Relationship Between the Accrual-Based Earnings Management and Future Financial Performance

Reza Gholami Jamkarani and Tayebeh Hozi

Department of Accounting, Qom Branch, Islamic Azad University, Qom, Iran

Abstract: Managers try to manipulate the accounts through accounting methods (such as the method of accrual-based earnings management) in order to present a plausible and compelling picture of the current financial performance of their firms. The present study aims to investigate whether the accrual-based earnings management has any effect on the future financial performance of the firms. Hence, in order to examine this matter, 120 firms listed on Tehran Stock Exchange (TSE) during the period from 2006-2013 were studied. In order to evaluate the quality of accruals, Dechow Model presented in 2002 was used. For testing the hypotheses, a panel data regression model was employed. The results show that there is a significant relationship between accrual-based earnings management and future financial performance.

Key words: Earnings management, future financial performance, accruals, Tehran Stock Exchange (TSE), regression model

INTRODUCTION

Now a days, information is accounted as an important tool for making economic decisions and there is no doubt that the quality of decisions depends upon the accuracy and precision of the existing information. Financial statements are the most important source for the external organizational people to access the required information. The profit reported in the profit and loss statement is among the significant financial information which are taken into consideration by individuals while decision-making. Financial analysts usually consider the reported earnings as a prominent factor in their analyses and judgments. Furthermore, for making their investing-related decisions, investors rely upon the financial information contained in the financial statements of economic units, especially, the reported earnings. Investors believe that fixed profit compared to fluctuated profit guarantees a higher divisible profit payment. Investors thus invest with more certainty in the shares of companies which their earnings trend is more stable. Therefore, managers are motivated to deal with earnings management in order to arrange the financial statements of their companies.

Earnings management can be classified into three categories of fraudulent accounting, accruals management and real earnings management. Fraudulent accounting is concerned with the accounting choices that are against the Generally Accepted Accounting Principles (GAAP). In accruals management, those accounting procedures are carried out which are based upon the GAAP but try to obscure the true economic performance. Real earnings management occurs when managers perform actions that deviate them from best practices to report higher earnings.

In accrual-based earnings management, managers choose specific accounting procedures to achieve their own objectives. Choosing accounting procedures is a broad concept which includes both choosing accounting methods such as choosing Straight-Line Depreciation Method versus Accelerated Method of depreciation or choosing the method of revenue recognition and discretionary accruals. Credit policies, accrued but unpaid expenses, warranty provisions, provision for inventory depreciation, provisions for reorganization and scheduling for depreciation or charge-off of assets. Therefore, selection of the accounting methods and making changing the accruals are two effective methods for earnings management. Attempt to manage the earnings shall affect the current and future financial performance. The main question of this research is whether there is a significant relationship between the accrual-based earnings management and future financial performance of the firms listed on the on Tehran Stock Exchange (TSE).

Theoretical framework and literature review: The hypothesis of earnings management was first suggested by Hepworth (1953) under the term of "income smoothing" and further elaborated upon by Gordon (1964).

Corresponding Author: Reza Gholami Jamkarani, Department of Accounting, Qom Branch, Islamic Azad University, Qom, Iran

Jones (1991) defines earnings management as a "purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain". This definition focuses on the opportunistic aspect of the management, that is to say, managers manage earnings as a result of profiteering incentives which in turn reduces the information content of accounting numbers. On the other hand, some scholars have an informative opinion about the earnings management and define it as a manipulation of numbers by managers through which private management information about the future performance of firms is passed on to investors. Therefore, earnings management not only decreases the information content of earnings but also helps investors to better interpret the reported earnings figures. In general, one of the primary aims of earnings management is to maintain the firm's credit because it makes the company appear as an efficient and dynamic company. Achieving a proper position among the competitors and the capital market causes the investors and creditors to have a more favorable view of the company.

Market uses the information contained in the financial statements to assess the firms. This valuation is carried out in terms of the expected future performance usually resulting from the past performance the firms. Thus reported earnings are typically and book value of the firms are typically used as a basis for valuation.

