining sustainability. This supports the Signalling theory's efficiency view. Further, the relationship with EPU Index is also negative, which implies that in a situation of political uncertainty, the managers will tend to be fair, as manipulating through operational activities or R&D in case of political turmoil becomes difficult. Whereas, during such turmoil, manipulation through DACC is easier, and managers do practise that as the relationship between ROA and EPU is negative, but the relationship between EPU and DACC is positive.

The size (Total assets) and the age of the firm have an indirect relationship with REM but a positive relationship with DACC. This indicates that larger and older firms rely more on accounting discretion rather than operational manipulation, supporting the scrutiny and political cost hypotheses.

Thus, as a conclusion, we accept the alternative hypotheses of H_{1a1} and H_{2a1}. The result of the multiple regression in the case of ROA is given in Table 1.

Table 1: Correlation between the variables with ROA as the dependent variable in large oil firms

		ROA	EPUINDEX	REM	DACC	PE	Size	AGE
Pearson Correlation	ROA	1.000	-.118	.009	-.008	.070	-.071	-.187
	EPUINDEX	-.118	1.000	-.066	.067	-.083	.056	-.077
	REM	.009	-.066	1.000	-1.000	-.046	-.074	-.004
	DACC	-.008	.067	-1.000	1.000	.046	.074	.005
	PE	.070	-.083	-.046	.046	1.000	.449	.291
	Size	-.071	.056	-.074	.074	.449	1.000	.343
	AGE	-.187	-.077	-.004	.005	.291	.343	1.000

Source: Output from SPSS

The Histogram for the regression standardised residual is shown in Figure 1, indicating that the model is precise.

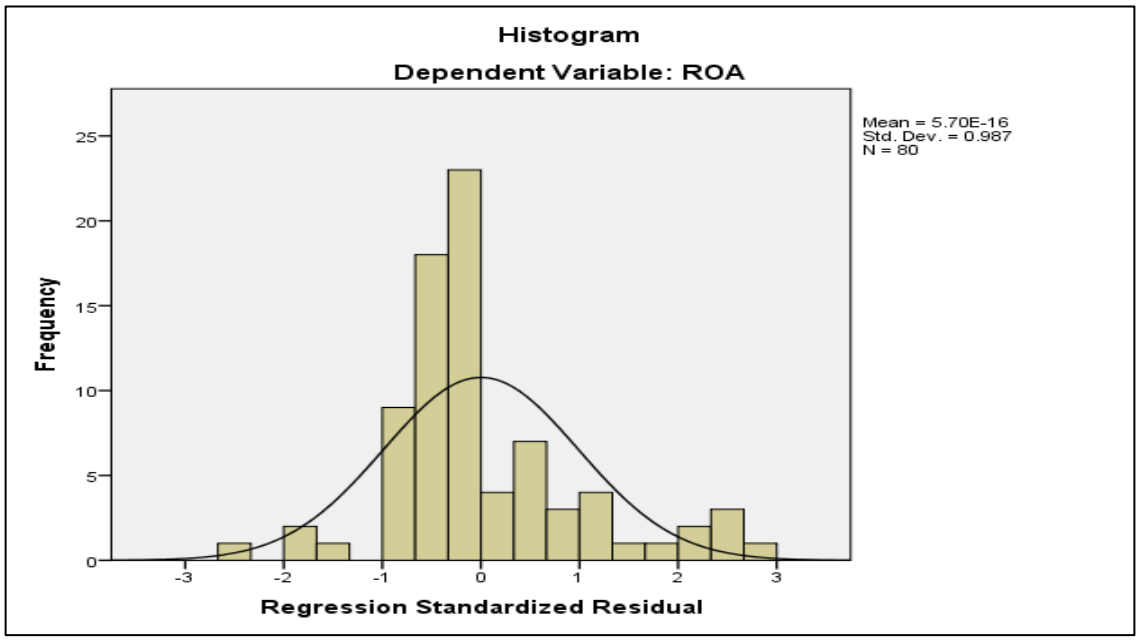

Figure 1: Histogram for the regression standardised residual
Source: Output from SPSS

