



# The Role of Financial Instruments and Derivatives Disclosure on the Excess Return and Company Value Based on Iran Accounting Standards

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## ABSTRACT

Based on IFRS laws, British companies have started providing their reporting systems according to International Standards Requirements regarding disclosing their financial derivatives since January 2005. In 2013, Iran revised its Accounting Standard No. 15 to include the derivative instruments. The present study aims at investigating the effect of this revision on financial derivatives and instruments, and the effect of earning management on the relationship between the level of financial derivatives and instruments and risk-adjusted discount rates. From generalized least squares regression panel data, it was found that based on the first hypothesis, the companies which disclose their financial instruments based on No. 15 internal standard have a lower risk-adjusted discount rate, implying an increase in profit and a price rise in the markets. The findings also confirmed the second hypothesis, attesting to the effect of earning management on the relationship between financial derivatives and instruments disclosure and excess return. Findings of the research third hypothesis represent that there is a direct meaningful relationship between disclosure level of financial instruments and company value. So, it can be concluded that instruments' disclosures and financial derivatives can decrease risk-adjusted discount rate and increase companies' values in terms of standard number 15.

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## 1 Introduction

In the capitalist world, using financial instruments and derivatives plays an important role. To get to optimum profit, the decision-makers within companies are after investment with minimum risk or reducing the related risks. Financial derivatives and instruments are cost effective and can reduce the risks and the finances, increase the expected output, quickly balance the cash flow, reduce tax evasion, and finally, change the fixed liability rate to effective floating rate. These instruments are turning into mainstream in Islamic countries, Iran included, as floating rate is not violating Islamic preaching. Many bankruptcies worldwide have occurred due to financial derivatives and instruments. Take Enron investment on energy derivatives which led to its bankruptcy as an example. Baring Bank and Metal Castle also incurred losses worth 927 million pounds and one billion dollars in high risk transactions based on future contracts respectively [4].

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The losses incurred are substantial sums as they frittered the profit made over the years by the companies in question [8]. In 2013, Iran revised its Accounting Standard No. 15 to include the derivative instruments and the companies were required from 2014 to expose their financial derivatives and instruments. In Europe the same rules have been in place since January 2005. All research indicates that companies must disclose more comprehensive information in their annual reports regarding financial derivatives and instruments [18]. Information disclosure and using financial derivatives and instruments are required in the transactions procedures as the shareholders call for clarity and better understanding of the business and financial statements for better decision making. As the financial statements of all the companies worldwide should be comparable, it is essential that all of them follow the same accounting standards. Presently, there is controversy over using these financial derivatives and instruments, and whether managers are inclined to use and disclose them. Moreover, there is disagreement if companies can use disclosure to manage financial risks [10]. The present study investigates whether those who deal with financial information have adequate access to financial derivatives and instruments related information in annual financial reports and if the standards in question give rise to a higher level of disclosure of financial derivatives and instruments and reduce the excess returns? Finally, if earning management in companies which expose their financial derivatives and instruments based on the standards in question leads to reducing risk-adjusted discount rates?

Iran Accounting Standard Codification Committee has realized the importance of instruments' disclosures and financial derivatives for users' decisions during the previous years, while Standard No. 15 was reviewed about investments in 2013 and this Standard discussed instrument and financial derivatives and their disclosures. Committee's attempts did not devote just to this standard while it established and approved another two standards of No. 36 [19] by the topic of financial instrument about presentation and standard No. 37 [20] by the topic of financial instrument about instruments' disclosures and financial derivatives. So, these two Standards represent the importance of this topic of instruments and financial derivatives and their disclosures more than other topics, [19, 20]. The qualitative and quantitative disclosure is a must for the companies. Qualitative disclosure deals with the function of financial instruments in formation or changing the risks that companies face, including the objectives and policies of companies in using financial instruments for managing the risks in question. Quantitative disclosures deal with demonstrating and describing the objectives and policies executed during the period. They also provide additional information for evaluating more significant disclosures [5]. In attention to the recent evolutions and amazing increase of housing price, it seems that this issue will enter deep downturn as soon as possible, one of the ways of this downturn existence is using derivative instruments and their promotion. In this sensitive time, the importance and necessity of instrument and financial derivatives (second mortgage of housing) can be understood. After financial boycotts against Iran and service stops of foreign banks about U.S.A dollar adjustment and increase Euro role and volume in country foreign business, Iran market totally has been endangered more and more seriously because of the bad effects of fluctuations of foreign exchange equal rate. So, customers intend to perform more risk central services. Finally, if we define risk management instruments of exchange and interest rate fluctuation for Iran market in the format of Standards, impositions of heavy costs on country economic agencies will be prevented and it will be for decrease of finished price and inflation. The

