

Investigating the Relationship between Earnings Management and Market Liquidity in Selected Companies in Tehran Stock Exchange

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ABSTRACT

Profit management is one of the important dimensions of the quality of financial reporting and the main issue among all shareholders of the company since profit is one of the important criteria for performance appraisal. Therefore, any interference that causes the accuracy of reports to be compromised can affect the way users make financial reports. Intermediaries also have more incentive to manage profits because management is more positive in the course of the course and delays the unpleasant news until the last period, which can benefit management. This research investigates the relationship between earnings management and market liquidity in selected companies in Tehran Stock Exchange. The statistical population of this research includes all the companies listed in the Tehran Stock Exchange during the period from 2011 to 2016. After extracting the information, the folders are designed in Excel, and the variables are computed and ultimately processed through EVIEWS software. The results indicate that there is a positive and significant relationship between earnings management and market liquidity. Also, information asymmetry has a positive and significant effect on the relationship between earnings management and market liquidity.

KEYWORDS

Liquidity, Earnings management, Information asymmetry, Tehran Stock Exchange

INTRODUCTION

The issue of high liquidity is important for any company and organization, and today most companies try to raise their liquidity and stock returns in the stock market to raise the value and credibility of their company on the stock market. The exchange model predicted that management should maintain cash for balancing cash margins that is equivalent to the margins of the cost of those resources. In

the model of Kim, Mauer and Sherman (1998) assume that the defect (incompleteness) of the capital market provides a reasonable reason to maintain significant additional liquidity. Here are two different considerations that can be considered with regard to high liquidity:

Theory 1: Myers and Magluf (1984) argue that one of them is within the information asymmetry firms that maintain high liquidity for future investment financing. These companies need to maintain cash with growth opportunities and thus increase value. In fact, investors use different tricks to pay premium to capture high liquidity.

Theory 2: Contrary to the above, Jensen (1986) argued that in order to reduce the cost of agency (brokerage) of free cash-flow companies, the distribution of cash after the financing of Npv projects should be positive. The analysis shows that reducing the organization's cost of keeping cash (minimizing cash seizure) should be interpreted to the higher value of the company.

PROBLEM STATEMENT

There is a significant experimental and theoretical literature in the capital market developed and relatively developed. For example, Kim et al. (1998), Opler et al. (1999), Harford (1999), Ozkan (2004), D mello et al (2008), Odwald and Young (2008) Lee and Powell (2011) they examined the role of capturing cash surplus on the value of the company and whether the time spent on cash holdings played a significant role in devaluation.

Profit management is one of the important dimensions of the quality of financial reporting and the main issue among all shareholders of the company since profit is one of the important criteria for performance appraisal. Therefore, any interference that causes the accuracy of reports to be compromised can affect the way users make financial reports (Firoozkoohi, 2014). Managers also have more incentive to manage profits through courses because management is more positive in the course of the courses and delays the unpleasant news until the last period, which can be profitable management (Hasani and Azimzadeh,

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2017). In addition, accounting standards require that some of the earnings and expenses (such as income taxes), which are of an annual nature, are estimated for the entire year, so that the mid-term contribution can be appropriately identified on the basis of it. Therefore, the manager can use these estimates with opportunism and use a tool called profit management to reflect the mistakes of interruptions (Duss et al., 2009).

Di George et al. (1999) define profit management as a kind of artificial manipulation of profits by management to achieve the expected profit level for certain specific decisions, such as analysts' prediction or estimation of previous earnings trends for predicting future profits. In fact, his view is that the main motive for managing profits is managing the perception of investors about the business unit. DeGeorge et al. (1999) define profit management as a kind of artificial manipulation of profits by management to achieve the expected profit level for certain specific decisions, such as analysts' prediction or estimation of previous earnings trends for predicting future profits. In fact, his view is that the main motive for managing profits is managing the perception of investors about the business unit. According to Scheiper (1989), profit management is a targeted intervention in the financial reporting process outside the organization to gain personal benefits. Blkoyi (2004) believes that earnings management is designed for accounting purposes. That is, creating a purpose and pre-made image for the transfer of information with the use of accounting information. Earnings smoothing, earnings management, fictitious accounting, and accounting system failures are various aspects of accounting design.

According to DeGeorge et al. (1999), investors and corporate executives are careful about corporate earnings reporting. Management is aware of the importance of profit for the company's stakeholders, and sees its reward as a natural consequence of accounting profit. The results of Ball & Brown (2008) showed that changes in accounting profit and stock prices are both consistent and relevant. That is, information on earnings accounting includes factors that are effective on stock prices and can be beneficial. Also, today, due to the expansion of economic activities, the development of financial markets and the prosperity of investing in capital markets, especially the stock exchange by natural and legal persons, is the most important tool for making the right decisions and obtaining the expected benefits and optimal use of financial facilities, access to accurate, timely and accurate information is real.

