IMPACT OF MANAGER'S MOTIVATION ON FRAUDULENT ACCOUNTING: AN EMPIRICAL STUDY

Abdullah Abdurhman Alakkas [*], Hamad Alhumoudi [**], Hina Khan [***], Ashraf Imam [****], Asma Khatoon [*****], Samina Bashir [***], Imran Ahmad Khan [******]

* Department of Accountancy, College of Administrative and Financial Sciences, Saudi Electronic University, Riyadh, Saudi Arabia
** *Corresponding author*, Department of Accountancy, College of Administrative and Financial Sciences, Saudi Electronic University, Riyadh, Saudi Arabia
Contact details: Department of Accountancy, College of Administrative and Financial Sciences, Saudi Electronic University, Abu Bakr Street, P. O. Box 93499, 11673 Riyadh, Saudi Arabia
*** College of Business Administration, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia
**** Al-Fayha College, Jubail, Saudi Arabia
***** Department of Accounting, College of Business Administration, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia
****** S.K. College of Business, Aligarh, India

How to cite this paper: Alakkas, A. A., Alhumoudi, H., Khan, H., Imam, A., Khatoon, A., Bashir, S., & Khan, I. A. (2024). Impact of manager's motivation on fraudulent accounting: An empirical study. *Corporate Governance and Organizational Behavior Review, 8*(2), 93–102.
https://doi.org/10.22495/cgobrv8i2p9

ISSN Online: 2521-1889
ISSN Print: 2521-1870

Received: 15.09.2023
Accepted: 05.04.2024

JEL Classification: J24, M40, M41, M42
DOI: 10.22495/cgobrv8i2p9

Abstract

This study empirically examines the motives of Indian firms' managers to violate Generally Accepted Accounting Principles (GAAP) and engage in so-called fraudulent accounting. Managers' motivations for fraudulent accounting rather than profit adjustment are empirically analyzed using data from Indian-listed companies. The sample includes 91 firms and the period of study is March 2001 to March 2022. The tests were conducted using single and multiple variables by the empirical methods used in other studies on profit adjustment. In the case of single variables, the tests are the chi-square test of independence for dummy variables and the significance test of the difference between the mean and median for continuous variables. In the case of multiple variables, the sample firms with a dependent variable of 1 and the control firms with a dependent variable of 0 are analyzed using the logit model. The estimation is done by the robust covariance method. The findings indicate that firms that engage in fraudulent accounting are significantly worse off than other firms in terms of their financial position and operating results, have significantly higher financing needs, and significantly more frequently conduct initial public offerings (IPOs).

Keywords: Fraudulent Accounting, Profit Adjustment, Motivation/ Pressure, Financing Needs, Initial Public Offerings

Authors' individual contribution: Conceptualization — A.A.A. and H.A.; Methodology — H.K. and A.K.; Software — A.I.; Validation — S.B.; Formal Analysis — A.K.; Investigation — S.B.; Resources — I.A.K.; Data Curation — S.B.; Writing — Original Draft — I.A.K.; Writing — Review & Editing — I.A.K.; Visualization — H.K.; Supervision — A.A.A. and H.A.; Project Administration — A.I.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

1. INTRODUCTION

Management of Indian companies is responsible for the preparation and fair presentation of financial statements in conformity with Generally Accepted Accounting Principles (GAAP). To this end, management is required to respond to fraud by establishing and maintaining the necessary internal controls. In other

words, management has the responsibility to prevent and detect fraud. However, management can override the internal controls and commit fraudulent accounting themselves, and in fact, fraudulent accounting involving the management of large companies has been frequently uncovered in the past and has become a problem.

Fraudulent accounting is also called improper accounting, window dressing, and false reporting. In this study, fraudulent accounting is defined as management's discretionary accounting behavior of posting profits in violation of GAAP, regardless of the name announced by the firms themselves. When fraudulent accounting is discovered, it not only significantly damages the value of the company, but also causes a loss of public trust in the company and, in some cases, may even affect the survival of the company. In this way, why do managers practice fraudulent accounting that may cause significant damage to the company and its management?

There have been many studies analyzing individual cases of fraudulent accounting both in India and overseas, and studies on earnings management within the scope of GAAP have been accumulated mainly in the United States (U.S.). The purpose of this study is to empirically clarify the motives of companies that have engaged in fraudulent accounting that deviates from GAAP.

Fraud subject to financial statement audit is classified into "fraudulent financial reporting" and "misappropriation of assets" (Companies Act, 2013)[1]. Fraud includes fraudulent financial reporting (so-called window dressing) and misappropriation of assets, which means that fraudulent accounting is a concept referring to fraudulent financial reporting. Fraudulent financial reporting may be caused by management's attempt to invalidate internal controls (Companies Act, 2013). On the other hand, even fraud aimed at the "misappropriation of assets" may lead to fraudulent financial reporting to conceal such misappropriation, and management may be involved (Companies Act, 2013). In this study, both "fraudulent financial reporting" by management and fraud by management for "misappropriation of assets" that leads to "fraudulent financial reporting" for its concealment is treated as fraudulent accounting by management.

A concept similar to fraudulent accounting is the term profit adjustment. Dechow et al. (2012) and Cheng (2020) define the difference between profit adjustment and fraudulent accounting as profit adjustment if it is made within the scope of GAAP and fraudulent accounting if it is made outside the scope of GAAP. Dechow et al. (2012) refer to aggressive profit adjustments as accounting operations. In this study, fraudulent accounting is defined as management's accounting behavior of discretionary profit recognition contrary to GAAP.

The structure of this paper is as follows. In Section 2, we summarize the literature review and explain our hypotheses. Section 3 sets up the research methodology, and Section 4 presents the empirical results. Finally, Section 5 provides conclusions and future issues.

2. LITERATURE REVIEW AND HYPOTHESES DESIGN

2.1. Theoretical background

In the area of auditing, fraud risk factors are analyzed according to a framework called the "fraud triangle" proposed by Donald Cressy, an American criminal psychologist[2]. One of the fraud risk factors includes events and circumstances that indicate the existence of motivation or pressure to commit fraud. In Statement on Auditing Standards (SAS) No. 99, four factors were specifically identified as motivations and pressures to commit fraud. This concept was clarified in International Standards on Auditing (ISA) No. 240 (International Federation of Accountants [IFAC], 2009) and was also introduced in Indian Engagement and Quality Control Standards.