Regarding sales growth, both actual and accrual-based earnings management show a similar impact as return on assets (ROA). Nonetheless, the positive correlation between the Economic Policy Uncertainty (EPU) index and sales growth is more significant among large firms, indicating a country-specific dynamic. Since India's oil industry functions as an oligopoly and the nation depends on imports for nearly 90% of its oil, political instability often prompts oil companies—primarily state-regulated—to escalate prices, thereby increasing sales. This diverges from the generalized theory (Gulen & Ion, 2016; Baker et al., 2016). In scenarios of political uncertainty, managers in large oil firms are more likely to manipulate financial reports rather than operational activities, as the operational capacity tends to improve with the firm's size and age. Furthermore, the negative association between the Price-to-Earnings (P/E) ratio with both Real Earnings Management (REM) and EPU suggests that investors remain cautious about manipulation and uncertainty, resulting in a lower P/E ratio. Conversely, the positive relationship between Discretionary Accruals (DACC) and P/E in large firms implies that investors tend to place greater trust in older firms. The table for correlation is shown in Table 2.

Table 2: Correlation between the variables with sales growth as the dependent variable in large oil firms

		Sales Growth	EPU INDEX	REM	DACC	PE	Size	AGE
Pearson Correlation	Sales Growth	1.000	.244	-.013	.013	-.038	-.072	-.164
	EPUINDEX	.244	1.000	-.066	.067	-.083	.056	-.077
	REM	-.013	-.066	1.000	-1.000	-.046	-.074	-.004
	DACC	.013	.067	-1.000	1.000	.046	.074	.005
	PE	-.038	-.083	-.046	.046	1.000	.449	.291
	Size	-.072	.056	-.074	.074	.449	1.000	.343
	AGE	-.164	-.077	-.004	.005	.291	.343	1.000

Source: Output from SPSS

The Histogram for the regression standardised residual is shown in Figure 2, indicating the precision of the model.

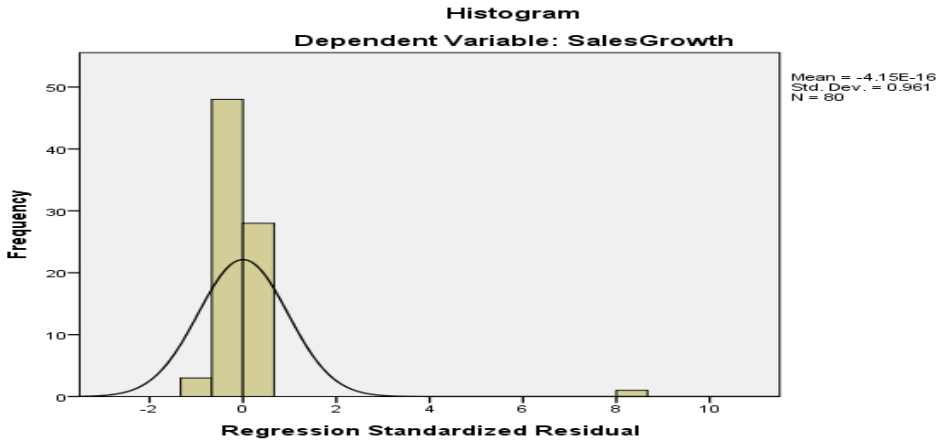

Figure 2: Histogram for the regression standardised residual
Source: Output from SPSS

Before the calculation of regression, the EVA is calculated by the following formula:

EVA = NOPAT - (Invested Capital × WACC) ..... (i)
Where NOPAT is Net Operating Profit After Tax, Invested Capital is the total funds used, and WACC is the Weighted Average Cost of Capital.
NOPAT = Operating Profit X (1- Income tax) ……(ii)
Operating Profit = EBIT – Operating Expenses … (iii)

Where EBIT is earnings before interest and tax, and operating expenses include Sales and Development expense, General and Administrative expenses and Research and development expenses.

