

Investigating Relationship between Related-Party Transactions and Accruals' Reliability using by Simultaneous Equations System

Javad Shahnaz Khezerloo

Master of Accounting, Islamic Azad University, Tabriz Branch

Mehdi Zeinali

Assistant Professor of Accounting, Faculty Member of Islamic Azad University, Tabriz Branch.

ABSTRACT

One of the important issues in accounting research is related-party transactions. Therefore, this study investigates the relationship between related-party transactions and the accruals' reliability in the listed firms on the Tehran Stock Exchange (TSE). For this purpose, the ordinary least squares regression model was used. In addition, the simultaneous equations system was used to examine the relationship between the dual variables related-party transactions and accruals' reliability and increasing reliability of the regression model (SES). The statistical research data were collected from panel data from 2005 to 2011. The findings indicate a significant relationship between the related-party transactions and the accruals' reliability. In addition, the finding obtained from the simultaneous equations system showed no significant relationship between the related-party transactions and the accruals' reliability.

Keywords: Related-party transactions; Accruals' reliability; Simultaneous equations system.

Introduction

Financial accounting firstly aims to provide useful information for investors to predict the profit unit performance. Individuals and authorities with different and conflicting rights, profits, and interests need financial information to judge and decide on the affairs and status of the profit unit. According to economic and social conditions, legal requirements, current customs, bilateral or multilateral contracts, and managers' decisions, different profit units prepare and present various financial reports mainly related to outsourcing uses to meet these needs. These reports are the most important source of financial information for individuals and rightful, stakeholders, and concerned parties to profit units.

Major weaknesses in companies' accountability and financial reporting are further revealed due to recent scandals. One of the related areas is related-party transactions. These transactions are varied and complex and usually occur between the company and the directors, the board of directors, the major owners and

shareholders, and their affiliates. Financial reporting users define related-party transactions as aggressive accounting incremental profitability indicators. In general accounting, related-party transactions are considered a potential audit risk indicator. Therefore, as mentioned, examining the relationship between related-party transactions and the accruals' reliability in the listed firms on the Tehran Stock Exchange can effectively present and disclose such transactions.

Clarification of the problem and theoretical literature:

According to agency theory (Fama and Jensen, 1983; Namazi, 1985), conflict of interest concerns the owners (shareholders) and makes them review and evaluate managers' performance to ensure the optimal allocation of their resources by managers.[8 and 12]. Over time, some of the managers' decisions are proved to waste the company's resources and destroy the owners' wealth. On the other hand, managers have always tried to maximize their interests while reassuring owners that their decisions are in the owners' best interests.

Johnson et al. (2000) proposed the concept of the tunneling phenomenon, which indicates the transfer of assets and benefits from the company to those people with influence and control. According to this concept, managers may deal with transactions such as related-party transactions to transfer wealth or profits from the company to themselves [10]

The recent financial scandals in the US companies are due to the weaknesses of financial accountability and reporting. One of these weaknesses is the reporting related-party transactions. These transactions are distinct and often considered complex business transactions between a company and its owners, managers, board members, and affiliates. The related-party transactions in auditing play a role as a potential indicator of audit risk. The American Accounting Association (2003) has presented the related-party transactions as one of the nine main necessities that force companies to report financial statements. Article 129 of the Commercial Code approved in 1347 in Iran declares that without the permission of the board of directors, directors and members of the board of directors are not allowed to be directly or indirectly a party or participant in transactions in favor of the company. The board of directors' permission informs the transaction allowed to the company's legal inspector and reports it to shareholders' first ordinary general meeting [4].

Investigating the relationship between related-party transactions and the accruals' reliability is one of the important topics of accounting research. In the real world, cash receipts and payments occur at different times than transactions and creating events. Therefore, the use of accruals (accrual assumption) is better than the net measurement of cash receipts to measure the performance results of the business unit. Unlike cash items, accruals have a degree of ambiguity that reduces their reliability. Meantime, based on the conflict of interest between ownership and management, managers can manipulate the accruals presented in the financial statements and challenge their reliability.