THE NECESSITY OF DOING RESEARCH

Better information quality will allow investors to have better choices for their assets. They are reluctant to invest in companies that show a low quality of result. This finds interest in managers who can boost the opportunity to expand their policies to reduce market information asymmetries, increase investor confidence, and increase the number of transactions for their companies. This relation in the theoretical term can be explained with two main hypotheses (Angina and Habib, 2017). The first is the theory

of transactions, which indicates that the volume of transactions that causes greater transparency will increase liquidity. In fact, the unequal distribution of information between economic factors leads to an increase in market queues and the expansion of price gaps.

Diamond & Verrecchia (1991) in a theoretical form have shown that the effective disclosure or transparency of information asymmetries between informed and uninformed investors decreases. This decline will further increase investor confidence and the number of securities transactions. Ultimately, liquidity in the market will increase. Charoenwong et al. (2011) are among the few who have examined the impact of the quality of monitoring, transparency, and accuracy of information in Singapore. They concluded that among the studied monitoring mechanisms, transparency of information has a meaningful and negative relationship with the information asymmetry component. They also found that investors are more interested in transparency because they are allowed to reduce the cost of their investments by reducing the underlying gap of information asymmetry. According to the authors, the transparency of the 60% share in the monitoring index in the context of reducing the cost of the proposal is.

Thus, following the study of Ajina & Habib (2017), for estimating the market liquidity, we use two indices of gap and effective gap, which are presented below, therefore, according to the articles mentioned for the researcher, this question arises: Is there a meaningful relationship between earnings management and market liquidity?

BACKGROUND RESEARCH

In a study, Wasiuzzaman (2015) examined the profitability and value of companies in emerging markets. His purpose was first to examine the relationship between profitability and company value, and then to examine the sensitivity of the company's value to investing in profitability in the valuation companies. In addition, the statistical sample included 192 companies in the eight-year period between 2000 and 2007. The results of this research show that the value of the company increases significantly with the improvement in profitability management, which is limited to small companies.

Caballero et al. (2014) reviews the management of profitability, firm performance, and payment fines. They conducted this research on non-financial companies in the UK. Contrary to previous studies, the findings provide strong support for linking U and the inverse relationship between investment in profitability and company performance. In addition, the study analyzed whether the optimal level of profitability is sensitive to financial constraints. The findings showed that this optimal point for financially viable companies is likely to be lower.

Ukaegbu (2014) examines the importance of profitability management in determining company profits: Evidence from emerging economies in Africa. This paper presented a quantitative approach using the data panel of manufacturing companies in Egypt, Kenya, Nigeria and South Africa. The study revealed that there was a negative and significant

correlation between profitability measured by net operating profit and the cash-flow cycle in a variety of industries. This negative connection implies that the profitability of the company decreases when the cash cycle runs out.

Almeida & Eid (2013) in a study on access to finance, profitability management and company value: evidence from Brazilian companies. Their goal was to analyze the impact of the financial leverage on the relationship between profitability and company value and how financial constraints were to access financing. In addition, they analyzed the relationship between profitability and company value. Using a sample of Brazilian companies in Brazil between 1995 and 2009, they found that increased investment in profits significantly outweighed the increase in cash investments.

Wirral et al (2012) investigated the effects of profitability management on company performance. According to these researchers, profitability management plays an important role in the success or failure of the company. Because it affects the performance and liquidity of the company. The study, based on secondary data, is that of 75 manufacturing companies admitted to the Stock Exchange of Istanbul in the period 2002-2009. The purpose of the study is to examine the relationship between the components of profitability management and corporate performance using dynamic panel data analysis. The results show that companies can increase the company's future profitability measured by gross operating profit. Leverage as a control variable has a significant negative relationship with the company's profitability and value.

RESEARCH HYPOTHESES

1. There is a meaningful relationship between earnings management and market liquidity.
2. Information asymmetry has a significant effect on the relationship between earnings management and market liquidity.

SOCIETY AND STATISTICAL SAMPLE

The statistical population of the study is all companies listed in Tehran Stock Exchange.

