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FREE CASH FLOWS, FINANCIAL LEVERAGE AND EARNINGS MANAGEMENT: THE CASE OF IRAN

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ABSTRACT

The theoretical basis of many researches in the field of the relation between earnings management and free cash flows (FCF) is the Jensen Theory. In the Jensen's viewpoint, the managers of the firms with high FCF and low growth probably manage the earnings in order to get some self-interest in the short time. In addition, the Jensen's Control Hypothesis predicts that the financial leverage can adjust that relation for two reasons. First, required debt repayments reduce the cash available to management for non-optimal spending. Second, when a firm employs debt financing, it must undergo the security of lenders and is often subject to lender-induced spending restrictions. This research is the first one in Iran, which examines the Jensen Theory. By using the information of 90 sample firms and by applying the multivariable linear regression model during the years 2000 to 2004, we conclude that there is a direct and significant relation between earnings management and FCF in the low growth firms. However, we do not find any significant relation between earnings management and financial leverage in the firms with high FCF and low growth. It seems that this result is due to existence of governmental structure in the most Iranian companies. In these firms, managers are not under any obligation to repay the principal and interest of received debts, so without any effective limitation by creditors, they invest FCF in their favorite projects instead of repayment of debts.

Earnings management, financial leverage, free cash flows, firm growth

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INTRODUCTION

From many years ago till now, people are trying to maximize their welfare for different purpose such as security, peaceful and etc in different ways. This willing induces people to search for opportunities to invest their controlled resources and therefore create new ones to increase their welfare. But there have been some people who have had no sufficient capabilities to use their resources for earnings more so they had to employ some other people and delegate their recourses to them and control on them for reaching their final goal. In the agency theory, the first group is called owner and the second is called manager. In fact, managers are the agents of owners to use resources properly and increase their owners' welfare. However, managers are committed to report performance and financial position and the way of applying resources to owners by use of good information systems.

Accounting is an information system which provide above information in the form of financial reports for owners (shareholders), investors and the other interested groups. The main part of this reports are financial statements. One of the financial statements which are prepared by managers and has a considerable importance for evaluation of managers' performance and accountability, are income statement. For many reasons the managers are trying to manipulate the earnings which are extracted from income statement by means of using different accounting procedures.

With economical point of view and with presence of the rational expectations, it is assumed that all peoples are trying to maximize their welfares and the managers are not exempt of this matter. Thus the managers are willing to show a good picture of firm condition to shareholders and the other interested groups for maximizing their self-interests, maximizing their social welfare and stabling their job condition. But it should be considered that in some cases maximizing the welfare of manager dose not overlap with maximizing the welfare of owner. In fact this matter shows a conflict of interest between managers and other interested groups. Thus considering the conflict of interest theory, the managers have sufficient incentives to manipulate the earnings for maximizing their welfares.

Referring to value added for shareholders, the free cash flows of the firms have substantial significance. Because managers can invest the mentioned cash flows in the different positive NPV projects by means of recognition of growth opportunities, and therefore can increase the welfare of shareholders. But it should be mentioned that with respect to the conflict of interest between managers and owners, the managers may not invest the free cash flows in the projects having positive NPV even it is possible that they invest in the project which have negative NPV for maximizing their welfare in the short time.

Jensen (1986) was the first scientist who analysis the mentioned above problem in his famous theory. He believed that the expenses of FCF are the expenses which are induced of investing in negative NPV projects. In the Jensen's point of view the managers of firms with high FCF and low growth, manage the earnings for removing the low earnings or loss resulted from investment in negative NPV projects. So this way they support their self interests in the short term. To solve the above problem, Jensen in the year of 1986 declares his well known theory which is called control hypothesis. Based on this hypothesis, financial leverage can play a fundamental role in declining of such a problem since according to debt repayment contracts the managers use some amount of free cash flows for repayment of interest and principal of debt and therefore the opportunistic behavior of the managers will be reduced.

Referring to the above discussion, this question taken into consideration that whether is there a positive relationship between earnings management and high free cash flows in the firms with low growth? And if the answer is positive, can financial leverage adjust mentioned relationship?