committee of Compiling Iran Accounting Standards in the past several years has found the importance of disclosure instruments and financial derivatives for users' decisions very well, while standard No. 15 about investments has been reviewed in 2013 and has discussed financial derivatives and instruments in the mentioned standard [18]. Attempts of the mentioned committee have not been limited just to this standard, while they have tried to publish and prove two standards. Standard No. 36 with the topic of financial instruments: presentation and standard No. 37 with the topic of financial instruments: disclosure. So, this represents the importance of financial instruments and derivatives and disclosures more than other topics [19-20]. Financial instrument transactions lead to the acceptance or transfer of one or more of the financial risks. Disclosure of information makes users of financial statements more successful in assessing the risk associated with financial instruments such as price risk, credit risk, liquidity risk, cash flow risk. The nature and extent of the use of information on financial instruments, the financial objectives covered by these tools, as well as their associated risks and management procedures for controlling hazards are of considerable interest to users, which should be disclosed [19]. This research is one of the first domestic studies that examines the role of Iranian accounting standards in disclosing financial instruments and derivatives. The results of this study can be considered for various groups such as investors in the financial markets, stock market authorities, accounting standards designers, portfolio managers, brokers, financial analysts and market researchers.

## 2 Literature Review

Derivatives are financial instruments used to manage financial risks in international companies and companies with large finances. Using interest rate derivatives leads to changes in interest which end up in unpredictable costs and can affect the operational plan of the companies. Studies indicate that in case companies are willing to use these derivatives, they can reduce management risks. There is also evidence that many bankrupt companies have not used these derivatives and the managers were willing to be involved in trafficking [16]. Information in the annual reports of companies is very important for users of financial statement information. Stockholders who are the owners of the assets remaining need this information to make investment decisions. The main financial reporting framework of the company consists of company law, accounting standards and stock exchange requirements. The company law will incorporate a broad framework, accounting standards, and stock market requirements that include what should be disclosed in annual reports. Accounting Standards provide regulations on how each accounting item should be disclosed [19]. Such as Iran's Accounting Standards No. 15, No. 36, and No. 37 on Disclosures of Financial Instruments and International Financial Reporting Standard No. 13, which was issued in December 2004 in relation to the disclosure of financial instruments at the international level. Or IAS standards No.32 and No.39, adopted by the United Kingdom on financial instruments and derivatives from the beginning of January 2005. Huang et.al. [17], studied the supervision mechanisms, management incentives, manipulating investment costs and using derivatives. Their results indicated that English companies were using derivatives, corporate governance mechanisms, management incentives and decisions regarding companies' investment. The evidence indicates that monitoring environment such as

the board of directors' size affects the way currency and interest rates derivatives are used. Managerial plans also influence the use of derivatives. Administrative and managerial compensation also affect the managerial decisions and in its turn affects the use of derivatives. They also found strong contrasting evidence that while English companies used more derivatives, they should have used fewer ones. There is limited evidence that companies use risk replacements to prevent monitoring overseas investment.

Gonzales [11] in a paper titled, "The Effect of Standard No. IFRS13 [1]", has studied the relationship between adjusted fair value and credit risk and investigated the outcomes of ratifying Standard Rule No.13. This paper particularly deals with the effects of risk in non-financial companies on three variables, namely, financial leverage, adjusted liability value and adjusted credit value before and after ratifying accounting standards with fair value. In order to recognize the market share and not to take other risk factors other than market risk into account, his study focused on companies in the European Union. His results indicate that after ratifying the standards, the leverage effect on maximum risk does not change. Besides, this new approach estimates the Industry asset Beta and, in all cases, all the asset Betas were lower than net asset Betas and the average credit Beta for the sample was 0/4. Tahat et al. [34], in a paper titled, "A longitudinal Analysis of Information Disclosure Financial Instruments in Emerging Capital Markets: Qatar, a Case Study", studied the level of disclosing financial instruments information among sample companies following International No. 30 and 32, and International Financial Standard Reporting System No. 7 from 2005 to 2012. The results indicated that running International Financial Standard reporting System No. 7 statistically improved financial instruments information. Under standards 32 and 7, financial instruments exposure witnessed a rise from 24% in 2005 to 28% in 2007 followed by a constant increase to 47% in 2012. The results also indicated that depending on year, type of industry and information, the exposure level of financial instruments was different. Setayesh et.al. [33], studied the effect of accrual based earnings on the stock price crash risk. To assess the accruals earning management they used Kothari et.al. model [24]. The results indicated that accrual based earning management and actual earning management have no effect on companies' stock price crash risk (using negative skewness stock returns and Extreme sigma). They also showed that accrual based earning management and actual earning management affects companies' stock price crash risk (down-to-up volatility).

