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The Impact of Debt, Taxation, and Financial Crisis on Earnings Management

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Abstract

Objectives: The present study investigates the impact of debt, taxation, and the financial crisis on earnings management.

Design/methodology/approach: This research is applied, and the methodological dimension is causal correlation. The statistical population of this study was all firms listed on the Tehran Stock Exchange, and using the systematic deletion sampling method, 138 firms were selected as the sample and studied during the 8 years between 2015 and 2022.

Results: Four hypotheses were proposed for the present study. The results of testing the research hypotheses showed that the financial crisis and corporate tax had a direct impact on the company's earnings management, but debt did not affect the company's earnings management.

Innovation: The current research provides evidence that dealing with the financial crisis and paying taxes are the main factors in increasing earnings management in companies.

Keywords: Debt, Financial Crisis, Profit Management, Taxation, Financial Statement Fraud.

1. Introduction

In accounting literature, defining earnings management is challenging due to the unclear boundary between earnings management and financial fraud. However, there are distinct conceptual differences between fraudulent accounting activities and judgments and estimates that align with accepted accounting principles and can be used to manage earnings effectively (Ebrahimi et al., 2021). Earnings management occurs when managers utilize judgments in financial reporting and transaction structures to alter financial reports, either to mislead shareholders or due to contractual impacts reliant on accounting figures (Almarayeh et al., 2022). Some define earnings management as targeted involvement in the external financial reporting process to generate profits (Al-Zoubi, 2018). Others suggest that earnings management practices aim to assist managers in fulfilling their duties to shareholders or deceiving investors (Mamatzakis et al., 2023). Various definitions of earnings management have been proposed in the accounting literature by researchers. Crafting a precise definition of earnings management necessitates an understanding of the methods of applying earnings management and its outcomes. Earnings management occurs when managers use their judgments in financial reporting and manipulate transaction structures to alter financial reports (Roni, 2022). This objective may mislead some shareholders about the company's economic performance or influence the results of contracts contingent on specific profits (Ahmadpour and Shahsavari, 2014). The bottom line of financial statements (i.e., profit) is a crucial basis for decision-making for various users, such as investors, analysts, creditors, and financiers, and is considered one of the best indicators for assessing managerial performance (Izedinia et al., 2015). Given the significance of earnings management and its influence on investors' decisions, it is crucial to explore the factors impacting earnings management. Therefore, this study investigates the effects of debt, taxes, and financial crises on earnings management. With the escalating levels of fraud and earnings management in financial statements and the pivotal role of financial reports in decision-making for investors and corporate stakeholders, it is imperative to address the issue. In the capital market, conservative managers often refrain from disclosing negative news about the company, only presenting positive news to avoid tarnishing their managerial reputation and the company's history. This behavior could lead to future losses for investors and shareholders of companies. Hence, it is essential to address the necessity for companies facing financial crises to avoid tax evasion and refrain from manipulating critical financial statements. Examining earnings management and its influencing factors like financial crises, taxes, and debt is crucial for identifying uncertainties, addressing research gaps, and enhancing understanding. The research structure entails expanding on theoretical foundations, hypotheses, and empirical bases, followed by outlining the methodology and operational definitions of research variables and concluding with presenting the research findings and conclusions.

2. Theoretical foundations and the development of research hypotheses

Earnings management is a crucial contemporary issue in accounting research. It involves managers manipulating earnings to deceive shareholders about the company's true economic performance or to meet contractual obligations based on reported revenues (Mamatzakis et al., 2023). Previous studies have shown that corporate managers who violate accounting laws can manipulate financial statements (Ebrahimi et al., 2021). Companies engage in reporting inflated profits by creating reserves for questionable debts or manipulating earnings early, known as accrual profit management. However, there is a shift towards real earnings management. Auditors need to carefully examine deviations from the natural direction of businesses in earnings management, which can involve changes in revenue, sales, cost of goods sold, or non-operating costs (Bansal, 2021). Earnings management occurs when managers use their judgment in financial reporting to alter the structure of transactions. This can

be intentional or unintentional, with some shareholders concerned about the company's economic performance or the outcome of contracts dependent on profit (Huang, Hu, 2020). Various factors influence managers' decisions to manage profits. During financial crises, companies may reduce profit management to show higher losses and avoid taxes (Pereira and Alves, 2017). Some argue that in times of crisis, companies may use earnings management to accurately reflect their value. The impact of financial crises is more pronounced in countries with weak investor protections. However, some studies suggest that companies are less inclined to engage in earnings management during crises (Mechelli and Cimini, 2017). Increased oversight from creditors, auditors, and stakeholders during crises may deter companies from manipulating earnings. Governments may also support struggling companies during crises, discouraging tax evasion and promoting high-quality financial reporting, to attract investors (Mamatzakis et al., 2023). Based on the above, the first hypothesis of the research is as follows:

H1: There is a significant relationship between financial crises and profit management.

