

The Effects of the Earnings Quality on Cash Holding in Listed Companies at Tehran Stock Exchange (TSE)

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Abstract: The present study undertakes to investigate effects of earnings quality on level of cash holding in companies listed at Tehran Stock Exchange. Based on Ozkan and Opler model, cash is used as dependent variable; operating income and current profit are used as independent variables and firm size, leverage, sales growth, and cash flow from operation are used as control variables. The study covers a period of 8 years from 2003 to 2010. A multivariate regression model is used for testing hypotheses. Results indicate that firm size and cash flow from operation have positive effects on cash holding, while earnings quality based on current profit and sales growth have negative effects on cash holding in companies listed at Tehran Stock Exchange.

Key words: earning quality, level of cash holding, companies listed at Tehran Stock Exchange.

INTRODUCTION

Cash is an essential source in any economic unit and many accounting measures are based on its status in the past, present and future. Earnings are measured in terms of net cash expected from sales of products or services. On the other hand, costs are measured in terms of paid cash or cash expected to be paid for buying products or receiving services. Finally, theoretical measurement of economic sources and obligations of economic units depend on expected or real flow of cash in the company. Cash inflow to and outflow from an economic unit are significant events constituting the basis of decisions and judgments of investors and creditors and any other group using financial information of that unit. Net income and its related elements are of greatest importance for those who use them. As the most important group of users of financial statement, shareholders make decisions based on net income. Kwan and *et al.* (2011) state that good quality of earnings report ensures shareholders and improves information asymmetry. On the other hand, poor earnings quality creates doubts about safety of financial position and, consequently, of earnings management and control. Therefore, considering the importance of earnings quality for users and the literature, significance of cash in assets and effects of earnings quality on level of cash holding in companies listed at Tehran Stock Exchange is investigated.

2. Review of Literature:

If the direct relationship between information asymmetry and level of cash holding, and earnings quality determining information asymmetry, is approved, it can be concluded that there is a converse relationship between earnings quality and level of cash holding in companies. Companies with good earnings quality tend to hold less cash, compared to companies with poor earnings quality. Poor earnings quality leads to internal and external ambiguities and makes companies hold greater amount of cash than its normal level. It also leads to information asymmetry and drives companies to generate costly external financial support and encourages them to hold internal cash for investment and maintaining higher balance (Kwan and *et al.*, 2011). Earnings quality is the net income stability through successive years. The higher earnings stability, the greater is company's control over holding current profits and the higher is the quality of earnings (Saghafi and Kordestani, 2004). For example, Karmi and Sadeghi (2010) studied the relationship between earnings quality and profit stability in companies listed at Tehran Stock Exchange and calculated earnings quality in terms of investment in capital assets and the working force. They found a significant relationship between earnings quality and profit stability in both prospective and retrospective approaches. The authors used financial ratios in retrospective approach and time series regression in prospective approach to calculate earnings quality based on investment.

Earnings quality demonstrates an important aspect of accounting profit because poor quality earnings may lead to incorrect grant of credits from creditors and allocation of non-optimal resources to plans with unreal returns and, consequently, drop-off of economic growth. Recognizing the importance of earnings quality necessitates its different aspects to be studied in Iran's market (Haghighat and Panahi, 2011). Despite many different definitions of earnings quality, it can be said that earnings are qualified when they are closer to cash,

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can grow and be established. It can also be seen in profit stability, levels of accruals and the profit reflecting economic transactions (Haghighat and Panahi, 2011).

Cash is an important item of current assets in the process of implementing operations of economic units. Cash information is of great importance in preparing financial reports, and institutions may face difficulties in implementing their operations if they fail to manage their cash.

Jiang and *et al.* (2008) studied the relationship between corporate governance and earnings quality in the U.S from 2002 to 2004. They used GOV-score for corporate governance and the adjusted model of Jones for accruals and found a strong relationship between them. That is to say, higher level of corporate governance leads to decrease levels of discretionary accruals and increases the quality of earnings.

