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SURVEYING THE EFFECTS OF FRAUD, CASH POLICY AND FINANCIAL LIABILITIES ON THE PROCESS OF STOCK'S PURCHASE AND SALE IN THE COMPANIES LISTED IN TEHRAN STOCK EXCHANGE

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ABSTRACT

In recent years, various types of financial fraud have caused great concern and has attracted the attentions.Falsification of financial statements, including the manipulation of their constituent elements through overstating assets, sales and profits or understating the liabilities, expenses and loss. Existing studies suggest a direct link between fraud in corporates and the corporates financing options. The aim of this study is to examine the relationship between fraud and financial liability and cash policies. For this purpose, a sample of 120 companies listed in Tehran Stock Exchange has been reviewed for the 5-year period 2009 to 2013. To verify the hypotheses, logistic regression analysis is used. Hypotheses testing results show that there is a significant relationship between the fraud (tax distortions) in financial reporting and financial liability in the corporates. There is also a significant relationship between the fraud (financial and tax distortions) in financial reporting and cash holdings in corporates. However, there is no significant relationship between fraud (financial, legal and tax distortions) in financial reporting and changes in corporate cash flow and cash flow volatility. There is also no significant relationship between fraud (financial, legal and tax distortions) in financial reporting and

financial liabilities of the corporates and no significant relationship between the fraud (legal distortions) in financial reporting and corporate cash holdings.

Keywords: Fraud in Financial Reporting, Financial Liability, Cash Policies, Theme category: JEL

INTRODUCTION

Fraud and corruption in companies has increasingly turned into one of the important concerns to countries around the world. Audit's role in addressing these concerns has been critically examined. There is a growing expectation that audit institutions,through coordinate action, must play an influential role in the promotion of value-oriented culture, verity, responsibility and accountability in the implementation of the authorities and national resources usage. It is important to inquire about the fraud background and detect it, because it leads to a better understanding of the concealed frauds and raises the ability of legislature and auditors to detect fraud. It can also be used as a foundation for future research. Fraud detection can widely prevent fraud in organizations, employees, shareholders and creditors. The cost of fraud can be used for market efficiency. This is also useful to auditors, and they can ensure that the firms with open financial statements, customer selection, and subsequent judgments may not be cheating.

Fraud is referred to intentional acts of one or more directors, employees or third parties that lead to false financial statements presentation. Fraud may include the following cases:

1. Manipulation, falsification or alteration of accounting records and documents or other documents in order to obtain unlawful and illegal financial benefits rights, misuse of assets, or stealing them.
2. Misrepresentation of the financial effects of transactions or removal of them from the documents.
3. Transactions recorded without supporting documentation (external transactions).
4. Misuse of accounting practices

There is no universally accepted definition of financial fraud. Wang and colleagues have defined fraud: Targeted efforts for obtaining illicit financial profits, contrary to the laws, rules, or politics. In recent years, various types of financial fraud, such as credit card fraud, corporate fraud, and money laundering, has caused great concern and has attracted the attentions. Negated align an overall classification have divided the types of

financial fraud into four categories; bank fraud, insurance fraud, securities and commodities fraud, and other financial fraud. In practice, two types of fraud can be distinguished in companies. The first is the misuse of assets, for example in the form of theft, embezzlement, falsifying expense accounts, personal use of corporate assets, etc., and the second is fraudulent financial reporting. Fraudulent financial reporting involves intentional distortion of financial statements.

The loss of credibility and the uncertainty increase can make external financing more difficult and costly, so that creditors are likely to charge higher interest rates, and impose additional restrictions to the company. Overall, the costly and limited external financing resulted from fraud may force companies to withdraw from the projects withpresentpositive net value. This in turn leads to a gap between the company and the perspective of future prospects. To maintain liquidity and avoid the problems of insufficient investment, companies with fraudulent practices may decide for cash holdings to reduce the costs of financial crises and emphasize on internal resources of precautionary cash, such as held cash that is worthy for financing the investment. This case has been observed as a precautionary motive for holding cash (Harford et al, 2008). Therefore, it is predicted that firms with accounting fraud hold more cash andraise cash final value after fraud disclosure, because fraud results in extremely difficult and costly access to external financing. In addition, if external financing becomes more expensive after the frauds of the companies, it is expected that companies with fraudulent practices that are financially more constrained, have saved more of their own cash flow (Almedia et al, 2004).