A variety of factors can influence managers' actions in managing profits. One key factor related to earnings management is a company's debt, which can reduce the value of shareholders' shares as debt increases and the company's cash flow decreases (Mamatzakis et al., 2023). Debt serves as an alternative mechanism for shareholders and debt holders to influence the financial value of the company. Companies with higher debt ratios and overall leverage face a greater risk of bankruptcy, potentially leading to increased debt costs (Costa et al., 2016). In highly leveraged companies, managers often engage in profit management to attract stakeholders and investors and meet the expectations of creditors (Kim et al., 2012; Zang 2012). Furthermore, managers in high-leverage risk companies tend to employ more earnings management practices to avoid debt (Al-Zoubi, 2018). Studies have shown that high-leverage companies prefer real profit management methods over accruals, as they are less scrutinized by auditors, analysts, and stakeholders (Kou et al., 2014). Companies with high levels of debt may use earnings management practices to avoid scrutiny from shareholders and creditors. However, some research suggests that increasing corporate debt can lead to a reduction in earnings management practices as managers become more disciplined and less opportunistic (Mamatzakis et al., 2023). Based on the aforementioned points, the second hypothesis of the research can be stated as follows:

H2: There is a significant relationship between the company's debt ratio and earnings management.

Taxation may create incentives for managers to manipulate profits to maximize financial profit and minimize taxable profits. Some literature suggests that taxation increases the likelihood of corporate earnings management practices, particularly for companies with positive net profits, as they aim to maximize financial profit while reducing taxable profits (Pereira & Alves, 2017). These studies indicate that managers are motivated to engage in earnings management to pay less tax, as reflected in financial statements. Other research shows that companies use taxes to manipulate profits to meet investors' expectations (Gupta et al., 2016). However, some studies have found a negative association between taxation and earnings management or no effect at all (Mamatzakis et al., 2023). Based on the information presented, the third hypothesis of the research can be stated as follows:

H3: There is a significant relationship between the corporate tax rate and earnings management.

3. Research Background

Mamatzakis et al. (2023) conducted a study titled "The Impact of Debt, Taxation, and Financial Crisis on Earnings Management," which found that Greek firms are more likely to manipulate profits in the presence of debt. They also noted that taxes and financial crises have a negative and positive effect on earnings management, respectively. Aqabna et al. (2023), in their study titled "Corporate Performance, Corporate Social Responsibility, and its Impact on Earnings

Management," found that while social responsibility has a limited positive impact on financial performance, it significantly reduces earnings management. The study offers recommendations for policymakers, board directors, and managers to enhance their understanding of how managers respond to disclosure, ultimately minimizing profit manipulation. Almariah et al. (2022) investigated "The Impact of the Audit Committee on Reducing Earnings Management" and concluded that audit committee independence is crucial for improving audit effectiveness by reducing accrual earnings management. Other audit committee characteristics tested, such as committee size and financial expertise, did not show significant statistical relationships. Norfadilla and Muslim (2022) studied "The Relationship between Tax Planning and Deferred Tax Costs in Earnings Management" using a sample of 20 manufacturing companies from 2015 to 2017. Their findings indicated a positive correlation between tax planning, deferred tax expenses, and earnings management. Roni (2022) explored "The Impact of Tax Planning on Earnings Management" and found that tax planning and deferred tax costs positively influence the probability of corporate earnings management. The study focused on firms listed in the Jakarta Islamic Index from 2016 to 2018. Li et al. (2020) investigated "The Relationship between Financial Crisis, Earnings Management, and Internal Controls" and found that companies resort to various methods of earnings management during financial crises. Effective internal controls and oversight can help minimize profit manipulation. Dhole et al. (2016) examined the CEO's impact on the relationship between internal debt and earnings management. Their results suggested that internal debt was negatively associated with earnings management, indicating that CEOs with higher internal assets adopt less risky corporate policies. Xu et al. (2015) studied the impact of relationship-based transactions and internal control on earnings management and found that high-quality internal control can limit earnings management resulting from supplier relationships. Franz et al. (2014) analyzed the impact of debt covenant violations on earnings management and found that companies with loans close to breaching their covenants were more likely to engage in profit manipulation. Companies with strong incentives to avoid covenant breaches shifted from accounting to real-profit management. Fan et al. (2013) discovered that high-quality internal controls did not effectively limit earnings management in Chinese listed companies, noting a shift from accrual to real profit management. Gunny (2010) found that companies in financial crises tend to manipulate profits through accruals and various accounting methods. Cohen et al. (2008) observed a shift from accrual to real earnings management following the implementation of the Sarbanes-Oxley Laws.

