IMPACT OF PRESSURES ON THE DETECTION OF FINANCIAL STATEMENT FRAUD RISK

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Abstract

The objective of this paper is to investigate the impact of pressures exerted on personnel and governance officials on the detection of fraud risk in financial statements. The tests focus on 250 financial reports of Tunisian listed companies (excluding financial institutions), of which 148 indicate the presence of fraud risk and 102 statements are healthy (post-revolution period from 2012 to 2019). Multivariate analysis shows that external pressure and achievement of financial objectives have a positive effect on the ability of external auditors to detect fraud risk in financial statements, while financial stability is not significant. Due to the selected research context, the results of the study may not be generalizable. Therefore, researchers are encouraged to further test the proposed propositions in other contexts. This study has implications for external auditors who can find clear and simple indicators that can assist them in detecting fraud risk in financial statements.

Keywords: Financial Statement Fraud, Financial Stability, External Pressures, Achievement of Financial Objectives, Fraud Triangle, Pressures

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1. INTRODUCTION

The International Standards on Auditing (ISA) and the Statement of Auditing Standards (SAS) emphasize the auditor's responsibility in detecting fraud risk during their audit mission, while presenting a list of risk indicators classified under the three dimensions of the fraud triangle. These dimensions include: 1) the pressures that drive the perpetrator to commit fraud, 2) the opportunities that facilitate fraudulent activity, and 3) the rationalization that makes the individual comfortable with committing fraud.

Aghghaleh and Zakiah (2014) and Lenard and Alam (2009) state that manipulation occurs due to pressure exerted within the company and responsibility to external parties.

The Tunisian legislature has enacted a law that strengthens financial security to prevent financial scandals (Law No. 2005-96 of October 18, 2005, on Strengthening the Security of Financial Relations).

This study focused on the risk indicators of pressure. According to ISA 240, three types of financial pressures can exist within a firm: 1) the threat to financial stability and profitability, 2) external pressure on management to meet the expectations of third parties, and 3) the achievement of financial objectives that threaten the financial situation of governance officials.

The main motivation for this study is the interest given by the Tunisian legislator in the prevention and detection of fraud by creating the National Anti-Corruption Authority (*Instance Nationale de Lutte Contre la Corruption* — INLUCC) in 2011. This study is also useful for external auditors who can find clear and simple tips to prevent and detect the risk of fraudulent financial reporting. The tax administration can also use these

results as an additional tool in its fraud detection portfolio, and finally, investors can benefit from this study to prevent fraudulent activities.

The remainder of this paper is organized as follows. Section 2 reviews the relevant literature. Section 3 describes the data and methodology used in the study. Section 4 presents and discusses the results. Section 5 concludes the paper.

2. LITERATURE REVIEW

This work is primarily based on two theories, namely agency theory and Cressey's (1971) fraud triangle theory.

2.1. Agency theory

This theory belongs to the political-contractual paradigm, which analyzes the company as a nexus of formal or informal contracts. This contractual relationship always leads to conflicts of interest that can manifest through fraudulent misstatements.

To solve these issues, the presence of the auditor is necessary to ensure the truthfulness and regularity of the annual reports (Herrbach, 2000).

Furthermore, the agency problem between the auditor and the audited company can create a conflict of interest. In fact, the audited company can influence the auditor to align with the wishes and expectations of the management. As a solution to this problem, the Sarbanes-Oxley (SOX) Act was passed in 2002 to strengthen auditor independence and mitigate the power that managers have over their auditors.

2.2. Fraud triangle theory

According to Cressey's (1971) fraud triangle, fraudsters generally share three characteristics: 1) they are under intense financial pressure; 2) they have the opportunity to commit fraud; 3) when engaged in fraud, they rationalize their fraudulent actions and make them consistent with their personal ethical codes. The fraud triangle theory developed by Cressey (1971) has been adopted in auditing standards and by several researchers to analyze the impact of fraudulent behavior on the detection of fraud risk in financial statements (Persons, 1995; Ramamoorti, 2008; Albrecht et al., 2008; Sikka, 2010; Ravisankar et al., 2011; Kassem & Higson, 2012; Power, 2013; Dellaportas, 2013; Aghghaleh & Zakiah, 2014; Hollow, 2014; Abdullahi & Mansor, 2015; Zaki, 2017; Akbar et al., 2022).