Since, the discretionary component of the accruals provides the opportunity for the management to manipulate the earnings, it is used as a management index. Accruals is managed through changing the estimates or the accounting methods by applying the GAAP. For instance, changing the method of depreciation, estimates such ass life of assets, provision for allowance for doubtful accounts and other year-end accruals are cases which result in the reported earnings management in a particular direction without changing the underlying transaction (Jiraporn *et al.*, 2008). Furthermore, choosing those accounting procedures which advance revenue recognition and defer the recognition of expenditures, results in earnings management and increases the reported earnings. Since, it is unlikely that the increased earnings in the current period which have been resulted from a change in accruals remain constant. Therefore, if demand for a company's products is relatively stable, its future earnings will likely to be decreased.

Lu and Vonne (2003) examined whether earnings management affects the firms' investment decisions. In this research, they studied the investments in fixed assets during 1980-2000 and also examined the securities lawsuits according to which shareholders filed against their firms due to their inappropriate accounting for financial investments or incorrect reporting. Their findings revealed that during the period when incorrect reports were presented, the investment rate of the alleged firms were growing increasingly and during the said period investment rate has been more than expected while in subsequent periods the rate of investment decreased.

Mizik and Jacobson (2007) found that firms with a greater likelihood to engage in earnings management through real activities manipulation have much lower future-term stock returns than other firms.

Gunny (2010) realized that firms tend to engage in earnings management using real activities manipulation. The results of this study showed that cutting the expenses of R&D and overproduction has a positive association with real activities manipulation. Also, the earnings resulted from the real activity earnings management are negatively associated with future performance of firms.

Zhao *et al.* (2011) examined the influence of takeover protection on real earnings management and future performance. The results of their study revealed that firms with less takeover protection have higher levels of real earnings management and lower future operational performance.

Uwuigbe *et al.* (2015) assessed the effects of firms' characteristics on earnings management. Their findings showed that firms' size has a significant positive impact on earnings management but there is no significant relationship between firms' financial leverage and discretionary accruals.

Ghorbani *et al.* (2011) examined the impact of real earnings management on the future return on assets. The results of their study revealed that there is a significant relationship between proxies for real earnings management and future return on assets.

Saidi *et al.* (2013) examined the relation between real earnings activities management and future performance of firms listed on Tehran Stock Exchange (TSE). The results from the study showed that there is a significant negative association between proxy's for real management and future performance.

Based upon the abovementioned literature, it can be expected that accrual-based earnings management is negatively associated with the future performance of firms, because managers tend to jeopardize the accruals in favour of current-period income of their firms. Given the limited studies carried out on this subject, the aim of this research is to examine the relationship between accrual-based earnings management and the future performance of firms. Thus the research hypotheses are formulated as follows:

- H_1: Accrual-based earnings management has a significant relationship with future return on assets
- H_2: The Firm size has a significant impact on the relationship between accrual-based earnings management and future return on assets
- H_3: The firms' financial leverage has a significant impact on the relationship between accrual-based earnings management and future return on assets

METERIALS AND METHODS

Since, it is impossible to control all the relevant variables in the present study, it cannot be a kind of absolutely empirical research but considering that it analyses the past information, it is accounted as a quasi-empirical research. In terms of its objective, this research is practical and in terms of the data analysis method is a kind of correlation-regression analysis.

Statistical population and sample selection: The current research population covers all the firms listed on Tehran Stock Exchange (TSE) during the period from 2006-2013. For sampling, in every stage from all the existing firms on the end-year 2005, the firms which did not meet the following conditions were omitted and the remaining firms were selected to be tested:

- Firms should be active consistently during the period in question
- The research sample should include all the production and industrial firms
- Those firms are included which their financial year ends in March

Having gone through the above-mentioned procedures. Finally 120 firms were selected to test the hypotheses developed in the current research.

Data collection and analysis: In the current study, data collection has been done in two stages. In the first stage, for formulating the research theoretical framework, the library and documentary method, in the second stage for collecting data, the information contained in the TSE monthlies and websites and the Central bank of Iran and financial information software have been used. Then, the Microsoft Excel has been applied for data preparation, in such a way that after extracting the relevant data from the above-mentioned sources, the acquired data were entered into the worksheets created in this software and then the required calculations were applied to get the variables in question. Finally, the Eviews software was used for testing the research hypotheses.

