



Income from Asset sales, Earnings Change, and Leverage

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ABSTRACT

Due to the fact that assets are recorded at their historical value and they may include unrealized gains (losses), managers may manipulate earnings through the sale of these assets and provide financial information which is not accurate and reliable. The aim of this study is to investigate the relationship between income from asset sales, earnings change and leverage of companies listed on Tehran Stock Exchange. The population of this study consists of all companies listed on Tehran Stock Exchange and the sample includes 110 companies for a period of 12 years (2004-2015). Multivariate linear regression analysis is used to test the research hypotheses at the level of 5%. The results show that there is no significant relationship between income from asset sales and earnings change. Also, based on the research results, there is a significant relationship between income from asset sales and financial leverage. In other words, there is a positive relationship between income from asset sales and financial leverage.

Keywords:

Asset sales, Earnings Change, Leverage



1. Introduction

The main objective of accounting procedures is providing reliable, accurate and relevant information in a timely manner. This aim can be achieved by using Generally Accepted Accounting Principles (GAAP). However, managers use GAAP's flexibility to change accounting figures and numbers. Changing accounting numbers and reports may cause negative consequences and affect the firm's value and allocation of economic resources. Therefore, many attempts are being made to reduce these effects by decreasing the flexibility of accounting standards (Abdel-Azim and Ibrahim, 2014). Although, prior studies suggested that managers manipulate earnings when less flexible accounting standards are applied, Ewert and Wagenhofer (2005) concluded that lower flexibility of accounting standards reduces earnings manipulation and increases the opportunities for actual earnings management through asset sales.

In fact, earnings as a final result of accounting process is influenced by procedures which are selected by managers. Selecting accounting procedures allow managers to decide about the time of recognition and measurement of costs and revenues. Managers are motivated to smooth earnings using various means such as asset sales. Since managers often can choose the sales period, the changes in the market value of assets are reported in the period of sale. Therefore, this is an opportunity for managers to manipulate earnings through timing of the sale of assets at relatively low cost (Bartov, 1993). Recently, there has been an increasing trend in investigating earnings management, which has been parallel with applying more strict regulations and less flexible accounting standards. Earnings management occurs when managers perform activities that depart from the first best obtainable practice or from standard business practices in order to meet certain objectives (Roychowdhury, 2006; Gunny, 2010).

Income-smoothing hypothesis argues that the use of income from asset sales provides an opportunity for manipulation and fraud. Income from asset sales creates large amounts of unrealized capital gains which are recognized only if the managers decided to stop selling such assets. This may encourage managers to do manipulation and fraud. In addition, managers are able to decide what assets should be sold and at what time. Thus, managers can take advantage from proceeds of the sale of assets by their involvement in

the actual earnings management within trading assets (Abdel-Azim & Ibrahim, 2014).

This paper contributes to earnings management literature in two ways. First, this is the first research study that examines the relationship between income from asset sales, earnings changes and leverage in Iran. Second, the research problem in this study is due to managers' use of actual earnings management and measuring actual earnings management through income from asset sales, especially after the implementation of severe financial regulations and less flexible accounting standards. In fact, the main objective of this research is to answer this question: are there any significant relationship among income from asset sales, earnings changes, and leverage of companies listed on Tehran Stock Exchange?

In next sections, the relevant literature and conceptual framework to develop research hypotheses are discussed. Then, the research methods including research population and sample selection are explained. The research results are analysed in next section and finally the conclusions of the study and suggestions for future researches are discussed in the final section.

2. Literature Review

Earnings management was introduced by Mc Nichelson (1988) for the first time. He used earnings management term instead of earnings smoothing. Schipper (1989) defines earnings management as intentional intervention in financial reporting for achieving expected level of earning. In fact, the earnings could be increased, decreased or manipulated based on managers' different purposes and incentives. Earnings manipulation and earnings management may occur through changing the income from asset sales. Recently, many researchers tried to investigate actual earnings management which have happened through the application of severe regulations and less flexible accounting standards. Actual earnings management may occur when managers carry out activities that depart from the first best available practice or from normal business activities in order to meet certain goals (Gunny, 2010).