Accordingly, it is expected that the cash flow sensitivity of cash in fraudulent companies be higher. Therefore, the purpose of this study is to investigate the interactions between financial liabilities and cash policies of companies with accounting fraud of the companies.

LITERATURE

Panjabi (2005) has identified the factors affecting the possibility of fraud occurrence in financial statement reporting in Iran. He categorized risk factors in four groups, and in four hypotheses, approved the inclusion of different factors in each of the four groups. In this study, questionnaires were given to the auditors and they have been asked about these factors. The results of the questionnaires were

analyzed using appropriate statistical methods and consensus factors of the auditors 'community has been recognized.

Again et al (2009) examined the factors affecting the cash holdings in listed companies on Tehran Stock Exchange. Their research results demonstrated that the receivable, net working capital, inventory of goods and short-term liabilities, respectively, are the most important factors that have negative impact on cash holdings. On the other hand, opportunities for firm growth, dividends, cash flow volatility and net income, respectively, are the most important factors affecting the cash holdings. However, there is no evidence about the negative impact of long-term liabilities and firm size on cash.

HasasYeganeh and Maddahi (2009) on a study examined the effectiveness of the audit process on detecting the important distortions in the financial statements. The research findings suggest that audit processes effective on the discovery of significant mistakes and distortions in accounting estimates and the discovery of significant mistakes and distortions resulted from non-observance of laws and regulations by the audited entity. There is also a significant difference between the sums of mistakes and distortions in the financial statements and the sums detected by the auditor. The sum of amounts reported by the auditor is primarily less than the distortions amounts.

Kotsyantys *et al* (2006) on a research entitledfraudulentfinancial statements prediction using data mining, found that financial ratios of firms using methods based on machine learning have potential for the detection of fraud in financial reporting.

Corks *et al* (2007) have reviewed data mining techniques to detect fraudulent financial statements, and Expert Systems Applications. In this research, decision trees, neural networks and networks based on Bayesian rules used to detect fraud. The research results show that in comparison with other models, networks based on Bayesian rules have better performance for detecting fraud in financial reporting.

Gain *et al* (2007) explored the cash holding behavior in French, German, Japanese, British and American companies during the years 1996 to 2000 using data from 4069 companies. This study focused on the relationship between leverage and cash holding. The evidence of the study showed that a significant nonlinear relationship between cash holding and leverage. The results also indicate that the effect of leverage

on cash holding to some extent depends on the characteristics of the countries, such as ownership concentration.

Chen *et al* (2013) in an article entitled corporate fraud, external liability and cash policies, found that the cost of corporate liability is significantly associated with corporate fraud. Due to the expensive external finance in companies with fraudulent reporting, more cash is kept to deal with negative shocks. Also, due to the precautionary motive, an increase in cash will be observed after the companies' fraud. In addition, fraud in corporates will lead to financial constraints. After the fraud in corporates, positive cash flow sensitivity to cash flow increases.

Fazli *et al* (2014) in their study entitled fraud risk factors, fraud triangle, and the likelihood of fraud found that there is a significant positive relationship between financial leverage and the ratio of sales to accounts receivable, and the possibility of fraud. The audit committee size and the ratio of non-responsible board are the factors that lead to decrease in fraud leveling financial statements.

RESEARCH HYPOTHESES

This study seeks to examine the relationship between fraud and financial liability and cash policies of listed companies in Tehran Stock Exchange. To achieve this purpose with regard to theoretical principles, the research hypotheses have been formulated as following:

The first main hypothesis: there is a significant relationship between the fraud in financial reporting and financial liability in the corporates.

The second main hypotheses: there is a significant relationship between the fraud in financial reporting and cash policies in the corporates.