In this research, considering the nature of the research and the existence of some inconsistencies among the listed companies in the Tehran Stock Exchange, the following conditions are considered in order to determine the statistical society of the research:

The following features are considered for community information. Only companies in this research have been investigated that have all of the following features:

The statistical population of this research includes all companies admitted to Tehran Stock Exchange during the period from 2011 to 2016. Companies will be selected using the systematic elimination method and according to the following criteria:

1. According to the available information period (2011-2016), the company was admitted to Tehran Stock Exchange before the year 1390 and its name had not

been removed from the list of companies by the end of 2016.

2. Due to the nature of the economic nature of companies such as investment company, financial intermediation, holding, these companies have been eliminated from the sample.
3. Companies should not stop working and have changed their financial period from 2011 to 2016.

MODEL AND RESEARCH VARIABLES

The research model is based on two regressions related to two research hypotheses:

$$CASH_{it} = \beta_0 + \beta_1 EM_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 GRO_{it} + \epsilon$$

$$CASH_{it} = \beta_0 + \beta_1 EM_{it} + \beta_1 INF_{it} + \beta_2 EM_{it} * INF_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 GRO_{it} + \epsilon$$

• Dependent Variable:

Stock Market Liquidity: The price gap is the purchase and sale of a cash-flow unit of corporate securities, which was introduced by Demestes (1968). The unit of liquidity of the stock market combines all its dimensions (volume, time, and price). As the price gap increases market sales, its liquidity potential will be lower. The gap in buying and selling prices addresses the issue of collapse that results from the transfer of company shares to asymmetric informed investors. In this way, less information asymmetry would be less costly, which is characterized by a gap in the price of buying and selling and liquidity (Ajina and Habib, 2017). This study, based on the study of Ajina and Habib (2017), selects a well-defined and effective gap as two factors of liquidity. The announced gaps are market costs, while effective gaps are used to receive transmission costs. Heflin et al. (2005) show that the effective divisions for equity liquidity are better than the equity gap, rather than for partial or initial gaps. In a custom-driven market, the sale of the best-priced order is limited to sales, while the purchase is a price that is related to the purchase order limited to the purchase. Volume of transactions is a massive stock market structure.

Declared Gaps (QBASP):

$$\frac{Ask_t - Bid_t}{Ask_t + Bid_t} \cdot 2$$

Effective Gaps (EBASP):

$$2 \cdot \frac{\left| \frac{Ask_t + Bid_t}{2} - P_t \right|}{\frac{Ask_t + Bid_t}{2}}$$

So that: Bid t: Purchase Price, Ask t: Sales Price.

• Independent Variable:

Earnings Management (EM): Earnings management is one of the most commonly used financial accounting management practices, which is further examined by

positive accounting theory. Schipper (1989) defines it as a targeted intervention in the external financial reporting process for personal gain.

In this research, the modified Jones model was used to examine earnings management. In the above example, in the first step, the sum of accruals for a specified period that is known as the event period is estimated with the sales variables, gross margin, and machinery and equipment as follows:

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

In this regard, TA represents the sum of accruals that can be calculated as follows:

$$TA_{it} = (\Delta CA_{it} - \Delta CASH_{it}) - (\Delta DCL_{it} - \Delta STD_{it}) - DEP_{it}$$

The variables are as follows:

ΔCA_{it} : Change in current assets as compared to previous year.

$\Delta CASH_{it}$: Change in cash this year compared to previous year.

ΔDCL_{it} : Change in debt this year compared to previous year.

ΔSTD_{it} : Changes in short-term long-term debt this year compared to last year.

DEP_{it} : Depreciation and amortization expense of current and current assets.

Also, $A_i(t-1)$ the total assets of the company in the previous year, ΔREV_{it} , the difference in sales compared to the previous year and PPE_{it} , property, machinery and equipment gross and ε_{it} estimated error and α_1 , α_2 and α_3 are the company's specific parameters. After estimating the parameters of model number (1), non-controlling accruals (NDA) are calculated for the "estimated period".

$$NDA_{it} = \alpha_1 \left(\frac{1}{A_{i(t-1)}} \right) + \alpha_2 \left(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_i(t-1)} \right) + \alpha_3 \left(\frac{PPE_{it}}{A_{i(t-1)}} \right)$$

In the above model, ΔREC_{it} represents the change in the net current accounts receivable from the year before. In the final stage, optional accruals (DA) are calculated as follows:

$$DA_{it} = \frac{TA_{it}}{A_{i(t-1)}} - NDA_{it}$$

SUMMARY OF RESEARCH VARIABLES

Tab.1. Summary of Research Variables

Row	Variable	Symbol	Type of variable	Calculation method
1	CASH	Liquidity	Dependent	Cash
2	EM	Earnings management	Independent	According to the formula

3	INFO	Information asymmetry	Equalizer	According to the formula
4	SIZE	Size of the company	Control	The natural logarithm of the company's assets (the size of the company is taken as the factor of information asymmetry and the cost of the agent or representation)
5	LEV	Financial Leverage	Control	Debt to assets ratio
6	GROWTH	Growth	Control	Growth in total assets

INFORMATION ANALYSIS METHOD

After extracting the information, the folders are designed in Excel, and the variables are computed and ultimately processed through EVIEWS software.

