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STUDYING THE RELATIONSHIP BETWEEN DEBT LEVEL AND THE DISPERSION OF OWNERSHIP WITH EARNINGS MANAGEMENT IN FIRMS ACCEPTED IN TEHRAN STOCK EXCHANGE

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ABSTRACT

The overall goal of the present research is to study the relationship between debt and ownership dispersion with earnings management in firms accepted in Tehran Stock Exchange. The time period for the present research started from 2006 and continued until the year 2011 for 6 years and the statistical sample entailed 111 companies accepted in Tehran Stock Exchange. The results showed that there is a reverse and meaningful relationship between debt level and dispersion with earnings overstatement. This finding emphasizes on the efforts by the managers to increase the efficiency of the debt contracts and makes the effect of the supervisions by the creditors on the financial reporting environment of the companies with a capital structure based on debts known. Also the results showed that in companies with multiple ownerships the relationship between debt level and earnings overstatement decreases. According to this finding we can conclude that a multiple ownership is a factor which limits governance and supervision mechanisms in corporate companies. Managers of such companies have more opportunities and incentives for unreal financial reporting compared to companies with more concentrated ownership structured companies.

Key Words: *Debt, Ownership Structure, Ownership Dispersion, Earnings Management, Optional Accruals*

INTRODUCTION

The information resource for most parties active in capital market is the financial reports published by the companies presented for the public periodically and it is considered as a basis for decision makings by the potential and present investors to have transactions and investment in stock market. But increasing the resources dominated by the management, the number of beneficiaries related to the companies is increased and as a result of it the controversies in benefits are created (Jensen, 1986). The manager, being in the focal point of these controversies, tries to decrease it by presenting financial information of the company. The potential managers are motivated to show the status of the company desirable and they achieve it as a result of the authorities they have in presenting financial reports to implement this approach (Mashayekh and Esmaeeli, 2006). Preserving the benefits of the groups involved in corporate companies is highly dependent on financial reporting quality of these companies. Evidences show that managers in corporate companies potentially have a tendency for unreal financial reporting. This results from their opportunistic incentives. The knowledge of users of financial statements of these tendencies of management can be effective in preserving their benefits in company (Jensen, 1986).

In the present research we will try to study the earnings management probability and unreal financial reporting in firms with high debt levels. The necessity of doing this research is due to helping the creditors in decisions for conferring credits and its results can help this group and other users of financial statements in assessing the companies and knowing the characteristics of companies in which there is a high possibility of earnings management.

There are two different perspectives regarding the debt contracts in choosing accounting approaches. The first perspective claims that managers are motivated to choose accounting approaches in a way that it

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results in overstatement of earnings. The reason for this lies in the fact that usually debt contracts have predetermined conditions related to accounting variables (for example, the least debt ratio determined) and the violation of them will impose expenses for the company. Earnings additive approaches of accounting are useful in avoiding the violation of these conditions. The second perspective states that managers try to show the company less risky by the creditors by using optional approaches in accounting and earnings overstatement and this result in regressive the interest rate expected by the creditors and it reduces debt contract's expenses (Nikolaev, 2010). Regarding the issues mentioned above, it seems that managers of companies which encounter a high level of financial leverage tend to manipulate and do earnings management in reported earnings. Accordingly, the main problem posed by the present research can be stated as follows:

Is there a meaningful relationship between financial leverage and ownership dispersion of the companies with earnings management level present there?