Izadi Nia et al. [9] in a study about the relationship between disclosure and earning management found that earning management mainly done through discretionary accruals can lower the quality of financial reporting, but the rules and monitoring systems available in the capital market prevents this in a way that by increasing legal monitoring systems in companies' disclosure and reporting, due to accruals, the earning management would be less influential. Malekian Kale Basti et.al. [27], studied the accrual earning management in stock initial public offering and stock earning crash risk from 2001 to 2013. To examine their hypotheses, they used Logit regression. The results indicated that there is no significant relationship between accrual-based earning management in the first year of introducing the share and the share long-term output. Namazi and Gholami [31], studied the effects of accrual earning management on the efficacy of investment in the companies investing in stock exchange market. To measure accruals, modified Kasznik model was used [3]. The results indicated that there is a significant relationship between accruals and the efficiency of inefficient investment by the companies. The findings

also showed that as accrual earning management increases, the inefficient investment by the companies rises. Hosseini [14], studied the Effects of Corporate Reporting Quality, Timeliness and Quantity for Disclosure and Reliability of Financial Reports on Stock Price Delay. The research Results indicated that the score of disclosure quality, timeliness and reliability affected the stock price de-lay; also, the mentioned effects were confirmed in the firms with high risk of lack of funds. Ahmadi and Ariankia [2], developed Black Scholes's pricing model to study American option on future contracts of Brent oil. The practical tests of the model show that market priced option contracts as future contracts less than what model did, which mostly represent option contracts with price rather than without price. Moreover, it suggests call option rather than put option. Using t hypothesis test, price differences were obtained, which can serve as a useful strategy for traders interested in arbitrage practice and risk hedging. This research introduces an optimal strategy (both for call and put option states and buy and sell of future contract  $\Delta$ ) for all options of buy and sell future contracts with and without price. In this research, six-month data of the end of 2015 about oil option and option of future contracts of North Sea oil for three different maturities were used. Mohammad Talebi et al. [29], studied the effect of the internal rate of return on cash recycling on unusual returns as well as the effect of cost leadership strategies variables on the relationship between the internal rate of return on cash recycle and the unusual returns in the period from 2009 to 2013. According to the regression results, the following results were obtained: An internal rate of return on cash recycling affects unusual returns and the internal rate of return based on the recycling of cash the abnormal returns affect the strategy of cost leadership.

Through a series of experiments, Koonce et al. demonstrated that the labels firms use to describe financial instruments and derivatives cause investors to assess economically equivalent instruments as different in terms of risk. They also showed that loss-only disclosures that companies use to describe their risks cause investors to assess the same level of risk for firms with differing underlying exposures. Moreover, they established that loss-only disclosures cause investors to make risk judgments that correspond to infrequently used risk-management strategies. Their results showed that additional information describing the underlying economic exposures of a financial instrument does not eliminate the labeling effects. However, they found that providing investors with upside and downside (i.e., two-sided) risk disclosures help them distinguish among firms using different risk-management strategies [23]. The Financial Accounting Standards Board (FASB) [21] proposed that all financial instruments be disclosed at fair value in the financial statements. Linsmeier research evidence indicated that fair value measures are most highly correlated with banks' exposures to interest rate and credit risk in key risk exposures [26].

Fanning et al. [9], in their research showed disclosing more risks can actually lower investors' perceptions of risk. They demonstrated that the addition of low-probability risks to a disclosure can dilute (rather than add to) more probable losses, leading certain investors to lower their perceptions of overall risk. Also, since lowering the threshold changes the overall composition of the disclosure by adding low-probability losses, firms could adopt a tactic of minimization that characterizes the entire disclosure as unimportant, presenting the lowest risks most saliently, using compliance with the low threshold as a plausible reason for giving a lengthy disclosure of generally unimportant risks. Their findings suggested that such a tactic can be

persuasive. Heinle et.al. [13], developed a model where the firm's exposure to a factor is unknown, and analyze the effects of factor-exposure uncertainty on share price and the effects of disclosure about the exposure. They found that: factor-exposure uncertainty introduces skewness and excess kurtosis in the cash flow distribution relative to the commonly used normal distribution; risk-factor disclosure affects all moments of that distribution and the pricing of higher moments affects the price response of disclosure and the incentives to disclose. For example, factor-exposure uncertainty may actually increase price when the uncertainty implies positive skewness in the cash flow distribution. Hence, a reduction in uncertainty through disclosure may increase cost of capital. They also extended their model to multiple firms and showed that factor-exposure uncertainty manifests as uncertainty about a firm's CAPM beta.

### 3 Research Methodology

The present paper is an applied research. It uses descriptive correlation method, and to test the hypothesis, a multi-variable regression with an ex post facto approach has been used. To validate the reliability of the results, default regression tests were used. As the findings of this paper provide a chance for taking better investment decisions, it is an applied research from objective point and a correlation. The method of data collection in this research is library method and the statistical population includes all accepted companies Tehran Stock Exchange, which is from 2013 to 2016. A total of 82 companies were selected as systematic research samples. For data analysis, Eviews software was used.