4. Research Methodology

The present study is applied and methodologically based on causal correlation. The statistical population studied in this research includes all firms listed on the Tehran Stock Exchange during the period from 2015 to 2022. Companies listed on the Tehran Stock Exchange that meet specific criteria have been selected as a sample. These criteria include having financial year-ends that are comparable to each other. The financial period has remained consistent over the 8-year review period. The selected companies are not banks, insurance companies, or investment firms. Ultimately, 138 companies were chosen as the final sample for the research. Data analysis was conducted using a mixed-data method and panel data approach, utilizing Eviews 12 software and standard robust tools to test hypotheses.

Table 1. The screening of the statistical population

The statistical population in 2022		577
Deductible: inactive companies	-193	
Deductible: Companies that have stock trading suspension	-37	
Deductible: Companies that have changed the financial period	-61	
Deductible: Companies that entered the stock market during the research period	-99	
Deductible: investment companies, banks, and holdings	-49	
The final sample of the research		138

4.1. Research model

Following the research of Mamatzakis et al. (2023), a comprehensive model consisting of introduced variables has been designed and introduced to test the research hypotheses as follows:

$$AM_{it} = \beta_0 + \beta_1 Distress_{it} + \beta_2 Debt_{it} + \beta_3 TAX + \beta_4 Qtobin_{it} + \beta_5 SIZE_{it} + \beta_6 ROA_{it} + \beta_7 IND_{it} + \beta_8 growth_{it} + \beta_9 Cash_{it} + \varepsilon_{it}$$

4.2. Operational Definitions of Research Variables

Following Mamatzakis et al.'s (2023) research, three variables—tax, debt, and financial crisis—are used as independent variables in the research as follows.

First Independent Variable of Research: Financial Crisis (Distress)

In this study, to adapt financial crisis models to the native environment of Iran, the modified model of Kordestani et al. (2014) and the research of Aflatooni et al. (2022) and Memarian and Mostafa Alavi (2020) have been used. The final model is as follows:

$$T - score_{it} = 0.291(X1) + 2.458(X2) - 0.301(X3) - 0.079(X4) - 0.05(X5)$$

In this model, the T-Score represents the financial ability score as follows:

x_1: Ratio of working capital to total assets

x_2: Ratio of accumulated profit and loss to total assets

x_3: Ratio of operating profit (loss) to total assets

x_4: Ratio of book value to total value of liabilities

x_5: Ratio of income to total assets.

About the above indicators, the same relationship indices are high، and the lower the obtained index for a company, the more unfavorable the financial situation is, so companies with T<-0.14 are very likely to have a financial crisis.

The second independent variable of the research is the structure of debt(Debt):

Following Mamatzakis et al. (2023) research, the long-term debt-to-total-debt ratio is used to calculate the maturity of the company's debts.

The third independent variable of research is tax (TAX)

To measure the corporate tax rate in compliance with the research of Mamatzakis et al. (2023), the effective tax rate is used as follows:

The effective rate of cash tax is calculated by dividing the cash tax paid on earnings before tax deduction by (minus one) (Arab Salehi and Hashemi, 2015).

The dependent variable of research: Managing accrual profit (AM)

In this study, the Kothari model (2005) is used to measure accrual earnings management in compliance with the research of Mamatzakis et al. (2023). Kothari et al. developed a model that resembled Jones's adjusted model but also used the rate of return on assets. In their studies, they found that the model had

stronger results than Jones's model and that the remainder of the model was used for accrual earnings management (Kothari et al., 2005).

$$\frac{TA_{it}}{A_{it-1}} = \alpha_1\left(\frac{1}{A_{it-1}}\right) + \alpha_2\left(\frac{\Delta REV_{it}}{A_{it-1}}\right) + \alpha_3\left(\frac{PPE_{it}}{A_{it-1}}\right) + \alpha_4 ROA_{it-1} + \varepsilon_{it}$$

In this model:

TA_{it}: The total accruals of Company I in year t are derived from net profit minus operating cash.

A_{it-1}: Total Assets of Company I in Year T-1

ΔREV_{it}: Corporate income change I between years T-1 and T

PPE_{it}: The amount of property, machinery, and equipment of the company in the year t

ROA_{it-1}: The Return Rate of Assets in the Year T-1

ε_{it}: The remainder of the error in the model.