1. The Theoretical Framework of this Research

The outlook accepted in these studies states that the clear and implied contracts among the beneficiaries and the company can create different incentives for managers to manipulate earnings (Jensen M.C, 1986). They tested political costs hypothesis, ownership structure hypothesis, and internal financing hypothesis besides testing rewarding hypothesis, debt hypothesis, and firm size hypothesis. The results showed that there is a relationship between political costs, rewarding, ownership structure, and internal financing with earnings manipulation. But the debt hypothesis was not approved in Japanese companies (Hemmati, 2003). Watts and Zimmerman (1986) proved that firms with high financial leverage are more opt to overstate earnings compared to other companies. They found out that earnings' overstatement has been more in periods through which the company was negotiating to finance using external resources and by the creditors. Watts & Zimmerman interpreted that this opportunistic behavior of managers is done to reduce the firm value risk and avoid the limitation of the credits (Velury and Jenkins, 2006). Jung and Kown (2002) studied the relationship between ownership structure and information content of earnings in Korea. Their findings showed that along with increasing the presence of institutions and big stockholders, information content of earnings increases. These results can be considered as approving the supervision hypothesis regarding the presence of institutional investors (Lee *et al.*, 2007). Velury and Jenkins (2006) studied the supervising role of institutional owners through testing the effect of institutional ownership level present in firms' structures on the quality of the reported earnings. To test the relationship between earnings quality and institutional ownership, they investigated about 4 quality dimensions described in concepts' announcement number 2 of Standards' Board. According to their findings there is a direct relationship between the level of ownership of institutional investors and earnings' quality. Meanwhile, based on some other findings earnings' quality has a reverse relationship with concentration of institutional investors (Velury and Jenkins, 2006).

Rajan (2006) observed that higher growth will result in decreasing the return rate of assets and more conservativeness (Nikolaev, 2010). Nicolav (2007) found out that the limitations of higher debts will result in implementing more conservativeness. Chen (2007) stated that higher conservativeness will reduce earnings' management. Jeling (2007) reasoned that companies try biased reporting to reduce the risk. Companies having a high ratio of debt to total assets overstate earnings to assure the creditors that they have the ability to pay back the original funds and the interest for the loans and credits received. Lack of considerable fluctuations in earnings creates this assurance for the creditors that the business unit will be able to pay for their claims in the future. Risk decreases along with earnings smoothing and the decrease of the ratio of debt to total assets (Jelinek, 2007). Bosch *et al.*, (2008) analyzed whether the institutional investors prefer to form their portfolios in firms with a better governance mechanisms. This research showed that although institutional investors have some incentives for investing in firms with better governance mechanisms, there is not a meaningful relationship between institutional ownership and corporate governance (Bushee *et al.*, 2008). Karami (2007) tested information content of earnings in studying the relationship and concluded that institutional ownership can not promote information content

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of earnings of the company and it can regress it as well (Karami, 2007). Moradadeh *et al.*, (2009) studied the relationship between institutional ownership and earnings management. In this research the relationship between the number of institutional investors and also their concentration on earnings management has been investigated and they concluded that there was a negative meaningful relationship between institutional ownership of stocks and earnings management (Moradzadeh *et al.*, 2009).

2. Research Methodology

The research methodology here is descriptive and correlation type. It is descriptive because its goal is to describe the conditions or phenomena under investigation and know more about the present situation. It is correlation because the relationship between the variables is investigated. Also the present research is applied because we have studied the relationship between variables in Stock Exchanges.

3. Statistical Population and Research Sample

Statistical population of the present research entails all firms accepted in Tehran Stock Exchange. Regarding the research variables we can describe the following conditions to implement in our systematic deletion sampling.

- 1) The companies should not be among investing companies, banks, insurance companies or financial intermediary ones.
- 2) The end of fiscal year should be end of Esfand (21st. March).
- 3) The company should be present in Stock Exchange during the years between 2006 and 2011.
- 4) The company should not have changed its fiscal year during the study period.
- 5) The trademark for the company should be active and its stocks should have been transacted at least once in a year.

In the present research, the year 2006 was considered as the base and after implementing the conditions and observing them in systematic deletion sampling, 111 companies were chosen from among the statistical society in order to carry out the hypotheses' tests.

4. Research Hypotheses

1. There is a meaningful relationship between financial leverage and earnings' overstatement.
2. There is a relationship between ownership dispersion and earnings' overstatement by management.
3. The relationship between financial leverage and earnings' overstatement by management in companies with dispersed ownership is different from that in other companies.