In respect of the descriptive statistics used in the current study, data analysis has been performed using the measures of central tendency such as mean, median and measures of statistical dispersion such as standard deviation. Also, a panel data regression model has been employed for testing the hypotheses. For choosing between pooled data and fixed effects panel data, F-Limer test was used. If the results of F-Limer test confirm using panel data method, then the selection task is over but if the said results confirm using the pooled data method, then Hausman test is also needed to be performed. Hausman test is used to decide on the use of either fixed or random effects

Furthermore, before fitting the model and considering that the firms studied in this research are related to different industries and also that the panel data method has been used in the research, then it is possible that heteroscedasticity is found, for solving this problem the generalized Least Squares Method was used to fit the model. Also, after the fitting the model, Durbin-Watson statistic was used in order to detect the presence of autocorrelation in the residuals of the estimated model.

Research models: Considering the theoretical framework and literature review of the current study, the research models are of a multivariate regression type. Therefore, the following models are suggested for testing the research hypotheses. Model 1:

$$ROA_{i,t+1} = \alpha_0 + \alpha_1 DACC_{i,t} + \alpha_2 Leverage_{i,t} + \alpha_3 Size_{i,t} + \alpha_4 SG_{i,t} + \varepsilon_{i,t}$$

Model 2:

$$ROA_{i,t-1} = \alpha_0 + \alpha_1 DACC_{i,t} + \alpha_2 Leverage_{i,t} + \alpha_3 Size_{i,t} + \alpha_4 SG_{i,t} + \alpha_5 \left(DACC \times Leverage\right)_{i,t} + \alpha_6 \left(DACC \times Size\right)_{i,t} + \varepsilon_{i,t}$$

Where:
ROA = Return on Assets
DACC = Discretionary Accruals which is the proxy for earnings management
Leverage = Financial Leverage
$Size_{i,t}$ = Firm Size
SG = Sales Growth
I = The symbol for a particular firm
t = The symbol for a specific year

These variables are explained below. The dependent variable in the current research is the return on assets,

which is calculated by dividing a firm's net profits by its total assets. The independent variables are as follows.

Accrual-based earnings management: The quality of the accruals are corresponds to the extent of deviation of accruals from cash flows from operations because the lesser the deviation the higher the quality of accruals will be considered. In this research, the Dechow and Skinner (2000) is used to measure the quality of accruals. Model 3:

$$\frac{TCA_{i,t}}{TA_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{i,t-1}} + \alpha_2 \frac{\left(D(REV) - D(REC)\right)_{i,t}}{TA_{i,t-1}} + \alpha_3 \frac{PPE_{it}}{TA_{i,t-1}} + \varepsilon_{i,t}$$

Where:
$TCA_{j,t}$ = The total accruals of firm j in year t
$TA_{j,t-1}$ = Total assets of firm j
ΔREV = Changes in the sales of firm j from year t-1 to t
ΔREC = Changes in the receivable accounts of firm j from year t-1 to t
PPE = Tangible fixed assets of firm j in the year t
$\varepsilon_{j,t}$ = Accrual estimation error in relation to the cash flows

Thus, the greater the value of the residuals ($|\varepsilon_{j,t}|$) of this model, the higher the quality of accruals and thus the lesser the possibility of earnings management. The symbol used for this variable is DACC. For measuring the total accruals, Dechow Skinner (2000) Model has been used as described below:

$$E_{j,t} = CFO_{j,t} + TCA_{j,t}$$

Where:
$E_{j,t}$ = The operating earnings of firm j in t in the year (t)
$CFO_{j,t}$ = Cash flow from the operation of firm j in the year (t)

In the above model, in order to eliminate the effect of firm size, all the variables are standardized by the total assets of the firms in the year t. In this study, the control variables are as given below.

Financial leverage: The financial leverage of a firm is defined as the book value of the total debts of that firm divided by its total assets.

Firm size: Is defined as the natural logarithm of the market value of equity of a given firm.

Dividend payout ratio: Is defined as a percentage of earnings per share paid to shareholders of a firm.

Sales/Revenue growth: Is measured by the percentage of the changes in sales revenue of a firm between two consecutive periods.

RESULTS AND DISCUSSION

Descriptive statistics: As can be seen in Table 1, the results of the descriptive statistics of the current study are shown. Considering the results of the descriptive statistics of the research variables, it can be stated that all the variables used in this study have appropriate distributions.