1. LITERATURE REVIEW

1.1 Earnings management

In the recent years the topic of earnings management are respected and investigated by accounting researchers in different views. Particularly, after the declaration of the bankruptcy in some big companies, the importance of earnings management was discovered by the users of financial information. The bankruptcy of large firms such as Enron, Adelphi, World Com, Global Cricing and Tico are took place due to applying earnings management in large scales. The bankruptcy of Enron is called the first big financial failure in the last century and the biggest in the world economy history. The stock price of this firm in the mid 2001 declined rapidly and in the December of that year, Enron declared bankruptcy officially. This matter revealed the importance of research in the area of earnings management.

In the profession and academic literature, there is no absolute definition about the earning management, but there are different definitions from different points of view. Schipper (1989) believed that earnings management is a biased reporting which according to it the management engage in the financial decision making process intentionally for getting some benefits. Healy and Wahlen (1999) presented the bellow definition of earning management:

> *Earning management takes place when managers use their own judgments for financial reporting so that there will be changes in the financial structure. These changes in the financial reporting cause a misleading of*

interested people about firm performance. Also it effects on the consequents resulted from firm contracts which is depended on reported accounting numbers.

Till now, there have been many researches about incentives and drivers on earning management, which lead to this point that the debt contracts, compensation plans, ownership structure and political expenses are among the most important drivers of earning management (Jones, 1991; Dechow *et al*, 1996 and Healy, 1985). In this research it has been tried to recognize one other effective drivers on earning management usage done by the firm managers which is the FCF that some opportunist managers encountered with it.

One of the fundamental topics in the earnings management category is the procedures of it which earning management detection based on accruals is one of them. Accruals can be divided into two parts which is discretionary accruals and non discretionary accruals. Non discretionary accruals are related to the activity level and are beyond the management control while management can control discretionary accruals and can manipulate them easily. Thus the separation of discretionary accruals from total accruals as earnings management criteria has substantial importance. Till now five different models for separation of discretionary part from total accruals and for earnings management measurement are presented by related scientist. They are the Healy model, the De Angelo model, the Jones model, the Modified-Jones model, and the industry model. Based on Dechow *et al* (1995) and Beneish (1997) the Modified-Jones model is the most powerful model for explanation and prediction of earnings management. Thus in this paper the Modified-Jones model is used for calculation of discretionary accruals.

1.2 Free cash flows

Today high competition motivated the managers to consider a price in which the average expenses of the firm are minimized. Therefore, it is essential for the managers to increase the effectiveness of their activities in order to provide economic rents and quasi rents for corporation, which are activities that can usually provide considerable FCF for corporation.

It should be mentioned that in the statement of cash flows, cash flows from operating activities (CFO) usually show the capabilities of the firms for cash flow generation. Despite this matter, many financial analyst believe that CFO are resources that not only should be invested in new fixed assets until the firm can maintain current activity level but also some amount of these resources should be distributed to shareholders as dividend until the shareholder satisfaction can be achieved. Thus CFO cannot be considered alone as firm's capability for cash flows production. Therefore, calculation and evaluation of FCF, along with CFO is

essential for evaluation of firms (Kimmel *et al,* 2004). Also it should be considered that the old accounting criteria such as earning per share and return on assets cannot show the firm's performance alone. These criteria should be used accompanied by criteria such as FCF of the firms, since the manipulation of FCF is very hard while earnings are manipulated by managers frequently (Martin & Petty, 2000).

Similar to the earnings management, there is no one exact definition of FCF in the literatures and there are different viewpoints about FCF and the calculation of it. Jensen was the first man who founded FCF theory in the 1986 and presented a good definition about FCF. Jensen believed that FCF of the firms are available cash amount of the firm (cash from operating activities) after essential cash amount for investing in positive NPV projects deduction while cash flows resulted from such projects are discounted by reliable cost of capital rate. Therefore from the Jensen's view initially all the projects should be evaluated through NPV by means of using reliable cost of capital rate, and in a positive NPV case, essential cash amount for investing in such projects should be deducted from the available cash flows of the firm. Whatever remains is called FCF. The calculation of FCF based on Jensen model is very hard because all projects with expected positive NPV cannot be surely recognized. Furthermore, the essential information for determination of reliable cost of capital rate for calculating of the NPV of mentioned projects is not usually available. Thus many efforts have been done to use other models which are surrogates of Jensen model for calculation of firm's FCF (Gul, 2001). Among these models, the most important of all are Lehn and Poulsen (1989) model and Copeland (1991) model. From the Lehn and Poulsen views the FCF of firm is equal to operating income before depreciation expenses and after cash amount paid for tax, interest expense, preferred stock earnings and common stock earnings deduction. Copeland has a definition for FCF as bellow:

> *The firm's FCF is the result of operating income after tax plus non cash expenses after investment in working capital, properties, plants and equipments and the other assets deduction.*

1.3 Firm growth

When the managers of firms encounter with FCF, at the first glance, the important and the fundamental matter is to invest the mentioned cash amount in the suitable and beneficial projects (with positive NPV) until they can provide added value for their owners. This will takes place if only there are suitable investment opportunity sets (IOS) in the firms and the managers invest firm's FCF more efficiently through correct recognition of all of them, which causes an increase in the firm growth.

In the finance literature IOS is defined as a criterion of the firm growth in a way to it is expected as the firm's IOS goes high, its growth increase through investment of

FCF. IOS depends on the firm specific factors such as physical assets, human resources, industry and macro economic factors. IOS can contain different projects which if are invested, cause a firm growth (Tsui & Gul, 2000). IOS is a qualitative variable which is not visible in the firms. For this reason there is not a consensus on specific criteria which identify growth opportunities in the firms. But eight criteria are used for identification of IOS and thereby for measurement of firm growth. The most important of them are MTBA, MTBE, and E/P which are defined as bellow:

1. *MTBA criterion is equal to market value of shareholders equity plus book value of total debt divided by book value of total assets.*
2. *MTBE is equal to market value of shareholders equity divided by book value of it.*
3. *E/P is equal to earnings divided by market price.*

Kallapur and Trombley in the year of 1996 after examining the mentioned criteria concluded that the MTBA has greater correlation coefficient with firm growth in comparison with other criteria. Thus MTBA is used in our research for measuring the firm growth.

1.4 Financial leverage

One of the choices that managers are willing to select for funding is financial leverage. According to the debt contract provisions the managers are committed to repay principal and interest of debt over a determined period of time. This increased leverage will discipline management and diminish opportunistic behavior for two reasons. First, required debt repayments reduce the cash available to management for non-optimal spending. Second, when a firm employs debt financing, it must undergo the security of lenders and is often subject to lender-induced spending restrictions.

1.5 The other research

This research is the first research done in the Iran economy in relation to Jensen theory. We outline researches which are done outside economy of Iran. Up to now the researches about the relation between earnings management and financial leverage are made from two different views. The researches in the first view have shown that financial leverage increases the earnings potentially since managers of firms with financial leverage, have sufficient incentive for earnings management in order to insure the creditors that the debt contract provisions are actually met. For example researchers such as Sweeny (1994), Defond and Jimbalvo (1994), Dichev and Skinner (2002) and Beatty and Weber (2003) can be named which they have found a direct relation between earnings management and financial leverage.

The researches in the second view have examined the relation between earnings management and financial leverage based on the Jensen theory. The fundamental and theoretical basis of many researches about the relation between earnings management and FCF of firms in the western countries are the Jensen theory. Jensen in the year of 1986 stated that managers of the firms with high FCF and low growth probably invest in projects that have negative NPV instead of distributing FCF to shareholders. This action of manager has some benefit for them in the short time. So they will try to remove the effects of mentioned investments (investment with negative NPV) through earnings management in the short time. To overcome this problem, Jensen presented his famous control hypothesis. Based on that theory, financial leverage can play an important role in adjustment of the relation between earnings management and FCF. This paper follow the second view and thus in this section the studies which examined the Jensen theory are mentioned.

Chung *et al.* (2005) examined the relation between earnings management and FCF by using of 22576 American firms information over a period of 13 years since 1984 to 1996 and concluded that there is a significant and direct relation between the above variables. It means that managers of firms with high FCF and low growth use earnings-increasing discretionary accruals till loss and low earnings resulted from investing in negative NPV projects are removed. Also after examining of institutional investors and 6 biggest audit firms in the U.S.A, they concluded that the two mentioned factors diminish the relation of earnings management and FCF and obstacle earnings management by managers. In the other research, Chung *et al* (2005) study the earnings management problem in the firms encountered with problems resulted from high FCF (investing in negative NPV projects). They found that in such firms, managers manage earnings through earnings-increasing discretionary accruals to improve future performances to hide the negative effects resulted from improper investments.