The first sub-hypothesis: there is a significant relationship between the fraud in financial reporting and cash holdings in the corporates.

The second sub-hypothesis: there is a significant relationship between the fraud in financial reporting and changes cash flow in the corporates.

The third sub-hypothesis: there is a significant relationship between the fraud in financial reporting and cash flow volatility in the corporates.

METHODOLOGY

The method used in this study is a correlation one. This method is useful in research that aims to explore the relationship between different variables.

The present study is quasi-experimental or post-event (using past information)research that is based on the actual data of the stock market and the financial statements of companies listed in Tehran Stock Exchange. The research is in the form of cross-sectional and time-series studies since it reviews the data associated with five consecutive years and specific time periods. As the results obtained can be used in the decision-making process, this research is an applied research.

Research variables include the dependent variable, the independent variable and the control variable that are explained in the following:

Dependent variable:

Fraud in Financial Reporting:

Spatis (2002) states that when the financial statements contain a significant distortion so that the components of the financial statement do not indicate the reality, it is said that fraud has taken place.

So in this study to measure fraud in financial reporting, financial distortions, legal distortions, and tax distortions are used. These variables information can be seen in audit reports and legal auditors' reports of the corporates. The definition and measurement of each variable is as follows:

Financial distortions:

In this study, the purpose of financial distortions is the deviations of the companies from accounting and financial standards. To measure the company's conducted financial distortions, the independent auditors' report is used. If the auditor's report refers to the deviation from the accounting standards and regard to the importance of it, issues reject a conditional statement, the value one is given to the variable, and otherwise the value zero is given.

Legal distortions:

One of the responsibilities of the independent auditor and especially statutory examiner of the company is to check the status of laws and regulations (including business law, Czechlaw, etc.)Compliance in the country. In case of deviation from them, auditor or statutory examiner is required to submit the report of laws and regulations on-observance to the board of Directors and the General Assembly. To present an operational definition of this variable, a dummy variable is used. So that if there is laws and regulations on-observance (laws distortion)in the report of statutory examiner or auditor, the value one is given to the variable, and otherwise the value zero is given.

Tax distortions:

In this study, the purpose of tax distortions is tax laws and regulations non-observance that are primarily related to tax evasion, concealment of income, etc.. Audit reports of companies are the main source of data collection related to tax distortions.So if the audit reports contain provisions regarding the corporates' tax distortions, the value one is given to the variable, and otherwise the value zero is given.

Independent variables:

Financial liabilities:

In this study, the financial liability is liability cost. Interest rate of financial liabilities is used to measure it. It is calculated as follows:

$$\textbf{Interest rate of financial liabilities (Liability cost)} = \frac{\textit{The total incurred interest cost of the period}}{\textit{The average sum of financial facilitie reievable during the period}}$$

Cash policies include:

- ✓ **Cash Holdings**
- ✓ **Changes in Cash Flow**
- ✓ **Cash Flows Volatility**

Cash Holdings:

$$\textit{Cash Holdings} = \frac{\textit{Cash} + \textit{Marketable Securities}}{\textit{Total Assets}}$$

Changes in Cash Flow:

$$\textit{Changes in Cash Flow} = \frac{\textit{Cash Variations}}{\textit{Total Assets}}$$

Cash Flows Volatility: Cash Flow standard deviation

Control variables:

Financial leverage: It is the ratio of book value of total liabilities to book value of total assets, which reflects the company's financial leverage (Noravesh and Yazdani, 2010).

Firm size: It is equal to the natural logarithm of total assets (Asadi and Jalalian, 2012).

Return on assets: It is equal to the ratio of net income to total assets (Bani Mahd *et al*, 2014).

The population, sample and period of the study

The research population is companies listed on Tehran Stock Exchange for the fiscal years 2009 to 2013. In order to estimate the sample size and sampling,purposeful elimination method is used. In other words, those companies of the population that have the following conditions are selected as the sample and the others have been removed:

1. Companies must have activity continuity during the financial year.
2. The end of their fiscal year is March
3. Companies are not among investment companies and financial intermediaries.
4. Research required information of the companies must be available.