The regression analysis, as presented in Table 3, indicates that during episodes of political instability, the Economic Value Added (EVA) of large oil corporations experiences a decline. This observation is consistent with prevailing academic theories asserting that, in uncertain environments, the Weighted Average Cost of Capital (WACC) tends to increase, thereby lending support to either the 'real option theory' or the 'market scrutiny theory.' Concerning EVA, the Real Earnings Management (REM) exhibits a negative valuation, whereas the Discretionary Accrual (DACC) remains positive, aligning with other performance indicators examined in this research. Additionally, an increase in firm age and size correlates with heightened investor confidence, which in turn enhances EVA. Larger and more established firms are better equipped to manage uncertainty, resulting in higher EVA and suppressed REM. Concurrently, managerial use of DACC strategies appears to be more prevalent in larger firms, especially among younger companies.

Table 3: Correlation between the variables with EVA as the dependent variable in large oil firms

		EVA	EPU INDEX	REM	DACC	PE	Size	AGE
Pearson Correlation	EVA	1.000	-.045	-.060	.060	.463	.541	.520
	EPUINDEX	-.045	1.000	-.066	.067	-.083	.056	-.077
	REM	-.060	-.066	1.000	-1.000	-.046	-.074	-.004
	DACC	.060	.067	-1.000	1.000	.046	.074	.005
	PE	.463	-.083	-.046	.046	1.000	.449	.291
	Size	.541	.056	-.074	.074	.449	1.000	.343
	AGE	.520	-.077	-.004	.005	.291	.343	1.000

Source: Output from SPSS

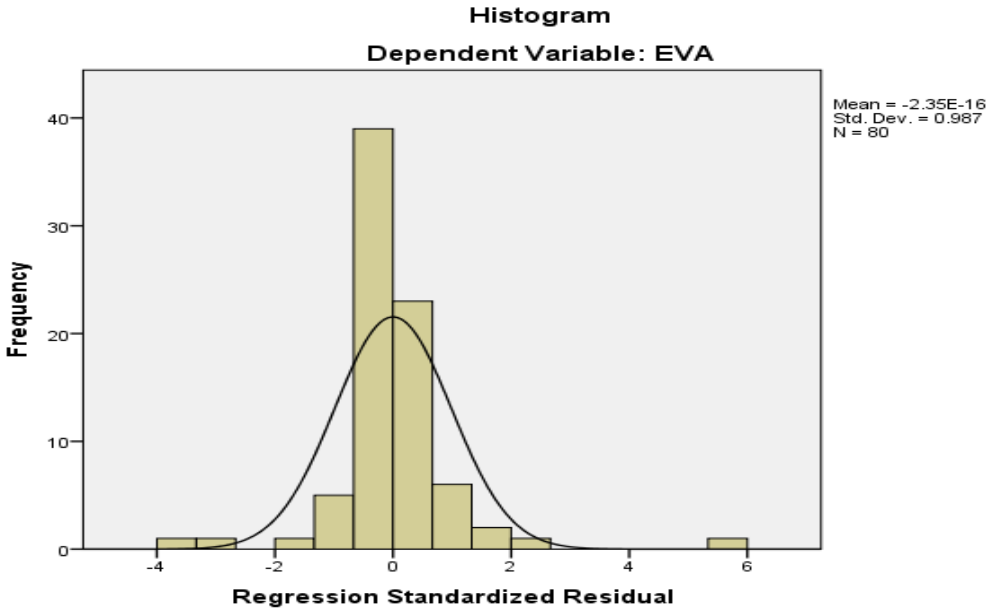

Figure 3: Histogram for the regression standardised residual

The table of ANOVA results and R-squared for the three models is given in Table 4.