2.3. Financial stability and financial statement fraud

According to ISA 240, managers face pressure to commit financial statement fraud when the financial stability is threatened by the economic, industry, or operating conditions of the entity. Therefore, rapid growth or abnormal profitability is an indicator of fraud risk. Loebbecke et al. (1989) found that when a company's growth is below the industry average, management resorts to financial statement manipulation to improve the organization's position. According to Narsa et al. (2023), financial stability is evaluated through asset growth. A high asset growth rate suggests that the company is able to use its assets to increase the current year's profit (Fitri, 2019; Waleed et al., 2022).

According to Djatnicka et al. (2023), to enhance their positive prospects, management manipulates information about their wealth. Thus, the ratio of changes in total assets is used as an indicator of the financial stability variable. The higher the total assets owned by a company, the greater its wealth.

The results of the study conducted by Djatnicka et al. (2023) show that financial stability influences the detection of financial reporting fraud risk. Thus, the following hypothesis can be formulated:

H1: Financial stability is significantly and positively related to the risk of financial statement fraud.

2.4. External pressures and financial statement fraud

According to ISA 240, significant pressures can be exerted on a company to meet the expectations and demands of third parties, which may arise from bold analyst forecasts, threats to the financial stability of executives, or a need for additional financing to repay debts or remain competitive.

According to the reviewed literature, leverage represents the difficulty in meeting listing requirements, debt repayment conditions, and restrictive clauses in loan agreements (Pratiwi & Norhamida, 2024; Fitri et al., 2019; Huang et al., 2017; Lou & Wang, 2011; Skousen et al., 2009; Manurung & Hadian, 2013; Aghghaleh & Zakiah, 2014).

According to Omukaga (2020), third parties expect a company to maximize profits during the year while minimizing expenses and debt.

Narsa et al. (2023) state that debt ratios affect the level of fraud in the company. In fact, highly leveraged companies are more likely to manipulate their earnings (Dechow et al., 1996; Beneish, 1997; Vermeer, 2003, as cited in Demetriades & Owusu-Agyei, 2022). Therefore, leverage is considered the most significant variable that increases the possibility of fraud in financial statements (Persons, 1995; Aghghaleh & Zakiah, 2014; Nia, 2015; Zaki, 2017; Huang et al., 2017; Fitri et al., 2019). Thus, the second hypothesis is formulated as follows:

H2: External pressure is significantly and positively related to the risk of financial statement fraud.

2.5. Achievement of financial objectives and financial statement fraud

Skousen et al. (2009) state that return on assets (ROA) is used to evaluate management's performance. According to Narsa et al. (2023 when the target ROA is not achieved, management engages in a series of manipulations to improve the company's performance.

The studies by Summers and Sweeney (1998), Lou et al. (2011), Skousen et al. (2009), Manurung and Hadian (2013), Pratiwi and Norhamida (2024) and Fitri et al. (2019) use ROA as a proxy to measure the pressure exerted on staff to achieve financial objectives. Manurung and Hadian (2013) found a positive relationship between ROA and the preparation of fraudulent financial statements. Additionally, Huang et al. (2017) and Fitri et al. (2019) found that ROA has a significant effect on detecting and predicting the risk of fraud in financial statements. On the other hand, Zaki (2017) found that ROA has no significant effect on predicting the probability of fraud in financial

statements. Based on these studies, the following hypothesis was formulated:

H3: The achievement of financial objectives is significant and positively related to the risk of fraud in financial statements.

3. RESEARCH METHODOLOGY

This section presents the data and sample, as well as the measurement of variables, models, and results of this research.