Due to imposing these conditions, among 510 accepted companies in the Tehran Stock Exchange (their date of acceptance in Stock is before 2008), according to Cochran formula, 120 companies have been selected as the sample. The information of these companies is collected from the Tehran Stock Exchange Organization, Tehran Stock Exchange site, Egghead newspaper, and Rah AvardNovin and TadbirPardaz software.

RESULTS

When a mass of quantitative data is collected for the study, first of all organizing and summarizing it in a way that can be understood and communicated significantly is essential. Descriptive statistics methods are used to achieve this purpose.To sum up, appropriate use of descriptive statistics methods may exactly state the features of a bunch of information. Descriptive statistics are always used to determine and express the characteristics of surveys information.

The study on descriptive results of research variables shows that the mean of the dependent variables of firms' tax, legal and financial distortions are respectively 0.29, 0.63 and 0.85. These results indicate that the majority of surveyed companies in terms of tax distortions, have less distortions, but in terms of legal and financial distortions most companies have distortions (with respect to the variables being 0 and 1). The mean of the variables of financial liabilities, cash holdings, cash flows volatility and changes in cash flows are respectively 0.36, 0.06, 10.79 and 0.03.These results suggest that most companies enjoy stable cash flow and lack of changes or very little changes in cash flow.

The analytical statistics of research variables

Study of models with control variables (tax distortions)

- There is a significant relationship between the fraud in financial reporting (tax distortions) and financial liability in the corporates.
- : There is a significant relationship between the fraud in financial reporting (tax distortions) and cash holdings in the corporates.
- There is a significant relationship between the fraud in financial reporting (tax distortions) and changes in cash flow in the corporates.
- There is a significant relationship between the fraud in financial reporting (tax distortions) and cash flow volatility in the corporates.

As can be seen in **Table 3** the significance level of Omnibus test for fitted regression models has been obtained as financial liability equal to 0.007 (less than 5%), cash holdings equal to0.001 (less than 5%), changes in cash flow equal to 0.555 and cash flow volatility equal to0.412 (greater than 5%). According to the achieved results it can be expressed that the independent variables of financial liability and cash holdings associated with control variables of firm size, financial leverage, and return on assets have an impact on the dependent variable of the fraud in financial reporting (tax distortions). These variables can have a proper fit of the model. Therefore, at the confidence level of higher than 95% the null hypothesis regard to the first and second hypotheses is rejected and H_1hypothesisbased upon the adoption of the first and second hypotheses associated with control variables is confirmed. However, for the third and fourth hypotheses, as their test significance level is greater than 5 percent, at the confidence level of higher than 95% the null hypothesis is accepted and the H_1hypothesisis rejected.

The review on the regression coefficients of the variables entered into the first model (the financial liability) shows that at 5% error level, the regression coefficient of financial liability variable (1.77) has positive and significant impact on the fraud in financial reporting (tax distortions). However, control variables of firm size, financial leverage, and return on assets have no significant impact on the fraud in financial reporting (tax distortions) of the companies at 5% significance level (**Table 2**).

The review on the regression coefficients of the variables entered into the second model (the financial liability) shows that at 5% error level, the regression coefficient of the variables of firm size (0.56), financial leverage (2.99) have a positive and significant impact on the fraud in financial reporting (tax

distortions). However, the variables of cash holdings, and return on assets have no significant impact on the fraud in financial reporting (tax distortions) of the companies at 5% significance level (**Table 2**).

The review on the regression coefficients of the variables entered into the third model (changes in cash flow) and fourth model (cash flow volatility) shows that at 5% error level, the regression coefficient of none of the variables has significant impact on the fraud in financial reporting (tax distortions) of the companies (**Table 2**).

On the other hand, the values of the determination coefficients of Cox-Snell and Nigel Kickoff fitted models show that in the first model (the financial liability), respectively, 11.1 and 15.8 percent are obtained, in the second model (cash holdings), respectively, 6.15 and 24.3percent are obtained, in the third model (changes in the cash flow) 2.5, and 3.5percent are obtained and in the cash flow volatility model 3.2 and 4.6 percent are obtained. These results suggest that in the first and second models respectively, at least 11.1 and 15.6 percent and at most 15.8 and 24.3 percent of total changes in the fraud in financial reporting (tax distortions) of companies are explained by the variables entered to the logistic regression model.