Table 4: Results of ANOVA and R-squared for the large oil firms

Dependent Variables	ANOVA	Adjusted R-squared value	Durbin-Watson
ROA	0.014	0.007	0.646
Sales Growth	0.002	0.022	2.065
EVA	0.000	0.420	1.737

Source: Authors' creation from the output generated by SPSS

In Table 4, presented above, the p-values for the ANOVA analyses are significantly below the conventional threshold of 0.05, specifically for ROA (0.014), Sales Growth (0.002), and EVA (0.000). These results suggest the rejection of the null hypothesis across all cases and support the acceptance of the alternative hypothesis, thereby underscoring the effectiveness of earnings management in large capitalised oil firms. The adjusted R-Squared being highly significant implement that sales growth and true wealth creation capacity (EVA) can be systematically explained by the combination of EPU, REM, DACC and the included firm characteristics. Further, the Durbin-Watson test values signify that the variables in the case of Sales growth and EVA are free from autocorrelation, though in the case of ROA, a negative correlation is present.

Table 5 shows the values of standardized beta weights for the dependent variable EVA and their significance level. Standardised beta weights quantify the relationship between a dependent variable and an independent variable when all the other independent variables are converted to a standard scale (z-score).

Table 5: Standardised Beta weights values for EVA

Model		Standardized Beta	Sig.
1	(Constant)		.291
	PE	.214	.032

	Size	.326	.002
	AGE	.345	.000
	EPU INDEX	-.020	.817
	DACC	.026	.768

Source: Output from SPSS

The Beta weights suggest that as economic and political uncertainty rise, economic growth decelerates for large oil companies, thereby concealing the extent to which managers rely on accrual-based earnings.

Table 6: Standardised Beta weights values for Sales Growth

Model		Standardized Coefficients	Sig.
		Beta	
1	(Constant)		.340
	PE	.050	.696
	Size	-.060	.643
	AGE	-.139	.252
	EPUINDEX	.241	.036
	DACC	.000	1.000

Source: Output from SPSS

Table 6 clearly indicates that during periods of uncertainty, the sales of oil companies increase as various oil-dependent industries commence stockpiling, making the sales growth of the oil firms rise.

Table 7: Standardised Beta weights values for ROA

Model		Standardized Coefficients	Sig.
		Beta	
1	(Constant)		.003
	PE	.150	.246
	Size	-.055	.674
	AGE	-.221	.073
	EPU INDEX	-.120	.296
	DACC	-.002	.984

Source: Output from SPSS

In the case of ROA, the discretionary accrual practices have a negative relationship, which indicates that managers practise downward accounting practices to lower the accounting values to escape political scrutiny.

Part B
(Small Firms)

In the case of small-sized firms, there are a total of 10 companies. The Pearson correlation between Return on Assets (ROA) and REM is negative, which supports the idea that competition among small firms discourages operational earnings management to protect their reputation. On the other hand, a positive correlation with DACC suggests that managers might intentionally reduce ROA to avoid political costs or taxes. The relationships among ROA, REM, and DACC with the EPU Index remain steady as the firms' age and size grow. Importantly, a negative relationship exists between ROA and the Price-to-Earnings (PE) ratio, indicating that as small firms use DACC methods to hide their financial results, investor scepticism increases, resulting in less trust in their reported data. Table 8 shows the result of the Pearson correlation.

Table 8: Correlation between the variables with ROA as the dependent variable in small oil firms

Correlations

		ROA	PE	SIZE	AGE	REM	DACC	EPUIndex
Pearson Correlation	ROA	1.000	-.096	-.058	.328	-.006	.006	-.089
	PE	-.096	1.000	-.026	-.224	.170	-.169	.207
	SIZE	-.058	-.026	1.000	-.080	-.010	.010	.213
	AGE	.328	-.224	-.080	1.000	-.116	.116	-.056
	REM	-.006	.170	-.010	-.116	1.000	-1.000	-.059
	DACC	.006	-.169	.010	.116	-1.000	1.000	.059
	EPUIndex	-.089	.207	.213	-.056	-.059	.059	1.000

