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The Study of Profit Quality in Distressed Financial Companies

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Abstract: Profit, as the most important product of according information system shall be of acceptable quality. Profit quality is a very broad concept with various aspects. In according literature, non-manipulation of profit (lack of profit management) is deemed as one of the aspects of profit high quality. Therefore, we try to determine the rate of profit quality by studying the status of profit management in distressed financial companies. Here, in this research, 3 models were used to study the profit quality and viability. To estimate the bankrupt companies, existing research is of applied correlative in view of data collection. Descriptive statistics test such as mean, medium were used here. Also, multi-variable regression was used to test hypotheses. Moreover, F and T tests were used for meaningfulness of coefficients and linear relations; remote tests of Watson, Gelmogroff Esmirnof and normalmetry of dependent variables were also used. The research findings in the first hypothesis upon profit viability model regarding financial crisis of companies reveal that companies with very low bankruptcy likelihood have more profit quality than the ones with high bankruptcy likelihood. On the other hand, the result of the second hypothesis (the relation between profit quality upon multi variable regression model and companies financial crisis) reveal that companies with very low bankruptcy likelihood have more profit quality than the ones with high bankruptcy likelihood. This is exactly the same with the first hypothesis (profit based on Slone model) again reveal the two previous results (companies with very low bankruptcy likelihood have more profit quality than the ones with high bankruptcy likelihood).

Key Words: Profit Quality, Profit Management, Profit Viability, Financial Crisis.

INTRODUCTION

Late in 1920's, very fundamental alterations in accounting theory and thought took place due to popularity of loss and profit statement with considerable pressures from individuals who lack accounting profession and also dissatisfaction of professional and academic people from existing methods. One of the main changes was more emphasis and consideration on loss and profit statement than balance sheet which led to the appearance of a new category called 'Profit management.

Profit management refers to the process of conscious movement in the vicinity of acceptable accounting principles to make reported profit to the

expected level which is fulfilled by manipulation. Profit is one of the highest measurement indexes of the activities in an economic unit. However, it should be noted that as a main information resource, profit mat not reflex the real function of companies and their management, because interpreting and applying accounting methods is in most cases upon managers' judgment and decisions due to essential flexibility of accounting standards[1]. So, besides profit quantity, its quality shall also be considered. On the other hand, enterprises face many ups and downs during their operational life which has made some of them as successful units for their powerful operations and some as unsuccessful units for their poor operations[2]. The companies which experience financial crisis due to their continuous poor operations try to eliminate this status by any means and improve their financial situations; will face bankruptcy if they cannot overcome the status. One of the methods that might be used by managers of such companies to cancel their weak operations (to obtain opportunities and postpone their bankruptcy) is manipulating accounting profit increase. Which leads to reduction of profit reliability of such companies? The present research attempts to study if bankrupt companies have less profit quality than non-bankrupt ones bade on profit viability model? And if bankrupt companies have less profit quality than non-bankrupt ones based on single-variable regression model? If the companies with high profit quality based on Slone model, have less likelihood of bankruptcy?

Statement of problem

Profit management

Profit management refers to purposeful intervention in the process of financial reporting with respect to the limitations of accepted accounting principles to achieve expected profit level. Concerning its objectives, profit management entails increasing, decreasing or smoothing reported profit. For example, if a company reports a stable profit, its shareholders feel more secured. Profit management influences share value and capital expenses appropriately or obtain more information about profit announcement. Since profit and its high information content are very important, mangers always try to manipulate the reported profit value to achieve their certain objectives[3].

Profit quality

Profit quality theory was first developed by financial analysts and stock exchange officers; because they felt that the reported profit had not revealed the profit strength as much as it was figured in minds. Profit quality means potential ground of profit growth and the probability of future profit. In other words, the profit value of a share depends not only on each share value per year, but also on our expectations of the company in future and profitability of later years and confidence coefficient with respect to future profits .No definite description is found for profit quality and its determining criteria so that Siegal state it are not

easy to define such. Kathrin Schipeer and Linda Vincent believe profit quality is relatively close to Mix profit in 1939. Mix believed that profit relates to utilization rate in a company where the economic value of its first period equals with its last. This criterion reveals changes in net economic assets, and stocks exchange commission considers the managed revenue as of low quality[4].