The survey of classification results suggest that models sensitivity in determining the companies that have no tax distortions are, respectively, 95.5 percent (model I), 94.1 percent (Model II), 100 percent (Model III) and 98.8 percent (model IV), and regard to the companies with tax distortions the models sensitivity are respectively, 20 percent (model I), 22.2 percent (Model II), 5.7 percent (Models III and IV).

Comparing the main model results with when the control variables of firm size, financial leverage and return on assets are included in the model shows that determination coefficient of the first model has been increased by 4percent, the second model by 20.9percent, the third model by 3.4 percent and the fourth model by 6.4 percent. The comparison of classification results shows that with the control variables entrance into the model, the overall correct predictions percentage of the first model has not changed, but the second model has been increased by 5percent, the third model by 1.8percent, the fourth model by0.9 percent.

Study of models with control variables (legal distortions)

- There is a significant relationship between the fraud in financial reporting (legal distortions) and financial liability in the corporates.
- : There is a significant relationship between the fraud in financial reporting (legal distortions) and cash holdings in the corporates.
- There is a significant relationship between the fraud in financial reporting (legal distortions) and changes in cash flow in the corporates.
- There is a significant relationship between the fraud in financial reporting (legal distortions) and cash flow volatility in the corporates.

As can be seen in **Table (5)** the significance level of Omnibus test has been obtained for all fitted regression models (higher than 5percent). According to the achieved results it can be expressed that none of the independent variables associated with control variables of firm size, financial leverage, and return on assets have an impact on the dependent variable of the fraud in financial reporting (legal distortions). Therefore, at the confidence level of higher than 95% the H_0in all hypotheses is accepted and the H_1 is rejected.

The review on the regression coefficients of the variables entered into the regression models shows that in all models, none of the variables has significant impact on the fraud in financial reporting (legal distortions) at 5% significance level (Table 4). In addition, the survey of classification results suggest that models sensitivity in determining the companies that have no legal distortions is zero percent, and regard to the companies with legal distortions the models sensitivity is 100percent.On the other hand, the values of the determination coefficients of Cox-Snell and Nigel Kirk of fitted models show that in the first model (the financial liability), respectively, 2.5 and 4.5 percent are obtained, in the second model (cash holdings), respectively, 1.3 and 2.2 percent are obtained, in the third model (changes in the cash flow) 1.2 and 2.1 percent are obtained and in the cash flow volatility model 1 and 1.8 percent are obtained.

Comparing the main model results with when the control variables of firm size, financial leverage and return on assets are included in the model shows that determination coefficient has had an insignificant increase. The comparison of classification results fitted models shows that with the control variables

entrance into the model, the overall correct predictions percentage has not changed.

Study of models with control variables (financial distortions)

- There is a significant relationship between the fraud in financial reporting (financial distortions) and financial liability in the corporates.
- There is a significant relationship between the fraud in financial reporting (financial distortions) and cash holdings in the corporates.
- There is a significant relationship between the fraud in financial reporting (financial distortions) and changes in cash flow in the corporates.
- There is a significant relationship between the fraud in financial reporting (financial distortions) and cash flow volatility in the corporates.

As can be seen in **Table (7)** the significance level of Omnibus test has been obtained for all fitted regression models (greater than 5 percent). According to the achieved results it can be expressed that none of the independent variables associated with control variables of firm size, financial leverage, and return on assets have an impact on the dependent variable of the fraud in financial reporting (financial distortions). Therefore, at the confidence level of higher than 95% the H_0 in all hypotheses is accepted and the H_1 is rejected.

The review on the regression coefficients of the variables entered into the regression models shows that only the variable of return on assets has a significant effecton the dependent variable in the first hypothesis (-5.07) and the fourth hypothesis (5.55) (It should be noted that as the main model does not have a significant effect, therefore the significance of return on assets variable is not important enough). However, regard to the other variables, in all models, none of the variables has significant impact on the fraud in financial reporting (financial distortions) at 5% significance level **(Table 6)**.