Source: Output from SPSS

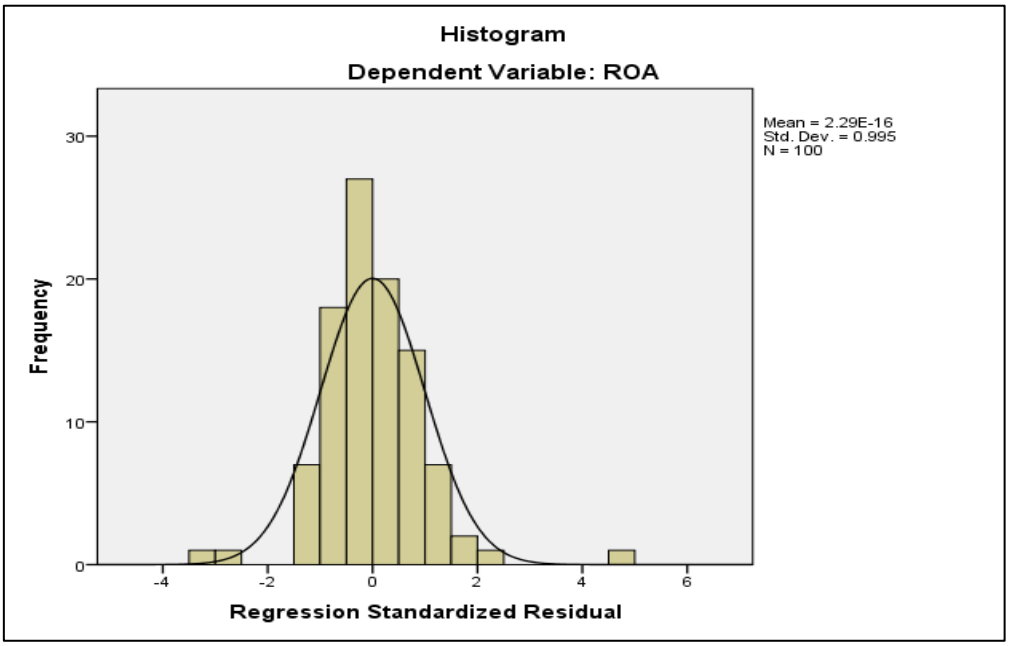

Figure 7: Histogram for the regression standardised residual

Table 9: Correlation between the variables with Sales Growth as the dependent variable in small oil firms

Correlations								
		SalesGrowth	PE	SIZE	AGE	REM	DACC	EPUIndex
Pearson Correlation	SalesGrowth	1.000	-.018	-.274	.192	-.021	.020	-.083
	PE	-.018	1.000	-.026	-.224	.170	-.169	.207
	SIZE	-.274	-.026	1.000	-.080	-.010	.010	.213
	AGE	.192	-.224	-.080	1.000	-.116	.116	-.056
	REM	-.021	.170	-.010	-.116	1.000	-1.000	-.059
	DACC	.020	-.169	.010	.116	-1.000	1.000	.059
	EPUIndex	-.083	.207	.213	-.056	-.059	.059	1.000

Source: Output from SPSS

Table 10: Correlation between the variables with EVA as the dependent variable in small oil firms

Correlations

		EVA	PE	SIZE	AGE	REM	DACC	EPU Index
Pearson Correlation	EVA	1.000	-.008	-.037	.426	-.188	.188	-.013
	PE	-.008	1.000	-.026	-.224	.170	-.169	.207
	SIZE	-.037	-.026	1.000	-.080	-.010	.010	.213
	AGE	.426	-.224	-.080	1.000	-.116	.116	-.056
	REM	-.188	.170	-.010	-.116	1.000	-1.000	-.059
	DACC	.188	-.169	.010	.116	-1.000	1.000	.059
	EPU Index	-.013	.207	.213	-.056	-.059	.059	1.000

Source: Output from SPSS

In the context of sales growth and EVA, shown in Tables 9 and 10, political uncertainty exerts a detrimental influence, constraining firms from engaging in operational earnings management, as investments in R&D or increased production become more volatile. Nonetheless, to preserve investor confidence, managers resort to earnings management via accrual-based accounting to elevate sales growth to acceptable levels. However, in this scenario, although investors do not depend on financial statements, they remain unaware of operational misstatements and may form biased judgments.