Control variables

Following the study of Mamatzakis et al. (2023), the following variables have been used as control variables:

(QTobin): The ratio of stock market value plus book value of debt divided by total expenditure of assets.

(SIZE): Natural logarithm of total assets.

(ROA): The ratio of net profit to total assets.

(IND): The ratio of non-executive directors of the board of directors to the total members.

(Sales growth): Sales revenue minus previous sales divided by previous period sales.

(Cash): The ratio of operating cash to total assets.

5. Research Findings

5.1. Descriptive findings

The main central indicator is the average, which represents the equilibrium point and center of gravity of the distribution and is a good indicator of the centrality of the data. For example, the average value for the return on assets variable is 0.151 hundredths, indicating that most data is centered around this point. In general, the dispersion parameters are a measure for determining the amount of dispersion from each other or their dispersion relative to the average. One of the most important parameters of dispersion is the standard deviation. The value of this parameter is equal to 2.742 for the value of the company and for the liquidity of the company (0.12), which indicates that these two variables have the highest and lowest standard deviations, respectively. The lowest and highest values are in each variable.

As can be seen in Table 3, the total number of the firm-years surveyed is equal to 1104, of which 175 firm-years, or 15.85% of the firm-years, have been in financial crisis, and 929 firm-years, equal to 84.15% of the firm-years, have not been in financial crisis.

Table 2, Descriptive statistics

Variable	Mean	Max.	Min.	Stde. V
A.M	0.017	0.604	-0.366	0.18
Debt	0.113	0.587	0.002	0.111
TAX	-0.103	0.0000	-0.263	0.0811
Q-Tobin	3.059	15.30	1.034	2.742
SIZE	15.20	19.77	11.65	1.643
ROA	0.151	0.520	-0.125	0.150
IND	0.645	1.00	0.20	0203
Growth	0.390	1.342	-0.254	0.422
CASH	0.110	0.479	-0.135	0.127

Table 3: Frequency Distribution Distress

code	Frequency	percentage
1	175	15.85
0	929	84.15
Total	1104	100

Table4, Results of variance heterogeneity

Test model	Test statistics	Sig
Research model	224.46	0.0000

The results in Table 4 show that the significance level of the test in the research model is less than 5% and indicates the existence of variance variability in disruptive sentences, which in the final estimation of the models has been solved by the implementation of the GLS command and also using the facilities of powerful standard tools in Eviews 10 software.

According to the results of Table 5, it is observed that the significance level of the serial autocorrelation test in the research model, with a significance level of more than 5% indicates the absence of serial autocorrelation in the model (Platonic, 2018).

According to the results obtained in Table 6, it is observed that the significant level of variables in the stability test is less than 5%, which indicates the stability of the variables.

According to the results obtained in Table 7, it is observed that the significance level of the Chow test for the hypothesis test model is less than 5%, which indicates the acceptance of the panel data pattern that is required to provide the Hausman test, which is presented in the following. According to the results obtained in Table 7, it is observed that the significance level of the Housman test in the hypothesis test model is less than 5%, which indicates the acceptance of constant effects.

Table 5, Results of the serial autocorrelation test

Test model	Test statistics	Sig
Research model	4.229	0.12

Table 6, The results of the Stationarytest

Variable	Test statistics	Sig	Result
A.M	-16.3759	0.0000	Stationary
Debt	-30.3395	0.0000	Stationary
TAX	-9.93863	0.0000	Stationary
Q-Tobin	-13.0919	0.0000	Stationary
SIZE	-7.50637	0.0000	Stationary
ROA	-13.7720	0.0000	Stationary
IND	-4.12287	0.0000	Stationary
Growth	-8.26191	0.0000	Stationary
CASH	-13.9838	0.0000	Stationary

Table 7, The results of the F-Limer and Hausman tests

Model	Test statistics	Sig
F-Limer	1.417	0.002
Hausman	42.001	0.0000

Table 8, The results of the research hypotheses test

Variables	Coefficients	Std	t statistic	Sig	VIF
Distress	0.0153	0.007	2.040	0.041	1.57
Debt	-0.011	0.019	-0.59	0.55	1.04
TAX	0.150	0.023	6.357	0.0000	1.17
Q-Tobin	0.0003	0.0007	0.475	0.634	1.29
SIZE	-0.015	0.002	-6.474	0.0000	1.19
ROA	1.182	0.023	50.971	0.0000	2.29
IND	-0.0131	0.0102	-1.282	0.20	1.05
Growth	-0.0421	0.004	-8.611	0.0000	1.29
CASH	-1.458	0.0204	-71.45	0.0000	1.41
C	0.276	0.038	7.126	0.0000	-
coefficient determination	0.83				
Watson Durbin	2.43				
F statistic	64.710				
Sig	0.0000				

