

The Effect of the Number of Members of the Board of Directors who are Members of the Society of Certified Accountants on Reducing the Probability of Fraud in Companies with the Moderating Role of Audit Quality¹

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Research Paper

INTRODUCTION

According to Webster's Academic Dictionary (1990, p. 490), corporate fraud can be defined as "an intentional distortion of the truth, to induce another to part with something of value or surrender a legal right" or "an act to deceive or misrepresentation." The possibility of fraud in companies' business operations and the capital market, due to its destructive effects on the performance and behavior of companies with different stakeholders, has been a concern for many researchers (Kranacher et al., 2008, p. 505). The theory of Hambrick and Mason (1984, p. 193) claims that the characteristics of executives' backgrounds shape their cognitive preferences and behavioral choices, which inevitably affect the probability of fraud in companies. First, CPA managers may be more cautious and conservative when making decisions due to their early-stage risk-taking attitudes, thus reducing the likelihood of high-risk fraud (Bolin et al., 2009, p. 63). Second, the stronger the professional knowledge of senior managers, the more accurately they can understand laws, regulations, and policies, preventing the risk of fraud. Managers who are certified public accountants are likely to reduce the

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likelihood of fraud due to their extensive work experience. Additionally, their ability and excellent financial knowledge can enhance monitoring and identify problems in corporate governance (Du and Lu, 2015, p. 40). They also reduce violations caused by a lack of professional knowledge by performing monitoring and inquiry functions (Metzgez, 2006, p. 155). Third, members of the board of directors from the CPA community often have a strong sense of fiduciary responsibility, concern for reputation, and risk control (Lee et al., 2019, p. 3). Therefore, it is expected that the presence of board members from the certified public accountant community in companies is not only useful but also necessary to prevent the possibility of fraud. On the other hand, large auditing firms have a competitive advantage due to their high audit quality and professional oversight, which reduce information asymmetry (Lee et al., 2019, p. 3). The strict approach of independent auditors imposes invisible external pressure on companies, increasing their awareness of business practices and reducing violations. The knowledge and professional skills of board members from the certified public accountant community heighten their awareness of the importance of high-level governance (Alchambert et al., 2008, p. 965). Long-term financial experience has led executives to develop cautious and risk-averse personalities (Barker and Molter, 2002, p. 782). The presence of board members from the certified accountant community, combined with high audit quality, reduces the probability of fraud (Cole et al., 2021, p. 50).

The purpose of this research is to investigate the effect of the number of board members from the certified public accountant community on reducing the probability of fraud in companies, with audit quality as a moderating factor. This study seeks to answer the following question: Can the number of board members from the certified public accountant community affect the reduction of fraud probability in companies, and does audit quality, as a moderating component, adjust this relationship?

MATERIALS AND METHODS

The present study is descriptive in nature with a practical purpose and falls within the field of post-event studies (Bani Mahd and Hasanpour, 1400). It used real financial statement data from listed companies to test hypotheses, generalizing findings to the entire statistical population through an inductive method.

Probability of Fraud in Companies (Fraud): In this research, the genetic programming model of Zare (2015) was used to measure the probability of fraud in financial statements. Genetic programming, a generalization of the genetic algorithm, was first introduced based on Darwin's theory. Unlike the genetic algorithm, genetic programming

operates on the tree structure of formulas rather than a series of binary items. In addition to extracting relationships between input and output variables, genetic programming automatically and intelligently selects the most influential variables in the model. In this model, 90 financial ratios were initially extracted from company financial reports, and with the help of genetic programming, 7 financial ratios affecting the probability of fraud were identified: the ratio of working capital to total assets, accounts receivable to sales, debt to equity, gross profit to assets, cash to current liabilities, inventory to current assets, and the absolute value of changes in working capital. It should be noted that Zare's (2015) genetic model is localized and requires no adjustment based on the environmental conditions of the Tehran Stock Exchange. The relationship between the probability of fraud and the input variables, based on Zare's (2015) genetic model, is as follows:

$$\text{(Fraud)}_{it} = (\text{WC/TA} - \text{TD/TE})^2 - (8.037 * \text{TD/TE} * \Delta\text{cur}) - \Delta\text{cur}^5 - \text{TD/TE} + \text{GI/TA} + (\exp(\Delta\text{cur}))^8 / ((\text{GI/TA} + \text{CASH/CL})^8 * (\text{REC/S} - 4.5021)^8) + (\text{WC/TA})^3 * (\cos(\Delta\text{cur}))^3 * (2 * \text{REC/S} + \text{INV/CA} - 9.0575)^3 * (2 * \text{WC/TA} + \text{REC/S} + \Delta\text{cur})^3 - 9.0210)$$

RESULTS AND DISCUSSION

The significance level of the Z statistic for the coefficient of the variable representing board members from the certified public accountant community, with a value of -0.2924, is 0.0066, which is less than 5%. Therefore, it can be claimed that this variable affects the dependent variable (probability of fraud) with a negative direction. In other words, the number of board members from the certified public accountant community significantly reduces the probability of fraud. Thus, the first hypothesis, which states that the number of board members from the certified public accountant community has a significant effect on reducing the probability of fraud in companies, is accepted.