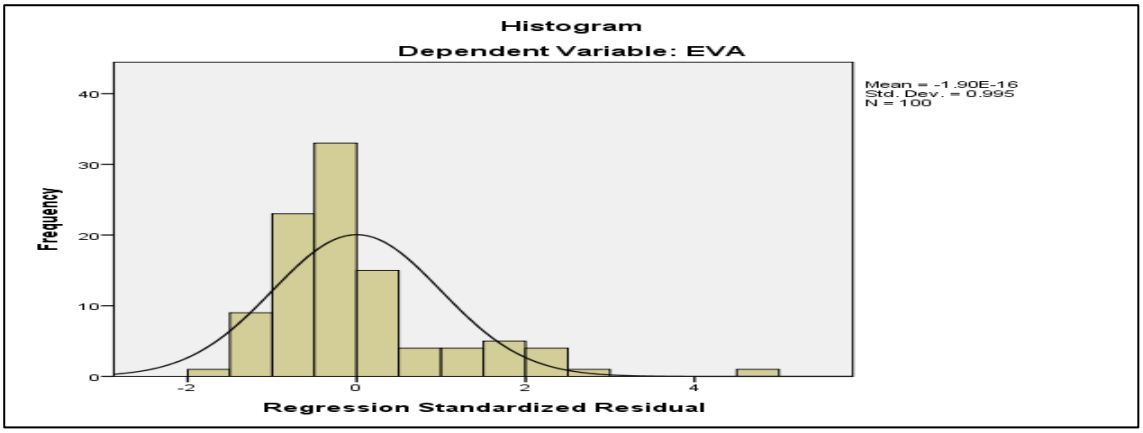

Figure 8: Histogram for the regression standardised residual

Table 11: Results of ANOVA and R-squared for the small-sized oil firms

Dependent Variables	ANOVA	Adjusted R-squared value	Durbin-Watson
ROA	0.001	0.067	0.824
Sales Growth	0.006	0.057	1.829
EVA	0.000	0.172	0.629

Source: Authors' creation from the output generated by SPSS

In Table 11, presented above, the p-values for the ANOVA analyses are significantly below the conventional threshold of 0.05, specifically for ROA (0.001), Sales Growth (0.006), and EVA (0.000). These results suggest the rejection of the null hypothesis across all cases and support the acceptance of the alternative hypothesis, thereby underscoring the effectiveness of earnings management in small-sized oil firms. The R-squared being highly significant implement that over half of the variation in a firm's operational profitability (ROA) and true wealth creation capacity (EVA) can be systematically explained by the combination of EPU, REM, DACC and the included firm characteristics.

Table 12: Standardised Beta weights values for ROA

Model		Standardized Coefficients	Sig.
		Beta	
1	(Constant)		.562
	PE	-.017	.871
	SIZE	-.019	.848
	AGE	.323	.002
	REM	.031	.758
	EPU Index	-.061	.552

Source: Output from SPSS

Table 13: Standardised Beta weights values for Sales Growth

Model		Standardized Coefficients	Sig.
		Beta	
1	(Constant)		.928
	PE	.020	.847
	SIZE	-.255	.013
	AGE	.173	.089
	REM	-.008	.939
	EPUIndex	-.023	.823

Source: Output from SPSS

Table 14: Standardised Beta weights values for EVA

Model		Standardized	Sig.
		Beta	
1	(Constant)		.676
	PE	.121	.216
	SIZE	.004	.966
	AGE	.434	.000
	REM	-.159	.092
	EPUIndex	-.024	.804

Source: Output from SPSS

Tables 12, 13 and 14 presents the beta weights values ROA, Sales growth and EVA with their significance values. In case of small oil firms, the results indicate a negative relationship between the EVA, Sales growth and REM. This indicates that as the intention of the managers to manipulate through research and development or any other operational cost increases, the shareholder's interest of long-term overall wealth growth decreases. This, supports the 'agency theory' which talks about the managers putting their interest over the shareholder's interest. Further, with high sales growth, the intentions of managers to do manipulation also decrease, supporting the 'Signalling theory'. However, a positive beta between REM and ROA justifies the managers' policies of 'income smoothing' with a downward management of operational profits to escape corporate scrutiny.