In addition, the survey of classification results suggest that models sensitivity in determining the companies that have no legal distortions is zero percent, and regard to the companies with legal distortions the models sensitivity is 100 percent. On the other hand, the values of the determination coefficients of Cox-Snell and Negel Kirk of fitted models show that in the first model (the financial liability), respectively, 5.7 and 7.7 percent are obtained, in the second model (cash holdings), respectively, 6.9 and 9.4 percent are obtained, in the third model (changes in the cash flow)

6.1 and 8.3 percent are obtained and in the cash flow volatility model 6.2 and 8.4 percent are obtained.

The survey of classification results suggest that models sensitivity in determining the companies that have no financial distortions are, respectively, 20 percent (model I), 26.7 percent (Model II), 17.8 percent (Model III) and 22.2 percent (model IV), and regard to the companies with financial distortions the models sensitivity are respectively, 86.7 percent (model I), 86.5 percent (Model II), 88 percent (Models III and IV).

Comparing the main model results with when the control variables of firm size, financial leverage and return on assets are included in the model shows that determination coefficient of the first model has been increased by 5.6 percent, the second model by 4.8 percent, the third model by 6 percent and the fourth model by 8.2 percent. However, this increase amount is not significant at 5% error level. In addition, the comparison of classification results shows that with the control variables entrance into the model, the overall correct predictions percentage of the first model has been increased by 9.8 percent and the fourth model by 0.8 percent, while the second model has been decreased by 7.8 percent and the third model by 1.6 percent.

Table 1: Descriptive statistics for variables

	Tax distortions	Financial distortions	Legal distortions	Financial liabilities	Cash Holdings	Cash FlowsVolatility	Changes in Cash Flow
Mean	**0.29**	**0.63**	**0.85**	**0.36**	**0.06**	**10.79**	**0.03**
S.D	**0.46**	**0.49**	**0.36**	**0.76**	**0.10**	**1.65**	**0.30**
Variance	**0.21**	**0.24**	**0.13**	**0.58**	**0.01**	**2.72**	**0.09**
Min.	**0**	**0**	**0**	**0.01**	**0**	**5.27**	**0.02-**
Max.	**1**	**1**	**1**	**5.93**	**1.08**	**15.28**	**3.33**

Table 2: The results of the logistic regression model fitting of the first sub-hypothesis associated with control variables (tax distortions)

Variables	Regression coefficient	Standard Error	Wald statistics	Significance level
Fix No.	-1.09	1.96	0.31	0.58
Financial liability	1.77	0.73	5.82	0.02
Firm size	-0.09	0.14	0.40	0.53
Financial leverage	1.32	1.24	1.13	0.29
Return on assets	-0.79	1.32	0.36	0.55
Fix No.	-11.09	3.12	12.65	0.00
Cash holdings	10.09	6.54	2.38	0.12
Firm size	0.56	0.20	7.94	0.00
Financial leverage	2.99	1.47	4.16	0.04
Return on assets	-2.60	1.47	3.12	0.08

Fix No.	-1.45	1.89	0.59	0.44
Changes in cash flow	3.50	4.68	0.56	0.45
Firm size	0.02	0.13	0.02	0.89
Financial leverage	1.10	1.19	0.85	0.36
Return on assets	-1.08	1.33	0.66	0.42
Fix No.	-1.43	1.87	0.59	0.44
Cash flow volatility	0.32	0.26	1.47	0.23
Firm size	-0.27	0.26	1.03	0.31
Financial leverage	1.01	1.18	0.73	0.39
Return on assets	-1.17	1.30	0.82	0.37

Table 3: The test results of fit goodness of the first sub-hypothesis regression model (tax distortions) associated with control variables