Studies investigating motives for fraudulent accounting include Dechow et al. (1996), the AICPA (2000), Beasley et al. (2010), van Driel (2019), and Tommasetti et al. (2021). Dechow et al. (1996) investigated the motives for fraudulent accounting from the Accounting and Auditing Enforcement Release (AAER) published between 1982 and 1992. The AICPA (2000) investigated 38 fraudulent accounting cases discovered between 1997 and 1999, and Beasley et al. (2010) investigated the motives of 347 AAER cases investigated by the U.S. Securities and Exchange Commission (SEC) regarding fraudulent securities reports between 1998 and 2007. Tommasetti et al. (2021) investigated the key elements of fraudulent accounting from the viewpoint of social media users, thereby developing a new framework for fraudulent accounting. In terms of research methodology, an online platform for social media data collection was employed to retrieve 43,655 tweets from 2006 to 2019 that contained the phrase "fraudulent accounting" utilizing the phyton web crawler approach. van Driel (2019) investigated the link between fraudulent accounting and company sustainability. Panel data were utilized to build a pooled ordinary least square regression model utilizing Shenzhen Stock Exchange companies listed in 2019. Accounting disclosure, which is examined for quality and timeliness, served as a proxy for fraudulent accounting, whereas earnings management and corporate social responsibility served as indicators of a company's sustainability. Dechow et al. (1996) selected 92 sample companies, control companies of the same industry and size by adding financial data, scientifically analyzed the motives of fraudulent accounting, and concluded that the need for financing of fraudulent accounting firms was significantly greater than that of control firms and that the probability of fraudulent accounting firms violating financial covenants was significantly higher than that of control firms. However, accruals and cash flows (CF) are not included. The relationship between non-related financial figures and fraudulent accounting has not been clarified.

Many audit studies on fraudulent accounting, such as Camfferman and Wielhouwer (2019), Vousinas (2019), Zeng et al. (2021), Wu et al. (2022),

[1] Fraudulent financial reporting refers to intentional misstatement in financial statements, and misappropriation of assets refers to embezzlement of receipts, theft of physical assets or intellectual assets, payment for goods or services not provided by the entity, and personal use of the entity's assets.

[2] The "fraud triangle" is the result of a study of many cases of fraudulent crimes, and it is based on the idea that there are three common factors in the occurrence of fraud: 1) motivation/pressure, 2) opportunity, and 3) attitude/justification.

Dyck et al. (2024), and Velte (2023) have empirically analyzed the relationship between the characteristics or remuneration of audit committees or the ratio of independent directors and fraud, focusing on "opportunities" rather than "motives" of fraud. In addition, many empirical studies analyze the relationship between fraud and the characteristics of auditors, such as their size and the number of years they have been auditing, but few audit studies analyze the motives of managers who commit fraudulent accounting (Hasnan et al., 2022; Laupe et al., 2022; Abdulhussein et al., 2023; Haroon & Zaka, 2023).

In India, Sane (2019) investigated the motives of 346 listed firms that announced the discovery of fraudulent accounting involving management through timely disclosure, based on the content of the disclosure, and found that: 1) pressure to achieve financial targets; 2) avoidance of deficits, losses, or insolvency due to financial deterioration or poor performance, avoidance of bankruptcy or maintaining listing; 3) financing; 4) initial public offering (IPO) of shares; and 5) concealment of outflow of funds, fraud, and losses. Upadhya (2022) analyzed Satyam Computers Limited which disclosed fraudulent accounting and also mentioned the causes of the irregularities. However, no statistical analysis was conducted in any of the studies.

Next, prior studies on profit adjustments are reviewed that are within the scope of GAAP. Khanna and Arora (2009) conducted a comprehensive theoretical and empirical examination of managerial profit adjustments. Gulpham (2022) identified: 1) why managers adjust profits, 2) how managers adjust profits, and 3) what impact profit adjustments have on the research agenda of prior studies. Tutino and Merlo (2019) classify profit adjustment motives into contract-related motives and stock market-related motives. Prior studies on contract-related motives include maximizing compensation based on profit-linked compensation (Healy, 1985) and avoiding violation of financial covenants (Liu et al., 2021). Prior studies of stock market motives include the stock option (SO) and stock ownership (Maulidi, 2023), loss aversion, profit aversion, achievement of analysts' or management's expected profits (Tran & Duong, 2020), IPOs (Lee & Ha, 2021), and seasoned equity offerings (SEOs) (González-Sánchez et al., 2023).

In a study of Indian firms, Singh (2021) conducted an empirical analysis of profit adjustments using a sample of bankrupt firms and demonstrated that bankrupt firms tend to choose profit-increasing accounting procedures. Sane (2019) cites profit-linked managerial compensation as a motive for profit adjustment.

However, except for Dechow et al. (1996), few studies statistically analyze managers' motives for profit adjustments, which are within the scope of GAAP, and fraudulent accounting, which are outside the scope of GAAP. As mentioned above, profit adjustments and fraudulent accounting share a commonality in that they are discretionary actions by management that target accounting figures, so there may be some similarities in their motivations. On the other hand, however, their motivations may differ because of the difference between within- and outside-the-bounds of GAAP. In this study, data from Indian-listed firms are used to empirically clarify managers' motives for fraudulent accounting rather than profit adjustment.

Fraudulent accounting is management's accounting behavior that results in discretionary accounting for profits in violation of GAAP. Management has the motive to engage in fraudulent accounting. In this study, the motivation for fraudulent accounting is clarified by demonstrating the establishment of a correlation between management's motivation and fraudulent accounting.

2.2. Hypotheses development

Based on the motives of fraudulent accounting disclosed by Indian firms (Singh, 2021), the following three hypotheses are assumed.

2.2.1. Financial position and profitability

If a company's financial position or operating results deteriorate, there is a risk of violating financial covenants, and if the degree of such deterioration is severe, it may violate delisting criteria or risk bankruptcy. AICPA (2002), IFAC (2009), and the Indian Institute of Corporate Affairs (IICA)[3] cited threats to financial stability and profitability as motivations and pressures. Singh (2021) gave examples of companies that perform accounting operations that are in deteriorating financial conditions that lead to bankruptcy, and previous studies on overseas profit adjustment have reported that profit adjustments are used to avoid losses (Tran & Duong, 2020). The above indicates that management may engage in fraudulent accounting when the financial condition and profitability are poor.