Stationary test of the variables: According to the definition of stationary, a time series will be stationary when its mean, variance, covariance and correlation coefficient remain constant over time and it does not matter that during which period of time these measures are calculated. Unit root test is among the most common tests used to determine whether a time series process is stationary or not. Some of the most common unit root tests include: Dickey-Fuller test, augmented Dickey-Fuller and Phillips-Perron test, of which, for testing the stationary of the variables in this study the augmented Dickey-Fuller test study is used. It should be mentioned that after examining the stationary of the current research variables and after being aware of their reliability degree, which is represented by I(d), if the variables become stationary (that is I(1)) after differencing once, it is necessary to ensure the co-integration of the variables and in order to do so, we have to examine whether the error terms of the regression are stationary. If our examinations reveal that the error terms are stationary at level (that is, I(0)), common methods of econometrics can be used to estimate the factors using time series and t-statistics and F-Statistics can be applied in statistical deductions. Otherwise, the data must be differenced. As can also be seen in Table 2, the augmented Dickey-Fuller test results for unit roots show that all the variables are stationary at level.

Table 1: The descriptive statistics of the variables of the models*

Variables	Mean	Median	Max.	Min.	SD
ROA	0.1550	0.137	1.026	-0.209	0.126
Quality of accruals	0.0760	0.042	0.578	0.000	0.101
Size	13.1900	13.100	18.190	9.780	1.360
Leverage	0.6440	0.650	0.980	0.100	0.170
SG	-0.3003	0.045	1.000	-16.900	6.070
TCA $_{j,t}$	-0.0790	0.019	1.460	-17.370	1.100
Fixed assets ratio	0.2920	0.242	1.690	0.006	0.233
Rate of changes in cash revenue	0.0530	0.022	7.450	-5.780	0.561

*Researchers' findings

Table 2: Augmented dickey-fuller (adf) test results for unit roots

Variables	Test statistic	p-value	Stationaries
ROA	745.920	0.000	I(0)
Quality of accruals	519.420	0.000	I(0)
Size	775.002	0.000	I(0)
Leverage	691.150	0.000	I(0)
$TCA_{j,t}$	936.940	0.000	I(0)
SG	669.090	0.000	I(0)
Fixed assets ratio	580.930	0.000	I(0)
Rate of changes in cash revenue	708.120	0.000	I(0)

Table 3: F-Limer test results for Model 3*

Accepted method	p-value	Test statistic
Fixed effects panel data	0.000	56.58

*Researchers' findings

Inferential statistics: As also mentioned in the preceding sections, the aim of this study is to investigate how the earnings management process affects the future return on assets in the firms listed on TSE. Accordingly, considering the suggested theoretical framework, a model composed of a number of independent and control variables was developed which will be discussed below.

It must be mentioned that in order to calculate the proxy for accrual-based earnings management, the Model 3 has been used and in the following, this variable will be calculated first.

Before estimating this model, it is necessary to perform the F-Limer test to examine the use of fixed effects panel data method versus pooled data. The results of F-Limer test are presented in Table 3.

As can also be seen in Table 3, the results suggest the rejection of the hypothesis H_0. Accordingly, the fixed effects panel data method is preferable. Then, it is necessary to perform the Hausman test too which results are displayed in Table 4.

As can also be seen in Table 4, the results indicate the rejection of the hypothesis H_0. Therefore, the fixed effects panel data method is preferable. Below, the results of the model estimation using the fixed effects panel data method are presented in Table 5.

Considering the results presented in Table 5 and the resulted F-statistic and its p-value, it can be mentioned that the research model, with a confidence level of 99% has generally a high significance level. In addition, considering the adjusted R^2 value which is equal to 58.8%, it can be stated that the research independent and control variables as a whole account for over 58% of the variations in the dependent variable. Furthermore, taking the value of the Durbin-Watson into account which is = 2.17, it can be stated that there is no first-order autocorrelation among the residuals of this model.

Now, as mentioned earlier, in order to measure the quality of the accruals, the absolute value of the residual terms have been taken into account. Then for testing the Hypothesis 1, the Model 1 has been used.