There is a dual relationship between related-party transactions and the accruals' reliability. On the one hand, according to the agency theory and the concept of tunneling phenomenon, information will be asymmetry, and the accruals' reliability will be negatively affected if the company's transactions are performed directly and indirectly in favor of the board of directors and close and affiliated persons under their influence and control. In other words, the related-party transactions have turned to a place where management manipulates financial statements' content and reduces accruals' reliability. In addition, if the accruals' reliability decreases, related-party transactions are the most probable transactions for management to manipulate accruals in terms of auditing. Therefore, management reduces the accruals' reliability by manipulating related-party transactions and abnormalizing the content of transactions.

Therefore, Article 129 of the Commercial Code emphasizes that it is necessary to disclose related-party transactions separately in the notes with the company's financial statements because financial statements users always question the normal content of such transactions [4].

As mentioned, this study aims to answer whether there is a negative relationship between the related-party transactions and the accruals' reliability?

Moreover, is there a dual relationship between related-party transactions and the accruals' reliability?

Background research

Gordon and Henry (2005), Skyef et al. (2006), Coan et al. (2010), Khodamipour and Hooshmand Zafarani (2012), and Sarlak and Akbari (2013) have carried out experimental research on this research. Gordon and Henry (2005) conducted a study investigating the relationship between earnings management and related-party transactions. According to their findings, option accruals (earnings management measurement scale) positively correlate with some types of transactions (such as fixed-rate financing from affiliates). They generally concluded that there are concerns only in some types of related-party transactions [9].

Skyef et al. (2006) declared that managers have much incentive to take ownership of company resources and earnings management when there is no or less investigation of related-party transactions [15].

Coan et al. (2010) conducted a study investigating the relationship between related-party transactions and earnings management. The study was conducted based on a sample of 50 Indonesian companies during 2004 and 2005. They developed the research hypothesis based on the agency theory and conflict of interest. Coan et al.'s experimental results showed no statistically significant evidence about the relationship between related-party transactions and earnings management [11].

Based on Standard No. 12 approved in 2007, Khodamipour and Hooshmand Zafarani (2012) investigated the effect of disclosure requirements of related-party transactions on earnings management. In this study, the market value of each share is the dependent variable, and its independent variables are earnings per share, virtual variables, sales of goods, and related-party assets. They concluded that earnings value coefficient for companies selling inventory to related-party has decreased after confirmation of new disclosure requirements. In addition, earnings value coefficient from the sale of assets to related-party has decreased in the next period of disclosure requirements compared to the period before the disclosure requirements. They found no significant relationship between new disclosure requirements and their effect on reducing profit manipulation through asset sales transactions to related-party [2].

Sarlak and Akbari (2013) conducted a study investigating the relationship between transactions with related-party and earnings management in companies listed on the Tehran Stock Exchange. From 2007 to 2011, their findings show a significant positive relationship between transactions with related-party and earnings management [3].

According to the theoretical foundations and thematic background, the research hypothesis shows a significant negative relationship between the related-party transactions and accruals' reliability.

Research method:

This study investigates the relationship between transactions with related-party with the reliability of the company's accruals. Therefore, it is applied research in terms of purpose and correlational research in nature. Moreover, the present research is capital market research in accounting research.

Statistical population and research sample

The study population includes all companies listed on the Tehran Stock Exchange from 2005 to 2011.

Due to the length of the period, the samples should be selected so that the sample companies have an active market during this period to allow the hypotheses to be tested.

For this purpose, the statistical sample is obtained by screening method after applying the following restrictions:

1. Companies with the same financial period and ending at 12/29.
2. The research period is between 2005-2011 (for seven years).
3. Their database should be complete and available from 2005 to 2011.
4. The information related to the related-party transactions has to be fully disclosed in the companies' financial statements.
5. They have not stopped their activities during the research period and have not changed their financial period.
6. They should not be a part of financial, banking, and investment institutions.