The reason and the significance of profit quality and the advantages of its application

The board of financial accounting standards of decision profitability believes that profit quality and generally financial reporting quality is important for those who apply them in their transactional intentions and investment decisions. The providers of standards also consider profit quality indirectly as an index for quality assessment of financial reporting standards. Profit and its accrued measurements are usually applied in incentive plans and debts related agreements[5]. Making decisions according to inadequate profit or low quality ones leads to unreasonable transfer of wealth. For example, in case of using profit as an assessment index for manager's performance and payment of their bonus, a report more than real profit will cause extra payment to them. Additionally, an extra reality report may lead to inadequate finance to pay debts and lenders' more interest in continuing their loans. From investment perspective, low profit also shows unacceptable quality, because it is followed by incorrect allocation of resources and decline of economic growth. Such profits lack necessary efficiency and direct the resources from essential projects with expected real returns to some meaningless projects with unreal and false returns[6]. According to the concept of the decision advantage by American board of financial accounting standards, profit quality and more broadly financial reporting quality is interesting for those who apply financial reports for making decisions about investment and entering into various agreements. Moreover, standards providers believe that financial reports quality indirectly shows the quality of financial reporting standards[7].

Financial distress

Financial distress and bankruptcy lead to wasting resources and losing investment opportunities for companies. Forecasting financial distress and planning indexes and models may inform companies of financial distress and bankruptcy and assist them in making proper policies regarding such risks. On the other hand, capital market and money market activists require knowledge about financial status of existing companies and their efficiency. Gordon represents financial distress theory as a decrease in companies' liabilities and increases debt. For Whitaker financial distress is a situation when a company's cash flow is less than total interest charges for long term debts. While, Geets believes that mismanagement is the first and most important reason for a company's bankruptcy. Although the reasons vary from one company to another,

several factors companies such as incompetence of managers, high production cost, poor financial activities, and inactive board of directors[8] .

Altman model was applied in this research to predict the occurrence of bankruptcy. The model consisted of 5 financial ratios which gets coefficient by audit analysis and was performed as a function whose independent variables are financial ratios. The main objectives of this research is to find the rate of applying Altman model (Z-Score) to study the status of bankrupt companies admitted in Tehran Stock Exchange market. Comprising of five financial ratios i.e. working capital to total assets (X1); accumulated profit to total assets (X2); income before interest and tax to total assets (X3); ledger value of shareholders right to ledger value of debts (X4); sales to total assets (X5), the model is formed as follows:

Z= 0/717 X1 + 0/847 X 2 + 3/107 X 3 + 0/420 X 4 + 0/998 X 5'

If Z' in this model (total index) is -1.23 for companies, they are much likely to go bankrupt. If this index is between1.23-2.9, they are about to go bankrupt. Additionally, if Z' is +2.9 the companies are not likely to go bankrupt. Altman achieved 94% correct prediction by this model.

Review of literature

Chang and Shiva[9] studied the effect of profit management on profit predictability. They stated that profit management generally causes profit predictability to be reduced. However, when predictability is measured in various tens of profit management value, the results show that not only profit predictability doesn't decrease in tens with high profit management value, but also the results of this group can reveal the informative behavior of profit management. Finally, these researchers expressed that their fine tings do not definitely support opportunist profit management.

Elshafie ET al.[10] studied the applied methods by managers in profit management and investor's perception management. They found that managers use commitment articles or actual profit quality to achieve object benefits, and compliment them with investor's perception management through profit prediction which is in average higher than accounting profit.