The significance level of the Z statistic for the coefficient of the interaction variable AQ*EXP, with a value of -0.4702, is 0.0367, which is less than 5%. Therefore, it can be claimed that audit quality (AQ) moderates and strengthens (negatively) the effect of the number of board members (EXP) on the probability of fraud (Fraud). In other words, when audit quality is high, the number of board members from the certified public accountant community further reduces the probability of fraud. Consequently, the second hypothesis, which states that audit quality moderates the effect of the number of board members on reducing the probability of fraud, is accepted.

CONCLUSION

In the first hypothesis, the effect of the number of board members on reducing the probability of fraud was examined. Based on the results of this study, it can be stated that the number of board members from the certified public accountant community has a significant and negative effect on the probability of fraud. In other words, the greater the number of board members from this community, the lower the probability of fraud in the company. This finding aligns with foreign studies such as Oi et al. (2023) and Wu et al. (2023). Evi et al.'s research findings indicate that managers from the certified public accountant community can help reduce the likelihood of fraud, and they also found that such managers improve the quality of internal controls and audit quality. Among domestic studies, this result is consistent with Kadam Yaari and Naqshbandi (2019), Barzegar Abbaspour et al. (2002), and Rasouli et al. (2002). Kadam Yaari and Naqshbandi's findings show that the CEO's experience and the financial knowledge of board members significantly affect the quality of information disclosure.

In the second hypothesis, the moderating effect of audit quality on the relationship between the number of board members and the reduction of fraud probability was investigated. The results suggest that audit quality moderates and amplifies the effect of the number of board members on reducing the probability of fraud. This finding aligns with domestic studies such as Etemadi and Abdoli (2016), Noshadi et al. (2018), and Barzegar Abbaspour et al. Etemadi and Abdoli found that higher audit quality reduces the likelihood of fraud in companies. Similarly, Barzegar Abbaspour et al.'s findings indicate that internal organizational factors, including the board's job experience, and external factors, such as audit quality, significantly affect the probability of fraud in the financial statements of companies listed on the Tehran Stock Exchange. This finding is also consistent with foreign studies by Evi et al. (2023) and Zhou et al. (2022).

EQUATIONS

To test the first and second hypothesis of this research, the following model is used following (Tian and Sun, 2023).

$$\begin{aligned} \text{Fraud}_{it} = & \beta_0 + \beta_1 \text{Exp}_{it} + \beta_2 \text{AQ}_{it} + \beta_3 \text{Exp}_{it} * \text{AQ}_{it} + \beta_4 \text{Size}_{it} \\ & + \beta_5 \text{LEV}_{it} + \beta_6 \text{Growth}_{it} + \beta_7 \text{Free C}_{it} + \beta_8 \text{LOSS}_{it} \\ & + \beta_9 \text{ROA}_{it} + \varepsilon_{it} \end{aligned}$$

To confirm the first hypothesis of the research, it is enough to make the coefficient 1β significant. Also, to confirm the second research hypothesis, it is enough to make 3β significant (Tian and Sun, 2023). In the following, the summary of research variables is presented in figure (1).

Figure 1. Research Variables

| Variable type | symbol | Variable | Operational definition | How to extract variable information in Iran |
|---------------|--------|--|--|--|
| Dependent | Fraud | The possibility of fraud in companies | The operational definition of the above variable is given in the method section | |
| Independent | Exp | Members of the Board of Directors, members of the Society of Chartered Accountants | The number of members of the board of directors who are members of the society of certified accountants over the total number of members of the board of directors | The system of the public accountants community and the activity report of the board of directors |
| adjustment | AQ | audit quality | The operational definition of the above variable is given in the next picture | |
| control | Size | size of the company | The natural logarithm of the company's total assets | financial statement (balance sheet) |
| | LEV | Financial Leverage | Total debt divided by total assets of the company | financial statement (balance sheet) |
| | Growth | Corporate growth | Operating income growth rate | From the company's performance statement (profit and loss) |
| | Free C | Operating cash flow ratio | The ratio of cash flows from operating activities to total assets | Cash flow statement and balance sheet |
| | Loss | Loss of the company | If the company has reported a loss, it gets a number of 1, otherwise it gets a number of zero | From the profit and loss statement |
| | ROA | return on assets | Net profit divided by average total assets | From profit and loss and balance sheet |

Audit quality (AQ): A-rated audit firms have a competitive advantage due to high audit quality and professional monitoring ability to reduce information asymmetry (Lee et al., 2019, 3). The strict attitude of auditors puts invisible external pressure on companies, which makes them more aware of their business and reduces violations. Therefore, in the present study, the ranking of auditing institutions is used to measure the audit quality variable. If the company has been audited by the Habarsi Institute of rank A, it will get a number of 1, and otherwise, it will get a number of zero.

Keywords: Number of Board Members from the Certified Public Accountant Community, Probability of Fraud in Companies, Audit Quality.

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