Index	**Financial liability**	**Cash holdings**	**Changes in cash flow**	**Cash flow volatility**
Cox-Snell determination coefficient	11/1	15/6	2/5	3/2
Negel Kirk determination coefficient	15/8	23/3	3/5	4/6
Existence correct predictions percentage	20/0	22/2	5/7	5/7
Non-existence correct predictions percentage	95/5	94/1	100	98/8
Overall correct predictions percentage of the model	73/3	76/8	72/5	71/7
Omnibus Test	14/062 (0/007)	18/973 (0/001)	3/015 (0/555)	3/953 (0/412)
Hosmer-Lemeshow Test	7/915 (0/442)	9/7 (0/287)	4/278 (0/831)	8/033 (0/43)
Hypothesis result	**H_0Rejection**	**H_0 Rejection**	**H_0 Acceptance**	**H_0 Acceptance**

Table 4: The results of the logistic regression model fitting of the second sub-hypothesis associated with control variables (legal distortions)

Variables	**Regression coefficient**	**Standard Error**	**Wald statistics**	**Significance level**
Fix No.	2.56	2.50	1.05	0.31
Financial liability	1.27	1.27	1.00	0.32
Firm size	0.01	0.17	0.00	0.96
Financial leverage	-1.41	1.66	0.72	0.40
Return on assets	-2.87	3.32	0.75	0.39
Fix No.	2.52	2.56	0.97	0.33
Cash holdings	0.30	0.76	0.16	0.69
Firm size	0.04	0.17	0.04	0.83
Financial leverage	-1.47	1.68	0.77	0.38
Return on assets	-3.13	3.38	0.86	0.35
Fix No.	2.63	2.54	1.07	0.30
Changes in cash flow	0.24	0.56	0.18	0.67
Firm size	0.03	0.17	0.03	0.86
Financial leverage	-1.48	1.68	0.77	0.38
Return on assets	-3.11	3.39	0.84	0.36
Fix No.	2.21	2.40	0.85	0.36
Cash flow volatility	-0.15	0.32	0.22	0.64

Firm size	0.17	0.31	0.29	0.59
Financial leverage	-1.25	1.62	0.59	0.44
Return on assets	-2.17	3.07	0.50	0.48

Table 5: The test results of fit goodness of the second sub-hypothesis regression model (legal distortions) associated with control variables

Index	**Financial liability**	**Cash holdings**	**Changes in cash flow**	**Cash flow volatility**
Cox-Snell determination coefficient	2/5	1/3	1/2	1/0
Negel Kirk determination coefficient	4/5	2/2	2/1	1/8
Existence correct predictions percentage	100	100	100	100
Non-existence correct predictions percentage	0	0	0	0
Overall correct predictions percentage of the model	85/0	85/0	85/0	85/0
Omnibus Test	3/097 (0/542)	1/524 (0/822)	1/424 (0/840)	1/241 (0/871)
Hosmer-Lemeshow Test	8/324 (0/402)	10/105 (0/258)	6/465 (0/595)	14/375 (0/083)
Hypothesis result	**H_0 Acceptance**	**H_0 Acceptance**	**H_0 Acceptance**	**H_0 Acceptance**

Table 6: The results of the logistic regression model fitting of the third sub-hypothesis associated with control variables (financial distortions)

Variables	**Regression coefficient**	**Standard Error**	**Wald statistics**	**Significance level**
Fix No.	1.12	1.90	0.35	0.56
Financial liability	-0.04	0.25	0.02	0.88
Firm size	0.01	0.13	0.00	0.95
Financial leverage	-0.28	1.33	0.04	0.83
Return on assets	-5.07	2.59	3.83	0.05
Fix No.	1.31	2.10	0.39	0.53
Cash holdings	-7.58	6.06	1.57	0.21
Firm size	0.03	0.14	0.04	0.85
Financial leverage	-0.53	1.35	0.15	0.70
Return on assets	-4.45	2.63	2.87	0.09
Fix No.	0.93	1.92	0.23	0.63
Changes in cash flow	-1.12	2.85	0.15	0.69
Firm size	0.01	0.13	0.01	0.93
Financial leverage	-0.13	1.35	0.01	0.92
Return on assets	-4.52	2.70	2.80	0.09
Fix No.	1.45	2.01	0.52	0.47
Cash flow volatility	0.22	0.28	0.63	0.43
Firm size	-0.19	0.29	0.45	0.50
Financial leverage	-0.37	1.34	0.08	0.78
Return on assets	-5.55	2.65	4.38	0.04