Garcia Lana ET al.[11] used a barge sample of British bankrupt companies, and compared them with non-bankrupt ones. They found that bankrupt companies have an in criminalist way to manage their profits four years before their bankruptcy. They indicated that this profit management is performed by both accounting profit management and actual performance management, and their results are less reliability of accounting profit.

Jabarzadeh et al studied 81 admitted companies in Tehran Stocks Exchange market which were subject to article 141 amended commercial laws, and the relation between smoothing profit and companies' financial distress. They found that in various stages of financial distress, managers take some actions that lead to smoothing profits in order to show a better financial status than reality and maintain the participation in capital market[12].

MATERIALS AND METHODS

The existing research is of applied type regarding its scope; and correlative in view of data collection method. Descriptive statistics tests such as mean, medium and variance as well standard deviation of variables were used here. To test hypotheses, multi-variable regression was used. To check the meaningfulness of coefficients and linear relations, F and T tests were used. Additionally, Doorbin Watson Gelmogroff Smirnoff, and normalmetry of dependent variable were also applied by SPSS software.

Research model

To calculate profit viability, the three following models were used respectively:

Profit viability model by commitment articles

Delegative articles of commitment (DAC) measures management applicant of commitment articles (more or less than common extent) in reporting profit. In other words, it is a managed profit which as more commitment articles (DAC).

$$\frac{TCA_{j,t}}{A_{i,t-1}} = a_0(\frac{1}{A_{i,t-1}}) + a_1[\frac{\Delta REV_{i,t} - \Delta AR_{i,t}}{A_{i,t-1}}] + a_2 \frac{PPE_{i,t}}{A_{i,t-1}} + a_3 ROA + \varepsilon_{i,t}$$

Where;

TAC= Total commitments;

A= Total assets in the beginning of the year;

Δ REN= Change in sales income;

Δ AR= Change in receivable accounts;

PPE= Visible fixed assets; and

ROA= Assets return.

It is supposed here that a certain amount of commitment articles in each industry which is normal amount. Furthermore, the average of delegative commitments is zero per year-industry. Therefore, a comparison of actual amount of commitment articles in a given company with estimated rate by above regression reveals delegative commitments of that company.

$$\overline{TAC}_{i,t} = Earnings_{i,t} - CashFlows_{i,t}$$

Regression model is expressed on year-industry level. The remained values ($\varepsilon_{i,t}$) reveal the rate of unusual commitment articles which is measured as follows:

$$DAC = \overline{TAC} - TAC$$

Where;

DAC= Delegative articles of commitment;

TAC= Actual commitment articles.

Finally, the final effect of profit management on profit quality is tested by the following model:

$$EQ_{j,t} = \beta_0 + \beta_1 DAC_{j,t} + \beta_2 ROA_{j,t} + \beta_3 Size_{j,t} + \beta_4 BM_{j,t} + e_{j,t}$$

The second model by multi-variable regression

The multi-variable regression is used to measure profit quality based on profit viability model upon which it is expected to have higher profit coefficient for current year of the companies with stronger ties between investment and net profit, and their profit is higher. Based on mode 1-5:

(Eit+1/TAt−1) = α0 + α1 (Eit/TAt−1) + α2EQit + α3 R + α4 ACCRUALS+ α5 DIV +α6 EQit (Eit/TAt−1) +α7 R (Eit/TAt−1) + α8ACCRUALS (Eit/TAt−1) + α9DIV (Eit/TAt−1) + εit

Where;

Accruals= the value of commitment articles obtained from the different of accounting profit and its cash component;

R= Return of shares;

DIV= Payable dividend which is shown by (1) if paid, and (0) if not paid.

The third model by Slone model

Slone model is another one that was used here for profit viability.

Z=β0+β1A+β2B+β3C+β4D+β5E+β6F+β7G+β8H+β9I

Where;

A= Logarithm (total assets to gross national production (GNP) in 10;

B= the ratio of total assets to total debts;

C= the ratio of working capital to total assets;

D= the ratio current debt to current asset;

E= the number 1 if total debt >total assets otherwise it is 0;

F= the ratio net profit to total assets;

G= the ratio cash fund from operations to total debts;

H= the number 1 if net profit for 2 preceding years is negative, otherwise it is 0;

I= the ratio of change rate in net profit to total logarithm of both 2 years profit.