5. Research Variable and Their Calculation Methods

5.1. Dependent Variables of the Research

The main dependent variable of the present research is the earnings' management level in our statistical sample companies. Regarding the claim posed in hypotheses, in the present research we pay attention to additive earnings' management (earnings' overstatement) which is calculated in the research through estimating optional accruals' level in two different isolated methods of measurement and hypotheses' test. The methods of estimating accruals used in the present research are as follows:

5.1.1. The Adjusted Model by Alcarria & Gill (2004)

The method presented by Alcarria and Gill (2004), is a regression pattern in which the accruals of flowing capital is considered to be the dependent variable and is shown as follows:

$$\frac{WCA}{TA_{i,t-1}} = \alpha_1 \left(\frac{1}{TA_{i,t-1}} \right) + \alpha_2 \left(\frac{\Delta REV_{it}}{TA_{i,t-1}} \right) + \alpha_3 \left(\frac{CFO_{it}}{TA_{i,t-1}} \right) + \varepsilon_{it}$$

WCA: accruals of flowing capital calculated through the following method:

WCA = (Δ current assets - Δ cash) - (Δ current liabilities - Δ short-term debt - Δ taxes payable)

Δ REV: change in sales' earnings compared to the previous period

CFO: operational cash flow

Also to harmonize and standardize the variables, all of them were divided by the book value of assets of the previous period (TA).

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ϵ : residual of the regression pattern and a sign of optional accruals which shows the earnings' management level in each year-company (Jensen, 1986).

5.1.2. The Adjusted Model by Kothari et al., (2005)

The second criterion to measure earnings' management level is the adjusted cash flow pattern presented by Jones. In this regression model, optional accruals are calculated by the residual of the regression of total accruals on sales and properties and machineries (independent variables).

$$\frac{TACC}{TA_{i,t-1}} = \alpha_1 \left(\frac{1}{TA_{i,t-1}} \right) + \alpha_2 \left(\frac{\Delta REV_{it}}{TA_{i,t-1}} \right) + \alpha_3 \left(\frac{PPE_{it}}{TA_{i,t-1}} \right) + \epsilon_{it}$$

Where,

TACC: total accruals gained through the difference between operational earnings and operational cash flow.

PPE: total properties, machineries and equipments

Other variables were identified before.

ϵ : residual of the regression pattern and a sign of optional accruals which shows the earnings' management level in each year-company (Kothari et al., 2005).

5.2. Independent Variables of the Research

5.2.1. Financial Leverage

The ratio of debts to assets is used as a criterion to determine capital structure in companies. This criterion which is called financial leverage is an index for the financial risk of the company and also the ability of the company to pay back the debts. In the present research, financial leverage is considered as a criterion for debt level of a company and is calculated as follows.

$$Lev = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

5.2.2. Ownership Dispersion

This type of ownership is exactly in the opposite side of ownership concentration. It refers to a state where the stocks of the company are conferred to a lot of minor stockholders. Ownership dispersion is considered as the independent variable in the present research and the percentage of the stocks belonging to the real stockholders is used to measure it (Bebchuk and Roe, 1999). In test pattern of the hypotheses, the percentage of stocks belonging to real stockholders (minor stockholders) is considered as the independent variable.

6. Hypotheses Test Method

To test the research hypotheses, we have used a regression pattern presented and tested by Gonzalo & Stefan in the year 2010.

6.1. The Test Method of First Hypothesis

Regarding the pattern presented by Gonzalez & Stefan (2010), the test method of the first hypothesis is as follows:

$$DAC_{i,t}^+ = \beta_0 + \beta_1 DEBT_{i,t} + \beta_2 LOGTA_{i,t} + \beta_3 EFTAX_{i,t} + \beta_4 IDEBT_{i,t} + \beta_5 ICAP_{i,t} + \epsilon_{i,t}$$

Where,

DAC: positive optional accruals which show additive earnings management level.

DEBT: firm's financial leverage

LOGTA: natural logarithm of firm's assets which is the criterion for firm size (control variable)

EFTAX: the effective rate of taxation on earnings which is calculated through the ratio of tax cost to earnings before taxation (control variable)

IDEBT: the difference between increase in firm's debt and the average increase in debts of total firms of the statistical sample (control variable)

ICAP: the difference between increase in equity and the average increase in equity of total firms of the statistical sample (control variable)

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In the regression pattern above, β_1 coefficient shows the relationship between debt and additive earnings' management. Other coefficients show the relationship between control variables and earnings management (Moradzadeh *et al.*, 2009).

