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Using Information of Earnings Quality to Improving Profitability Forecasts: Case Study from Iran

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Abstract: The purpose of this paper is Using Information of Earnings Quality to Improving Profitability Forecasts. We use 125 firms during years 2012 until 2016. Also, we use regression model by Eviews and statistical techniques panel data compilation. The results show that Information on earnings quality in accounting forecast models does not provide additional explanatory power about firms' future profitability. But, the usefulness of accounting information for predicting future profitability does improve after the adjustment for earnings quality. Therefore, financial analysts do not incorporate information about earnings quality in their decision making process. And, profitability forecasts, adjusted for earnings quality, do not deliver additional information about future market returns.

Keywords: Profitability Prediction, Profitability, Earnings Quality, Iran.

Introduction

Research on financial statement analysis (FSA) documents the usefulness of accounting information predicting firms' future profitability (Firth, 1998; Francis et al, 2006; Banker & Chen). Research on earnings quality concludes that accounting information is dependent on firm's fundamental performance and its accounting system (Ball & Brown, 1968; Anderson et al., 2013). While prior work separately emphasizes the importance of FSA and earnings quality for informing external recipients of financial statements about firms' financial and operational performance, considerably less is known how earnings quality impacts the accuracy of FSA models.

In predicting future performance, textbooks and research suggest a variety of parsimonious variables that improve the predictability of future performance. Alipoup (1995) and Barva (2017) present evidence that ratio analysis, that systematically breaks down profitability (RNOA) into more specific ratios according to the DuPont disaggregation, provides incremental information on accounting signals studied in prior research. Despite the popular appeal of such forecast models, prior research overlooks that accounting information flowing into forecast models might be exposed to changes in firms' earnings quality. This shift could bias profitability ratios and consequently impair the accuracy of forecasts. My study probes the extent to which the accuracy of FSA forecast models can be explained by the quality of reported earnings. In other words, I unite distinct findings of two previously separate literature streams to investigate whether joint consideration improves predictions of firms' profitability.

So, this research is trying to answer the following question: Is there a significant relationship between Improving Profitability Forecasts with Information on Earnings Quality?

Development of hypotheses

According to high content, we consider four hypotheses:

H1: Information on earnings quality in accounting forecast models does not provide additional explanatory power about firms' future profitability.

H2: The usefulness of accounting information for predicting future profitability does not improve after the adjustment for earnings quality.

H3: Financial analysts do not incorporate information about earnings quality in their decision making process.

H4: Profitability forecasts, adjusted for earnings quality, do not deliver additional information about future market returns.

Materials and Methods

In this study, change in return on net operating assets (RNOA) is independent variable. Also, accounting forecast is dependent variable. Also, Statistical population this review is all listed in companies in Tehran (IRAN) stock exchange during the period of 5 years (2010-2014). We use the method to remove systematic for sample selection. In this research to collect data of Tehran Securities Exchange Technology Management Company website and the Tehran Stock Exchange website. However, study sample shall be made with respect to following limitations: (Table 1 shows these limitations).

Table 1. Limitations and Sample selection.

Sample selection	Number
The total number of listed companies in Tehran Stock Exchange at the end of 2014 (Firm)	366
Limitations:	
The companies that aren't leading to the end of the year	(67)
Non-financial corporations	(29)
Enterprise that changed the financial year	(11)
Companies with incomplete disclosure	(9)
Holding companies and Bank	(66)
Final	184

Then, after limited restrictions remaining 184 firms. So, we used the Cochran formula. Finally, the research sample 125 companies. Also, the following 2 models used to test the hypotheses.

$$\Delta RNOA_{t+1.(i)} = \alpha_i + \beta_1 RNOA_{t,(i)} + \beta_2 \Delta ATO_{t,(i)} + \beta_3 \Delta PM_{t,(i)} + \beta_4 \Delta INT_{t,(i)} + \beta_5 \Delta NOA_{t,(i)} + \varepsilon_{t+1.(i)}$$

$$\Delta RNOA_{t+1.(i)} = \alpha_i + \beta_1 RNOA_{t,(i)} + \beta_2 \Delta ATO_{t,(i)} + \beta_3 \Delta PM_{t,(i)} + \beta_4 \Delta INT_{t,(i)} + \beta_5 \Delta ATO_{t,(i)} * \gamma_{t,(i)} + \beta_6 \Delta ATO_{t,(i)} * k_{t,(i)} + \beta_7 \Delta ATO_{t,(i)} * \pi_{t,(i)} + \beta_8 \Delta PM_{t,(i)} * \gamma_{t.(i)} + \beta_9 \Delta PM_{t.(i)} * k_{t.(i)} + \beta_{10} \Delta PM_{t.(i)} * \pi_{t.(i)} + \beta_{11} \Delta NOA_{t,(i)} + \varepsilon_{t+1.(i)}$$

The method of measuring the variables of this model includes:

Δ*RNOA t* Change in return on net operating assets *(RNOA t - RNOA -1) / RNOA*

RNOA t Return on net operating assets NOI t / ANOA t

Δ ATOt Change in asset turnover ((ATOt - ATOt-1) / ATOt-1) x PMt-1

Δ PMt Change in profit margin ((PMt - PMt-1) / PMt-1) x ATOt-1

Δ INT t Interaction between changes in asset turnover.