Examples of actual earnings management include sales manipulation by reducing prices or preparing easier credit terms, overproduction to reduce the cost of goods sold, the selective sales of assets and so on. The strategy of selling assets is investigated as an

actual activity that has been used by managers to manipulate earnings since assets are recorded at historical cost and hold large unrealized losses or gains. Although historical costs are reliable, they have time errors because their earnings are recognized by keeping assets in current period which are related to prior periods. In fact, assets are kept based on historical costs but they are sold by the current price and the earnings from asset sales are recognized in selling period. It is expected that managers try to increase earnings by selling more assets when the actual earnings are less than expected earnings. Also, managers try to reduce earnings by selling assets which may cause loss when the actual earnings are more than expected earnings (Herrmann et al. 2003).

Herrmann et al. (2003) concluded that there is a negative relationship between income from asset sales and current year firm's performance and also there is a positive relationship between income from asset sales and future expected performance. Moreover, they believe that when the current performance is negative and future expected performance is positive, using asset sales for earnings management is completely obvious. Poitras, et al. (2002) mentioned that in companies that earnings changes are reported and changes in earnings per share in current period is positive compared to previous period and the earnings are increased, the managers have no intention to manipulate earnings and the asset sales mean is not used for earnings management. But, this method is used in companies that changes in earnings of per share is negative.

Several research studies discovered the elements and influencing factors on earnings management. Bartov (1993) found that managers exploit cost accounting by interfering in the structuring of asset sales transactions to manage earnings. Following

Bartov, Herrmann et al. (2003) examined the question of whether Japanese managers exploit historical cost accounting in earnings management using asset sales. The results showed that Japanese managers manipulate earnings through the sale of assets and marketable securities to meet the current and future performance expectations. In addition, Wang et al. (2010) explored the relationship between earnings from asset sales and earnings management in Taiwan. They found that when sample firms are about to report losses, managers manipulate earnings through the sale of assets that hold capital gains in order to avoid reporting losses.

Recently, Chen et al. (2015) investigated the accrual-based and real activities based earnings management behaviour of family and non-family firms in Japan. They found that the level of both real activity and accrual-based measure is lower for family firms. Using cross-sectional regression analyses, they concluded that family shareholding increases the level of abnormal accruals management, however, the family CEO decreases the level of abnormal accruals. Tabassum et al. (2015) examined the relationship between real earnings management and future financial performance. They used a panel data analysis technique, i.e. generalized least square (GLS) method, for testing their hypotheses. They found that firms engaged in real earnings management (REM) activities through sales manipulation to report higher earnings have worse financial performance in the future.

In this study, the effects of earnings change and leverage on income from asset sales (actual earnings management) is investigated. The dependent variable is income from asset sales, independent variables are earnings change and leverage and control variables are changes in sale, firm size and current ratio. Figure 1 shows the conceptual framework of this research.

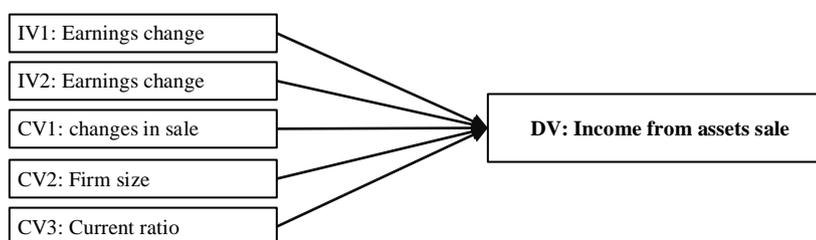


Figure 1: Research Conceptual Framework

3. Methodology

Based on earnings smoothing theory, using income from asset sales provides an opportunity for manipulation and fraud. Income from asset sales creates lots of unrealized earnings which are recognized only when managers decide to sell these assets. Moreover, managers will be able to decide about the type and the time of selling assets and, in this way, they manipulate earnings (Laux & Leuz, 2010). Most of prior researchers proposed two common hypotheses - the income-smoothing hypothesis and the debt/equity hypothesis regarding actual earnings management. Based on earnings-smoothing hypothesis, earnings are manipulated to reduce fluctuations of the level that is considered usual for the firm. According to Poitras et al. (2002), the income-smoothing hypothesis suggests that managers change earnings to achieve a smoother earnings level in order to achieve certain earnings management objectives.