Jones and Sharma study the relation between earnings management and FCF in the Australia and in the firms with old and new economy. They concluded that there is significant and direct relation between earnings management and FCF in the firms with old economy (which usually have lower growth than firms with new economy), since in this kind of companies managers are trying to improve their weak performances through discretionary accruals. But in the firms with new economy (with high growth) there is no such relation and also they found evidence with which financial leverage decreases earnings in the firms which have high FCF and have old economy.

In a similar study Jaggi and Gul (2000) found a direct relation between earnings management and FCF in the firms with low growth. They believed that according to Jensen theory (1986) in such companies the managers invest FCF in negative NPV projects instead of distributing them to shareholders and therefore the market value of firms decrease (market reacts). Thus managers of such firms are trying to adjust current situation through discretionary accruals which increase earnings and

get some self interests. Also they show that the debt factor (financial leverage) adjust the mentioned relationship. Odabashian (2005) demonstrated that in the firms having high FCF and low growth as leverage increases, opportunistic behavior of managers decreases. Because according to debt repayment contracts, managers use a fraction of FCF for repayment of the principal and interest of debts.

Tsui and Gul (2000) after examining of audit fees in firms with high FCF and low growth in Hong Kong showed that in such firms usually due to agency problems related to high FCF, the audit fees are high. They also concluded that based on Jensen theory, debt can play an important role in decreasing that problem. In the *Table 1* the researches made in the field of our study are presented in brief.

Table 1. **The performed researches in the field of research topic**

No.	Researcher name	Year	The research result
1	Tsui and Gul	2000	There is a direct relation between audit fee and high FCF in the firms with low growth and financial leverage adjust that relationship.
2	Jaggi and Gul	2000	There is a direct and significant relation between earnings management and FCF, and financial leverage adjust that relationship.
3	Jones and Sharms	2001	There is a direct relation between earnings management and FCF in the firms with old economy and financial leverage adjust that relationship.
4	Chung *et al.*	2005	There is a direct relation between earnings management and high FCF in the firms with low growth and institutional shareholders and audit firms which have high audit quality adjust that relationship.
5	Odabashian	2005	There is a direct relation between earnings management and leverage increases in the firms with high FCF and low growth.

2. METHODOLOGY

2.1 Research hypothesis

As stated before, Jensen theory composed of two parts. In the first part the agency problems resulted from FCF is stated and in the second part a solution for that problem is presented. Based on the Jensen theory and the main question of our research, the bellow hypothesizes are determined:

1. There are a significant relation between discretionary accruals and FCF.
2. There are a significant relation between discretionary accruals and financial leverage.

3. There are a significant relation between discretionary accruals and high FCF in the firms with low growth.
4. There are a significant relation between discretionary accruals and financial leverage in the firms with high FCF and low growth.

2.2 Research variables

In this research discretionary accruals which are assumed as a criterion for measuring of the earnings management in the firms, is independent variable and FCF of firms and financial leverage are dependent variables. In addition, interest expense of short and long-term debt and firm size are inserted in the regression model as controlled variables.

2.2.1 Dependent variables

As stated before, according to research done by Dechow *et al.* (1995) and Beneish (1997) the adjusted Jones model is the most powerful model for explanation and prediction of earnings management. Thus we use that model for calculation of discretionary accruals. In the Modified-Jones model initially total accruals are calculated as bellow:

$$TA_{i,t} = \Delta CA_{i,t} - \Delta CL_{i,t} - \Delta CASH_{i,t} + \Delta STD_{i,t} - DEP_{i,t}$$

Where:

$TA_{i,t}$ - total accruals for firm i in the year t;
$CA_{i,t}$ - change in current assets for firm i from year t-1 to t;
$\Delta CL_{i,t}$ - change in liabilities for firm i from year t-1 to t;
$\Delta CASH_{i,t}$ - change in cash amount of firm i from year t-1 to t;
$\Delta STD_{i,t}$ - change in current portion of long term debt of firm i from year t-1 to t;
$DEP_{i,t}$ - depreciation expense for firm i in the year t;