3.1. Data and sample

This study analyzes 250 annual reports of Tunisian listed companies. For the purposes of the study, this sample was divided into two groups. The first group consists of 148 reports of companies with a risk of fraudulent reports, and the second group consists of 102 reports of companies without a risk of fraud.

These reports were collected between 2012 and 2019. The year 2012 was chosen to study the companies in a post-revolutionary context, when efforts were made to establish good governance in companies and a strong fight against malpractices. Additionally, this year, the Tunis Stock Exchange (*Bourse des Valeurs Mobilières de Tunis* — BVMT) provided incentives to encourage companies to list on the exchange and stimulate the market, which led to new listings on the BVMT.

3.2. Research model

In this research, some red flags (indicators that may suggest the presence of fraud or irregularities) of ISA 240 were measured, which are classified according to Cressey's (1971) fraud triangle. To do this, the literature review should be referred (Skousen et al., 2009; Nia, 2015; Yusof et al., 2015; Razali, 2014; Sulaiman et al., 2024; Zainudin et al., 2016; Zaki, 2016; Manurung et al., 2015; Lou et al., 2009).

This regression is used to determine the impact of pressure, as defined in Cresssey's (1971) fraud triangle on the detection of fraud risk in financial statements.

$$REFF = \beta_{i0} + \beta_{i1}CRA_{it} + \beta_{i2}LEV_{it} + \beta_{i3}ROA_{it} + \beta_{i4}TAILLE_{it} + \beta_{i5}OPIN_{it} + \beta_{i6}PERTE_{it} + \beta_{i7}CAC_{it} + \varepsilon_{it} \quad (1)$$

where, *REFF* — fraudulent financial statement risk; β_{i0}–β_{i7} — estimated parameters of each variable; *CRA* — rapid growth with asset variation measurement; *LEV* — additional financing needs with total debt to asset ratio measurement; *ROA* — return on assets; *TAILLE* — company size; *OPIN* — auditor's opinion; *PERTE* — occurrence of a loss; *CAC* — asset composition; ε — error term.

4. RESEARCH RESULTS AND DISCUSSION

4.1. Univariate analysis

Firstly, descriptive statistics are presented. Then, in the second stage, correlation analysis will be presented. Finally, findings with comparative analysis will be presented.

4.1.1. Descriptive statistics

Descriptive statistics from 148 firms at risk of fraud indicate high rates of asset growth — more than tripling over the study period. Financial leverage, calculated relative to assets, averages 79%. These ratios also indicate an average *ROA* of 5%.

Table 1. Descriptive statistics

Variables	*Mean*	*Standard deviation*
CRA	3.67821	29.89753
LEV	0.797852	0.497826
ROA	0.057836	0.167892

4.1.2. Correlation analysis

The following Table 2 displays the correlations between the variables in the model.

Table 2. Correlation matrix of pressure variables

Variables	*REFF*	*CRA*	*LEV*	*ROA*	*TAILLE*	*OPIN*	*PERTE*	*CAC*
REFF	1.000000							
CRA	0.066374	1.000000						
LEV	0.004065	-0.041124	1.000000					
ROA	0.001567	0.172245	-0.547125	1.000000				
TAILLE	0.032132	0.032524	0.326698	0.045765	1.000000			
OPIN	0.023268	-0.075604	0.345455	-0.321214	-0.056832	1.000000		
PERTE	0.091056	-0.054764	0.645325	-0.698547	-0.047825	0.542446	1.000000	
CAC	0.245636	0.048756	0.047813	0.204325	0.063528	-0.024731	-0.106325	1.000000

The correlation matrix shows that none of the correlation coefficients exceeds 0.7, which is the threshold beyond which multicollinearity becomes a concern.

The preliminary result indicates a positive relationship between fraud risk variables and rapid asset growth (*CRA*), leverage (*LEV*), and *ROA*, which is consistent with the findings of Skousen et al. (2009), Zainudin and Hashim (2016), and Yusof et al. (2015).

