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Internal Control Weakness and Accruals Quality in Companies Listed on Tehran Stock Exchange

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Abstract

This paper investigates the relation between internal control weakness and accruals quality using data obtained from 200 companies listed on Tehran stock exchange between 2008 and 2013. We conduct correlation analysis to determine whether internal control weakness is associated with accrual quality or not. Are the internal controls designed to ensure the validity and reliability of the accounting information system and prevent deviations in identification of accruals? We estimate internal control weakness and accrual quality separately; then to test research hypothesis correlation coefficients was measured. The results indicate that accruals quality is very strongly associated with the internal control weakness and indeed, quality of accounting information (accruals) is highly dependent on both providing information environment and information resources. According to prior research in companies with high internal control weakness, will present reduced financial information quality

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Keywords:Accrual Quality, Internal Control Weakness, Correlation Aalysis,Information system,Reliability

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1. Introduction

Internal control at the firm- level refer to assessing the company's financial reporting reliability and the process of evaluating achievement of company's strategic and operational goals, and assessing also the ability to act according to law and regulation. As PCAOB (**2004**) define internal control weakness is a material deficiency, or combination of material deficiencies that result in more than remote likelihood that a material misstatement of the annual or interim financial statements will not be prevented or detected.

In our country, the instruction of internal controls by Tehran Stock Exchange (TSE) –as adopted April 2012- required that the board of directors must have at least once a year to review the company's internal control system to make sure that appropriate and effectiveness internal controls is used. They must disclose the results in the statement of internal controls and evaluate whether the company's goals and objectives are attained.

In summery, the present study is looking to find out an answer to this question that whether internal control weakness is associated with accrual quality in companies listed on TSE, and does the results support and consist with the prior research in this regard or not.

Prior literature finds that the weakness of internal control is influenced by the firm characteristics (Ashbough et al, Ge.et al, Ognive). We follow Ognive et al. (**2002**) and perform multivariable cross sectional regression analysis in order to estimate probabilities of weakness of internal control in companies listed on TSE; however, the model **1** which was used in this study is different from the mentioned model because, our selected sample have no geographic or operational segment then we exclude it form the model.

2. Literature review

The study conducted by Dechow et al in 1995 on the identification of earnings management factors suggests that non-discretionary accruals are constant and cannot be used for smoothing. They concluded that earnings management is performed through discretionary accruals. The more there is of discretionary accruals in accruals, the more management's ability will increase to manipulate such accruals resulting in the possibility of earnings management will consequently increase. Therefore, any restriction in using none—discretionary accruals allows the financial status of the companies to be shown as better/stronger, which in turn reduces the cost of capital.

Ge and McVay (2005) found that uncovering material weaknesses positively associates with business complexity, negatively associated with firm size and negatively associated with firm profitability.

Ashbaugh-skaife et al. in their 2008 found that companies disclosing internal control weaknesses under SOX 404 typically will have lower earning quality, as measured by accrual quality and their unexpected accruals. They proposed that managers of ICD companies may be more able to override the control weaknesses and prepare accrual estimates that then facilitate meeting opportunistic financial reporting objectives.

Doyle, Ge and McVay in 2007 examined the relationship between accruals quality and internal controls for financial reporting. Their findings indicated that along with any increase of internal control weakness in companies, accruals quality will also decrease. They also pointed out that both investors and auditors highly consider the internal control environment and make use of it in their evaluations. In addition, they concluded that in those companies with high internal control weakness, management will be more likely to manipulate the accruals. And thus, these firms will have lower accruals quality.

Epps and Guthrie (2007) found that the presence of sox 404 material weaknesses has a moderate significant negative effect (income-decreasing) on discretionary accruals. However, when these accruals are stratified into high positive negative and low accruals, their overall findings indicated that the existence of material weaknesses does allow for a greater manipulation of earnings using discretionary accruals, regardless of direction-income- increasing or income-decreasing.

Doyle et al (2007) examined the determinants of weakness in the internal controls over financial reporting. They found that these firms tended to be smaller, younger, financially weaker, more complex, growing rapidly, or undergoing restructuring. Firms with more serious entity-wide control problems, however, are smaller, younger, and

weaker financially, while firms with less severe, account-specific problems are healthy financially but do have complex, diversified, and rapidly changing operations. Finally, Doyle et al (2007) found that the determinants also can vary based on the specific reason for the material weakness, consistent with each firm having to face its own unique set of internal control challenges.

Ogneva et al in 2007 conducted a study titled "Internal Control Weakness and the Cost of Capital" based on evidence found in Section 404 of the U.S. Sarbanes-Oxley Act. The study results illustrated that there is a direct relationship between internal control weakness and the cost of capital for companies. The weaker the internal controls, the higher the cost of capital in terms of shareholder's equity. In other words, investors and creditors are not satisfied with those companies having weak internal controls and believe that the investment risk for such companies is higher.