Hardin and *et al.* (2009) in their study, "The Determinants of Reit Cash Holdings", found that holding alternative cash assets negatively affects level of cash holding in companies. They also found a positive relationship between level of cash holding and investment opportunities. In other words, companies with greater investment opportunities tend to hold more amounts of cash because they need financing for their investments and may benefit from their internal resources of cash for the reason that external financing is costly. Drobetz and *et al.* (2010), "Information Asymmetry and Cash Value", found no negative relationship between the ratio of outside directors and level of cash holding. Also, Garcia and *et al.* (2009) showed a converse relationship between earnings quality and level of cash holding and stated that companies with good earnings quality hold less cash, compared to companies with poor earnings quality. Kwan and *et al.* (2011), "Earnings Quality and Cash Holding", reported the same results. Dastgerdi and Rastgar (2010), "The Relationship between Profit Quality, Accrual Size, Stock Return and Accrual Quality", reported a direct relationship between profit quality and accrual quality and found that any decline in accrual quality increased accrual size and stock return. Damouri and *et al.* (2011) found in their study, "Evaluation of the Relationship between Income Smoothing, Earnings Quality and Firm Size in Companies Listed at Tehran Stock Exchange", that investors are more interested in income smoothing companies. Ebrahimi and Arabi (2010), "Ownership Concentration and Earnings Quality in Companies Listed at Tehran Stock Exchange", demonstrated that external ownership concentration improves earnings quality. This is an indication of active monitoring hypothesis, although no convincing evidence is provided for the influence of internal investors on earnings quality. Accounting figures are influenced by many different factors such as managers' authority, various methods of accounting, economic and environmental changes, and the need for attracting people on the side of companies. More factors may come into play when particular characteristics of a company are considered. Information content and incremental information content have been studied in the literature. In most of the cases, information content of earnings is confirmed, but information content of cash flow seems to be paradoxical. This section gives a review of the literature and the findings as regards variables of the study, in order to provide a clear picture of the effect of earnings quality on level of cash holding in companies.

3. Methodology:

Population and Statistical Sampling:

Population of the study constitutes all companies listed at Tehran Stock Exchange from which samples satisfying the following criteria are extracted:

1. Companies that have been involved in Stock Exchange from 2003 to 2010 and have provided their financial reports and information needed for the present study.
2. Companies whose financial year ends in Esfand 29th.
3. Companies that are not considered as financial and credit investing institutes.

Considering the above criteria, 92 companies from 18 industries were chosen. Information for conducting the study were collected from Tehran Stock Exchange databases, Rahavard Novin and Tadbirpardaz Softwares and journals of Stock.

4. Hypotheses:

Considering the strong relationship between earnings quality and level of cash holding and studies conducted so far, a converse relationship between them has been observed. Companies with good quality earnings, compared to companies with poor quality earnings, hold less cash. Accordingly, the following hypothesis is presented:

Main hypothesis: earnings quality affects level of cash holding in companies listed at Tehran Stock Exchange.

If there exists a direct relationship between information asymmetry and level of cash holding, and earnings quality determines information asymmetry, a converse relationship between earnings quality and level of cash holding is concluded. Companies with good earnings quality tend to hold less cash. On the other hand, companies with poor earnings quality hold greater amounts of cash, because poor quality creates internal and external uncertainties and ambiguities. It also leads to information asymmetry and makes companies seek costly

external financial support and hold cash in order to be able to invest and trade and keep up their balance (Kwan and *et al.*2011). Therefore, the two subsidiary hypotheses are presented:

Subsidiary hypothesis 1:

Good earnings quality affects level of cash holding in companies listed at Tehran Stock Exchange.

Subsidiary hypothesis 2:

Poor earnings quality affects level of cash holding in companies listed at Tehran Stock Exchange.

5. Methodology and Data Analysis:

Overall methodology of the study is the correlation method. The study is a post-event causal research since it seeks to evaluate effects of earnings quality on level of cash holding and uses past information of companies in this regard. Also, it is an applied and pure accounting research since it aims at finding practical results to be used in financial decision-making. Here, multiple linear regression model are used for measuring effects of earnings quality on level of cash holding in companies listed at Tehran Stock Exchange. To examine the significance of variables affecting level of cash holding and the significance of total regression model, t and F tests were used respectively. Durbin-Watson test was used for determining autocorrelation of independent variables. Statistical analysis was done by SPSS and Excel.