H1a: Managers of firms in poor financial condition commit fraudulent accounting more than managers of other companies.

H1b: Managers of firms with poor profitability commit fraudulent accounting more than managers of other firms.

2.2.2. Financing needs

AICPA (2002), IFAC (2009), and IICA illustrate the existence of additional debt and equity issuance needs as motivation and pressure for fraudulent accounting. Dechow et al. (1996) also found that the financing needs of fraudulent accounting firms were significantly greater than those of control firms. Furthermore, since favorable financing is cited as a motivation in U.S. fraudulent accounting cases (Beasley et al., 2010) and SEOs are also cited in previous studies on profit adjustments (González-Sánchez et al., 2023), it is possible that when there is a financing need, fraudulent accounting is used to raise funds and make it easier to raise funds.

H2: Managers of firms with financing needs engage in fraudulent accounting more than managers of other firms.

2.2.3. Initial public offerings

The managers of IPO firms have the incentive to issue favorable shares at the time of IPO and to sell their shares at favorable prices after the prohibited period after the IPO. Singh (2021) exemplifies companies that conduct accounting operations ahead of IPOs. In addition, according to AICPA (2000),

[3] https://iica.nic.in/

good management performance toward IPO is considered a motive for fraudulent accounting, and IPO as a motive has been demonstrated in another study on profit adjustment (Lee & Ha, 2021). Thus, managers may engage in fraudulent accounting when conducting an IPO to issue favorable shares.

H3: Managers of initial public offering firms engage in fraudulent accounting more than managers of other firms.

3. RESEARCH METHODOLOGY

To demonstrate the correlation between managers' motives and fraudulent accounting, it is tested whether firms that engage in fraudulent accounting and other firms can be classified according to the motives described in *H1* to *H3*. The test will be conducted using single and multiple variables by the empirical methods used in Dechow et al. (1996) and other previous studies on profit adjustment.

3.1. Sample

Listed companies that had disclosed fraudulent accounting by the end of August 2022 were selected through keyword searches of "fraud", "inappropriate", "falsehood", and "window dressing" in the corporate information database, and then sorted by disclosure content. In other words, we selected firms that corrected their financial results and disclosed them as a sample of firms that implemented fraudulent accounting that was outside the scope of GAAP, because it is considered that the correction of financial results does not lead to the correction of financial results if they are within the scope of GAAP. The cases were selected based on the content of the disclosure and supplemented by the cases of disciplinary actions published on the website of the Securities and Exchange Board of India (SEBI). Of these, 98 samples were selected as a result of screening cases in which directors or more were involved in disclosure content (including cases where the representative director, executive director, or general manager of the listed company is proactively involved in the fraud, as well as cases where it is clear that he or she knew about the fraud and tacitly approved of it). In addition, seven firms were excluded that lacked the financial data necessary for analysis and selected 91 firms as our sample. The largest number of sample firms (22.0%) were in the information and telecommunications industry (20 firms), followed by the service industry (16 firms, 17.6%), retail industry (9 firms, 9.9%), and wholesale industry (9 firms, 9.9%). The fiscal years in which the sample firms began fraudulent accounting ranged from the fiscal year ending March 2001 to the fiscal year ending March 2022, and the period in which they disclosed their fraudulent accounting ranged from October 2004 to May 2022.

Table 1. Definition of variables — Eq. (1)

Variable	***Definition***
$FUSEI_i$	The dummy variable of 1 if firm *i* is a sample firm (i.e., a firm whose management committed fraudulent accounting) and 0 if it is a control firm.
	H1
NAS_i	The amount of *i* entity's net assets/total assets for the base year.
$OPIN_i$	Operating income for the base year of the *i*-enterprise / amount of total assets.
$ORIN_i$	The amount of *i* company's ordinary income/total assets for the base year.
NIN_i	Net income for the base year of the *i*-enterprise / amount of total assets.
ACF_i	Amount of operating annual cash flow (ACF) / total assets for the base year of the *i*-company.
$NASMD_i$	The dummy variable of 1 if the base year net assets of firm *i* are negative, 0 otherwise.
$OPINMD_i$	The dummy variable of 1 if the base year operating profit of firm *i* is negative, 0 otherwise.
$ORINMD_i$	The dummy variable of 1 if the base year ordinary income of firm *i* is negative, 0 otherwise.
$NINMD_i$	The dummy variable of 1 if firm *i* has negative net income in the base year, 0 otherwise.
$ACFMD_i$	The dummy variable of 1 if the base year operating ACF of firm *i* is negative, 0 otherwise.
	H2
FCF_i	The amount of free cash flow (FCF = ACF from operations + ACF from investments) / total assets for the base year of the *i*-firm. Preliminary measure of financing needs.
$FCFMD_i$	The dummy variable of 1 if the FCF of *i* firm's base year is negative, 0 otherwise. *Ex-ante* measure of financing needs.
SEO_i	The dummy variable is 1 if the firm *i* raised capital within one year of the base year and 0 otherwise. *Ex-post* measures of financing needs.
	H3
IPO_i	The dummy variable of 1 if the firm *i* conducted an IPO within one year of the base year, 0 otherwise.
	Control variables
COV_i	The dummy variable of 1 if the firm *i*'s base year debt contract had a financial covenant, 0 if otherwise.
SO_i	1 if the *i*-company had an SO plan for directors' compensation in the base year, 0 otherwise.
$SALE_i$	The amount of *i* firm's sales / total assets in the base year.
$BDSIZE_i$	Size of the board of directors (natural logarithm of the number of directors) for the base year of the *i*-firm.
$OUTDIR_i$	Number of outside directors in the base year of the *i*-company / number of directors.
$EXTAUD_i$	Number of external auditors (or audit committee members) / number of auditors (or audit committee members) in *i* entity's base year.
$DIRHLD_i$	Shareholding of directors in the base year of the *i*-company.
$Ln\ (SIZE_i)$	The logarithm of total assets for the base year of the *i*-company.
AUD_i	The dummy variable of 1 if the auditor for the base year of firm *i* is a major audit firm and 0 otherwise.
MKT_i	The dummy variable of 1 if the company *i* is listed on an emerging market and 0 otherwise.
IND_{Dummy}	Industry dummies (information/communications, services, and others).
$YEAR_{Dummy}$	Year dummies (Lehman Shock (2008–2009), before 2007 and after 2010).