Klamm, Kobelsky, and Watson (2012) found that there is a positive relationship between complexity, as measured by the number of firm- operating segments and acquisitions and future material weaknesses. Their results shows that firms having a greater scope face a greater challenge in eliminating their control weaknesses.

Gupta,Weirich, and Turner (2013) then stated that the evidence presented in their paper unambiguously negated the claims that these Section 404 requirements were both "hasty and ill-conceived."

Thomas et al (2013) examine whether changes in control reports are associated with changes in market liquidity. they do not find that firms with improved (deteriorated) control reports experience a larger decrease (increase) in bid-ask spreads or larger increases (decreases) in trading volume and market quality indices compared to other firms, suggesting that market participants do not discern a change in information asymmetry when the effectiveness of internal controls over financial reporting changes.

Thomas, David and Matthew (2014) investigate the distinct effect of management reports on internal control over financial reporting quality. They find that management reports on internal control over financial reporting improve reporting quality and demonstrate that there are financial reporting benefits from the management report requirement on its own without attestation.

Huang et al (2015) find that cash holding are more valuable for firms disclosing material weaknesses in the Sarbanes-Oxley (SOX) 404 internal control assessments.

3. Research Methodology

In this study we use the correlation analysis procedure for finding the best approximation of relationship between probability of internal control weaknesses (dependent variable), and accrual quality (independent variable).

3.1 *Developing hypothesis*

To determine whether internal control weakness is associated with accrual quality, and finding an answer to for this question that: "are the internal controls designed to ensure the validity and reliability of the accounting information system and prevent deviations in identification of accruals?", We develop our hypothesis as below:

H1: There is a significant correlation between internal control weakness and accruals quality in companies listed on (TSE).

3.2Model specification

First, we follow Dichow & Dichev (2002) accrual quality model to estimate accrual quality. Their model was developed by assuming that a timing difference often exists between revenue recognition, expense matching under Accrual base accounting and actual cash receipts and payments .thus, the accruals are generated and reported as a result of that difference.

In sum, the following firm- level regression model was used to derive the practical criteria of the working capital accruals quality. And cash flow from operation is metric for cash flows related to accruals.

$$\Delta WC_{it} = \beta_0 + \beta_1 CFO_{\mathrm{it-1}} + \beta_2 CFO_{it} + \beta_3 CFO_{\mathrm{it+1}} + \varepsilon_{\mathrm{t}} \qquad \text{Model 1}$$

where:

ΔWC_{it}: changes in working capital as criteria of accruals;

CFO_{it-1}: is the cash flow of firm i in year t-1;

CFO_{it}: is the cash flow of firm i in year t;
CFO_{it+1}: is the cash flow of firm i in year t+1.
The residuals of the regression indicate the accruals, while the standard deviation of these residuals is the metric to measure accruals quality in which high standard deviation denotes a lower quality.

Second, to estimate the probability of internal control weakness in companies listed on TSE, a firm-level cross sectional multivariable regression (model2) developed by Ogneva et al (2005) is used. Since, there is no operational and geographical segment in our statistical sample. Thus, we have to exclude proxy of segment from the mentioned model as below:

$$Prob(WEAK)_{it} = f(\beta_0 + \beta_1 FOREIGN_{it} + \beta_2 M\&A_{it} + \beta_3 RESTRUCTURE_{it} + \beta_4 SALEGRW_{it} + \beta_5 INVENTORY_{it} + \beta_6 LOG\_MKTV_{it} + \beta_7 LOSS_{it} + \beta_8 RZSCORE_{it} + \beta_9 LOG\_AGE_{it}) \quad \text{Model 2}$$

where:
WEAK: is an indicator that take 1 if company internal control weakness, and 0 otherwise;
FOREIGN: is an indicator that takes 1 if the company has foreign commercial transitions and 0 otherwise;
M&A: is an indicator that take1if the company has merged and integrated during the given period, and 0 otherwise,
RESTRUCTURE: is an indicator that takes 1 if the company is reorganized during the given period, and 0 otherwise;
SALEGRW: is an indicator that takes 1 if the company's sales are lower than the average industry sales and 0 otherwise;
INVENTORY: is the ratio of total inventory to total assets,
LOG_MKTV: The log of market value for shareholders' equity. (Market value for shareholders' equity is the price of each share multiplied by the number of exported shares at the end of the recorded/designated period)
LOSS: An indicator that take 1 if the earning before extraordinary items indicates loss and 0 otherwise;
RZSCORE: is Altman's bankruptcy index (1968) wherein a higher level of index indicates weakness and a high possibility of bankruptcy;
LOG_AGE: is log of the number of years the company has been listed on the Stock Exchange, because the assumption is older companies has better internal control.