Thus, 81 stock exchange companies were studied as a research sample according to the mentioned limitations.

Research model

The following multivariate regression model is estimated to test the research hypothesis:

$$P - ACC_{it} = \beta_0 + \beta_1 RPT_{it} + \beta_2 Size_{it} + \beta_3 Auditor_{it} + \beta_4 Debt_{it} + \beta_5 B - Ind_{it} + \beta_6 EQ_{it} + \beta_7 Ins - SH_{it} + \varepsilon_{it} \quad (1)$$

In the above model, the operational variables are defined as follows:

RPT: This variable measures related-party transactions and includes all transactions, including the sale or purchase of goods or services and providing facilities to related-party. The total amount of related-party transactions is divided by the total assets.

Auditor: The virtual variable is an independent auditor.

If the auditors of the auditing organization perform the audit of the company's financial statements, it will be number one; otherwise, it will be zero.

Size: It is equal to the natural logarithm of the company's sales.

Debt: It is equal to the total debt divided by the total assets.

B-Ind: The ratio of non-executive members of the board of directors of a joint-stock company.

EQ: A profit quality variable measured using the Penman (2007) criterion.

This profit quality criterion equals the ratio of operating cash flow to net profit [13].

Ins-SH: The percentage of equity ownership of institutional investors.

P-ACC: This variable measures the accruals' reliability.

For this purpose, the accruals' stability will be used as follows (Nonhal et al., 2010) to calculate the accruals' reliability based on the model of Richardson et al. (Richardson et al., 2005) [6, 14]:

$$\begin{aligned} E_{t+1}^* &= yE_t^* + \varepsilon_{t+1} \\ E_{t+1}^* &= yC_t + yA_t + \varepsilon_{t+1} \\ A &= A^* + e \end{aligned}$$

$$E_{t+1} = y_C C_t + y_A A_t + \omega_{t+1}, \omega_{t+1} = \varepsilon_{t+1} + e_{t+1} - ye_t$$

E_{t+1} + 1: Net profit before extraordinary items in the next period (time t + 1).

E* t: Net profit before extraordinary items in the current period (time t).

y: is a coefficient that varies between zero and one (0 < y < 1).

ε_{t+1}: error of measuring net profit in the next period (time t + 1).

C_t: Cash flows in the current period (time t).

A_t: accruals in the current period (time t).

A*: are real accruals.

e: Items error measurement of accruals.

ω_{t+1}: is the sum of the measurement error of the period.

In addition, the system of simultaneous equations will be formed using models two and three.

$$P - ACC_{it} = \beta_0 + \beta_1 RPT_{it} + \beta_2 Size_{it} + \beta_3 Auditor_{it} + \beta_4 Debt_{it} + \beta_5 B - Ind_{it} + \beta_6 EQ_{it} + \beta_7 Ins - SH_{it} + \varepsilon_{it} \quad (2)$$

$$RPT_{it} = \beta_8 + \beta_9 P - ACC_{it} + \beta_{10} Size_{it} + \beta_{11} Auditor_{it} + \beta_{12} Debt_{it} + \beta_{13} B - Ind_{it} + \beta_{14} EQ_{it} + \beta_{15} Ins - SH_{it} + \varepsilon_{it} \quad (3)$$

Simultaneous equations System:

Based on the theoretical literature and research background, a simultaneous equations system has been used to examine the relationship between the related-party transactions and accruals' reliability and vice versa to increase the validity of the research. For this purpose, multivariate regression equations are estimated using the two-stage least squares (2SLS) method and simultaneously for the statistical period of 2005-2011. The two-stage least squares method is a systematic method considering the possible relationships between the perturbation components of each equation.