#### 3.1 Research Hypothesis

$H_1$ : In Iran, companies that expose their financial derivatives and instruments according to accounting standard No. 15 reduce discount rate risks.

$H_2$ : In Iran, earning management in companies that expose their financial derivatives and instruments according to accounting standard No. 15 reduce discount rate risks.

$H_3$ : In Iran, companies that expose their financial derivatives and instruments according to accounting standard No. 15 increase company value.

#### 3.2 Research Variables

##### 3.2.1 Dependent Variables

- **Excess Return (ER)**

The research dependent variable was bases on the studies of Kazemi and Soroushyar [22] and Hasasyeganeh and Omidi [12] to measure monthly **excess return** of the stock and risk free stock return. Here, the company's monthly excess stock return was calculated by the difference between the company's monthly excess stock return and Risk-free return. Following that, the average monthly excess return is calculated for a year. Yekini [35] also proved that excess re-

turn is an index of discount rate risk in a way than an increase in excess return leads to a rise in discount rate risk. Accordingly, here, excess return is taken as an index for discount rate risk. To calculate the **market return**, the changes in the general index must be calculated which is obtained based on the following relationship:

$$E_{(r_m)} = \frac{I_t - I_{t-1}}{I_{t-1}} \quad (1)$$

Where  $I_t$  is the market general index at the end of term t

$I_{t-1}$  is the market general index at the beginning of term t

- **Value of company**

**Value of company** is the control variable in first and second hypothesis, and in third hypothesis have been used as dependent variable. One of the newest criteria for assessing the value of companies is the **refined economic value added (REVA)**. Based on this criterion, the value of a company depends on two factors: capital return and capital cost incurred by the company. Therefore, the difference between adjusted added value and other criteria for evaluating the performance of the company is that here the total cost of financial resources is included [32]. To determine the company's capital cost, the cost of each item for each capital items must be calculated and then based on the percentage of their contribution, the company's average capital cost is calculated. Based on the company's total market capital, its capital cost is calculated by weighted average cost of value. To determine the contributed capital cost net book value of assets is used. If value of assets is used instead of net book value of assets, the amount obtained indicates refined economic value added.

$$REVA_{it} = (\gamma - C) \times M_{capit} \quad (2)$$

Where  $M_{capital}$  represents the market capital of the company's assets and  $C$  stands for cost of capital obtained through weighted average. It is worth noting that to calculate common stock capital cost CAPM model is used:

$$E(r_i) = r_f + \beta(E_{(r_m)} - r_f) \quad (3)$$

Where  $E(r_i)$  is stock expected return.

$r_f$  is risk free return rate

$\beta$  is systematic risk coefficient

$E_{(r_m)}$  is market return

In this research,  $r_f$  is the average of bond interest rate published by different ministries during the research term. Beta which indicates the amount of excess return sensitivity to market excess return is obtained from the following relationship:

$$\beta = \frac{Co(R_i, R_m)}{Va(R_m)} \tag{4}$$

To calculate Beta, the market securities monthly data are used. These data are also included in the company and market return calculations. Beta coefficient is a set of systematic business and financial risks through which one can compare the company’s return rate with that of the total bond [6].

### 3.2.2 Independent Variable

**disclosure level ( $DL_{it}$ )**, was calculated by combining the suggested check list by Yekini and accounting standards No. 15, 36, and 37. In this ten-item checklist, for disclosure for each item number 1 and for no disclosure 0 is allocated to each item. Following that, for each company, the average of the numbers is calculated as the disclosure level.

**Table 1:** Research suggested check list

	<b>Disclosure items</b>
1	Initial recognition as financial asset/liability
2	Barter of Financial assets and financial liabilities
3	Collateral
4	Reputation risk
5	Default risk
6	Fair value
7	Credit risk
8	Corporate liquidity risk
9	Market risk
10	Exchange risk

### 3.2.3 Moderating Variable

**The interaction effect of earning management and disclosure level ( $DL * DAC_{i,t}$ )**, is obtained by multiplying earning management in financial derivatives and instruments disclosure level. To fit the effect of earning management on in financial derivatives and instruments disclosure level Based on Accounting Standards No 15 of Iran and discount rate risk. The accrual is the difference between operating income and the cash obtained from the operation. Accrual management is a method in which the management manages the earnings through accounting books without affecting the cash and making real economic decisions. In this approach, the sum of the earnings and losses change [7].