Each hypothesis is studied according to such models and concerning profit viability models and then the relation between profit viability and financial crisis of companies is investigated.

RESULTS

Studying the descriptive statistics of research variables

To study the descriptive statistics of research variables, first the bankruptcy and then the financial crisis of companies are investigated.

Table 1. Descriptive statistics of financial crisis, Central indexes and dispersion indexes including mean and standard deviation

Status of company	Number	Percentage
Companies with very low likelihood of bankruptcy	28	25.0
Companies with average likelihood of bankruptcy	2	1.8
Companies with high likelihood of bankruptcy	82	73.2
Total	112	100.0

Table 2. Descriptive statistics of profit viability, Central indexes and dispersion indexes including mean and standard deviation

Item	Minimum	Maximum	Mean	Standard deviation
Working capital to total assets	-20727.2637	4809.0471	-9.822112	1043.36
Accumulated profit to total assets	-7.7519	0.7174	-.214235	0.970
Income before interest and tax to total assets	0.0009	510.7276	14.977973	51.22
Ledger value	-1998432.0	16794398.00	419378.295600	1456691.53
Shareholders right to ledger value of debts	3489.4	777758324.0	21820128.618600	83972116.51
Sales to total assets	-20727.2637	4809.0471	-9.822112	1043.36

Table 3. Central indexes and dispersion indexes including mean and standard deviation

	Minimum	Maximum	Mean	Standard deviation
Accumulated profit and loss	-1998432.0	16794398.0	419378.295600	1.4566915E6
Total assets	3489.4	777758324.0	21820128.6186	8.3972117E7
Special profit before deduction of interest and tax	127622.0	20222190.0	1827277.04600	2.8712374E6
Total shareholders right	-1860995.0	61435485.0	2002871.51176	6.1252608E6
Total debts	1507.0	731466828.0	19817257.1068	7.9072241E7

Deductive statistics

The results from statistical tests of the first hypothesis

• **Hypothesis 1 (H1):** Profit quality in bankrupt companies is less than non-bankrupt companies based on profit viability model to study this hypothesis statistically, profit viability model was used by commitment articles.

Table 4. The table of applied items in the model during the studied years

	Minimum	Maximum	Mean	Standard deviation

Total assets in previous year	26018	62380931	2470116.25	6820684.319
Change in income	-1396565	5970927	305131.75	1015411.754
Change in receivable accounts	-67827.0000	3992967.0000	230345.703160	620276.0745360
Visible fixed assets	10533	5528801	458031.05	884402.203
Assets return	-0.669	.620	0.08744	.159344
Actual commitment articles	-1047385	8809765	526333.17	1303234.178
Company size	0.0000	7.7951	5.658721	1.3826658
BM ratio	-5.4253	24.5932	0.842400	2.5819718

Table5. Obtained coefficients based on factorial analysis to calculate estimated commitment articles

	Component
Total assets	0.922
Change in sales income	0.930
Change in receivable accounts	0.976
Assets return	0.772
Visible fixed assets	0.727

Table 6. Estimated commitment articles and DCA based on the model

	Minimum	Maximum	Mean	Standard deviation
TAC	-1735311.35	4275184.40	207692.3043	741705.30998
DAC	-4214866.40	8739939.31	360578.2757	1546519.59362

Table 7. Calculated coefficients for profit quality in the equation, By using factorial analysis

	Component
DAC	0.361
Assets return	0.917
Company size	0.339
BM ratio	0.772

Table 8. H1 analysis

Status of company	Profit quality average	Standard deviation	Minimum	Maximum	Rank
Companies with very low likelihood of bankruptcy	142579.4228	722153.31	-1515397	3155122	1
Companies with average likelihood of bankruptcy	134393.9092	411798.34	534393.9	534393.9	2
Companies with very high likelihood of bankruptcy	117097.8103	501798.46	-1521564	2050300	3