After the total accruals are calculated for the discretionary accruals determination, the α_1, α_2 and α_3 parameters are estimated through bellow formula:

$$TA_{i,t}/ A_{i,t-1} = \alpha_1(1/A_{i,t-1}) + \alpha_2(\Delta REV_{i,t}) /A_{i,t-1} + \alpha_3(PPE_{i,t} / A_{i,t-1}) + \varepsilon_{i,t}$$

Where:

$TA_{i,t:}$ - total accruals for firm i in the year t;
$REV_{i,t}$ - change in sale revenue for firm i from year t-1 to t; Δ
$PPE_{i,t}$ - gross property, plant and equipment for firm i in the year t;
$Ai_{,t-1}$ - total book value of assets of firm i in the year t;
$\varepsilon_{i,t}$ - the error term;

After the calculation of α_1, α_2 and α_3 parameters are done by means of the ordinary least squares (OLS) method, the non discretionary accruals are determined by means of bellow formula:

$$NDA_{i,t} = \alpha_1(1/A_{i,t-1}) + \alpha_2[(\Delta REV_{i,t} - \Delta REC_{i,t}) /A_{i,t-1}] + \alpha_3(PPE_{i,t} /A_{i,t-1})$$

Where:

$NDA_{i,t}$: non discretionary accruals for firm i in the year t;
$\Delta REC_{i,t}$: change in account receivable for firm i from year t-1 to t;

At the last run, discretionary accruals is calculated after the NDA determination through the formula bellow:

$$DA_{i,t} = TA_{i,t}/A_{i,t-1} - NDA_{i,t}$$

2.2.2 Independent variables

Free cash flows

In this research, the Lehn and Poulsen model is used in order to determine the FCF. Based on the above model the FCF is calculated through the bellow formula:

$$FCF_{i,t} = (INC_{i,t} – TAX_{i,t} – INTEXP_{i,t} – PSDIV_{i,t} – CSDIV_{i,t})/A_{i,t-1}$$

Where:

$FCF_{i,t}$ - free cash flow of firm i in the year t;
$INC_{i,t}$ - operating earnings before depreciation expense for firm i in the year t;
$TAX_{i,t}$ - total paid tax for firm i in the year t;
$INTEXP_{i,t}$ - paid interest expense for firm i in the year t;
$PSDIV_{i,t}$ - preferred stock dividend for firm i in the year t;
$CSDIV_{i,t}$ - common stock dividend for firm i in the year t;
$A_{i,t-1}$ - total book value of assets of firm i in the year t;

It is necessary to note that the FCF is divided by book value of total assets in order to adjust the effect of different factors until the beginning of the year t.

Referring to similar researches (Chung *et al.*, 2005 and Odabashian, 2005) and the governing specific situations of the companies listed in the Tehran stock exchange (TSE), the median measure have been used for dividing the FCF and firm growth to high and low. Meaning, if FCF of a firm is greater than all FCF of sample firms, the firm has a high FCF, other than that it has a low FCF. As the above explanation the same thing is applied to the firm size.

Financial leverage

According to the similar research in this field (Givoly *et al.*, 1992 and Odabashian, 2005) the financial leverage criteria is calculated as follows:

$$LEVE = \frac{LTD}{LTD + BVE}$$

Where:

LEVE - financial leverage
LTD - book value of long debts
BVE - book value of shareholders' equity

Firm growth variable

Based on Kallapur and Trombley (1999) studies the MTBA criterion has a greater correlation coefficient with the firm growth than other firm growth determination criteria. Thus, we use this criterion for firm growth calculation just as like bellow:

$$MTBA = \frac{\text{Book value of total debt + market value of each stock * outstanding stock}}{\text{Book value of total firm's assets}}$$

Control variables

The interest expenses of the long and the short-term debts - as it is mentioned in the literature review section, some of the researches as based on the previous first view have investigated the relation between earnings management and debt contracts (financial leverage). For controlling of this effect, the Log of interest expense of the long and the short-term debts are inserted to the regression model as controlled variable. Since the change in the interest expense can be a result of a change in the financial leverage.