Moreover, based on debt/equity hypothesis, contracts are used between companies and other related groups, such as stakeholders, management, suppliers, and lenders, to identify the terms that both groups are obligated to follow. Some of these terms depend on accounting numbers in order to help regulate the contractual relations between the related groups (Healy & Wahlen, 1999). In order to violate some of these terms, some restrictions and sanctions are imposed on firms, which may represent a strong incentive for managers to meet these terms, even via earnings management. Based on these two hypotheses, it is expected that managers interfere in the structuring of asset sales transactions in order to manipulate earnings. Therefore, research hypotheses are:

H1: Income from asset sales is negatively associated with the earnings change.

H2: Income from asset sales is positively associated with the leverage.

This study is an experimental research and for analyzing the research data, *Multiple Linear Regression* model is used. To test the significance of the regression model and the significance of coefficients of regression F-Test and T-Test are used.

3. 1. Research Population and Sample

The population of this study includes all companies listed on Tehran Stock Exchange. For

choosing samples, *Purposeful Sampling is used*. This means that companies considering the following features were selected:

- Selected companies were not in financial intermediation and leasing sector.
- They were listed on Tehran Stock Exchange until the end of 2015.
- During the research period, their stock trading had not stopped.
- In terms of increase comparability, their fiscal year ends in march.

Considering the mentioned conditions total numbers of 110 companies were selected. Thus, secondary data of these companies were collected and Eviews software was used for analysing the data.

3. 2. Research Model

The research model is as follow:

$$IASit = \beta_0 + \beta_1 (\Delta EARNit) + \beta_2 (DRit-1) + \beta_3 (CRit-1) + \beta_4 (\Delta Salesit) + \beta_5 (LogAit) + \varepsilon$$

IASit = Income from sale of assets scaled by prior year total assets.

β_0 = Model constant.

β_1 – β_5 = Beta coefficients of the model's independent variables.

$\Delta EARNit$ = Earnings change scaled by total assets at the beginning of the event year.

DRit-1 = Leverage: debt/equity ratio at the beginning of the event year

CRit-1 = Current ratio at the beginning of the event year.

$\Delta Salesit$ = Sales change of the event year.

LogAit = Natural logarithm of the total assets of the event year.

ε = The model residual

4. Results

4.1. Descriptive Statistics

Table 1 shows the descriptive statistics of research variables.

The mean of income from asset sales variable is 0.02 which means that most of the research data are concentrated on this number. The median for this variable is 0 which means that half of the research data are less than zero and half of them are more than zero.

When the mean and median are relatively close to each other, it can be shown that the research variables are normal. The change of sale variable has the most asymmetry and firm size variable has the lowest asymmetry from normal distribution.

Table 1: Descriptive Statistics of Research Variables

Variables	mean	median	max	min	S.D
IAS	0.02	0.00	2.03	0.00	0.10
ΔEARN	-0.53	0.11	479.08	-762.70	31.43
DR	0.78	0.68	14.80	0.06	0.73
CR	1.25	1.13	14.26	0.03	0.79
Δ Sales	4.88	0.17	1454.49	-1	67.45
LOGA	12.78	12.57	18.85	8.10	1.51

4.2. Testing Research Hypotheses

4.2.1. F-Limer and Hausman Tests

For analysing the research model, first F-Limer test is used to distinguish panel data from pooled data, if error is less than 5% data are panel and if it is more than 5% data are pooled. The results of cross-section F-test is 0, thus, data are panel. Afterwards, fixed effects and random effects of data are examined using Hausman test. Regarding the results of Hausman test in static model, error is 0.0004. Thus, fixed effects of panel data are accepted. Table 2 shows the results of F-Limer and Hausman tests. For every hypothesis, error is 5% and confidence level is 95%.

Table 2: Results of F-Limer and Hausman Tests

F-Limer Test			Hausman Test		
F	P	result	K ²	P	result
2.5	0.00	panel	4.4	0.49	Random

4.2.2. Testing Multicollinearity

To test the multicollinearity between residuals, Durbin-Watson test is used. If the Durbin-Watson statistic is between 1.5 and 2.5, the multicollinearity problem does not exist. Table 3 shows the results of Durbin-Watson test.