According to Dechow et al. (1996), to select firms in the same industry and of the same size as the sample firms, those listed firms were extracted from the corporate information database that was closest to the sample firms in total asset size in the year when the fraudulent accounting started in the same industry (hereafter referred to as the "base year").

3.2. Analysis

3.2.1. Analysis of single variables

It is examined whether there are significant differences between the sample and control firms in the following items for the base year. The financial figures are verified after adjusting them to the true figures before the fraudulent accounting was implemented, eliminating the effects of the fraudulent accounting. The tests are the significance test of the difference between the mean and median for continuous variables and the chi-square test of independence for dummy variables.

For *H1*, it is examined whether there are significant differences in the mean and median values of net assets, operating income, ordinary income, net income, and *ACF* from operating activities. Each value is divided by total assets in the base year to control for size. It is also analyzed whether there is a difference between them for whether net assets are negative or not, operating loss or not, ordinary loss or not, net loss or not, and *ACF* from operating activities or not.

For *H2*, it is examined whether there is a significant difference between the mean and median free cash flow (*FCF*), whether there is a significant difference between the mean and median of *FCF*, and whether *FCF* is negative, as well as whether the firm executed a capital increase within one year. Here, *FCF* represents an *ex-ante* measure of financing needs, while the execution of a capital increase represents an *ex-post* measure of financing needs.

For *H3*, it will be examined whether there is a significant difference between the two as to whether an IPO was conducted within one year.

3.2.2. Analysis of single variables

In this section, to directly test *H1* to *H3*, the following logit model is used to analyze the sample firms with 1 and the control firms with 0 as the assigned dependent variable (estimation by robust covariance method).

Table 2. Definition of variables — Eq. (2)

Variable	*Definition*
	H1
$\Delta OPIN_i$, $\Delta ORIN_i$, ΔNIN_i	(Operating/recurring/income for the base year of the *i*-company – operating/recurring/income for the previous year) / amount of total assets for the base year.
ΔACF_i	(*i* company's ACF from operations in the base year – ACF from operations in the previous year) / amount of total assets in the base year.
$\Delta OPINMD_i$, $\Delta ORINMD_i$, $\Delta NINMD_i$	The dummy variable of 1 if *ΔOPIN*/*△ORIN*/*△NIN* for firm *i* is negative, 0 otherwise.
$\Delta ACFMD_i$	The dummy variable of 1 if *ΔACF* of firm *i* is negative, 0 otherwise.
	H2
ΔFCF_i	(*FCF* of the base year of the *i*-enterprise – *FCF* of the previous year)/amount of total assets in the base year.
$\Delta FCFMD_i$	The dummy variable of 1 if *ΔFCF* of firm *i* is negative, 0 otherwise.
	Control variables
$\Delta SALE_i$	(*i* company's net sales in the base year – net sales in the previous year) / the amount of total assets in the base year.

Table 3. Descriptive statistics (Part 1)

Indicator	*Mean*	*Median*	*Max.*	*Min.*	*Std. dev.*	*Skewness*	*Kurtosis*
			Eq. (1)				
NAS	0.373	0.424	0.953	-7.415	0.639	-10.032	122.690
OPIN	-0.049	0.022	0.354	-3.777	0.355	-7.304	71.326
ORIN	-0.063	0.015	0.352	-3.992	0.378	-7.171	69.189
NIN	-0.193	0.004	0.452	-12.915	1.023	-10.862	133.817
ACF	-0.072	0.025	0.422	-4.438	0.425	-6.957	65.840
NASMD	0.055	0.000	1.000	0.000	0.229	3.893	16.158
OPINMD	0.365	0.000	1.000	0.000	0.483	0.562	1.316
ORINMD	0.379	0.000	1.000	0.000	0.486	0.498	1.248
NINMD	0.442	0.000	1.000	0.000	0.498	0.234	1.055
ACFMD	0.425	0.000	1.000	0.000	0.496	0.302	1.091
FCF	-0.004	-0.034	21.322	-4.546	1.645	12.006	158.016
FCFMD	0.619	1.000	1.000	0.000	0.487	-0.489	1.239
SEO	0.331	0.000	1.000	0.000	0.472	0.715	1.513
IPO	0.144	0.000	1.000	0.000	0.352	2.032	5.129
			Eq. (2)				
ΔOPIN	0.038	-0.001	4.306	-0.938	0.425	6.915	64.214
ΔORIN	0.039	-0.002	4.287	-1.031	0.438	6.343	56.357
ΔNIN	0.006	-0.005	6.167	-9.869	0.982	-3.971	66.920
ΔACF	-0.093	-0.005	3.148	-19.867	1.518	-12.246	161.011
ΔOPINMD	0.508	1.000	1.000	0.000	0.501	-0.033	1.001
ΔORINMD	0.536	1.000	1.000	0.000	0.500	-0.144	1.021
ΔNINMD	0.519	1.000	1.000	0.000	0.501	-0.077	1.006
ΔACFMD	0.541	1.000	1.000	0.000	0.500	-0.166	1.028
ΔFCF	0.013	-0.026	21.350	-20.758	2.279	0.421	81.553
ΔFCFMD	0.591	1.000	1.000	0.000	0.493	-0.371	1.138

Table 3. Descriptive statistics (Part 2)