Firm size - according to the previous studies, in the large firms the managers' incentives for earnings manipulations are greater than what in the small firms are. In the other hand, there is a direct and significant relation between the firm size and the earnings management. Nevertheless, other researches believe that as the firm size increases the earnings management decreases, since the firm is investigated more precisely. While some other researches could not find a significant relation between the size and the earnings management. Accordingly, the Log of book value of the total assets of firms is inserted to the regression model as the controlled variables.

2.3 Data

This research is a kind of applied researches in which we use historical information for hypothesis testing. Therefore it is a kind of quasi experimental research. In this research all data are gathered through two bellow methods:

1. Library study which is the one used in literature study and historical examination, in which all foreign papers and thesis are gathered through the internet.
2. All necessary information about discretionary accruals, FCF of different firms is gathered through available information banks and databases and also through the formal website of TSE.

The firms which are used as statistical population meet the following data availability criteria:

1. They should be a kind of production firms.
2. The end of those fiscal years was on 31 marches.
3. During the years 2000 to 2004 they had no change in their fiscal years.
4. They were listed in the TSE till 2000 and they remained in the list up to 2004.
5. Since determination of the market value of shareholders equity is necessary for firm growth calculation, so their stocks (at least on order) have been traded in the market during the ending month of each year.

According to *Table 2,* after applying all above criteria only 90 firms were remained in the sample.

Table 2. **Sample selection procedure**

Total number of quoted companies with financial statements	301
Less	
Holding, financial, and insurance companies	20
Total number of industrial and commercial companies	281
Less	
Firms for which there was not enough information about financial position and board of directors	191
Total number of companies in sample used in main analysis	90

2.4 Model estimation

In this research, all methods of information analysis and hypothesis testing have been considered as follows:

1. To estimate the α_1, α_2 and α_3 parameters in order to determining discretionary accruals according to Jones adjusted model, the Excel and SPSS software have been used.
2. To test four different research hypothesizes, the multi variable linear regression method have been used. In order to examine the significance of correlation between research variables we use P-Value test based on aggregate data and through SPSS software. We used the bellow regression model for testing of the research hypothesizes.

$$DA_{i,t} = \beta_o + \beta_1 X_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 INTEXP_{i,t} + \varepsilon$$

Where:

$DA_{i,t}$	- da for firm i in the year t;
$SIZE_{i,t}$	- Log of book value of total assets for firm i in the year t;
$INTEXP_{i,t}$	- Log of total interest expenses of short and long term debt for firm i in the year t;
ε	- the error term;
$X_{i,t}$	- the indicator of research independent variables in the four hypothesizes which are:
$FCF_{i,t}$	- FCF of firm i in the year t;
$LEVE_{i,t}$	- financial leverage of firm i in the year t;
$HFCFLG_{i,t}$	- high FCF for firm i which has low growth in the year t;
$LEVEHFCFLG_{i,t}$	- financial leverage of firm i which has high FCF and low growth in the year t;

3. RESULTS

In this section, initially the results derived from Modified-Jones model (through Excel and SPSS soft wares) are presented for estimation of discretionary accruals. Furthermore the results derived from the analysis of research hypothesis based on the aggregate data through SPSS software are presented.

3.1 The results of Jones adjusted model

To estimate the discretionary accruals through the Modified-Jones model initially all information of 90 firms between the years 2000- 2004 are gathered through data gathering tools and are transferred to Excel spreadsheet software. After all, the necessary calculations for discretionary accruals determination and balancing the dependent and independent variables by means of the total firm assets criterion at

the beginning of year are done, and then all data are transferred to SPSS software for calculating the research parameters (α_1, α_2 and α_3). Finally, the above parameters are estimated by mean of bellow model for non discretionary accruals determination:

$$TA_{i,t}/A_{i,t-1} = -368/95\ (1/A_{i,t-1}) + 0/017\ (\Delta REV_{i,t})/A_{i,t-1} + 0/0057\ (PPE_{i,t}/A_{i,t-1}) + \varepsilon_{i,t}$$

After the non-discretionary accruals calculation is done, the above item is deducted from the total accruals and discretionary accruals of sample firms are determined.

3.2 The results of hypothesis testing

3.2.1 The first hypothesis

To test the first hypothesis, we use multivariable linear regression method by means of SPSS software, which the results are presented briefly in *Table 3*.