3.3 *Sample selection*

This study is based on a sample of financial statement released by 200 listed companies (out of 483) during the years 2008 through 2013. Three criteria were used in the selection of sample firms:

1-The firm must be a member of TSE.2- The data must be available on TSE's database.3- The fiscal year must end on the 20th march(the end of Iranian year in the Persian calendar).Meeting the criteria in any one of the firm five year (2008- 2013) was a sufficient condition for a firm's inclusion in that year. The result was a sample of 1000 firm-year.

3.4 Hypothesis testing

We conduct ordinary least squares (OLS), and multivariate linear regression models to estimate the internal control weakness and accrual quality.

To test the research hypothesis, the Student's – t is used to examine the significance of the regression model and test its significant coefficients that indicate the significance of the relationship between the internal control weaknesses and accruals quality.

To make sure of the explanatory power of the model and a lack of any autocorrelation between the components of the model, the adjusted R squared and the Durbin-Watson statistic test were used respectively. The computed values represent the high explanatory power of the model and a lack of autocorrelation between its components.

2. Empirical Findings

The summery descriptive statistic in Table 1 shows the dispersion and central indices of the accruals quality and internal control weakness as below:

Table 1: Descriptive statistic

Descriptive indicators	Internal Control Weakness	Accruals quality
Mean	9.929367	10.47744
Median	10.18027	10.4825
Maximum	54.68707	13.08573
Minimum	0.127177	7.866068
Std. Dev.	3.400327	0.743578
Skewness	2.374655	-0.09793
Sum	9929.367	10477.44
Observations	1000	1000
Cross sections	200	200

The correlation coefficient of internal control weakness and accruals quality is shown in Table 2.

Table 2: Correlation coefficients

Variables	Internal control weakness	Accruals quality
Internal control weakness	1.00000	0.921454
Accruals quality	0.921454	1.00000

The table 2 reveals that there is a very strong and highly correlation between internal control weakness and accruals quality. The strength of the correlations indicates that there is a strong probability that they are linked somehow. So, based on which it can be expected that the coefficients of the independent variable has been significant in the regression model.

The results of performing a hypothesis test of significance of the correlation coefficient to decide whether the linear relationship in the sample data is strong and reliable enough to use the model in our population(companies listed on TSE) is shown in table3 as below:

Table 3: 95% Critical Value of the sample Correlation Coefficient table

Accruals quality	Internal control weakness	Adjusted R squared	Durbin-Watson statistic
Coefficient	0.94	96%	1.08
Student's –t	(88.24)		
P-value		0.000	

Given that Critical value of the Student's –t distribution is 2.92, then the correlation coefficient is significant, and the model may be used for prediction in TSE. The adjusted R squared value is equal to 96%, which represents the

high explanatory power of regression model. The Durbin-Watson test value is 1.08 that indicates the residuals from our OLS regression is not auto correlated.

3. The plot of Model Output

In order to provide a better understanding of the estimated model, the plots of residuals as well as the histograms plot of the residuals are illustrated. Then, the model stability is analyzed using graphic tests.

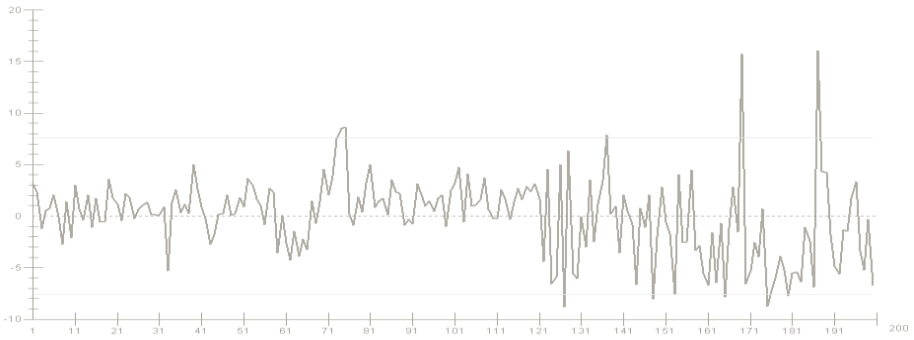

Figure 1: Residual Plot based on the Panel Data Analysis

Figure 1 represents the residuals based on the synthetic data, which indicates the random error of the model, does not have any specific time order, and then there is no autocorrelation between the error terms.