Indicator	*Mean*	*Median*	*Max.*	*Min.*	*Std. dev.*	*Skewness*	*Kurtosis*
Control variables							
COV	0.104	0.000	1.000	0.000	0.307	2.588	7.696
SO	0.530	1.000	1.000	0.000	0.500	-0.122	1.015
SALE	1.297	1.107	7.393	0.021	0.992	2.546	13.290
BDSIZE	1.815	1.792	3.466	1.099	0.467	1.087	4.318
OUTDIR	0.142	0.000	0.750	0.000	0.176	1.129	3.560
EXTAUD	0.730	0.667	1.000	0.000	0.207	-0.532	4.169
DIRHLD	0.158	0.060	0.796	0.000	0.190	1.136	3.350
Ln (SIZE)	9.064	9.075	15.801	4.682	2.147	0.880	4.148
AUD	0.608	1.000	1.000	0.000	0.490	-0.441	1.195
MKT	0.652	1.000	1.000	0.000	0.478	-0.638	1.407
ΔSALE	-0.137	0.012	1.605	-20.630	1.622	-11.268	142.575

$$FUSEI_i = \beta_0 + \beta_1 NAS_i + \beta_2 OPIN_i + \beta_3 ORIN_i + \beta_4 NIN_i + \beta_5 ACF_i + \beta_6 NASMD_i + \beta_7 OPINMD_i + \beta_8 ORINMD_i + \beta_9 NINMD_i + \beta_{10} ACFMD_i + \beta_{11} FCF_i + \beta_{12} FCFMD_i + \beta_{13} SEO_i + \beta_{14} IPO_i + \beta_{15} COV_i + \beta_{16} SO_i + \beta_{17} SALE_i + \beta_{18} BDSIZE_i + \beta_{19} OUTDIR_i + \beta_{20} EXTAUD_i + \beta_{21} DIRHLD_i + \beta_{22} Ln\,(SIZE_i) + \beta_{23} AUD_i + \beta_{24} MKT_i + \beta_{25} IND_{Dummy_i} + \beta_{26} YEAR_{Dummy_i} + \varepsilon_i \quad (1)$$

The definitions of each variable are shown in Table 1. It is noted which hypothesis each variable is based on. The financial figures of the sample firms are the restated figures if the firms submitted a restated securities report for the base year, and if not, the effects of fraudulent accounting were eliminated by using the disclosure documents. Data other than financial figures were also obtained from each firm's annual securities report.

The COV_i was included as a control variable because in Dechow et al.'s (1996) work, the likelihood of violating financial covenants was significantly higher for fraudulent accounting firms than for control firms and the SO_i was included as a control variable because stock price-linked compensation such as *SO* was cited as motivation and pressure for fraudulent accounting in previous studies. $SALE_i$ was included as an explanatory variable based on the possibility that fraud adjusting for sales is most common and the level of sales affects the motivation for fraud. $BDSIZE_i$, $OUTDIR_i$, $EXTAUD_i$, and $DIRHLD_i$ were included in the explanatory variables to control for board size and independence related to fraud "opportunities" and $Ln\,(SIZE_i)$, AUD_i, and MKT_i to control for firm size, audit firm size, and listed market, respectively.

Since avoidance of profit decline is also a motivation for profit adjustment in previous studies (Tran & Duong, 2020), the model equation in Eq. (2) below, in which the variables for profit/loss and *ACF* in Eq. (1) are changed to the increase/decrease from the previous year is also verified.

$$FUSEI_i = \beta_0 + \beta_1 NAS_i + \beta_2 \Delta OPIN_i + \beta_3 \Delta ORIN_i + \beta_4 \Delta NIN_i + \beta_5 \Delta ACF_i + \beta_6 \Delta NASMD_i + \beta_7 \Delta OPINMD_i + \beta_8 \Delta ORINMD_i + \beta_9 \Delta NINMD_i + \beta_{10} \Delta ACFMD_i + \beta_{11} \Delta FCF_i + \beta_{12} \Delta FCFMD_i + \beta_{13} SEO_i + \beta_{14} IPO_i + \beta_{15} COV_i + \beta_{16} SO_i + \beta_{17} \Delta SALE_i + \beta_{18} BDSIZE_i + \beta_{19} OUTDIR_i + \beta_{20} EXTAUD_i + \beta_{21} DIRHLD_i + \beta_{22} Ln\,(SIZE_i) + \beta_{23} AUD_i + \beta_{24} MKT_i + \beta_{25} IND_{Dummy_i} + \beta_{26} YEAR_{Dummy_i} + \varepsilon_i \quad (2)$$

The definitions of each variable are shown in Table 2, and the definitions of the other variables and the reasons for their inclusion in the empirical model equation are the same as in Eq. (1).

Descriptive statistics are shown in Table 3, and the definition of each indicator is the same as the variables in Eq. (1) and (2) in subsection 3.2.

4. RESULTS AND DISCUSSION

4.1. Results of analysis of single variables

The results of the tests of the difference in means and the difference in medians for the financial indicators, which are continuous variables, to test *H1* and *H2* are shown in Table 4.

The ratio of net assets (*NAS*) for the base year is significant at the 1% level for both the mean and median, the ratio of operating return on assets (*OPIN*), the ratio of ordinary return on assets (*ORIN*), and the ratio of operating *ACF* to total assets are significant at the 5% mean and 1% median and the ratio of net income to total assets (*NIN*) is smaller for the sample firms than for the control firms at the 10% mean and 1% median significance levels. In other words, the financial position and performance of the sample firms are significantly worse than those of the control firms in the year when the fraud started. As for *FCF*, an *ex-ante* measure of financing needs, there is no significant difference between the sample firms and the control firms in the mean, but the sample firms are smaller in the median at the 1% level of significance. The test of the difference between the mean and median of other financial indicators between the sample and control firms shows no significant difference between the two.

The results of the test of independence for the dummy variables to test *H1* to *H3* are shown in Table 5.

The sample firms had significantly more negative net assets (*NASMD*), more losses (*OPINMD*, *ORINMD*, and *NINMD*) (at the 1% significance level), and more negative operating ACF (*ACFMD*) (at the 5% significance level) than the control firms. In other words, the sample firms are significantly worse off in terms of financial condition and performance. Regarding financing needs, the sample firms had significantly more negative FCF (*FCFMD*) and executed a capital increase within one year (*SEO*) (both at the 1% significance level). Therefore, it can be said that the sample firms have significantly higher financing needs from both *ex-ante* and *ex-post* measures. Also, the sample firms are more likely to conduct an IPO within one year at the 5% significance level.

The other variables for which the test of independence for the dummy variables yielded significant results are shown in Table 6.