Table 3. **Statistical analysis for the first hypothesis**

	Coefficients			Abstract of the model			ANOVA	
	Coefficient	t statistic	Significant level	Coefficient of determination	Adjusted Coefficient of determination	DW	F statistic	Significant level
Fixed amount	0.077	1.025	0.306	0.251	0.246	1.953	49.827	0.000
FCF	0.384	12.126	0.000					
Firm size	-0.033	-2.086	0.038					
Interest expense	0.025	2.764	0.006					

To understand whether the distribution of the error term is normal or not, as a premise of the regression model, the KS test is used which the final results are presented in *Table 4* in brief.

Table 4. **The results of KS test for the first hypothesis**

	Numbers	Average	Standard deviation	Z statistic	Significant level	Decision
Aggregate data	450	0.000	0.165417	1.585	0.063	Normal

With respect to table 4, comparing the significant level of F statistic with 5% error interval shows the significance of the first hypothesis regression model. This shows the significance of the goodness of fit index of regression is confirmed by confident level of, 95%. Thus, it is concluded that there is a significant relation between discretionary accruals and FCF.

With respect to t statistic and the related significant level (0.000) the coefficient of independent variable in regression model is significant. Due to the fact that the coefficient of independent variable is positive, it is concluded that there is a direct relation between discretionary accruals and FCF. In *Table 3* as like, the amount of DW statistic is around 2, meaning there is no correlation among error terms of the first hypothesis regression model. As it is shown in *Table 4* the comparison between error level and 5% error interval, the average and the standard deviation, show the distribution of error term in regression model is normal.

3.2.2 The second hypothesis

To test the second hypothesis we also use multivariable linear regression method by means of SPSS software, which the results are presented briefly in *Table 5*.

Table 5. **Statistical analysis for the second hypothesis**

	Coefficients			**Abstract of the model**			**ANOVA**	
	Coefficient	**t statistic**	**Significant level**	**Coefficient of determination**	**Adjusted Coefficient of determination**	**DW**	**F statistic**	**Significant level**
Fixed amount	-0.072	-0.841	0.401	0.018	0.011	1.998	2.679	0.057
FCF	-0.044	-2.486	0.113					
Firm size	0.007	0.413	0.680					
Interest expense	0.014	1.318	0.188					

With respect to *Table 5*, the comparison between the significant level of F statistic (0.057) and 5% error interval shows the lack of significance of the second hypothesis regression model. This shows the goodness of fit index of regression model at 95% of confidence interval is not significant. So it is obvious that there is no significant relation between discretionary accruals and financial leverage. Also, the t statistic and related interval (0.113) and its comparison with 5% error interval show that the coefficient of independent variable is not significant.

3.2.3 The third hypothesis

The results derived from the third hypothesis test are presented in *Table 6* in brief.

Table 6. **Statistical analysis for the third hypothesis**

	Coefficients			Abstract of the model			ANOVA	
	Coefficient	t statistic	Significant level	Coefficient of determination	Adjusted Coefficient of determination	DW	F statistic	Significant level
Fixed amount	-0.133	-1.048	0.298	0.668	0.665	1.858	54.9	0.000
FCF	0.900	12.749	0.000					
Firm size	-0.006	-0.213	0.832					
Interest expense	0.027	1.531	0.130					

To understand whether the distribution of the error term is normal or not, as a premise of the regression model, the KS test is used which the final results are presented briefly in *Table 7.*

Table 7. **The results of KS test for the third hypothesis**

	Numbers	Average	Standard deviation	Z statistic	Significant level	Decision
Aggregate data	450	0.000	0.162417	1.585	0.063	Normal

With respect to *Table 6*, comparing the significant level of F statistic with 5% error interval shows the significance of the first hypothesis regression model. This shows the significance of the goodness of fit index of regression is confirmed by confident level of, 95%. Thus, it is concluded that there is a significant relation between discretionary accruals and high FCF in the low growth firms.