6. Variables:

a. *Cash holding*: according to Accounting Standard No.2, Cash Flow Statement, cash comprises cash on hand and demand deposit in banks or financial institutions, both Rial and currency (including short-term investment deposits with no maturity), deducing overdrafts on demand without prior notice. Accordingly, cash equivalents are not considered as cash. But International Standard No.7 includes cash equivalents in the definition of cash as “short-term, highly liquid investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value. Cash equivalents are due in three months after receiving, deducing loans and interest-free loans from banks or other third-parties which are repayable within three months. In our study, definition of cash includes cash equivalents. The following methods are used for measuring level of cash holding:

1. Ozkan and Ozkan (2004): in this method, cash assets are calculated from the ratio of total cash holding and short-term investments to total assets of the company.
2. Opler and *et al.* (1999): is the same as the previous method, the only difference is that total cash holding and short-term investments are deduced from total assets at the denominator.

b. *Firm size*: so far, no single unified criterion is used for defining and determining firm size. However, it is measured here by means of the logarithm of total firm sales:

$$SIZE_{i,t} = \log (TA_{it})$$

Where $SIZE_{i,t}$ is firm size and TA_{it} indicates assets of company i in the year t (Babrkhani, 2010).

c. *Leverage*: demonstrates amounts of liabilities in the capital structure of the company and is obtained by total long- and short-term liabilities divided by total assets of the company.

$$LEV_{it} = \frac{STL_{it} + LTL_{it}}{TA_{it}}$$

Where STL_{it} is short-term liabilities and LTL_{it} is long-term liabilities of company i in the year t (ibid).

d. *Sales growth*: is calculated by the difference of sales of current and last years divided by sales of last year.

$$Sales\ growth = \frac{sales\ of\ current\ year - sales\ of\ last\ year}{sales\ of\ last\ year}$$

e. *Cash flow from operation*: is calculated by cash derived by cash flow from operation divided by average assets of the company.

$$Cash\ flow\ from\ operation = \frac{CFO}{\frac{BTA + ETA}{2}}$$

Where CFO is cash flow from operation, BTA is the beginning total assets and ETA is the ending total assets (Babrkhani, 2010).

f. *Earnings Quality*: profit stability is used here for evaluating earnings quality. Profit stability refers to continuation of current profit measured by autoregression model. The higher profit stability, the higher earnings quality. To measure profit stability, coefficient of explanatory variable $EARN_{j,t-1}$, corresponding to B_1 in regression model, is taken as the representative of profit stability. Coefficient of determination shows variability of dependent variable and represents earnings quality of companies. For example, a single change in the profit of last year may lead to greater changes in the profit of current year and can be shown in the following equation (Modarres and Abbaszadeh, 2008).

$$EARN_{j,t} = \beta_0 + \beta_1 EARN_{j,t-1} + \epsilon_{j,t}$$

7. Data Analysis and Findings:

7.1. Statistical Description of Variables:

Descriptive methods attempt to provide tables and use descriptive statistics criterion, such as central parameter and distribution, to describe research data and clarify the issue. Results of descriptive parameters are given in Tables 1-4.

Table 1: Descriptive Statistics.

	N	min	max	mean	standard deviation	coefficient of variation
(Ozkan method)cash	428	-3.069	-.114	-1.412	0.469	0.220
(method Opler)cash	428	-3.069	0.521	-1.380	0.505	0.255
firm size	428	4.753	7.902	5.841	0.595	0.355
leverage	428	0.000	13.650	0.846	0.874	0.765
sales growth	428	-.958	11.691	0.1970	1.008	1.017
cash flow from operation	428	-.400	0.698	0.137	0.139	0.019
Earnings quality based on operating income	428	0.001	0.999	0.354	0.323	0.104
Earnings quality based on net income	428	0.001	1.000	0.378	0.331	0.110

As can be seen in Table 1, standard deviation and mean of cash based on Ozkan model are 0.469 and -1.412 and for Opler model are 0.505 and -1.380 respectively. A comparison of coefficients of variation of cash for the two models shows that distribution of cash data in Opler model (0.255) is better than Ozkan model (0.220). Therefore, it can be concluded that Ozkan model is more reliable in terms of effects of earnings quality on level of cash holding. Standard deviation and mean for dependent variables used for hypotheses are 5.841 and 0.594 and statistic values for the variable of cash according to Ozkan model are 0.469 and -1.412. Low value of coefficient of variation of cash flow from operation (0.019) may be an implication of its reliability.