Table 7: The test results of fit goodness of the third sub-hypothesis regression model (financial distortions) associated with control variables

Index	Financial liability	Cash holdings	Changes in cash flow	Cash flow volatility
Cox-Snell determination coefficient	5/7	6/9	6/1	6/2
Negel Kirk determination coefficient	7/7	9/4	8/3	8/4
Existence correct predictions percentage	86/7	86/5	88/0	88/0
Non-existence correct predictions percentage	20/0	26/7	17/8	22/2
Overall correct predictions percentage of the model	73/3	63/9	61/7	63/3
Omnibus Test	6/992 (0/136)	8/470 (0/076)	7/574 (0/108)	7/634 (0/106)
Hosmer-LemeshowTest	3/424 (0/905)	7/032 (0/533)	4/094 (0/849)	10/520 (0/230)
Hypothesis result	**H_0 Acceptance**	**H_0 Acceptance**	**H_0 Acceptance**	**H_0 Acceptance**

CONCLUSION

This study examines the relationship between fraud and financial liability and cash policies of listed companies in Tehran Stock Exchange. Assumptions about the relationship between fraud (tax distortions) in financial reporting and financial liability as well as the relationship between fraud (financial and tax distortions) in financial reporting and cash holdings have been confirmed by logistic regression test. However, the hypotheses of significant relationship between fraud (financial and legal distortions) in financial reporting and financial liability and significant relationship between fraud (legal distortions) in financial reporting and cash holding, as well as the significant relationship between the fraud (financial, legal and tax distortions) in financial reporting and changes in cash flow and cash flow volatility have been rejected. This means that, on the basis of empirical evidence and the findings, in a general conclusion it can be stated that there is no significant difference between the presence and absence of fraud in financial reporting and changes in cash flow and cash flow volatility. Therefore, to evaluate the fraud, criteria and factors other than changes in cash flow and cash flow volatility must be examined.

The test result of the hypothesis concerning the relationship between fraud in financial reporting and financial liability is not consistent with the results of the study by Chen et al (2013) that "the cost of corporate liability is significantly associated with corporate fraud".

The test result of the hypothesis concerning the relationship between fraud in financial reporting and cashholdings is consistent with the results of the study by Chen et al (2013) that "due to the expensive external finance in

companies with fraudulent reporting, more cash is kept to deal with negative shocks".

The test result of the hypothesis concerning the relationship between fraud in financial reporting and changes in cash flow is not consistent with the results of the study by Chen et al (2013) that "due to the precautionary motive, an increase in cash flow changes will be observed after the companies' fraud".

The test result of the hypothesis concerning the relationship between fraud in financial reporting and cash flow volatility is consistent with the results of the study by Chen et al (2013) that "due to the expensive external finance in companies with fraudulent reporting, volatility of cash flows is greater".

RECOMMENDATIONS

Practical recommendations

According to the research hypotheses, the following recommendations can be made in this connection:

• Corporates' financial policy makers should consider the company's financial policy and move their policies towards less changes in cash holdings in order to prevent fraud.Therefore, in the time of unexpected problems, they candemonstrateappropriate reaction.

• It is recommended that investor'sinfluence cash fiscal policy in their decisions in order to have better returns and lower risk.

• Officials and planners of the corporates should consider fraud (financial and tax distortions) as a factor that significantly influences the cash holding by the companies and is able to demonstrate the demand of companies for cash holdings.

Research Proposals

The issues that can be proposed in the area of this study for conducting future research include:

1. A study on the relationship between fraud in financial reporting and the level of cash holding separated for different industries.
2. A study on the relationship between fraud in financial reporting and cash flow sensitivity in firms.
3. A study on the interactions between the cost of external finance and corporates' cash policies and corporates' accounting fraud using financial ratios.

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