**Discretionary accruals ( $DAC_{i,t}$ )** are used to measure accruals based earning management. To measure discretionary accruals, Kothari et.al. [24] and Nekhili et.al. [32] introduced a model similar to that of Jones, but it included the rate of returns on assets. They found that their model gives stronger results than that of Jones. Their model was as follows:



$$TA_{it}/A_{i,t-1} = a_0(1/A_{i,t-1}) + a_1[(\Delta CA_{it} - \Delta CCR_{it})/A_{i,t-1}] + a_2(PPE_{it}/A_{i,t-1}) + a_3(ROA_{i,t-1}) + \varepsilon_{it} \quad (5)$$

Where  $TA_{it}$  is the  $i$  company's accrual for year  $t$  which is calculated by deducing the operating cash flow from the total net profit.

$A_{i,t-1}$  equals total asset at the beginning of the term

$\Delta CA_{it}$  is the change in the sales between years  $t$  and  $t-1$  in company  $i$ .

$\Delta CCR_{it}$  is the change in the liabilities between years  $t$  and  $t-1$  in company  $i$ .

$PPE_{it}$  is the fixed assets gross value for company  $i$  over the year  $t$ .

$ROA_{i,t-1}$  is the proportion of company  $i$  net profit to the total assets at the beginning of the term (the rate of return on assets in year  $t-1$ )

And finally,  $\varepsilon_{it}$  is the remainder of the model.

To reduce the variance heteroscedasticity all the model variables are standardized by the company's total assets for the year  $t-1$ . To calculate the accruals, Hribar and Collins [15] method was used. As they believed the data content of sustainable earnings is higher than that of unsustainable earnings, they introduced a new approach based on accrual data and profit changes. Based on the earning management model introduced by Nekhili et.al. [32], the non-discretionary accruals ( $NDAC_{it}$ ) are earned as follows:

$$NDAC_{it}/A_{i,t-1} = \tilde{a}_0(1/A_{i,t-1}) + \tilde{a}_1[(\Delta CA_{it} - \Delta CCR_{it})/A_{i,t-1}] + \tilde{a}_2(PPE_{it}/A_{i,t-1}) + \tilde{a}_3(ROA_{i,t-1}) \quad (6)$$

Discretionary accruals of company  $i$  in year  $t$  ( $DAC_{i,t}$ ) is obtained from the difference between total accruals ( $TA_{it}$ ) and non-discretionary accruals ( $NDAC_{i,t}$ ).

$$DAC_{it} = TA_{it}/A_{i,t-1} - \left[ \tilde{a}_0(1/A_{i,t-1}) + \tilde{a}_1[(\Delta CA_{it} - \Delta CCR_{it})/A_{i,t-1}] + \tilde{a}_2(PPE_{it}/A_{i,t-1}) + \tilde{a}_3(ROA_{i,t-1}) \right] \quad (7)$$

### 3.2.4 Control Variables

**Value of company** is the control variable in first and second hypothesis and in third hypothesis have been used as dependent variable.

**Financial leverage** ( $Lev_{it}$ ) which here is the control variable equals the company's total liability divided by its total assets [32].

**Free Cash Flow** ( $FCF_{i,t}$ ), is calculated after tax deduction without taking the company's debts and interest costs into account. Therefore, presuming the company has no liabilities, free cash flow is the cash available to the company after covering investment and working capital. In companies with no liabilities and financial leverage, free cash flow equals cash flow and equity.

To measure the level of free cash flow, Lehn and Poulsen [25] approach and Moradzandi and Tanani [30] paper have been taken in to account, according to which:

$$FCF_{i,t} = INC_{i,t} - TAX_{i,t} - INTE_{i,t}P - CSDI_{i,t} \quad (8)$$

Where  $FCF_{i,t}$  is free cash flow for company i in year t

$INC_{i,t}$  is the operating income before the i company depreciation in year t

$TAX_{i,t}$  is total payable tax for company i in year t

$INTE_{i,t}$  is the interest expense for company i in year t

$CSDI_{i,t}$  is the payable interest to ordinary shareholders for company i in year t

Based on Esmailzadeh et.al. [28], to mitigate heteroskedasticity all variables are deflated by lagged assets.

**Change in net profit**, equals to the changes in the company's net profit in year t as opposed to the year (t-1) [35].

**Change in sales**, equals to the changes in the company's sales in year t as opposed to the year (t-1) [35].

### 3.3 Research Models

Based on Yekini [35], in the first model (9) at the presence of control variables related to company's risk (value and financial leverage) and its performance (free cash flow, changes in sale and net profit), the effect of financial disclosure and instruments on excess earning as an index of discount rate was investigated. Then, in the second model (10), the interaction effect earning management and disclosure level (moderator) was fit on excess return. In the third model (11) at the presence of control variables related to company's risk and its performance, the effect of financial disclosure and instruments on company value was investigated. The re-search models are as follows:

$$ER_{i,t} = \alpha_0 + \alpha_1 DI_{i,t} + \alpha_2 REVA_{i,t} + \alpha_3 LEV_{i,t} + \alpha_4 FCF_{i,t} + \alpha_5 CHANGE_{i,t} SALES + \alpha_6 CHANGE_{i,t} net PROFIT + \varepsilon_{i,t} \quad (9)$$

$$ER_{i,t} = \alpha_0 + \alpha_1 DL_{i,t} + \alpha_2 DAC_{i,t} + \alpha_3 DL_{i,t} * DAC_{i,t} + \alpha_4 REV_{i,t}^A + \alpha_5 LEV_{i,t} + \alpha_6 FCF_{i,t} + \alpha_7 CHANGE_{i,t} SALES + \alpha_8 CHANGE_{i,t} net PROFIT + \varepsilon_{i,t} \quad (10)$$

$$REV_{i,t}^A = \alpha + \alpha_1 DL_{i,t} + \alpha_2 LEV_{i,t} + \alpha_3 FCF_{i,t} + \alpha_4 CHANGE_{i,t} SALES + \alpha_5 CHANGE_{i,t} NET PROFIT + \varepsilon_{i,t} \quad (11)$$

#### 4 Research Findings

Table 2 presents the descriptive statistics of the variables in the research.

**Table 2:** Results of Descriptive Statistics of Variables

Variable type	Variable	Symbol	Mean	Middle	Standard deviation	Min	Max
Qualitative	Excess return	$ER_{i,t}$	0.003	-0.006	0.142	-0.359	0.464
	Disclosure Level	$DL_{i,t}$	0.458	0.455	0.099	0.301	0.699
	Earnings management	$DAC_{i,t}$	0.0002	-0.013	0.158	-0.49	0.946
	Interactive effect	$DE * DAC_{i,t}$	0.001	-0.005	0.076	-0.266	0.49
	Company value	$REV_{i,t}^A$	12.079	12.01	0.573	10.833	13.694
	Financial Leverage	$LEV_{i,t}$	0.606	0.614	0.185	0.176	1.099
	Flow of cash	$FCF_{i,t}$	0.053	0.030	0.130	-0.239	0.507
	Change in sales	$CHANGE_{i,t} SALES$	0.530	0.653	4.587	-20.298	19.892
	Change in net profit	$CHANGE_{i,t} net PROFIT$	1.151	1.045	1.772	-6.816	14.010

Based on the results of the correlation test of regression model variables, which is shown in Table 3, the models variance is less than 5. Therefore, there is no coherency between explanatory variables.

**Table 3:** Coherency Results of Models

Variable	Symbol	Influence factor of variance		
		First model	Second model	Third model
Disclosure Level	$DL_{i,t}$	1.02	1.02	1.02
Low Disclosure Level	$DL_L$	-	-	-
High Disclosure Level	$DL_H$	-	-	-
Earnings management	$DAC_{i,t}$	-	1.08	-
Interactive effect	$DE * DAC_{i,t}$	-	1.15	-

Company value	$REVA_{it}$	1.04	1.12	-
Financial Leverage	$Ley_{it}$	1.15	1.14	1.13
Flow of cash	$FCF_{it}$	1.19	1.17	1.15
Change in sales	$CHANGE_{it} SALES_{it}$	1.01	1.01	1.01
Change in net profit	$CHANGE_{it} net PROF_{it}$	1.04	1.03	1.03

White test has been used to investigate the heteroscedastic errors in regression analysis, which their results have been presented in Table 4.

**Table 4:** Heteroscedasticity Test

White test	Statistic	Significant level	Situation
First model	2.26	0.04	heteroscedasticity
Second model	1.24	0.19	Non heteroscedasticity
Third model	1.83	0.11	Non heteroscedasticity

Since there is a heterogeneity of variance problem in the first model, the generalized least squares method (GLS) is used to fit it, but since in the second and third models there is no problem of heterogeneity of variance and coherence, therefore Ordinary Least Squares (OLS) is used. The significance level of the Hausman test implies the use of the static effects' method against the random effects method, which is seen in Table 5. Therefore, panel models and static effects are used to fit models.

**Table 5:** Hausman and Chow Test

	Test	Limer statistics	Significant level	Test result
First model	Chow	1.9	0.00	Hausman test run
	Hausman	15.34	0.02	Fixed Impact Model
Second model	Chow	2.18	0.00	Hausman test run
	Hausman	12.073	0.01	Fixed Impact Model
Third model	Chow	21.95	0.00	Hausman test run
	Hausman	14.40	0.01	Fixed Impact Model