Results of regression model for the main hypothesis, effects of earnings quality on level of cash holding, based on Ozkan and Opler models are given in Table 2. Results of the study indicate that, based on Ozkan and Opler models, firm size affects level of cash holding in companies listed at Tehran Stock Exchange. Also, sales growth negatively affects level of cash holding, while cash flow from operation has positive effect on it. Our results imply that earnings quality based on net income has negative effect on level of cash holding in companies listed at Tehran Stock Exchange, but no effect was observed for earnings quality based on operating income. As shown in Table 2, adjusted coefficient of determination (0.148) shows that independent variable explains 14% of dependent variable. Also, the value of Durbin-Watson statistics (1.858), lying between 1.5 and 2.5, implies no autocorrelation between error statements. Significance level of F (0.000) shows that regression model is significant.

Results presented in Table 2 (Opler model) indicate that adjusted coefficient of determination (0.160) shows independent variable explaining 14% of dependent variable. Also, the value of Durbin-Watson statistics (1.838), lying between 1.5 and 2.5, implies no autocorrelation between error statements. Significance level of F (0.000) shows that regression model is significant.

Table 2: The main hypothesis of independent variables and cash holdings in regression models of Ozkar and opler.

variables	Opler Model			Ozkan Model		
	Regression coefficients	t statistics	Probability statistics t	Regression coefficients	t statistics	Probability statistics t
Fixed value		-10.250	.000		-10.701	.000
Firm size	.173	3.873	.000	.171	3.809	.000
leverage	.011	.233	.816	.006	.132	.895
Sales Growth	-.127	-2.826	.005	-.127	-2.807	.005
CFO	.339	7.444	.000	.321	7.009	.000
NIN	.005	.099	.921	-.120	-2.537	.012
OIN	-.118	-2.499	.013	.005	.112	.911
	Adjusted coefficient of determination	Durbin-Watson	Level of significance	Adjusted coefficient of determination	Durbin-Watson	Level of significance
	.160	1.838	.000	.148	1.858	.000

**Results of testing subsidiary hypotheses:
Results of testing subsidiary hypotheses 1 (Ozkan model):**

Table 3: Final regression model.

variables	Subsidiary hypothesis 1			Subsidiary hypothesis 2		
	Regression coefficients	t statistics	Probability statistics t	Regression coefficients	t statistics	Probability statistics t
Fixed value		-33.331	.000		-9.524	.000
CFO	.369	5.392	.000	.293	4.918	.000
Sales growth	-.181	-2.644	.009	-	-	-
SIZE	-	-	-	.214	3.588	.000
	Adjusted coefficient of determination	Durbin-Watson	Level of significance	Adjusted coefficient of determination	Durbin-Watson	Level of significance
	.159	2.234	.000	.126	1.928	.000

Table 3, giving results of testing subsidiary hypothesis 1, regarding effects of good earnings quality on level of cash holding in companies listed at Tehran Stock Exchange, shows that only cash flow from operation and sales growth affect cash holdings. It should be noted that coefficient of determination (R²) derived from analysis is 0.159. In other words, the two variables mentioned above, only explain 15.9% of changes in dependent variable (cash in Ozkan model). Independency of residues is a prerequisite for the use of regression. Since Durbin-Watson equals 1.5 < D.W=2.234 < 2.5, residues are dependent. As can be seen, Sig=0.000 for F statistics is less than 0.05, indicating validity of regression model. Also, Sig for t statistics is less than 0.05, therefore, coefficient values are acceptable. The regression model is:

$$Y_{it} = 0.369 \text{ CFO}_{it} - 0.181 \text{ SG}_{it} + \epsilon_{it}$$

Results of Testing Subsidiary Hypotheses 2 (Ozkan model):