Δ NOA t Change in net operating assets (NOA t - NOA t-1) / NOA t-1

$\varepsilon_{i,t}$: Error regression model.

Results

Table 2 shows the descriptive statistics data 125 Firm. The results show that average –RNOA is -0.00 and median is -0.00 and average RNOA is 0.14 and median is 0.12. Also, average ATO is -126812 and median is 75352

and average –ATO is 2220 and median is 12444 and average PM is 0.11 and median is –PM and average –INT is 20331 and median is 457.33. Furthermore, average C-Score is 0.040 and median is 0.028 and average Q-Score is 0.004 and median is -0.001.

Table 2. Descriptive Statistics.

Variable	Average	Median	Max	Min	Std	N
-RNOA	-0.00	-0.00	0.53	-0.47	0.08	625
RNOA	0.14	0.12	0.63	-0.32	0.13	625
ATO	-126812	75352	13349069	-32884662	2762458	625
-ATO	2220	12444	998810	-15828648	161335	625
PM	0.11	0.096	0.63	-0.33	0.13	625
-PM	0.011	-0.00	6.34	-2.02	0.32	625
-INT	20331	457.33	3618147	-2030398	29383	625
C-Score	0.040	0.028	0.822	0.000	0.05	625
Q-Score	0.004	-0.001	0.754	-0.81	0.067	625
ENUE	0.416	0.415	0.864	-0.03	0.262	625
NINGS	0.442	0.442	1.863	-1.035	0.845	625

Chow test applied to panel data set or combination. The results show that (Table 3) in H1 F-statistic is 2.093 and probe is 0.000, then, the null hypothesis is rejected and data is pooled. Also, in H2 F-statistic is 3.707 and probe is 0.000, then, the null hypothesis is rejected and data is pooled. Furthermore. In H3 F-statistic is 3.534 and probe is 0.000, then, the null hypothesis is rejected and data is pooled. Finally, in H4 F-statistic is 2.092 and probe is 0.000, then, the null hypothesis is rejected and data is pooled.

Table 3. Chow- Test.

H_0	Model	F-statistic	Probe	Result
Pooled data	H1	2.093	0.000	Rejected
Pooled data	H2	3.707	0.000	Rejected
Pooled data	H3	3.534	0.000	Rejected
Pooled data	H4	2.092	0.000	Rejected

Hausman test will determine use of the fixed effects model or random effect. According to the probability of less than 5%. So the hypothesis H0 (fixed effects model) is rejected. Table 4 shows H1 p-value is 0.000 and x^2 is 214.91 and H2 p-value is 0.000 and X2 is 98.986. Also, P-value in H3 is 0.000 and X2 is 117.053. And, p-value is H4 is 0.000 and X2 is 215.909. So, the null hypothesis is rejected and we accepted random effects model.

Table 4. Husmuns Test.

H_0	Model	p-value	X^2	Result
Random effects model	H1	0.000	214.92	Rejected
Random effects model	H2	0.000	98.986	Rejected
Random effects model	H3	0.000	117.053	Rejected
Random effects model	H4	0.000	215.909	Rejected

Results Table 5 shows results model. R^2 represents the explanatory power of the model. This coefficient shows how many percent of the dependent variable explained by the independent variable. F statistic shows the significance of the regression model used.

Table 5. Results H1.

variable	BM			EQ		
	Coefficient	F-statistic	Sig	Coefficient	F-statistic	Sig
C	0.143322	19.28178	0.0000	0.146883	19.52579	0.0000
RNOA	-0.943350	-19.46220	0.0000	-0.974601	-20.15254	0.0000
ΔATO	7.43E-10	0.256574	0.7977	-1.99E-10	-0.036560	0.9709
ΔPM	0.013921	1.411501	0.1589	-0.005084	-0.175440	0.8608

ΔINT	1.19E-08	0.718156	0.4731	6.62E-09	0.255191	0.7987
ΔATO*GAMMA	-	-	-	-1.59E-08	-0.795439	0.4269
ΔATO*K	-	-	-	2.58E-08	0.462227	0.6442
ΔATO*PI	-	-	-	4.84E-09	1.073739	0.2837
ΔPM*GAMMA	-	-	-	0.116340	2.378838	0.0179
ΔPM*K	-	-	-	0.352181	1.555658	0.1207
ΔPM*PI	-	-	-	0.001626	0.063657	0.9493
ΔNOA	6.08E-10	0.479137	0.6321	1.21E-09	0.919656	0.3584
R-squared		0.416			0.470	
Durbin Watson		2.07			2.064	
Sig		0.215			0.786	

The estimated coefficient for RNOA variable is negative. So, there is a significant negative correlation with BM and EQ. Also, table 5 shows R2 in model in BM is 0.416 and sing is 0.000. So, 41 percent of the dependent variable depends on the following variables and hypothetically accepted. Thus, there is a significant relationship between RNOA and BM and EQ. Also, there isn't a significant relationship between the other variables.