**Table 6:** First Model's Results

Variable	Symbol	Regression coefficient	Error standard	T-statistic	Confidence Level	Result
Fixed	$C$	-0.656	0.26	-2.527	0.012	-
Disclosure Level	$DL_{it}$	-0.122	0.058	-2.093	0.037	Confirm
Company value	$REVA_{it}$	-0.053	0.019	-2.755	0.006	Significant
Financial Leverage	$Ley_{it}$	0.125	0.046	2.691	0.008	Significant
Flow of cash	$FCF_{it}$	0.538	0.046	11.69	0.000	Significant
Change in sales	$CHANGE_{it} SALES_{it}$	-0.002	0.001	-1.896	0.059	Significant
Change in net profit	$CHANGE_{it} net PROF_{it}$	0.007	0.003	2.403	0.017	Significant

R-squared	0.921	F-statistic	34.852
		Model's Confidence Level	(0.000)
Adjusted-r-squared	0.894	Durbin – Watson	(2.328)

Table 6 presents the results of generalized least squares regression (GLS) Fixed effect model for the first hypothesis. As seen, statistic F and its level of significance indicate that the estimated regression for testing the hypothesis is significant. Here  $R^2_{\text{adjusted}}$  is %894, indicating the percentage in which dependent variables changes justify the model variables. Besides, using Durbin Watson statistic, the result of error autocorrelation was 2.328, indicating no autocorrelation in the model. Based on statistic  $t$  and the research variables significance level, the results indicate that disclosure level with statistic -2.093 in %5 significance level has a negative significant relationship with excess return (discount rate risk). Therefore, disclosure level affects the companies' excess return in a way that increasing it raises the companies' transparency and excess return and accordingly, reduces the discount rate risk. In other words, the higher the disclosure level, the investors find the company less risky and therefore, based on the transparency they find a better balance between risk and expected profit which in turn leads to fewer changes in risk rate and ultimately fewer discount rate risks. Therefore, the first hypothesis which was based on the effect of financial derivatives and instruments on reducing discount rate risk was approved.

**Table 7:** Second Model's Results

Variable	Symbol	Regression coefficient	Error standard	T-statistic	Confidence Level	Result
Fixed	$C$	-1.089	0.394	-2.767	0.006	-
Disclosure Level	$DL_{i,t}$	-0.184	0.078	-2.359	0.008	significant
Earning management	$DA\check{C}_{i,t}$	-0.02	0.003	-6.66	0.026	significant
Interaction effect Earning management and Disclosure Level	$DE*DA\check{C}_{i,t}$	-0.146	0.062	-2.375	0.018	Confirm
Company value	$REVA_{i,t}$	-0.079	0.03	-2.622	0.009	significant
Financial Leverage	$Ley_{i,t}$	0.043	0.08	0.545	0.586	insignificant
Flow of cash	$FCF_{i,t}$	0.51	0.23	2.22	0.027	significant
Change in sales	$CHANGE_{i,t} SALES_{i,t}$	-0.003	0.002	-1.724	0.086	significant
Change in net profit	$CHANGE_{i,t} net PROF_{i,t}$	0.008	0.004	1.942	0.053	significant
R-squared	0.536	F-statistic		3.257		
		Model's Confidence Level		(0.000)		
Adjusted-r-squared	0.376	Durbin – Watson		(2.444)		

Among the control variables, there was a negative significance between the company's value and sales changes, and excess returns, with the statistic being -2.75 and -1.89 and confidence level being %99 and %90 respectively. Moreover, financial leverage, free cash flow and change in net profit variables with statistic 2.69, 11.69 and 2.4 have a positive significant correlation with excess return (discount rate risk) at significance levels of 1 and 1.5 percent. Table 7 presents the results of ordinary least squares regression (OLS) fixed effect model for the second

hypothesis. The F statistic and its significance level indicate that the estimated regression model for testing the hypothesis is significant. Here,  $R^2_{\text{adjusted}}$  is 0.376, indicating the percentage in which dependent variable changes are justifiable by the model variables. Besides, using Durbin Watson statistic, the result of error autocorrelation was 2.44, indicating no autocorrelation in the model. Based on model two analysis, and given the statistic and significance level be -2.375 and %5 respectively, there is a negative significant relationship between the earning management moderating variable and the disclosure level (interaction effect) and earning management and excess return (discount rate risk); therefore, the second hypothesis regarding the effect of earning management on the relationship between financial derivatives and disclosure instrument and excess return was confirmed. So, in companies with higher disclosure level and earning management, the discount rate risks decreases. Moreover, it was found that for statistic -0.005, given that significance level be %5, earning management has a negative significant relationship with excess earning and so can reduce the discount rate risk in the given companies. It is clear that leveling the earning by management can reduce the earning and profit fluctuations and thereby reduce the earning fluctuations and consequently reduce the discount rate risk. The results of ordinary least squares regression (OLS) by fixed effect model for the research third hypothesis has been represented in table 8. As it shows, F statistic amount and meaningfulness of this statistic indicate that estimated regression model is totally meaningful. Here,  $R^2_{\text{adjusted}}$  is 0.913, indicating the percentage in which dependent variable changes are justifiable by the model variables. Besides, using Durbin Watson statistic, the result of error autocorrelation was 1.68, indicating no autocorrelation in the model. Based on the third model hypothesis by uses of statistics (4.874) in meaningful level of 5 percent, disclosure level has positive and meaningful relationship with company value. So, the research third hypothesis of instrument disclosure effects and financial derivative on company value have been validated.