Table 4: Hausman test results for Model 3*

Accepted method	p-value	Test statistic
Fixed effects panel data	0.000	15.49

Table 5: The results of estimating Model 3*

Variables	Variable coefficient	Student's t-statistic	p-value
Intercept	0.06	-11.490	0.000
Ratio of one to total assets	-5680.21	-5.180	0.000
Changes in cash revenue	0.046	6.780	0.000
Fixed assets and equipment	0.0008	0.075	0.940
F-statistic (p-value)	11.76 (0.000)		
Adjusted R^2	0.588		
Durbin-Watson stat.	2.17		

Table 6: F-Limer test results for Model 1*

Accepted Method	p-value	Test statistic
Pooled Data	0.058	2.038

Table 7: The results of estimating Model 1*

Variables	Variable coefficient	Student's t-statistic	p-value
Intercept	0.237	15.430	0.000
Proxy for earnings management	-0.111	-5.370	0.000
Size	0.009	7.205	0.000
Leverage	0.341	-24.260	0.000
SG	-0.002	-4.870	0.000
F-statistic (p-value)	246.05 (0.000)		
Adjusted R^2	0.571		
Durbin-Watson stat.	1.97		

Table 8: F-Limer test results for Model 2*

Accepted Method	p-value	Test statistic
Pooled data	0.058	2.038

*Researchers' findings

Before estimating the model, it is necessary to perform the F-Limer test. The results of the F-Limer test are displayed in Table 6.

As can also be seen in Table 6, the results suggest the rejection of the hypothesis H_0. Accordingly, the pooled data method is preferable. Now, the results of the model estimation using pooled data method are presented below in Table 7.

Taking the results which can be seen in Table 7 into consideration, particularly the F-statistic value shown in it (264.05) and its p-value (0.000), it can be stated that at the confidence level of 99%, this model, in general has a high significance level. Furthermore, considering the Adjusted R^2 = 57%, it can be stated that the research independent and control variables as a whole account for over 57% of the variations in the dependent variable.

Also considering the value of the Durbin-Watson statistic = 1.97, it can be stated that there is no first-order autocorrelation among the residuals of this model.

For testing the Hypotheses 1 and 2, the Model 2 has been used. Before estimating this model, it is necessary to perform F-Limer test. The results of the F-Limer test are presented in Table 8.

Table 9: The results of estimating Model 2*

Variables	Variable coefficient	Student's t-statistic	p-value
Intercept	0.205	10.54	0.000
Proxy for earnings management	-0.747	-3.36	0.000
Size	0.012	7.98	0.000
Leverage	0.368-	-24.78	0.000
SG	-0.002	-3.21	0.001
Size and earnings management	0.057	3.47	0.000
Leverage and earnings management	-0.228	-1.57	0.118
F-statistic (p-value)	154.55 (0.000)		
Adjusted R^2	0.539		
Durbin-Watson stat.	1.99		

*Researchers' findings

As can also be seen in Table 8, the results suggest the rejection of the hypothesis H_0. Therefore, the pooled data method is preferable. Now, the results of the model estimation using pooled data method are shown in Table 9.

Taking the results which can be seen in Table 9 into consideration, particularly the F-statistic value shown in it (154.55) and its p-value (0.000), it can be stated that at the confidence level of 99%, this model, in general, has a high significance level. Furthermore, considering the Adjusted R^2 value which is equal to 53%, it can be stated that the research independent and control variables as a whole account for over 57% of the variations in the dependent variable. Also, considering the value of the Durbin-Watson statistic which is equal to 1.99, it can be stated that there is no first-order autocorrelation among the residuals of this model. The results of the research hypotheses are discussed below.

Summary of Hypothesis 1 test results: This hypothesis examines the relationship between the accrual-based earnings management and the future return on assets of the firms listed on TSE. Considering the results presented in Table 7 with respect to the model 1 estimation and the coefficient of the variable "Proxy for Earnings Management" (-0.111) and its p-value (0.000), it can be stated that at the acceptable alpha level of 0.5%, the variable "Proxy for Earnings Management" has a significant negative relationship with the firms' future return on the assets and according to the presented theoretical framework, the greater the extent of the earnings management using accounts manipulation through the accounting methods, the lesser will be the firms' future return on assets, thus this hypothesis is supported.