Also, using statistical tests, we try to examine the relationship between independent variables and dependent variables as determined in the multivariate regression model. After calculating the tilt coefficients for testing the hypotheses and the significance of these coefficients, the t-student test will be used for regression model.

DESCRIPTIVE STATISTICS

In this section, information is provided on the calculated variables of the research. It is necessary to describe this data before analyzing the statistical data. It also describes the statistical data in order to identify the dominant model and the basis for explaining the relationships between the variables used in the research.

The first step in data analysis, description and knowledge of the characteristics and characteristics of the studied units is research and familiarity with their changes in the sample. Knowledge of frequency distribution and central criteria and the distribution of key variables can serve as complementary information to play an effective role in determining the findings of the research. Therefore, before examining research hypotheses, the research variables are briefly summarized in Table 2. These variables include dependent and independent variables, the mean, mean, sloping, and elongation of these variables during the research period are presented in the table below.

Tab.2. Descriptive statistics of the research variables

Variables	Number	Minimum	Maximum	Average	Median	Standard deviation	Skidding	Elongation
Liquidity	600	0.000	12.00	3.82	4.00	1.1861	2.9824	25.1652
Earnings management	600	-0.014	0.79	0.4345	-0.0047	0.0954	3.3888	9.654

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Information asymmetry	600	8.32	18.65	۱۳,۴۹۱۲	12.18	1.7241	6.6541	22.9647
Size of the company	600	14.52	18.46	16.56	16.45	1.1266	3.3394	7.1284
Leverage	600	0.66	1.38	0.18	0.36	0.1925	5.3545	15.0023
Growth	600	907	5771	1663	1210	243.0134	15.4511	27.9393

- **Checking Normality:**

One of the things that is usually considered in the data review is the normalization of the data. When the study is based on real data and there are limitations to sample selection, this may result in data not being normalized. Of course, when the number of observations is high, the normalization of data through the central limit theorem can be justified. The Jarque-Bera (JB) test has been used to check the normality of the data. The statistical hypothesis of this test is presented below:

$$\begin{cases} H_0: \text{The distribution of the variable is normal} \\ H_1: \text{The distribution of the variable is not normal} \end{cases}$$

If the significance level of the test statistic is more than 0.05 (significance level ≥ 0.05), the hypothesis is based on the normal distribution of the dependent variable and vice versa. Table 3 shows the results of this test for the capital expenditure variable.

Tab.3. Results of the Jarque-Statistic

Variables	Test statistic	The significance level
Liquidity	45.38	0.000
Earnings management	59.41	0.000
Information asymmetry	67.82	0.000
Size of the company	29.75	0.000
Leverage	26.63	0.000
Growth	45.38	0.000

As shown in Table 3, the data are not normal, which is solved by the central limit theorem, since in this case the data assumes that the number of observations in it is higher than 30 is normal.

- **F Limer statistics:**

Considering that observations in this research have been exploited at different levels, the question most often used in applied studies is whether there is evidence of data integration capabilities or that the model varies across all cross-sectional units. Therefore, it should first be examined whether there are any differences between levels,

heterogeneity, or individual differences. In case of heterogeneity of the panel data method, otherwise, the least square method is used to estimate the model. For this purpose, the F Limer statistic is used. In this test, the assumption H_0 of the same width of origin (combined data) against the opposite hypothesis H_1 is used, the inaccuracy of the width from the origin (panel data method) is used. The results of F Limer statistics are as follows:

Tab.4.F Limer statistics

	Amount	Possibility
First model	0.8912	0.5991
Second model	1.1277	0.4385

As shown in Table 4, the results of the Chow test show that the probability obtained for the F statistic is more than 5%, so the zero hypothesis that the model data is compilation is accepted.

- **Autocorrelation Test (Durbin-Watson):**

One of the assumptions that are considered in the regression is the independence of the errors (the difference between the actual values and the predicted values by the regression model) of each other. If the independence hypothesis of errors is rejected and the errors are correlated, regression is not possible. In order to be independent of each other, the Durbin-Watson statistics are used. If the value is in the range of 2.5 to 1.5, a lack of correlation between the errors is accepted, otherwise the correlation between the errors is present. According to the values obtained for the first, second and third models, the Durbin-Watson statistic is 1.67, 1.92, as a result of the lack of correlation between the errors.