According to above table, profit quality average in maturity stage was the lowest with average 8702.06 and standard deviation 693676.6; the next ranking was for grown up stage with average 184889.6 and standard deviation 414337.2; the highest rate was for start-up stage with average 197511.8 and standard deviation 539710.5. But, according to variance analysis results with confidence level 95%, the above average had not statistically very meaningful difference. Despite finding lower profit quality in bankrupt companies than non-bankrupt ones based on profit viability model, the results of variance analysis statistical test (F= 1.133, P= 0.327) and the value of P>0.05,do not confirm this hypothesis.

Table 9. Companies' status in view of bankruptcy and profit quality equit

Status of company	Profit quality	Rank
Companies with very low likelihood of bankruptcy	142579.4228	1
Companies with average likelihood of bankruptcy	134393.9092	2
Companies with very high likelihood of bankruptcy	117097.8103	3

• **Hypothesis 2 (H2):** Profit quality is lower in bankrupt companies than non-bankrupt ones based on investment on capital assets.

The following multi-variable regression was used to measure profit quality based on profit viability model.

Accordingly, it is expected that profit coefficient of current year for the companies with stronger ties between investment and net profit would be higher:

$(Eit+1/TAt-1) = \alpha 0 + \alpha 1\ (Eit/TAt-1) + \alpha 2EQit + \alpha 3\ R + \alpha 4\ ACCRUALS + \alpha 5\ DIV + \alpha 6\ EQit\ (Eit/TAt-1) + \alpha 7\ R\ (Eit/TAt-1) + \alpha 8ACCRUALS\ (Eit/TAt-1) + \alpha 9DIV\ (Eit/TAt-1) + \varepsilon it$

Where;

Independent variable= the ratio of profit quality to company assets

Dependent variable= the aggregate of commitment articles, shared return, payable dividend, and profit quality.

Table 10. Some central indexes for H2 analysis

	Mean	Std. Deviation	Skewness	Kurtosis
(E/TA)	0.167127	0.4167329	8.400	92.970
(E+1/TA)	0.165066	0.4041975	8.683	98.893
Acc	26925.178000	1011872.7345660	-17.389	373.131
div1	-225576.544554	757403.9401700	-7.985	87.018
R	1.158319	16.2653379	-1.830	8.644
Eq	0.059698	0.9312095	-5.239	34.272

Table 11. Regression coefficients in profit viability model for companies with very low likelihood of bankruptcy

		Efficient	T	P
1	**(Constant)**	0.077	1.060	0.291
	(E/TA)	0.416	4.217	0.000
	Eq	0.011	0.202	0.840
	Acc	-2.67E-008	-1.595	0.114
	Div	0.120	0.504	0.616
	eq(E/TA)	0.002	0.358	0.721
	r(E/TA)	3.89E-007	1.857	0.066
	acc(E/TA)	0.000	0.158	0.875
	Assets return	-0.011	-0.157	0.875
	Financial lever	-0.006	-0.212	0.833

Table 12. Regression coefficients in profit viability model for companies with average likelihood of bankruptcy

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	**Std. Error**	**Beta**	**B**	**Std. Error**
1	**(Constant)**	0.171	0.000		.	.
	Acceta	1.98E-006	0.000	0.196	.	.
	Diveta	0.509	0.000	0.889	.	.
	logdaraie1	0-.057	0.000	-0.332	.	.