Table 3, giving results of testing subsidiary hypothesis 2, regarding effects of poor earnings quality on level of cash holding in companies listed at Tehran Stock Exchange, shows that only cash flow from operation and firm size affect cash holdings. It should be noted that coefficient of determination (R²) derived from analysis is 0.126. In other words, the two variables mentioned above, only explain 15.9% of changes in dependent variable (cash in Ozkan model). Independency of residues is a prerequisite for the use of regression. Since Durbin-Watson equals 1.5 < D.W=1.928 < 2.5, residues are dependent. As can be seen, Sig=0.000 for F statistics is less than 0.05, indicating validity of regression model. Also, Sig for t statistics is less than 0.05, therefore, coefficient values are acceptable. The regression model is:

$$Y_{it} = -0.293 \text{ CFO}_{it} + 0.214 \text{ SIZE}_{it} + \epsilon_{it}$$

Results of Testing Subsidiary Hypotheses 1 (Opler model):

Table 4: Final Regression Model.

variables	Subsidiary hypothesis 1			Subsidiary hypothesis 2		
	Regression coefficients	t statistics	Probability statistics t	Regression coefficients	t statistics	Probability statistics t
Fixed value		-31.103	.000		-9.073	.000
Sales Growth	-.178	-2.618	.010	-	-	-
SIZE	-	-	-	.213	3.600	.000
CFO	.386	5.693	.000	.310	5.222	.000
	Adjusted coefficient of determination	Durbin-Watson	Level of significance	Adjusted coefficient of determination	Durbin-Watson	Level of significance
	.171	2.236	.000	.136	1.925	.000

As shown in Table 4, results of testing subsidiary hypothesis 1, regarding effects of good earnings quality on level of cash holding in companies listed at Tehran Stock Exchange, reveal that, at 95% confidence level, only cash flow from operation and sales growth affect cash holdings. It should be noted that coefficient of determination (R²) derived from analysis is 0.171. In other words, the two variables mentioned above, only explain 17.1% of changes in dependent variable (cash in Opler model). Independency of residues is a prerequisite for the use of regression. Since Durbin-Watson equals 1.5 < D.W=2.236 < 2.5, residues are dependent. As can be seen, Sig=0.000 for F statistics is less than 0.05, indicating validity of regression model. Also, Sig for t statistics is less than 0.05, therefore, coefficient values are acceptable. The regression model is:

$$Y_{it} = -0.178 \text{ SG}_{it} + 0.386 \text{ CFO}_{it} + \epsilon_{it}$$

Results of Testing Subsidiary Hypotheses 2 (Opler model):

As shown in Table 4, results of testing subsidiary hypothesis 2, regarding effects of poor earnings quality on level of cash holding in companies listed at Tehran Stock Exchange, reveal that, at 95% confidence level, only cash flow from operation and firm size affect cash holdings. It should be noted that coefficient of determination (R²) derived from analysis is 0.136. In other words, the two variables mentioned above, only explain 13.6% of changes in dependent variable (cash in Opler model). Independency of residues is a prerequisite for the use of regression. Since Durbin-Watson equals 1.5 < D.W=1.925 < 2.5, residues are dependent. As can be seen, Sig=0.000 for F statistics is less than 0.05, indicating validity of regression model. Also, Sig for t statistics is less than 0.05, therefore, coefficient values are acceptable. The regression model is:
$$Y_{it} = -0.213 \text{ SIZE}_{it} + 0.31 \text{ CFO}_{it} + \varepsilon_{it}$$

8. Discussion and Conclusion:

The present study aims at recognizing effects of earnings quality on level of cash holding in companies listed at Tehran Stock Exchange. Results, based on Opler and Ozkan models, demonstrate that firm size has no effect in companies with good earnings quality, while it positively affects companies with poor earnings quality. This may be explained by the fact that big companies tend to hold cash in order to engage in profitable investments and keep their flexibility. Results also show that sales growth has negative effect on level of cash holding in companies, because they sell their products on credit. As for cash flow from operation, it was found to have positive effect on level of cash holdings. That is to say, companies with greater cash flow from operation prefer to use these financial resources, rather than external financing, and tend to hold greater amounts of cash. Thus, there seems to be a direct relationship between generative capacity of cash flow and level of cash holding. Our results imply that earnings quality based on net income has negative effects on level of cash holding, i.e., shareholders have more confidence in companies with greater profit stability and, consequently, cash holding is not a necessity here. On the other hand, earnings quality based on operating income found to have no effect on cash holdings. Finally, our results are in agreement with findings of other domestic studies and those conducted abroad, such as Garcia and *et al.* (2009), Kwan and *et al.* (2011), indicating the fact that less amount of cash holding is observed in companies with higher earning qualities.

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