6.2. The Test Method of Second Hypothesis

Also in this hypothesis, positive optional accruals are considered as the dependent variable and as a function of ownership dispersion and the control variables of the research.

$$DAC_{i,t}^+ = \beta_0 + \beta_1 IV_{i,t} + \beta_2 DIV_{i,t} + \beta_3 LOGTA_{i,t} + \beta_4 EFTAX_{i,t} + \beta_5 IDEBT_{i,t} + \beta_6 ICAP_{i,t} + \epsilon_{i,t}$$

Where,

IV: firm's ownership dispersion level which is equal to the percentage of stocks belonging to real stockholders (minor stockholders).

DIV: it is a virtual variable and if the percentage of stocks belonging to minor stockholders of the company is higher than the percentage of stocks belonging to minor stockholders of the total statistical sample companies its amount is 1 or else it would be 0.

Other variables have been determined before. In the regression pattern above, coefficients β_1 and β_2 show the relationship between ownership dispersion and earnings management.

6.3. The Test Method of Third Hypothesis

Regarding the pattern presented by Gonzalez & Stefan (2010), the test method for the third hypothesis is as follows.

$$DAC_{i,t}^+ = \beta_0 + \beta_1 DEBT_{i,t} + \beta_2 DIV_{i,t} + \beta_3 DIV_{i,t} * DEBT_{i,t} + \beta_4 LOGTA_{i,t} + \beta_5 EFTAX_{i,t} + \beta_6 IDEBT_{i,t} + \beta_7 ICAP_{i,t} + \epsilon_{i,t}$$

In the regression pattern above, β_3 shows the relationship between debt level and additive earnings management in companies with dispersed financial structure. Also β_1 reflects the relationship between debt level and additive earnings' management in total companies of the statistical sample. The coefficients β_4 through β_7 show the relationship between the control variables of additive earnings' management (Gonzalo and Stefan, 2010).

7. Results of Testing the Hypothesis

7.1. Results of Testing the First Hypothesis

In first hypothesis it was predicted that financial leverage has a meaningful relationship with overstatement of earnings by management. The pattern for testing the hypotheses of the present research was derived from the research carried out by Gonzalez and Stefan (2010). In this test the positive numbers related to earnings management index were considered as the dependent variable. The results of balancing the test patterns of first hypothesis in stepwise model are shown in tables 1 & 2.

Table 1: The results of statistical analysis of testing the first hypothesis – model 1

R ²	D-W	F	F(P-value)		
0.323	1.996	159.859	0.000		
variable	coefficient	t test	meaningfulness level (P-value)	Tolerance	co-linearity tests variance amass factor
DEBT	0.079	2.203	0.028	0.791	1.265
ICAP	0.602	16.787	0.000	0.791	1.265

Table 2: The results of statistical analysis of testing the first hypothesis – model 2

R ²	D-W	F	F(P-value)		
0.323	1.996	159.859	0.000		
variable	coefficient	t test	meaningfulness level (P-value)	Tolerance	co-linearity tests variance amass factor

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DEBT	-0.3	-7.717	0.000	0.74	1.351
IDEBT	0.153	4.395	0.000	0.924	1.082
ICAP	0.308	8.173	0.000	0.791	1.265

The second part of the tables above, show the results of the statistical analysis for the independent variables of the regression pattern and it shows that in model 1, the independent variable of financial leverage and the control variable of ICAP are valid and they remain in the regression. In model 2, the variable IDEBT has also gained the validity needed to remain in the regression. Therefore, it seems that model 2 based on Kothari *et al.*, (2005) earnings management index is more appropriate for making decisions about the hypothesis. The analysis results of the coefficients, type, toughness and meaningfulness show the relationship of each of the independent variables entered into the regression pattern with the dependent variable. Also the validity of each of the independent variables is considered through co-linearity tests. The results of co-linearity tests were shown in two last columns of the second part. The test results of this test are very close to 1 for all variables and the presupposition of the presence of co-linearity between the independent variables of the regression pattern are strongly rejected by them. Regarding the findings above, the balanced regression is statistically valid and meaningful and we can make decisions based on it about the relationships between the variables.