The T-test is used to test the significance of the coefficients in a simultaneous equations system. Due to the relationship between the components of the error of the equation, other good criteria for regression fitting (such as coefficient of determination, F-statistic, standard error) are not widely used in simultaneous equations systems. This raw data is first collected in Excel software, then loaded in Eviews and SPSS software, and extracted statistical results. This study uses the combined data method due to the type of data studied. Combined data provide a good environment for developing estimation methods and theoretical results. Researchers can use cross-sectional and time-series data to investigate impossible issues in cross-sectional or time-series environments.

The combined data method combines cross-sectional data and time series [7].

Statistical findings

Figure (1) shows the research variables, abbreviations of variables, and descriptive statistics of research variables.

Table (1): Descriptive statistics of the research model

Variable type	Research variables	Number of observations	Average	Standard deviation	Percent 25%	Middle	Percent 75%
Dependent variable	Stability of accruals (P-ACC)	567	-0.1849	1.7127	-0.3349	-0.1051	0.0429
Independent variable	Related-party transactions (RPT)	567	0.1223	0.3273	0.0000	0.2411	0.1962
Control variables	Audit firm size (AUDITOR)	567	0.21	0.405	0.00	0.00	0.00
	Company size (SIZE)	567	12.7986	1.2202	11.9553	12.5091	13.6272
	Debt Ratio (DEBT)	567	0.6330	0.5007	0.3394	0.5742	0.7674
	Non-Executive Members (B-IND)	567	0.4484	0.3872	0.0000	0.4000	0.8000
	Earning quality (EQ)	567	52.7074	1185.662	0.1485	0.7896	2.0230
	Institutional Ownership Percentage (INS-SH)	567	17.8419	25.2315	0.0000	2.5477	32.1400

Figure (1) shows that the average accruals' stability (P-ACC) is -0.1849, and related-party transactions (RPT) are 0.1223. Therefore, the related-party transactions during the research period (2005-2011) form about 12% of the total assets of the selected company's research sample.

Regression model fitting

Figure (2) shows the statistical results of regression, F test, t-test, camera-Watson for the multivariate regression model of the research.

Table (2): Results of the first hypothesis test

$P - ACC_{it} = \beta_0 + \beta_1 RPT_{it} + \beta_2 Size_{it} + \beta_3 Auditor_{it} + \beta_4 Debt_{it} + \beta_5 B - Ind_{it} + \beta_6 EQ_{it} + \beta_7 Ins - SH_{it} + \varepsilon_{it}$								
Component	Width of origin) β_0 (RPT_{it}	$Auditor_{it}$	$SIZE_{it}$	$Debt_{it}$	$B - Ind_{it}$	EQ_{it}	$Ins - SH_{it}$
Coefficient	0.2595	-0.0643	0.0255	-0.0261	-0.638	0.0529	0.00001	-0.0015
The standard deviation	0.1362	0.0350	0.0281	0.0108	0.0258	0.0305	0.00001	0.0005
T- statistic	1.9051	-1.8353	0.9076	-2.4299	-2.4754	1.7325	-0.6041	-3.2102
p- value	0.0573	0.0670	0.3645	0.0154	0.0136	0.0837	0.5460	0.0014
F- statistic	5.8527							
p- value	0.00001							
Determination coefficient (R ^ 2)	0.0683							
Adjusted coefficient of determination	0.0566							
Camera Statistics - Watson	1.7602							

As observed in Figure (2), the coefficient of the independent variable of the related-party transactions is equal to -0.0643. It shows a decrease of 0.043 in accruals reliability for every one percent change in the related-party transactions.

Based on the results of the t-test, the null hypothesis is not rejected at a significance level of 0.05. Therefore, there is no significant relationship between the related-party transactions and accruals' reliability. Figure (2) also indicates that the coefficient of determination (R^2) is equal to 0.0683, which shows that approximately 7% of the dependent variable changes (accruals' reliability) can be attributed to the changes of independent variables. In addition, the research regression model is significant according to the p-value of the F statistic. Finally, the camera-Watson statistic is about 1.76. Therefore, there is no autocorrelation, and the error values of the model (e) are random.