Summary of Hypothesis 2 test results: This hypothesis examines the impact of firm size on the relationship

between the accrual-based earnings management and the future return on assets of the firms listed on TSE. Considering the results presented in Table 9 with respect to the Model 2 estimation and the coefficient of the variable "Firm Size and Earnings Management" (0.057) and its p-value (0.000), it can be stated that at the acceptable alpha level of 0.5%, the variable "Firm Size" has a significant positive impact on the relationship between the accrual-based earnings management, because it has caused that the coefficient of earnings management (-0.747) becomes positive and according to the presented theoretical framework, the larger the firm size, the more increasing will be the impact of earnings management through account manipulation on the future return on the firms' assets. Thus, this hypothesis is confirmed. In other words, in large firms, earnings management misleads market participants, which can be regarded as the result of excessive trust of the market participants in such firms.

Summary of Hypothesis 3 test results: This hypothesis examines the impact of firms' financial leverage on the relationship between the accrual-based earnings management and the future return on assets of the firms listed on TSE. Considering the results presented in Table 9 with respect to the Model 2 estimation and the coefficient of the variable "Proxy for Earnings Management and Financial Leverage" (-0.228) and its p-value (0.118), it can be stated that at the acceptable alpha level of 0.5%, the variable "Financial Leverage" has a significant impact on the relationship between earnings management and future return on assets and thus this hypothesis is not supported.

CONCLUSION

The aim of this study is to examine the relationship between accrual-based earnings management and future return on assets of the firms listed on TSE. The results of the study reveal that earnings management has a significant negative relationship with future performance (that is, in the current study, the future return on assets). In other words, the greater the extent of the earnings management using accounts manipulation through the accounting methods, the lesser will be the firms' future return on assets. The results also showed that the larger the firm size, the more increasing will be the impact of earnings management through account manipulation on the future return on the firms' assets.

RECOMMENDATIONS

It is recommended that future studies consider other variables such as the Return on Equity (ROE) and

Economic Value Added (EVA) as proxies for firm performance and examine their association with accrual-based earnings management. Also, considering the circumstances governing some industries, it seems appropriate to examine the earnings management phenomenon with regard to the characteristics of industries.

REFERENCES

Dechow, P.M. and D.J. Skinner, 2000. Earnings Management: Reconciling The Views Of Accounting Academics, Practitioners and Regulators. Accounting Horizons, 14 (2): 235-250.

Gordon, K., 1964. What Are The Consequences Of Real Earnings Management. Http://Ssrn.Com/Abstract= 816025.

Gunny, K., 2010. The Relation Between Earnings Management Using Real Activities Manipulation And Future Performance: Evidence From Meeting Earnings Benchmarks. Contemporary Accounting Res., 27 (3): 855-888.

Ghorbani, S., A.A. Nazmy and M. Ardekani, 2011. The impact of the actual management of interest on future operating cash flows. Journal Of Empirical Research In Financial Accounting First Year Of The First Issue, Iran.

Hepworth, K., 1953. Commentary on earnings management. Accounting Horizons, 3 (4): 91-102.

Jones, J.J., 1991. Earnings management during import relief investigations. J. Accounting Res., 29 (2): 193-228.

Jiraporn, P., G. Miller, S.S. Yoon and Y.S. Kim, 2008. Is earnings management opportunistic or beneficial? An agency theory perspective. International Review of Financial Analysis, 17 (3): 622-634.

Lu, Y. and Y. Vonne, 2003. Earning Management and Securities Litigation. J. Accounting Eco., 7: 67-84.

Mizik, N. and R. Jacobson, 2007. Earnings Inflation through Accruals and Real activity Manipulation: It is Prevalence at the Time of an SEO and the Financial Market Consequences. Http://Ssrn.Com/Abstract= 1031006.

Saidi, A.H., N. Rabie and Hamed, 2013. The Relationship between Real Earnings Management activities and Future Performance Of Firms Listed In The Tehran Stock Exchange. J. Management Accounting Sixth/Seventh Issue, Iran.

Uwuigbe, U.U., O. Ranti and O. Bernard, 2015. Assessment of the effects of firms' characteristics on earnings management of listed firms in nigeria. Asian Eco. Financial Review, 5 (2): 218-228.

Zhao, Y., Ch. K.H., Y. Zhang and M. Davis, 2011. Takeover Protection And Managerial Myopia: Evidence From Real Earnings Management. J. Accounting and Public Policy: http://Dx.Doi.Org/ 10.1016/J.Jaccpubpol.2011.08.004.s