The control firms had more major auditors (*AUD*) than the sample firms (1% significance level), the sample firms had more financial covenants (*COV*) (5% significance level), and they had lower profits from the previous period (1% for operating profit (*ΔOPINMD*) and ordinary profit (*ΔORINMD*) and 5% for net profit (*ΔNINMD*).

Table 4. Test results of mean and median differences relative to financial statements (*H1–H2*)

Financial indicators	Mean		Median			
	Sample firms	Control firms	t-value	Sample firms	Control firms	p-value
H1						
NAS	0.229	0.517	3.116**	0.317	0.522	5.231**
OPIN	-0.996	0.004	1.978*	0.008	0.034	2.972**
ORIN	-0.120	-0.004	2.096*	0.002	0.037	3.526**
NIN	-0.337	-0.046	1.938†	-0.042	0.018	4.305**
ACF	-0.141	-0.003	2.217*	-0.003	0.049	3.439**
H2						
FCF	0.033	-0.040	-0.300	-0.065	-0.002	3.140**

*Note: The median test quantity is based on the Wilcoxson/Mann-Whitney test. **, *, and † indicate statistical significance at the 1%, 5%, and 10% levels, respectively, in a two-tailed test.*

Table 5. Test results for dummy variable independence (*H1–H3*)

Item	Sample firms	Control firms	X^2 test quantity
H1			
NASMD	9	1	6.772**
OPINMD	42	24	7.702**
ORINMD	44	25	8.427**
NINMD	56	24	22.839**
ACFMD	47	30	6.506*
H2			
FCFMD	65	47	7.521**
SEO	42	18	14.321**
H3			
IPO	19	7	6.462*

*Note: **, * indicate statistical significance at the 1% and 5% levels, respectively, in a two-tailed test. The numbers represent the number of data in which the value of each dummy variable is 1 for each of the 91 samples and 91 control firms.*

Table 6. Test results for independence of other dummy variables

Item	Sample firms	Control firms	X^2 test quantity
COV	14	5	4.760*
AUD	43	68	14.433**
ΔOPINMD	58	35	11.632**
ΔORINMD	61	36	13.796**
ΔNINMD	55	39	5.632*

*Note: **, * indicate statistical significance at the 1% and 5% levels, respectively, in a two-tailed test. The numbers represent the number of data in which the value of each dummy variable is 1 for each of the 91 samples and 91 control firms.*

4.2. Results of analysis of multiple variables

The empirical results of Eq. (1) are shown in Table 7. At the 1% significance level, managers were more likely to commit fraudulent accounting the smaller the firm's net assets ratio, i.e., the worse its financial condition, and they were more likely to commit fraudulent accounting to avoid losses when the firm incurred a loss in the current period. As for financing, neither *FCF*, a measure of *ex-ante* financing needs, nor capital increase (*SEO*), a measure of *ex-post* financing needs had a significant relationship with fraudulent accounting. Managers of firms that had an IPO within a year tended to commit fraudulent accounting at the 1% significance level compared to the other managers. For the other variables, the results showed that the managers whose auditors were large audit firms tended not to commit fraudulent accounting at the 1% level of significance compared to the other auditors.

Table 7. Demonstration results: Eq. (1) (Part 1)

Variables	Expected sign	Model A		Model B		Model C		Model D	
		Estimated value	t-value	Estimated value	t-value	Estimated value	t-value	Estimated value	t-value
Dependent variable: FUSEI									
Const.		-4.053	-1.506	-4.022	-1.493	-4.119	-1.511	-4.103	-1.514
H1									
NAS	-	-5.276	-4.715**	-5.304	-4.695**	-5.179	-4.708**	-5.179	-4.716**
OPIN	-	0.789	0.553	-	-	-	-	-	-
ORIN	-	-	-	0.868	0.633	-	-	-	-
NIN	-	-	-	-	-	-0.049	-0.060	-	-
ACF	-	-	-	-	-	-	-	-0.086	-0.069
NASMD	+	-2.392	-1.496	-2.361	-1.492	-2.383	-1.492	-2.384	-1.487
OPINMD	+	0.828	0.866	0.793	0.834	0.733	0.780	0.730	0.780
ORINMD	+	-0.245	-0.225	-0.184	-0.165	-0.336	-0.308	-0.330	-0.309
NINMD	+	1.726	2.875**	1.726	2.871**	1.696	2.831**	1.703	2.833**
ACFMD	+	-0.457	-0.810	-0.445	-0.787	-0.490	-0.867	-0.506	-0.813

Table 7. Demonstration results: Eq. (1) (Part 2)

Variables	*Expected sign*	*Model A*		*Model B*		*Model C*		*Model D*	
		Estimated value	*t-value*	*Estimated value*	*t-value*	*Estimated value*	*t-value*	*Estimated value*	*t-value*
H2									
FCF	-	0.022	0.171	0.028	0.214	-0.025	-0.232	-0.026	-0.236
FCFMD	+	0.619	1.285	0.621	1.290	0.622	1.286	0.619	1.264
SEO	+	0.800	1.544	0.814	1.565	0.756	1.460	0.753	1.431
H3									
IPO	+	3.323	3.720**	3.321	3.712**	3.379	3.797**	3.380	3.795**
Control variables									
COV	+	0.422	0.642	0.416	0.636	0.439	0.667	0.440	0.661
SO	+	-0.532	-1.172	-0.529	-1.169	-0.543	-1.181	-0.544	-1.178
SALE	-	-0.323	-1.430	-0.318	-1.425	-0.357	-1.470	-0.360	-1.469
BDSIZE	±	0.304	0.457	0.300	0.454	0.267	0.408	0.263	0.399
OUTDIR	-	-0.931	-0.683	-0.960	-0.698	-0.901	-0.667	-0.901	-0.668
EXTAUD	-	1.356	1.125	1.357	1.125	1.373	1.147	1.367	1.143
DIRHLD	±	-1.203	-0.854	-1.222	-0.871	-1.049	-0.754	-1.035	-0.731
Ln (SIZE)	-	0.413	1.655†	0.412	1.653†	0.432	1.725†	0.432	1.716†
AUD	-	-1.941	-4.072**	-1.951	-4.084**	-1.922	-4.030**	-1.920	-4.033**
MKT	+	0.801	1.301	0.799	1.296	0.815	1.308	0.811	1.317
McFadden R-squared		0.391		0.391		0.389		0.390	