Estimation of the simultaneous equations system:

As mentioned, a simultaneous equations system is used to increase the validity of the research. Figure (3) shows the Findings from estimating the simultaneous equations system from 2005 to 2011 for the above two models.

Table (3): Findings from estimating the simultaneous equations system

$P - ACC_{it} = \beta_0 + \beta_1 PRT_{it} + \beta_2 Size_{it} + \beta_3 Auditor_{it} + \beta_4 Debt_{it} + \beta_5 B - Ind_{it} + \beta_6 EQ_{it} + \beta_7 Ins - SH_{it} + \varepsilon_{it}$			
Explanatory variable	Two-step least-squares method		
	Coefficient	T- statistic	p- value
Related- party intraction (RPT)	-0.0225	-0.1011	0.9195
Audit firm size (AUDITOR)	0.0898	0.4765	0.6338
Company size (SIZE)	-0.1104	-1.7851	0.0745
Debt Ratio (DEBT)	-0.1051	-0.7241	0.4692
Non-Executive Members (B-IND)	0.2017	1.0279	0.3042
Earning quality (EQ)	0.00001	-0.0049	0.9961
Institutional Ownership Percentage (INS-SH)	-0.0025	-0.8046	0.4212
Determination coefficient (R^2)	0.0130		
Adjusted coefficient of determination	0.0006		
Camera Statistics - Watson	1.9140		
$PRT_{it} = \beta_8 + \beta_9 P - ACC_{it} + \beta_{10} Size_{it} + \beta_{11} Auditor_{it} + \beta_{12} Debt_{it} + \beta_{13} B - Ind_{it} + \beta_{14} EQ_{it} + \beta_{15} Ins - SH_{it} + \varepsilon_{it}$			
Explanatory variable	Two-step least-squares method		
	Coefficient	T- statistic	p- value
Accruals Stability (P-ACC)	-0.0008	-0.1011	0.9195
Audit firm size (AUDITOR)	-0.0065	-0.1801	0.8571
Company size (SIZE)	0.0261	2.2265	0.0262
Debt Ratio (DEBT)	0.0165	0.5990	0.5493
Non-Executive Members (B-IND)	-0.0753	-2.0231	0.0433
Earning quality (EQ)	0.00001	0.7141	0.4753
Institutional Ownership Percentage (INS-SH)	0.0003	0.5074	0.6120
Determination coefficient (R^2)	0.0242		
Adjusted coefficient of determination	0.0120		
Camera Statistics - Watson	1.0244		

According to Figures (3), based on the results of the t-test, the p-value of the independent variable of related-party transactions is equal to 0.9195 at a significant level of 0.05, which is more than 0.05.

Therefore, hypothesis zero (H_0) is not rejected. The simultaneous equations system estimation findings show no significant relationship between the related-party transactions and the accruals' reliability.

Conclusion

The Richardson et al. (2005) model measured the accruals' reliability. The criterion of stability of accruals was used to test the research hypothesis that showed no significant relationship between the related-party transactions and the accruals' reliability. A glance and selective review of the notes with the financial statements of companies listed on the Tehran Stock Exchange shows that the reported figures of related-party transactions are approximately equal to their fair value. It means that a transaction value in a stock exchange company is recorded at fair value because figures and amounts of related-party transactions

are recorded and reported equal to the fair value at the transaction time. According to the accounting requirement standard No. 12 of Iran, the fair value of this type of transaction needs to be disclosed, which is a document for lack of significant relationship between related party transactions and the accruals' reliability. Therefore, it is assumed that disclosing the related-party transactions to fair value cannot affect the accruals' reliability and vice versa. The present study showed that accounting standards validity, especially Standard No. 12 on related-party transactions, has hindered earning management. Therefore, it is suggested to pay attention to all aspects of the issue by conducting field studies, increasing related research, distributing questionnaires among reliable auditors and relevant experts, addressing the possible weaknesses of Standard No. 12, and striving to strengthen these points.

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