**Table 8:** Third Model's Results

Variable	Symbol	Regression coefficient	Error standard	T-statistic	Confidence Level	Result
Fixed	$C$	12.649	0.055	229.801	0.000	-
Disclosure Level	$DL_{i,t}$	0.58	0.119	4.874	0.025	Confirm
Financial Leverage	$Ley_{i,t}$	-0.095	0.107	-8.452	0.000	Significant
Flow of cash	$FCF_{i,t}$	0.042	0.184	0.226	0.822	Insignificant
Change in sales	$CHANGE_{i,t} SALES_{i,t}$	-0.008	0.003	-2.513	0.013	Significant
Change in net profit	$CHANGE_{i,t} net PROF_{i,t}$	0.009	0.005	1.7	0.09	Insignificant
R-squared	0.934			F-statistic	44.542	
				Model's Confidence Level	(0.000)	
Adjusted-r-squared	0.913			Durbin – Watson	(1.68)	

Among controlling variables of the research third model, financial leverage and change in sale have in insurance level 99 percent and 95 percent have subsequently negative and meaningful relationship with company value. It is clear that if financial leverage increases, the ratio of liability on company assets will increase and this issue can decrease company value.

## 5 Conclusions

In this paper, the function of financial derivatives and instruments and their effects on the changes in discount rate risks among companies active in Tehran stock exchange were investigated. It also studied the effect of earning management on discount rate risk. These relationships were studied based on two hypotheses. The results indicated a negative significance between the disclosure level of financial derivatives and instruments (based on standard No. 15) and discount rate risk, and so the first hypothesis was confirmed. Therefore, based on standard No. 15, the disclosure of financial derivatives and instruments reduces the discount rate risk. Then, the second hypotheses namely the effect of earning management on the relationship between financial derivatives and instruments disclosure, and excess returns was confirmed. Therefore, in companies running earning management with high level of disclosure, the discount rate risk decreases. Research third hypothesis about instrument disclosure level and financial derivatives based on the Standard No. 15 which causes increase in companies' values are affirmed. Totally, it can be concluded that instruments' disclosures and financial derivative can decrease risk-adjusted discount rates and increase companies' values based on the standard No. 15.

### 5.1 Results and Discussion

Increasing financial derivatives and instruments disclosure level improves the market decision-making potential and facilitates decision making for the investors. This paper investigated the effects of accounting standards on financial derivatives and instruments disclosure level. There are no national reports on the topic in question, and although there is some similar research, the approach taken here is different. For example, Mehrani and Parvaei [28] have investigated the disclosure variable in the light of available rankings in the stock market organization, while here, the variable is calculated by combining Yekini adjusted checklist [35] and Iran accounting standards No. 15, 36 and 37.

### 5.2 Results based Suggestions

Use of derivative instrument has enough conditions in our country. So, accurate executive schemes have been codified based on these Standards of 15, 36 and 37 for the above mentioned aim. So, it is suggested that in market design of housing second mortgage with the property assistance and individual assurance that have received housing loan, a kind of derivative instrument should be established because it caused not only diversity in part of capital market but also it helps housing market revivification because by entrance of new investor and buying of established exchanges, bank sources or other institutes' sources that provide facilities and loans will increase and these sources can be reused for providing new loans and facilities for applicants.

After financial boycotts against Iran and services' stops of foreign bank about decrease or cut of exchange transactions with Iran, Iran has been endangered more and more seriously about the effect of fluctuations of foreign exchange equality rate. So, customers intend to per-

form more risk central services. Finally, if we define risk management instruments of exchange and interest rate fluctuation for Iran market in the format of bank regulations without gavel, impositions of heavy costs on country economic agencies will be prevented and it will be for decrease of finished price and inflation. The results of this research is of great help to a multitude of people including investors in financial markets, securities and stock market authorities, financial analysts and capital market researchers. The results indicate that financial derivatives and instruments disclosure level is an important factor for investors and financial decision makers. To limit the maladministration, it is suggested that the national standard decision makers provide rules for controlling and monitoring the managers and limit their access to management approaches. Moreover, it is suggested that new models be introduced for risks and excess returns and include these risks in the new models.

### 5.3 Research Limitations

The first and the most important research limitation that have been performed based on deductive statistic, are about its result extensions to the other situations and durations. In this study, other factors such as, macroeconomic political situation, existent rule and regulations, which have existed from the research access, can effect on the research results.

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