*Note: **, *, and † indicate statistical significance at the 1%, 5%, and 10% levels, respectively, in a two-tailed test. Since operating profit (OPIN), ordinary profit (ORIN), net income (NIN), and operating cash flow (ACF) are highly correlated, we included them as explanatory variables one by one as shown in Models A through D in the table. There was no significant difference in the results for any of the models.*

The empirical results of Eq. (2) also do not differ significantly from those of Eq. (1); managers tend to engage in fraudulent accounting the smaller the firm's net assets ratio is, and they tend to engage in fraudulent accounting to avoid losses when the firm incurs losses in the current period. As for financing, neither *FCF* nor *SEO* had a significant relationship with fraudulent accounting; managers of firms that had an *IPO* within a year tended to engage in fraudulent accounting more than other managers. For the other variables, the results showed that firms whose auditors were large audit firms were more likely to not engage in fraudulent accounting than the other auditors.

In light of the possibility that the selection method of control firms may have affected the empirical results due to the small size of the sample firms, the method of selecting the control firms was changed to select the listed firms in the same industry as the sample firms with the closest sales in the base year for a separate additional verification. The results of the single variable analysis are similarly significant to those in Tables 4, 5, and 6, and the results of the multivariable analysis do not differ significantly from those in Table 7, except for a 1% significance level correlation between capital increase (*SEO*) and fraudulent accounting, indicating a robust relationship between net asset ratio, current deficit, IPO, and fraudulent accounting. The relationship between the size of the auditor and fraudulent accounting was also similar.

5. CONCLUSION

The fraudulent accounting firms had significantly smaller levels of net asset ratio, operating income to total assets, ordinary income to total assets, net income to total assets, and operating annual cash flow to total assets in the year in which the fraudulent accounting began than the other firms, and significantly more negative net assets, significantly more losses, and negative operating annual cash flow. In particular, the logit analysis shows that the level of the ratio of net assets of firms that engage in fraudulent accounting and whether or not the firm had a net loss is also significant. The financial condition and performance of firms that engage in fraudulent accounting tend to be worse than those of other firms. Threats to financial stability and profitability are thought to motivate fraudulent accounting in Indian firms. The results of the multivariate analysis, however, were not significant. The results for IPOs were found to be a motive for fraudulent accounting in all of the analyses.

This study empirically clarifies managers' motives in Indian listed firms for fraudulent accounting, which is outside the scope of GAAP, rather than profit adjustments, which are within the scope of GAAP, and further identifies the financial figures that drive managers to engage in fraudulent accounting. The analytical model of this study quantitatively demonstrates the characteristics of fraudulent accounting firms. Although the framework of the model is simple, the contribution of this study is that it shows the possibility of further elaborating the empirical results by adding more characteristics of fraudulent accounting firms based on the empirical analysis framework of this paper and that it derives implications that contribute to the assessment of corporate fraud risk by auditors and other corporate stakeholders in practice. This is the contribution of this study.

The following issues are recognized as problems in the analysis of this study and issues to be addressed in the future. First, although the control firms are firms that were not found to have fraudulent accounting at the time of selection, there is a possibility that fraudulent accounting is taking place behind the scenes. Second, the financial figures of the sample firms are analyzed by eliminating the effects of fraudulent accounting, but for those firms that have not submitted amended annual securities reports, disclosure documents are used. Since these disclosure documents are unaudited, the figures may not necessarily be appropriate. In addition, as a measure of *ex-post* financing needs, this study only covers the implementation of capital increases, but it may be necessary to take debt financing such as borrowings into account.

Furthermore, the result that IPO firms are more likely to engage in fraudulent accounting may be due not only to the direct motivation of IPO but also to the fact that IPO firms have weaker internal control and governance than other firms, i.e., "opportunity" among fraud risk factors. Although the size of the board of directors, the ratio of outside directors, and the shareholding ratio of directors were controlled in a multivariable analysis, further analysis is needed to determine the effect of opportunity on the relationship between IPOs and fraud.

REFERENCES

Abdulhussein, A. S., Al-Refiay, H. A. N., & Wahhab, A. M. A. (2023). The impact of internal auditing on corruption: Evidence from the emerging market [Special issue]. *Journal of Governance & Regulation, 12*(1), 367–375. https://doi.org/10.22495/jgrv12i1siart15

American Institute of Certified Public Accountants (AICPA). (2000). *The panel on audit effectiveness report and recommendations* (SEC Practice Section). https://egrove.olemiss.edu/aicpa_assoc/270

American Institute of Certified Public Accountants (AICPA). (2002). *Consideration of fraud in a financial statement audit* (Statement on Auditing Standards No. 99). https://egrove.olemiss.edu/aicpa_sas/101

Beasley, M. S., Hermanson, D. R., Carcello, J. V., & Neal, T. L. (2010). *Fraudulent financial reporting: 1998–2007. An analysis of U.S. public companies.* Committee of Sponsoring Organizations of the Treadway Commission (COSO). https://egrove.olemiss.edu/aicpa_assoc/453

Camfferman, K., & Wielhouwer, J. L. (2019). 21st century scandals: Towards a risk approach to financial reporting scandals. *Accounting and Business Research, 49*(5), 503–535. https://doi.org/10.1080/00014788.2019.1614267

Cheng, J. (2020). Analysis of market failure theories based on Toshiba's business ethic issue: Earnings overstatement scandal. *American Journal of Industrial and Business Management, 10*(1), 160–166. https://doi.org/10.4236/ajibm.2020.101011

Companies Act. (2013). https://www.mca.gov.in/Ministry/pdf/CompaniesAct2013.pdf

Dechow, P. M., Hutton, A. P., Kim, J. H., & Sloan, R. G. (2012). Detecting earnings management: A new approach. *Journal of Accounting Research, 50*(2), 275–334. https://doi.org/10.1111/j.1475-679X.2012.00449.x

Dechow, P. M., Sloan, R. G., & Sweeny, A. P. (1996). Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research, 13*(1), 1–36. https://doi.org/10.1111/j.1911-3846.1996.tb00489.x