4.1.3. Comparative analysis

Table 3 summarizes the univariate comparisons (mean comparisons) conducted between the pressure variables of firms that exhibit fraud risk in their financial statements and those without risk.

There is a difference between the means of the coefficients associated with the pressure of firms with fraud risk and firms without risk, with a statistically significant difference indicating that certain coefficients are associated with fraud risk. There is a significant difference in the means of asset growth (*CRA*), leverage (*LEV*), and *ROA* at a 5% significance level.

Table 3. Univariate comparison of pressure variables

Variables	*Mean*		*p-value*
	Firms with risk	*Firms without risk*	
CRA	3.67821	0.184987	2.358912
LEV	0.797852	0.598753	0.076459
ROA	0.057836	0.0497458	0.032264

4.2. Multivariate analyses

The following table presents the results of the logistic regression model estimation.

Table 4. Results of logit regression model estimation (Model: Pressure with endogenous)

Variables	*Coefficient*	*Std. error*	*z-statistic*	*Prob.*
CRA	0.2879561	0.638930	0.584578	(0.6245)
LEV	0.468465***	0.078654	6.256819	(0.0000)
ROA	6.123460**	2.86432	2.032191	(0.0358)
TAILLE	0.181014	0.312456	0.413698	(0.6873)
OPIN	-0.17569	0.329866	-0.35893	(0.7369)
PERTE	1.659435**	0.623697	2.358931	(0.0236)
CAC	1.756892**	0.697892	2.007896	0.04236
_Const	-2.078963	2.36985	-0.983569	0.45698

*Note: The significance levels of 10%, 5%, and 1% are represented by ***, **, and *, respectively.*

The multivariate tests for the *CRA* variable, which measures rapid growth through asset variation, are non-significant ($z = 0.584578$, $p = 0.6245$). Therefore, *H1* is rejected. This contradicts the findings of Abbott et al. (2000), who confirmed that asset growth can increase the risk of fraud in annual reports. Similarly, Skousen (2004) found that rapid asset growth is positively associated with fraudulent financial statements.

4.3. Discussion

Narsa et al. (2023) found a negative relationship. This can be explained by the fact that when a company has below-average asset growth, it may delay the recognition of asset costs, which are proportionally used to manipulate earnings and make financial statements appear stable. In fact, a company with high asset growth may declare its financial statements as stable, reducing the likelihood of manipulation.

Paino and Iskandar (2021) found that the higher the asset value, the less likely management is to engage in earnings management. This can be attributed to the stability of the company's financial position being primarily driven by effective management rather than manipulation to create a favorable impression among stakeholders.

The regression results indicate that for the *LEV* variable ($z = 6.256819$, $p = 0.0000$), there is indeed a positive and significant effect at the 1% significance level. Therefore, hypothesis *H2* is verified, confirming existing literature (Persons, 1995; Dechow et al., 1996a; Skousen, 2004; Lou & Wang, 2011; Manurung & Hadian, 2013; Aghghaleh & Zakiah, 2014; Zainudin & Hashim, 2016; Rahman & Jie, 2022; Akbar, 2022).

Financial leverage measures the relationship between a company's liabilities and assets, in other words, the amount of debt used to finance the company's assets. Thus, firms with a high total debt-to-assets ratio are more likely to be classified as having a fraud risk in their financial statements. It also measures the company's ability to repay its financial obligations when they become due. According to Christie (1990), leverage is potentially correlated with accounting policies that enhance earnings but may not be sufficient to avoid covenant violations. Therefore, some managers may seek to understate liabilities or overstate assets. This means that the higher the leverage effect, the higher the risk of covenant violation and the higher the probability of fraud.

The regression analysis of the *ROA* variable indicates a positive and significant effect on predicting the risk of fraud in financial statements, with $z = 2.032191$ and $p = 0.0236$. These results confirm the expectations, and thus, the hypothesis *H3* is accepted. These findings align with the works of Summers and Sweeney (1998), Skousen et al. (2009), Lou and Wang (2011), Manurung and Hadian (2013), Zainudin and Hashim (2016), Huang et al. (2017), Nia (2015), and Zainudin and Hashim (2016).