According to the results of the statistical analysis for the coefficients of the independent variables in model 2, the coefficient gained for the financial leverage variable is -0.3 and its meaningfulness level equals 0.000. This finding shows that there is a reverse and meaningful relationship between financial leverage and overstatement and this accord with the claim posed in the first hypothesis. The results related to control variables show that there is a direct and meaningful relationship between change in debt and change in equity with earnings' overstatement. These findings are very interesting and show that by increasing firms' capital, managers try more to increase earnings through optional accruals. On the whole, regarding the results above, the evidences do not convince us to accept H_0 and the first research hypothesis is accepted in %95 assurance levels.

7.2. Results of Testing the Second Hypothesis

In second hypothesis it was predicted that the varied number of ownerships has a meaningful relationship with overstatement of earnings by management. The results of balancing the test patterns of second hypothesis are shown in tables 3 & 4.

Table 3: The results of statistical analysis of testing the second hypothesis – model 1

R ²	D-W	F	F(P-value)		
0.326	2.012	161.549	0.000		
variable	coefficient	t test	meaningfulness level (P-value)	co-linearity tests	
				Tolerance	variance amass factor
DIV	-0.085	-2.674	0.008	0.998	1.002
ICAP	0.57	17.875	0.000	0.998	1.002

Table 4: The results of statistical analysis of testing the second hypothesis – model 2

R ²	D-W	F	F(P-value)		
0.192		1.817 53.62	0.000		
variable	coefficient	t test	meaningfulness level (P-value)	co-linearity tests	
				Tolerance	variance amass factor
IDEBT	0.083	2.365	0.018	0.987	1.013
EFTAX	0.071	2.029	0.043	0.999	1.001
ICAP	0.439	12.502	0.000	0.987	1.013

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The second part of the tables above show the results of statistical analysis for the coefficients of the independent variables of regression pattern and they mean that in model 1, the independent variable DIV which reflects companies with high ownership numbers and the control variable of ICAP have been deemed to be valid and remained in the regression. In model 2, the control variables of IDEBT, ICAP, and EFTAX have remained. These findings show that in none of the balanced models, the variable IV which is the basis for decision makings about the second hypothesis is recognized to be valid and this variable has been deleted from both two models. According to the results of the statistical analysis for the coefficients of the independent variables in model 1, the coefficient calculated for the variable DIV was -0.085 and its meaningfulness level was 0.008. This finding shows that there is a reverse and meaningful relationship between companies with high number of ownerships and earnings' overstatement. Based on the results above, the claim posed in second hypothesis of the research emphasizing at the existence of a relationship between the variety of the ownerships and earnings' overstatement is accepted.

7.3. Results of Testing the Third Hypothesis

In third hypothesis it was predicted that the varied number of ownerships affects the relationship between the debt and overstatement of earnings. To test this hypothesis, companies with high ownership numbers were isolated from other companies through a virtual variable in the regression pattern to measure the effects of this variable on the relationship between debt and earnings management. By putting the virtual variable DIV aside and balancing the regression, the most valid and meaningful model was achieved and the results of balancing the test patterns of third hypothesis are shown in tables 5 & 6.

Table 5: The results of statistical analysis of testing the third hypothesis – model 1

R ²	D-W		F	F(P-value)	
0.329	1.995		55.348	0.000	
variable	coefficient	t test	meaningfulness level (P-value)	Tolerance	co-linearity tests variance amass factor
DEBT	0.074	1.998	0.046	0.727	1.375
DIVDEB	-0.074	-2.32	0.021	0.982	1.019
T					
SIZE	-0.048	-1.45	0.146	0.928	1.077
EFTAX	-0.03	-0.92	0.356	0.94	1.063
IDEBT	0.045	1.359	0.175	0.911	1.097
ICAP	0.604	16.83	0.000	0.784	1.276

Table 6: The results of statistical analysis of testing the third hypothesis – model 2