Dyck, A., Morse, A., & Zingales, L. (2024). How pervasive is corporate fraud? *Review of Accounting Studies, 29*, 736–769. https://doi.org/10.1007/s11142-022-09738-5

González-Sánchez, M., San Juan, A. I. S., & Ibáñez Jiménez, E. M. (2023). Earnings management in socially responsible firms around seasoned equity offerings: Evidence from France, Germany, Italy and Spain. *Heliyon, 9*(4), Article e15171. https://doi.org/10.1016/j.heliyon.2023.e15171

Gulpham, S. (2022). Financial fraud, economic offence in India: Crime prevention through heuristic method. *Innovare Journal of Social Sciences, 10*(6), 4–8. https://doi.org/10.22159/ijss.2022.v10i6.45435

Haroon, O., & Zaka, M. (2023). A review of corporate governance effectiveness: Developed vs emerging markets. *Corporate Law & Governance Review, 5*(1), 38–62. https://doi.org/10.22495/clgrv5i1p4

Hasnan, S., Eskandar, N. S. M., Mohamed Hussain, A. R., Al-Dhubaibi, A. A. S., Kamal, M. E. M., & Kusumaningtias, R. (2022). Audit committee characteristics and financial restatement incidence in the emerging market. *Corporate & Business Strategy Review, 3*(2), 20–33. https://doi.org/10.22495/cbsrv3i2art2

Healy, P. M. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics, 7*(1–3), 85–107. https://doi.org/10.1016/0165-4101(85)90029-1

Indian Institute of Corporate Affairs (IICA). (2015). *Corporate governance.* Taxmann.

International Federation of Accountants (IFAC). (2009). *IFAC 2009 handbook of auditing standards.*

Kassem, R. (2022). Elucidating corporate governance's impact and role in countering fraud. *Corporate Governance, 22*(7), 1523–1546. https://doi.org/10.1108/CG-08-2021-0279

Khanna, A., & Arora, B. (2009). A study to investigate the reasons for bank fraud and the implementation of preventive security controls in the Indian banking industry. *International Journal of Business Science and Applied Management, 4*(3). https://www.researchgate.net/publication/26592511

Laupe, S., Abdullah, M. I., Kahar, A., Saleh, F. M., Zahra, F., & Syamsuddin, N. A. (2022). Auditor's skepticism, forensic accounting, investigation audit and fraud disclosure of corruption cases. *Journal of Governance & Regulation, 11*(3), 189–196. https://doi.org/10.22495/jgrv11i3art16

Lee, E. Y., & Ha, W. (2021). Auditors' response to corporate fraud: Evidence from audit fees and auditor turnover. *Managerial Auditing Journal, 36*(3), 405–436. https://doi.org/10.1108/MAJ-12-2019-2515

Liu, H., Yang, B., & Zhang, J. (2021). Do financial analysts discourage or encourage corporate fraud? Empirical evidence from China. *Pacific Accounting Review, 33*(1), 81–113. https://doi.org/10.1108/PAR-03-2020-0036

Maulidi, A. (2023). Gender board diversity and corporate fraud: Empirical evidence from US companies. *Journal of Financial Crime, 30*(2), 309–331. https://doi.org/10.1108/JFC-02-2022-0038

Ministry of Corporate Affairs. (2016). *Report of the Companies Law committee.* http://www.mca.gov.in/Ministry/pdf/Report_Companies_Law_Committee_01022016.pdf

Ministry of Corporate Affairs. (2018). *Report of the committee to review offenses under the Companies Act, 2013.* http://www.mca.gov.in/Ministry/pdf/ReportCommittee_28082018.pdf

Sane, R. (2019). Stock market trading in the aftermath of an accounting scandal. *Emerging Markets Review, 40,* Article 100627. https://doi.org/10.1016/j.ememar.2019.100627

Singh, V. K. (2021). Corporate governance failures as a cause of increasing corporate frauds in India — An analysis. In H. Kaur (Ed.), *Facets of corporate governance and corporate social responsibility in India* (pp. 15–32). Springer. https://doi.org/10.1007/978-981-33-4076-3_2

Tommasetti, R., de Oliveira Leite, R., Mothé Maia, V., & da Silva Macedo, M. A. (2021). Revisiting the accounting fraud components: A bottom-up approach using the Twitter platform. *SAGE Open, 11*(4). https://doi.org/10.1177/21582440211058190

Tran, K. H., & Duong, N. H. (2020). Earnings management to avoid earnings decreases and losses: Evidence from Vietnamese listed companies. *Cogent Economics & Finance, 8*(1), Article 1849980. https://doi.org/10.1080/23322039.2020.1849980

Tutino, M., & Merlo, M. (2019). Accounting fraud: A literature review. *Risk Governance and Control: Financial Markets & Institutions, 9*(1), 8–25. http://doi.org/10.22495/rgcv9i1p1

Upadhya, S. (2022). Accounting fraud in corporate: Case study on Satyam Computers Limited. *International Journal of Engineering Applied Sciences and Technology, 7*(6), 391–395. https://www.ijeast.com/papers/391-395,%20Tesma0706,IJEAST.pdf

van Driel, H. (2019). Financial fraud, scandals, and regulation: A conceptual framework and literature review. *Business History, 61*(8), 1259–1299. https://doi.org/10.1080/00076791.2018.1519026

Velte, P. (2023). The impact of external auditors on firms' financial restatements: A review of archival studies and implications for future research. *Management Review Quarterly, 73,* 959–985. https://doi.org/10.1007/s11301-022-00264-x

Vousinas, G. L. (2019). Advancing theory of fraud: The S.C.O.R.E. model. *Journal of Financial Crime, 26*(1), 372–381. https://doi.org/10.1108/JFC-12-2017-0128

Wu, H., Chang, Y., Li, J., & Zhu, X. (2022). Financial fraud risk analysis based on audit information knowledge graph. *Procedia Computer Science, 199,* 780–787. https://doi.org/10.1016/j.procs.2022.01.097

Zeng, H., Yang, L. & Shi, J. (2021). Does the supervisory ability of internal audit executives affect the occurrence of corporate fraud? Evidence from small and medium-sized listed enterprises in China. *International Journal of Accounting & Information Management, 29*(1), 1–26. https://doi.org/10.1108/IJAIM-02-2020-0020