These results differ from those of Amara et al. (2013), who found a significant but negative effect of the *ROA* variable on fraud risk detection. Additionally, Zaki (2017) suggests that *ROA* does not have a significant effect on predicting fraud risk in financial statements.

Regarding the *SIZE* variable, it does not have a significant effect on predicting fraud risk in financial statements, which aligns with the findings of Beasley (1996) and Lou and Wang (2011). However, this finding contradicts the results of Chapple et al. (2009) and Persons (1995), who claimed a significant positive relationship between firm size and fraud. It can be concluded that the lack of significance in the *SIZE* variable may be due to the fact that this model focuses on studying the variables related to pressure in detecting fraud risk. Thus, firm size may not be a pressure factor for a perpetrator to engage in fraudulent acts.

The *OPIN* variable, which measures the auditor's opinion, does not have an effect on predicting fraud risk in financial statements. Similarly, this finding can be explained by stating that the auditor's opinion is not a pressure factor to commit fraud.

Regarding the *PERTE* variable, which represents the occurrence of a loss, it has a positive and significant effect on predicting fraud risk in financial statements ($z = 2.358931$, $p = 0.0236$). This result is consistent with the findings of Lou and Wang (2011). Since this model examines the relationship between predicting fraud risk in financial statements and pressure variables, it can be suggested that if a firm incurs a loss, it may engage in fraudulent activities to avoid losing market share. Additionally, investors and shareholders may be reluctant to invest in the firm due to its failure to meet its obligations.

These findings align with the studies conducted by Lou and Wang (2011), Amara et al. (2013), Dalnial et al. (2014), and Zainudin and Hashim (2016).

The logistic regression results show that the effect of the asset composition (*CAC*) variable on predicting fraud risk is positive and significant. Several studies confirm that the "inventory" account is the most frequent and easiest to manipulate compared to other current assets.

5. CONCLUSION

The role of the external auditor in detecting the risk of fraud in financial statements is a long-standing issue. Financial scandals caused by undetected fraud have prompted legislators to enact laws aimed at protecting investors in financial markets and emphasizing the auditor's responsibility to detect fraudulent financial statements. The objective of this paper was to empirically examine the impact of pressure on staff and those charged with governance on the detection of fraud risk in financial statements.

The results are based on a sample of 250 reports of Tunisian listed companies during the post-revolutionary and pre-COVID-19 periods, specifically from 2012–2019.

The main findings indicate that the need for external financing and the ROA are important factors in alerting auditors to the possibility of fraud risk.

This suggests that it is because of external stakeholders such as shareholders, investors, and financial analysts that the company is pushed towards fraudulent behavior. This can be attributed to the company's constant drive to meet the needs and expectations of these stakeholders who may sometimes have unrealistic demands and expectations. These findings show that the external pressure on the company measured by the need for external financing and the ability to meet the requirements of debt contracts (leverage) is the most significant variable that predicts the risk of financial statement fraud. Secondly, financial stability is measured by negative operating cash flows. Thirdly, the achievement of financial targets is measured by ROA. And fourthly, a measure of financial stability which is rapid growth.

It is clear from the above that external pressure tops the list. Thus, it can be speculated that it is because of the third parties and culture (shareholders, investors, financial analysts, etc.) that the company faces fraudulent behavior. This is because the company always seeks to satisfy the needs and expectations of its third parties who sometimes have unrealistic demands and expectations.

This study has several limitations that should be acknowledged. First, the reliance on qualitative data may introduce subjective bias, potentially affecting the generalizability of the findings. Furthermore, the focus on specific industries or regions may limit the applicability of the findings to broader contexts. Future research should explore quantitative approaches to provide a more robust analysis of the influence of different pressures on fraud detection across various industries and geographies. Expanding the scope to include the role of technology and data analytics in mitigating these pressures could also provide valuable insights for practitioners in the field.

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