Table 6. Results H2.

variable	Average test		Mean Test	
	BM	EQ	BM	EQ
Average	8.88E-19	1.92E-18	-	-
Meain	-	-	0.000840	0.000104
F Statistic	-2.40E-16		0.003613	
Sig	0.9999		0.9971	

The Result Table 6 shows significant in average test are 0.9999. So, accepted the remaining amounts model. Also, Results mean test show that significant is 0.9971. Then, the sing of greater than 5% and the hypothesis H1 is rejected. So, the second hypothesis of this study is rejected.

Table 7. Results H3.

	BM			EQ		
Variable	Coefficient	F-statistic	Sig	Coefficient	F-statistic	Sig
C	0.008166	1.931897	0.0539	0.071023	2.340517	0.0049
RNOA	0.073483	1.652374	0.0991	0.098653	2.764241	0.0035
R-squared		0.103			0.236	
Durbin Watson		2.043			2.012	
Sig		0.000			0.000	

The estimated coefficient for RNOA variable is positive. So, there is a significant positive correlation with BM and EQ. Also, table 7 shows R2 in model in BM is 0.103 and sing is 0.000. So, 10 percent of the dependent variable depends on the following variables and hypothetically accepted. Thus, there is a significant relationship between RNOA and BM. And shows R2 in model in EQ is 0.236 and sing is 0.000. So, 23 percent of the dependent variable depends on the following variables and hypothetically accepted. Thus, there is a significant relationship between RNOA and EQ.

Furthermore, table 8 show results Hypothesis 4. R_2 in model in BM is 0.508 and sing is 0.000. So, 50 percent of the dependent variable depends on the following variables and hypothetically accepted. Thus, there is a significant relationship between RNOA and BM. And shows R2 in model in EQ is 0.524and sing is 0.000. So, 52 percent of the dependent variable depends on the following variables and hypothetically accepted. Thus, there is a significant relationship between RNOA and EQ.

Table 8. Results H4.

		BM			EQ	
Variable	Coefficient	F-statistic	Sig	Coefficient	F-statistic	Sig
C	0.116333	16.07429	0.0000	0.112106	9.263160	0.0000
RNOA	-0.961808	-21.56799	0.0000	-0.757842	-11.46304	0.0000
ΔATO	5.99E-10	0.166473	0.8679	8.00E-09	2.359980	0.0191
ΔPM	0.000843	0.055701	0.9556	0.045769	1.965421	0.0505
ΔINT	5.91E-09	0.337478	0.7360	-9.33E-09	-0.192627	0.8474
PERSISTENCE_REVENUE	0.003058	0.513635	0.6078	-0.010040	-1.244371	0.2146
PERSISTENCE_EARNINGS	0.003001	1.657720	0.0982	0.002915	1.159716	0.2473
C_SCORE	0.743402	8.989179	0.0000	0.066305	0.326540	0.7443
Q_SCORE	-0.582935	-8.532833	0.0000	0.051318	0.269539	0.7877
ΔNOA	1.01E-09	0.765533	0.4444	-5.03E-10	-0.554739	0.5796
SIZE	2.534651	2.568725	0.0032	0.146883	19.52579	0.0000
LEVERAGE	-4.356261	-4.206257	0.0000	-0.352181	-1.555658	0.1207
LOSS	-0.346564	-1.061156	0.1035	-4.84E-09	-1.073739	0.2837
R-squared		0.508			0.524	
Durbin Watson		2.069			2.061	
Sig		0.000			0.000	

Conclusion

In this study mentioned improving profitability forecasts with information on Earnings quality in listed companies of Tehran stock exchange during years 2012 to 2016. Today, predicting the future is a necessity in life. One of the most important areas is the financial sector and the economy. In this study investigated 125 financial information firms. The results show that Information on earnings quality in accounting forecast models does not provide additional explanatory power about firms' future profitability. But, the usefulness of accounting information for predicting future profitability does improve after the adjustment for earnings quality. Therefore, financial analysts do not incorporate information about earnings quality in their decision making process. And, profitability forecasts, adjusted for earnings quality, do not deliver additional information about future market returns.

One of the important limitations in this study was lack of the related variable. Furthermore, another limitation was limited population.

At the last the following suggestions are addressed for the future studies:

1. Effect of different industries and industry effect.
2. The effect of moderating features of the board of directors and auditor in relationship between variables.
3. The effect of earning quality on future stock returns.

Conflict of interest

The authors declare no conflict of interest

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