Table 13. Regression coefficients in profit viability model for companies With very high likelihood of bankruptcy

Model		Efficient	T	Sig.
1	**(Constant)**	0.186	0.494	0.622
	(E/TA)	0.089	1.317	0.189
	Eq	-0.018	-0.499	0.618
	Acc	1.20E-007	.620	0.536
	Div	-0.041	-0.113	0.910
	eq(E/TA)	-0.005	-0.046	0.963
	r(E/TA)	0.007	0.965	0.335
	acc(E/TA)	-1.61E-007	-0.229	0.819
	Assets return	-0.003	-1.274	0.204
	Financial lever	0.043	1.603	0.110
	Company size	-0.029	-0.586	0.558

Table 14. Analytical findings from H2

Companies with very low likelihood of bankruptcy	**1**	**0.02**
Companies with average likelihood of bankruptcy	2	-
Companies with very high likelihood of bankruptcy	3	-0.005

The more the current profit coefficient (α_6) in above studied regressions are for companies with stronger ties with investment and net profit, the more viable

their profit becomes. This coefficient (profit viability) is -0.005 (negative) in companies with very high likelihood of bankruptcy, and is 0.02 (positive) in companies with very low likelihood of bankruptcy. Therefore, the latter have higher profit viability than the former, and further the second hypothesis (in bankrupt companies, the profit quality is lower than non-bankrupt ones based on investment on capital assets model) is confirmed according to multi-variable regression model.

- **Hypothesis 3:** In companies with high profit quality as per Slone model, the bankruptcy likelihood is lower.

Table 15. Comparing profit quality average based on Slone model in various bankruptcy likelihood

	Profit Quality	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
Companies with very high likelihood of bankruptcy	-175.4061	1037.28671	92.77774	-359.0392	8.2271
Companies with average likelihood of bankruptcy	1.5312	1.52310	.62180	-0.0672	3.1296
Companies with very low likelihood of bankruptcy	49.9306	109.86016	5.81442	38.4957	61.3655
Total	-8.3839	540.77634	24.47979	-56.4830	39.7151

Using variance analysis test for comparison profit quality average, the variable was compared in the 3 groups by the research model and the following was found:

In companies with low likelihood of bankruptcy, profit quality average is the highest (49.93). The second rate belongs to the companies with likelihood of bankruptcy that is 1.53. The lowest rate if for the companies with likelihood of bankruptcy that is -175.4. This difference in averages was meaningful (f=8.27, P=0.001) according to P<0.05. In other words, the companies with high profit quality as per Slone model are less likely to go bankrupt. Therefore H3 is confirmed.

DISCUSSION

Obviously, when financial status of companies is not desirable and they are about to experience financial crisis, the motivation for profit management increases for the purpose of concealing poor performance of such companies. Therefore, profit value as one of the main objectives of performance report and determining company value is under suspect and becomes invalid. In the existing

research, the profit management of admitted companies in Tehran Stocks Exchange market is studied with financial bankruptcy calculated according to Altman model. Moreover, the effect of profit management on profit quality of such companies is studied[9, 11]. In analyzing generality of hypotheses, profit quality means potential ground of profit growth, and the rate of probable fulfillment of later profits. In other words, the value of each share not only depends on the share profit in current year but also relates to the expectations of the company future and profitability of following years as well as the ratio of confidence coefficient to later profits. In multi-variable regression model, profit quality in companies with average likelihood of bankruptcy is higher than the ones with low and high likelihood of bankruptcy. The companies with average likelihood of bankruptcy seem to increase their profit quality to provide necessary grounds for growth and to eliminate bankruptcy. But the companies which are about to go bankrupt have much less profit quality, because they are no longer capable of applying profit quality strategies and try to find other solutions for this crisis. However, the status of those companies with very low likelihood of bankruptcy is very different. Such companies could maintain their status well for various reasons such as resources management, human resource management, financial management and ...; and make their profit quality desirable together with other strategies[13]. The second model in H2 confirms the results of H1 to some extent, because the companies with less likelihood of bankruptcy have low profit quality just like H1, and the companies with high likelihood of bankruptcy have negative profit quality. It means they don't apply this option. But, in H3 for which Slone model was applied the results are different from the 2 other hypotheses to some extent because here the companies with less likelihood of bankruptcy obtain the highest profit quality. However, its similarity with previous hypotheses is that the companies with high likelihood of bankruptcy have still low profit quality.

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