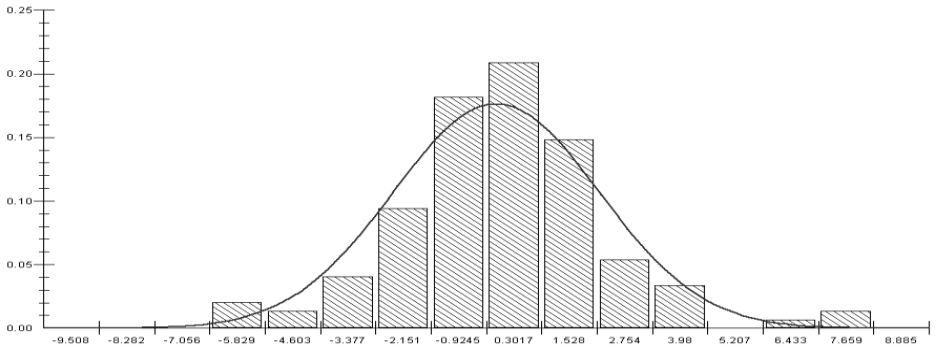

Figure 2: Histogram of Residuals

In Figure 2, the histogram of the residuals indicates that the random error is normally distributed thus, autocorrelation is not a concern.

Further, in this study we used the confidence interval tests which Brown, et al (1975) described as an important application of recursive residuals in testing for structural change over time. The technique is appropriate for time series data, and might be used if there is likelihood of uncertainty about when a structural change might have taken place. They introduced two tests: Cumulative Sum (CUSUM) test and Cumulative Sum of Squares (CUSUMQ) test.

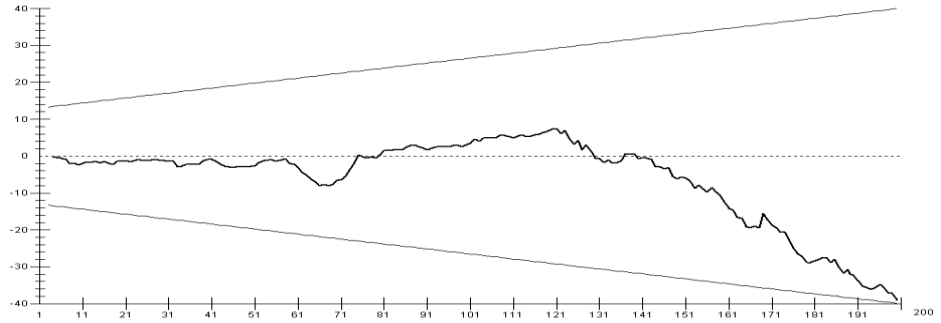

Figure 3: CUSUM Plot of Recursive Residuals

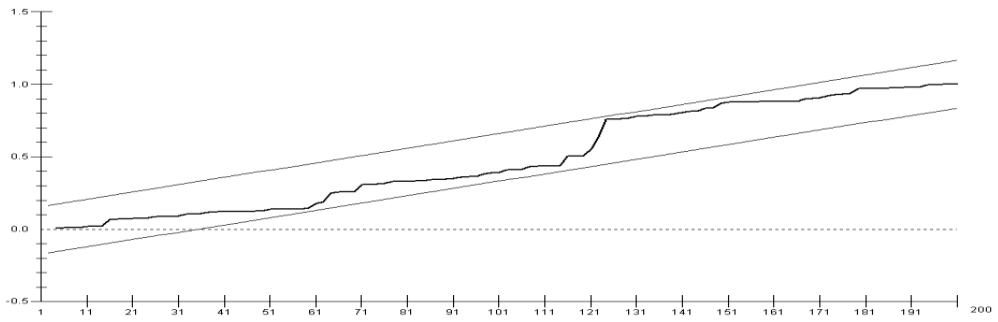

Figure 4**:** CUSUMSQ plot of Recursive Residuals

The result of CUSUM and CUSUMSQ tests is graphically shown in figure 3 and 4 respectively. The straight lines represent critical bounds at 5% significance level. As it can be seen, the plot of CUSUM and CUSUMSQ tests statistically stay withing the critical bounds indicating stability of the estimated coefficients of the model so that the intersection is not revealed.

4. Conclusion

In this study, the relation between internal controls weaknesses on accounting accruals quality in companies listed on TSE was examined. The internal control may be strong or weak due to certain conditions of the companies, which then affects other related aspects. The internal control weakness was expected to reduce the accruals quality of the companies and consequently reduce the profitability of the financial information. The results indicated that internal control weakness can be associated to accruals quality. This finding confirms the high value of an internal control system and its impact on the financial operations and reporting within companies. The results of this study are consistent with the results of the international studies mentioned in the discussion of literature review. In sum, it can be suggested that those companies with a high level of internal control weakness may be faced with financial and reporting problems, and these companies accordingly can achieve a higher level of reporting quality by identifying and improving those weaknesses.

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