TEST OF RESEARCH HYPOTHESES

According to Chow's test results, the least squares model is used to estimate the parameters of the multivariate regression equation. The results of this test are described in Table 5:

Tab.5.Results of the first regression test

Variable	Coefficient	Standard deviation	T Statistics	The significance level
Width from source	-	3.4027	-4.54301	0.0035
Earnings management	26.14	1.0013	9.401432	0.0000
Size of the company	11.34	2.7896	36.1846	0.0000
Leverage	16.78	3.4640	-81.0779	0.0000
Growth	19.0877	0.2760	69.15998	0.0000
The coefficient of determination	0.6292	Significant level of F statistics		0.0000

Adjusted coefficient of determination	0.6143	F statistics	18.6541
Durbin-Watson Statistics	1.6712		

The coefficient of determination of 0.6143 means that 61 percent of the variation of the variable dependent on the regression tool is explained. The significance level of the F-000 statistic also shows that the zero assumption is rejected, and the F-statistic is significant at the 99% confidence level, that is, variables that are defined as independent are suitable predictor variables.

Tab.6.Results of the second regression test

Variable	Coefficient	Standard deviation	T Statistics	The significance level
Width from source	-34.1543	2.9464	-11.5917	0.0000
Earnings management	20.7994	0.8670	23.98902	0.0000
Asymmetry	223.0189	21.4155	10.41388	0.0000
Profit management * asymmetry	-62.5343	2.9995	-20.8481	0.0000
Size	42.1730	3.2390	13.02041	0.0000
Leverage	201.6346	8.3282	24.21117	0.0000
Growth	08.16	9.4561	28.1768	0.0000
The coefficient of determination	0.5438	Significant level of F statistics		0.0000
Adjusted coefficient of determination	0.5112	F statistics	25.4816	
Durbin-Watson Statistics	1.9273			

DISCUSSION AND CONCLUSION

As we see in the results table, the significance level of the earnings management coefficient is 0.0000, and since this number is less than 0.05, it can be concluded that the assumption zero is rejected and the assumption is verified, and, with respect to the coefficient of this variable (9.41), it can be stated that profit management with market liquidity has a positive meaningful relationship with the companies selected as the sample of this study, and shows that 1% change in the independent variable causes 9.41% of the direct change in the dependent variable. According to the above description, the first hypothesis is confirmed.

As we see in the results table, the significance level of the earnings management coefficient is 0.0000, and since this

number is less than 0.05, it can be concluded that the assumption zero is rejected and the assumption is verified. According to the coefficient of this variable (20.79), it can be stated that profit management with market liquidity has a positive meaningful relationship with companies that have been selected as the sample of this study, and shows that 1% change in the independent variable causes 20.79% direct change in the dependent variable. According to the above, the second hypothesis is confirmed.

• Research Suggestions:

Regarding the title of the issue and the fact that the topic was carried out in the field of Bourse companies, this can be used to manage stock exchanges, corporate executives, potential and actual investors of different sectors, such as institutional investors, public and legal investors, professors and accounting students, and financial management and other people who are somehow interested or related to the topic are attractive. Therefore, based on the results of the last season and analyzes conducted in this chapter, the following suggestions are presented:

1. Given the confirmation of the assumptions that profit management leads to increased liquidity of the firm's market, it shows that the more corporate profit management is, the more liquidity of the market is. As a result, it is suggested that investors pay more attention to their investment decisions in companies with lower profit management.

• Suggestions for Future Research:

Whatever the research, though comprehensively, in terms of some material and material constraints, both temporally and temporally, can not cover all aspects of the subject and deal with it in various ways. This research has not been an exception to this, so to do some research in line with this topic as well as its development, the following suggestions are presented for further research and future researchers:

1. For further research, it is suggested that other earnings management definitions be used to achieve a different, and perhaps more valid, outcome in order to achieve a comprehensive benchmark. It is also suggested that the present study model be implemented with other definitions of the market liquidity variable to achieve the best definition for the above variables.
2. It is suggested that this study be compared with the number of years-more companies to achieve more reliable results, because the results appear to be directly related to the sample size used.
3. Finally, it is suggested that research be carried out in the areas referred to below:
 - The relationship between market liquidity and social responsibility should be investigated.
 - The relationship between the risk of falling stock prices with genuine profit management and earnings-based management of accruals.
 - The relationship between conservatism and actual earnings management and accruals-based earnings management should be investigated.

- The moderating role of corporate sustainability mechanisms in the relationship between profit management and market liquidity should be considered.

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