With respect to t statistic and the related significant level (0.000) the coefficient of independent variable in regression model is significant. Due to the fact that the coefficient of independent variable is positive, it is concluded that there is a direct relation between discretionary accruals and high FCF in the low growth firms. In *Table 6* as like, the amount of DW statistic is around 2, meaning there is no correlation among error terms of the third hypothesis regression model. As it is shown in table 4 the comparison between error level and 5% error interval, the average and the standard deviation, show the distribution of error term in regression model is normal.

3.2.4 The forth hypothesis

We also use linear regression method by means of SPSS software for testing the fourth hypothesis, which the results are presented in *Table 8* in brief.

Table 8. **Statistical analysis for the forth hypothesis**

	Coefficients			Abstract of the model			ANOVA	
	Coefficient	t statistic	Significant level	Coefficient of determination	Adjusted Coefficient of determination	DW	F statistic	Significant level
Fixed amount	-0.104	-0.475	0.636	0.019	-0.017	1.909	0.553	0.661
FCF	-0.019	-0.588	0.558					
Firm size	0.011	0.251	0.803					
Interest expense	0.030	0.920	0.360					

With respect to *Table 8,* by comparing the significant level of F statistic (0.661) with 5% error interval we can conclude that the second hypothesis regression model is not significant. This shows that the goodness of fit index of regression model at 95% of confidence interval is not significant. So it is obvious that there is no significant relation between discretionary accruals and financial leverage. Also, the t statistic and related interval (0.113) and its comparison with 5% error interval show that the coefficient of independent variable is not significant.

CONCLUSION AND SUGGESTION

With respect to the result of the first hypothesis test, there is a direct and significant relation between earnings management and FCF. This shows the FCF of the firms can be considered as a driver factor for earnings management in general. After all the results derived from this hypothesis coincide with Jaggi and Gul study.

The third hypothesis test shows the confirmation of Jensen theory in the listed companies in TSE with relatively high coefficient of determination. According to Jensen theory (1986) all the managers involved in firms with high FCF and low growth probably perform the earnings management in order to gain some self interest. The result derived from this hypothesis coincides with Tsui and Gul (2000), Jones and Sharma (2001), Chung *et al* (2005) and Odabashian (2005) studies.

In the second and the fourth hypothesis the Jensen control hypothesis has been examined. The results show there is no significant relation between earnings

management and financial leverage in the firms with high FCF and low growth. This fact shows the lack of Jensen control hypothesis in the companies listed in the TSE.

The above theory predicts that the financial leverage can adjust the relation between the earnings management and FCF In the firms having high FCF and low growth for two reasons. First, required debt repayments reduce the cash available to management for non-optimal spending. Second, when a firm employs debt financing, it must undergo the security of lenders and is often subject to lender-induced spending restrictions. The results derived from these hypothesizes do not coincide with Tsui and Gul (2000), Jaggi and Gul (2000), Jones and Sharma (2001) and Odabashian (2005) studies. It seems that this result is due to the existence of governmental structure in most Iranian companies in which managers are not under any obligation to repay the principal and interest of received debts. So without any effective limitation by creditors (government especially) the managers invest FCF in their favorite projects instead repayment of obligations.

Suggestions based on the research results

1. According to our results, the FCF and the firm growth can be considered as a motive for earnings management in one side and on the other side with respect to the above description in FCF section, the criteria such as earnings and assets return cannot be used for performance evaluation of managers alone. It is necessary to consider all these criteria accompanied by the other criteria such as FCF. Thus it is advisable to suggest the creditors and investors to consider FCF and growth of companies and reflect them in their decision models.
2. In the belief of Odabashian (2005), financial leverage will discipline management and diminish opportunistic behavior. So it is recommended to develop a strong accountability system in Iranian companies to promote the financial leverage to accomplish its role in an effective manner.

Suggestions for future research

For future research, the following points are recommended:

1. FCF shall be divided into positive and negative FCF and only the relation between positive FCF and earnings management be examined. Because positive FCF are the only cash flows which the managers can use them to invest in deferent projects.
2. Another useful study in this field is the examination of Jensen theory in both the companies, which have funded by stock issue and the companies, which have funded with debt. It is expected the managers of companies in which funded with common stock issue , encounter with considerable amount of FCF and due to the lack of obligation in

repayment of determent amount in specific times, their opportunistic behavior and respectively the earnings management increases.

3. The effect of institutional investors in the relation between earnings management and FCF shall be examined.

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