Table 3: Durbin-Watson Statistics

Accepted range	Durbin-Watson Statistics
1.5 < DW < 2.5	1.78

4.2.3. Testing Consistency of Residuals

One of the main hypotheses of a suitable regression model is the assumption of homogeneity (consistency of the residual variance). In this study for investigating this hypothesis, White (White Test) is used. The null hypothesis in this test is the consistency of variances and if the p-value is more than 0.05, the null hypothesis is accepted. The result of white test is presented in table 4. The p-value is 0.45 and the null hypothesis is accepted. Therefore, based on this result, the variance of residuals is consistent.

Table 4: The result of White Test

f-statistic	p-value
0.68	0.45

4.2.4. Testing Research Hypotheses

For testing research model, F-statistics analysis and for testing coefficient of regression model, t-statistics analyses are used. Moreover, the adjusted R² is used to test the relationship between dependent and independent variables. The results of testing hypotheses (multiple regression analyses) are presented in table 5.

Table 5: Multiple Regression Analyses

variables	Coefficient	Std. Error	t-statistic	P-value
c	35.18	4.09	8.59	0.00
ΔEARN	0.004	0.01	0.29	0.77
DR	5.22	1.96	2.67	0.01
CR	1.29	0.73	1.76	0.08
Δ Sales	0.00	0.01	0.21	0.84
LogA	-1.42	0.30	-4.68	0.00
R ² : 0.49 Adjusted R ² : 0.41 F-Value: 3.4 Prob (F-statistic): 0.00				

The results in table 5 showed that based on p-value of F-statistic which is less than 0.05, the null hypothesis is rejected and this model is significant at 95% confidence level. Regarding the first hypothesis, based on the results in table 5, the p-value is more than 0.05 (p-value, 0.77) for earnings changes. Thus, there is no significant relationship between income from asset sales and earnings changes. Also, regarding second hypothesis, the p-value is less than 0.05 (p-value, 0.01) for leverage. Thus, there is a significant

relationship between income from asset sales and leverage. The R^2 is 0.41 which shows that 41 percent of changes in dependent variables are explained by changes in independent variables.

5. Discussions & Conclusions

The main objective of this research is to investigate the relationship between income from asset sales, earnings changes and leverage based on income-smoothing hypothesis and the debt/equity hypothesis. The population consists of all companies listed on Tehran Stock Exchange and the sample includes 110 companies during 2004 to 2015. For testing research hypotheses, multiple linear regression models are used.

The results showed that there is not a significant relationship between income from asset sales and earnings changes. Therefore, the first hypothesis is not accepted. This result is inconsistent with the results of Bartov (1993), Poitras et al. (2002) and Abdel-Azim & Ibrahim (2014). Lacking the significant relationship between these variables may be due to the profitability of companies and the structure of their assets. Moreover, the results reveal that there is a positive and significant relationship between income from asset sales and leverage. Therefore, the second hypothesis is accepted. This result is consistent with Abdel-Azim & Ibrahim (2014). Therefore, with increasing leverage, income from asset sales of companies listed on Tehran Stock Exchange is increased. In fact, managers are motivated to smooth earnings through different methods and selling assets is one of these methods. Managers often can choose the time of asset sales and based on historical cost principle, changes in market value of assets between buying and selling period, provide opportunities for earnings manipulation. Leverage as a firm characteristic is influenced by assets and debts structure and it is expected that changes in leverage will affect firm performance. The results indicate that leverage has significant positive effect on income from asset sales and income from asset sales is increased by increasing in leverage.

There are some limitations in this research study which should be considered. First, this study is based on financial information provided by audited financial statements of listed companies. Thus, it is evident that the results could be affected by the accuracy of financial statement information. Second, due to this fact that research variables are calculated from financial statements which are based on historical cost,

adjusted data for inflation effect may have changed the research results. **Another** limitation was the small number of companies in each industry and the limited time periods that financial statements and financial information of companies provided during that periods, thus, extending the results to other companies should be done with caution.

Based on the research results, there is a positive and significant relationship between income from asset sales and leverage. Thus, investors need to consider this relationship during their decision making. Moreover, the analysts and financial advisors can use this result for their analyses on financial position of companies.

Further research is needed to determine the effect of capital structure and corporate governance and also the effect of inflation on actual earnings management. Also, further research is required to determine the effect of these research variables on actual earnings management using quarterly data for each group of industries.

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