The results of Table 8 show that the financial crisis variable, with a positive coefficient of 0.0153 and a significance level below 5% (0.041), has a direct relationship with the company's earnings management. Therefore, the first hypothesis of the research is accepted at the 5% error level. The debt ratio variable, with a significance level of 5% (0.55), shows no relationship with the company's earnings management. As a result, the second hypothesis of the research is not accepted at the 5% error level. The tax rate variable, with a positive coefficient of 0.15 and a significance level below 5% (0.0000), has a direct relationship with the company's earnings management. Thus, the third hypothesis of the research is accepted at the 5% error level. Since the fourth hypothesis of the research evaluated the impact of all independent variables (financial crisis, debt ratio, and tax rate) on earnings management and only the financial crisis and tax rate were confirmed, the fourth hypothesis of the research is not supported. By comparing the regression coefficients of the two confirmed factors, the financial crisis and the tax rate, it is evident that the tax rate, with a coefficient of 0.15, has a much greater impact on earnings management than the financial crisis, with a coefficient of 0.015. This suggests a tendency of managers to avoid paying taxes and evade this important issue, which is not discussed in this article. Control variables, such as company size, return on assets, sales growth, and company liquidity, with a significance level below 5%, show a significant relationship with the dependent variable of the research. The coefficient of determination is 83%, indicating that the independent and control variables in the model explain 83% of the dependent variables. Watson's camera value is 2.43, falling between 1.50 and 2.50, indicating no strong correlation between the error terms. Collinearity statistics below 5 show no strong correlation between the variables in the research. Test statistics (F) with a significance level below 5% suggest that the research model is a good fit.

6. Discussion and Conclusion

This study aimed to investigate the impact of debt, taxation, and the financial crisis on earnings management. Earnings management occurs when managers use their judgment in financial reporting and manipulate the structure of transactions to alter financial reporting, intending to mislead some shareholders about the company's economic performance. Various factors can influence managers' actions in managing profits. The financial crisis is one of the most challenging periods for companies globally, casting doubt on the accuracy of their financial reports. Profit management, particularly

during times of crisis, may decrease as companies might minimize this aspect to show higher losses and avoid paying taxes. The financial crisis influences managers' decisions regarding earnings management. Some research suggests that during times of crisis and financial distress, companies tend to engage in earnings management to better reflect the company's value. According to the statistical results in the previous chapter, it was observed that the financial crisis directly impacts a company's earnings management. When a company faces a financial crisis and struggles to meet its obligations, managers may attempt to conceal this information from shareholders and investors to manipulate the company's profits, hoping that future periods will compensate for the deficit and crisis. These findings are consistent with the research of Mamatzakis et al. (2023), Macelli and Simini (2017), and Durdan and Scandi (2021). One of the key factors associated with earnings management is corporate debt, which can diminish the value of shareholders' shares by increasing debt and reducing the company's cash flow. Hence, debt serves as an alternative mechanism for shareholders and debt holders to influence the financial value of the company. Companies with higher debt ratios and overall leverage face a greater risk of bankruptcy, leading to increased debt costs. When companies carry high levels of debt, managers may engage in profit management to attract stakeholders, and investors, and meet expectations. Contrary to the hypothesis, the results obtained in the previous chapter indicate that in the statistical sample of the current study, the debt ratio does not impact the level of earnings management by managers. Taxes can incentivize managers to manipulate profits to maximize financial gain and minimize taxable profits. Some literature supports the notion that taxation raises the likelihood of corporate earnings management practices, particularly for companies with positive net profits, as they strive to maximize financial gain and minimize taxable profits. These studies suggest that managers resort to earnings management to reduce tax payments associated with financial statements. The statistical tests conducted in the previous chapter reveal that the tax rate directly affects a company's earnings management. Managers facing higher tax rates are more inclined to manipulate the company's profits to lower or evade taxes, indicating that corporate tax hikes can result in increased profit management. These results align with Mamatzakis et al. (2023), Pourheydari and Shafiei Hemmatabad (2013), and Ebrahimi and Ahmadi Moghaddam (2016). Based on the findings, it is recommended that companies proactively plan to avoid engaging in the financial crisis to prevent the need to manipulate profits to address it formally and deceive investors. Investors, institutions, and auditors should take into account the company's tax obligations and the financial crisis to detect earnings management and utilize these factors in making investment decisions and enhancing the efficiency of financial statement audits. Future researchers are encouraged to explore the impact of sustainable performance on corporate earnings management.

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