Finally, a one-sample t-test was performed to compare the impact of accrual and real-based earnings management between large and small oil firms. Dummy variables were employed: a value of 1 indicates positive earnings management, whereas 0 signifies negative or no management. For large firms, the maximum test value is 80, calculated as 8 multiplied by 10 over a 10-year period. Additionally, for small firms, the maximum test value is also

80, achieved by selecting 8 firms to ensure comparability with the larger firms.
The values of the one-sample t-test are shown in Table 15 for large firms.

Table 15: Results of One-Sample t-Test for Large Firms

One-Sample Test

	Test Value = 80					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
REM	-1601.163	79	.000	-79.263	-79.36	-79.16
DACC	-1538.073	79	.000	-79.300	-79.40	-79.20

Source: Output from SPSS

The p-values for both the real and accrual-based earnings management are less than the p-value of 0.05. Hence, we have to reject the null hypothesis and accept that earnings management occurs in large-sized firms in the oil industry of India.

The similar test result for small-sized firms is shown in Table 16.

Table 16: Results of One-Sample t-Test for Small Firms

One-Sample Test

	Test Value = 80					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
REM	-1562.000	79	.000	-79.278	-79.38	-79.18
DACC	-1444.526	79	.000	-79.380	-79.49	-79.27

Source: Output from SPSS

Simultaneously, the result for the small-sized firms also indicate that the earnings management is practised by the firms as the p-value is much less than 0.05.

Table 17: Group Statistics: Large-sized and Small-sized oil firms

	Variables	N	Mean	Standard Deviation	Standard-error Mean
Large-Sized Firms	REM	80	.74	.443	.050
	DACC	80	.70	.461	.052
Small-Sized Firms	REM	80	.72	.451	.051
	DACC	80	.62	.488	.055

Table 17 presents a comparison between large and small firms, matched in size. The standard error mean is consistent with around .50 in the case of all the variables, indicating the data is reliable. Further, the results indicate that larger firms (0.74) engage in real-earnings management more frequently than smaller ones (.72), possibly through manipulating operational costs. Additionally, larger firms (.70) are more likely to partake in accrual-based earnings management, potentially due to fewer political and corporate pressures to maintain ethical standards for survival in competitive markets. Also, the variability in the case of DACC for small-sized firms is maximum (.488), indicating that the accrual practices are least consistent in this case.

4. Conclusion

The study investigates the impact of earnings management on key performance indicators, including sales growth, Economic Value Added (EVA), and Return on Assets (ROA), for eight large and ten small firms listed on the Indian National Stock Exchange (NSE). The Modified Jones Model is employed to analyse accrual-based management practices, while real earnings management is assessed through the formula of Chowdhury (2006) to identify operational deviations. Findings reveal that, among large oil companies, managers primarily engage in earnings management through accounting adjustments rather than operational changes. Nonetheless, economic and political uncertainties significantly influence managerial behaviour in this context. These results align with prior research by Hall & Stammerjohan (1997) and Mnif & Ben (2021). Notably, ROA demonstrates positive outcomes with both Real Earnings Management (REM) and Accrual Earnings Management (AEM), suggesting a country-specific pattern related to high oil import volumes.

In small-scale oil companies, the REM has a notable impact on the firms' ROA, as indicated by the beta coefficient (β), though the impact of age is the most significant. However, in these situations, political and economic uncertainties play a major role in negative outcomes, leading managers to practice earnings management through AEM as highlighted by Yung & Root (2019) and Cui et al. (2021).

Further, through a one-sample t-test, it is found that the larger firms practice more earnings management than the smaller ones.

This study explores the significance of earnings management on the oil industry's performance, providing valuable insights for policymakers and researchers. It highlights how earnings management influences industry outcomes and informs investors. The research also emphasizes that unstable political and economic environments encourage earnings management, which can weaken corporate performance and impede national economic development, urging policymakers to be more cautious when formulating audit and tax regulations.

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