R ²	D-W		F	F(P-value)	
0.259	1.909		39.748	0.000	
variable	coefficient	t test	meaningfulness level (P-value)	Tolerance	co-linearity tests Variance amass factor
DEBT	-0.286	-7.31	0.000	0.727	1.375
DIVDEB	-0.074	-2.19	0.029	0.982	1.019
T					
SIZE	0.024	0.70	0.48	0.928	1.077
EFTAX	0.056	1.63	0.102	0.94	0.063
IDEBT	0.148	4.21	0.000	0.911	1.097
ICAP	0.308	8.15	0.000	0.784	1.276

The second part of the tables above show the results of statistical analysis for the coefficients of the independent variables of regression pattern and they mean that in model 1, three independent variables were meaningful. The meaningful variables of model 2 were 4. Thus, it seems that model 2 has more

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useful and complete information for decision makings about this hypothesis. Based on the results of this model, the coefficient gained for the variable DEBT equals -0.286 and the coefficient calculated for the variable DIVDEBT equals -0/074 and the meaningfulness level for both coefficients is less than 0.05. These findings show that there is a reverse and meaningful relationship between the variables mentioned and additive earnings management and this shows that by entering the virtual variable DIV which isolates companies with high numbers of ownerships from other companies, the relationship between the two variables of debt and earnings management has become less tough. Because the amount of the coefficient calculated for the variable DIVDEBT is less than the coefficient estimated for the variable DEBT. In other words, in companies with multiple ownerships compared to other companies, a less earnings management occurs by increasing debt amount. This finding accords with the claim posed in the third hypothesis and shows that the ownership dispersion affects the relationship between debt and earnings management potentially. Like the results of the two previous hypotheses about the control variables, a direct and meaningful relationship between the change in debt and the change in equity was observed accompanying with earnings' overstatement. This relationship has been more severe about the change in owners' equity. Based on the results above, the claim posed in third hypothesis about the effect of the multiple ownerships on the relationship between debt and earnings management is accepted in a %95 assurance level.

CONCLUSION

The results of statistical tests show that the companies having high financial leverage have fewer tendencies for earnings' overstatement. This finding does not accord with the results of the research carried out by Gonzalez and Stefan (2010). Li *et al.*, (2007) found out that companies with high debt levels are considerably controlled by banks and credit institutions. This high level of control results from the fact that the creditors above tend to supervise the managers permanently to preserve their benefits and maintain their assets which have been conferred to the managers of the borrower companies and specially they are interested to assess financial reporting environments. Such supervision limits the opportunities to manage optional accruals effectively. Also the results showed that there is a meaningful relationship between ownership variety and earnings overstatement. Roe (1990) and Zhang *et al.*, (2007) stated that stockholders in minority do not have the facility and enough motives to supervise the acts of management and thus the existence of institutional and major stockholders in corporate companies were considered to be necessary and useful in order to preserve the benefits of other groups. Therefore, in companies with varied and dispersed ownership structures the supervision and control over managers' factor acts weakly and probably the real stockholders can not have active and effective control over the information environment of the companies or enforce their ideas in financial reporting approaches due to the lack of having supervision levers. Finally, the results showed that in companies with multiple ownerships, the relationship between debt level and earnings' overstatement reduces. As Roe (1990) and Zhang (2007) proved, all groups benefit from the supervisions applied on the part of the major stockholders and such supervision works in order to preserve the benefits of the suppliers of the capital for companies. Therefore, we can expect that creditors also benefit from the supervision enforced by the major stockholders and the increase of ownership variety limits the supervising mechanisms inside the companies totally.

Applied Suggestions Resulted from the Present Research

According to the findings of the first hypothesis it is suggested to the investors and those who are active in capital market that they should consider and study the capital structure of companies in assessing them. In the present research it was proved that the debt amount can be considered as an index for financial reporting atmosphere of the companies and though it a part of the supervision mechanisms over the managers of companies is recognizable.

Based on the findings of the second and third hypotheses, it is suggested for the creditors to consider the ownership structure of the borrower companies in making decisions about conferring credits. The findings

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of the present research show that probably ownership variety will result in creating opportunities for managers in corporate companies to enforce their ideas in earnings and this can potentially endanger the benefits of capital suppliers of the companies.

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