RESEARCH ARTICLE -ENGINEERNG TECHNOLOGY

Considering the Relationship of Financial Ratio With Different Levels of Financial Health in Companies Accepted in Tehran Stock Exchange

Misagh Atef Zafarmand[1] and Reza Aghajan Nashtaei[2]

1. M.A., Department of Business Management, Rasht Branch, Islamic Azad University, Rasht, Iran
2. Department of Business Management, Rasht Branch, Islamic Azad University, Rasht, Iran

Abstract
Financial health of companies is the subject that is related to continuity of activity, failure, financial losses and qualitative features of accounting information (related or being reliable). In this research companies have been divided into three levels of healthy, moderate and failed levels in the view of health, the moderate difference of some of financial ratio of these three levels has beenanalyzed. Among 128 companies by using Cochran formula 61 companies were chosen that were divided through random sampling method into 31 healthy companies, 22 moderate and 8 failed companies. Liquidity ratio, activity and management of assets, financial leverage and debt management, utilization were calculated by using Excel software and for testing hypothesis Eview software and Anova test were used at 5.0% error level. Research findings shows that among 10 subordinate hypothesis 5 ones were approved by certainty higher than 95% but generally by algorithm collection of hypothesis and approving majority of them a reason claimed that there is meaningful difference between financial ratio and financial health of companies accepted in Iran stock exchange.
Key words: financial failure, financial health, utilization, Iran stock exchange

Introduction
An important factor that affects decisions of investors is the factor of financial health of economic units. If we can assess financial health to the concept of ability of economic unit to implementing commitment and utilization on all investors and beneficiaries and continuity of activities and present a model for it, in fact more secure conditions are created in capital market that helps the action of investment in financial markets.
Rapid development of technology and rapid environmental changes has accelerated economy increasingly. Increasing competition f economic institutes has limited access to profit ad has increased probability of lack of power of implementing commitment and stopping their activities. Unrecordedbankruptcy of recent great companies at international level and fluctuations of Tehran stock exchange in Iran existence of financial crisis in companies and important internal industries and their effect in bankruptcy and diminishing companies that can be reminded as dreadful financial Tsonami, has made anxieties that need for existence of tools for assessing financial power of companies is using financial ratio extracted from financial statements and kinds of parameters based on value as predicting financial health of companies(kritsonis, 2005).

Therefore doing a research that can help accessing all users(financial statement) and extraction of some of financial statement to identification and prediction to exact assessment of continuing activity and financial health and so more correct decision-making seems necessary.

Identification and determining proper financial criteria(qualitative features of accounting information) is the type of financial ratio with simple, secure and understandable assessment capability is one important economic unit events extracted from content of fiscal statement and capital market for all users of financial reports for enhancing ability of company at paying output and expected profit of investors, creditors and creating proper field of continuing activity and its assessment at Iran environmental condition. Therefore 10 different variables in 4 situations of liquidity, activity and ratio of profitability were identified and analyzed. Financial ratio is not limited to applied variables in this research, because firstly the situation of profitability is die to dividing of companies based on financial health as a variable as analyzing criteria, all profitability ratio have be omitted from a set of predicting variables and secondly financial information provides the possibility of calculating more ratio.

Financial health as the concept of power of profitability and continuity of economic units (international committee of money, 2000) has high importance for all shareholders and beneficiaries and basically beneficiaries in economic units are interested in having proper tools that can predict profitability and continuity of activity of these units. Since financial statements are the only common source for all beneficiaries it is the problem that is not reflected in this reports distinctly, financial health and relative power is the continuity of its activity in future(Taghavi, Pourali, 2014).

This research fallows one main problem (does financial ratio extracted from financial reports has meaningful difference among companies at different financial health?)) Identification of differences of these companies can help all beneficiaries and consumers of financial statements in decision-making process.

Literature Review

The answer to this question (how much we can predict the probability of occurrence of financial insolvency?) through its importance for managers and beneficiaries of companies they are forced to search continuously a solution about predicting performance of companies. This approach at the process of decision-making along time has forced researchers of financial affairs to apply extensive range of methods for predicting financial insolvency of companies. In between applying new methods with high accuracy has high importance at achieving predicting goals that includes accuracy and being on-time. Development of IT has given us the opportunity to achieve different types of information about situation of risk of a company through different methods like professional agencies and group media. At the process of assessment extensive volume of information many are relying on judgment of analytics. In between some factors have the ability of effectiveness on the result of analysis. Statistical methods and artificial intelligence are such effective factors at predicting financial insolvency of companies. By the help of these analysis firstly by presenting necessary alarms we can make companies aware of the occurrence of failure and financial insolvency so that regarding these alarms do necessary actions and secondly investors and creditors distinguish proper opportunities of investment from improper investment and invest their resources in proper opportunities(Raei, Fallahpour, 2013).

A summary of researches that were used or presented about index and effective parameters related to variables describing financial health like continuity of activity, profit, financial ratio used or presented are as below:

Ahmadipour and Ahmadi(2010) in a research entitled as " using qualitative features of financial information at assessing quality of profit" concluded profit is one fundamental element of financial statement(proit and loss statement) that is paid attention by all beneficiaries and it is used as a criteria for assessing continuity of activity, performance of business unit, assessing profitability power and predicting future activities of business units.

A research entitled as considering the relationship of turning capital management and financial performance of economic institute by Seyed Yasin Tavakoli was done in 2011 that the result showed that meaningful relationship exist between decreasing time of achieving demands, time of saving inventory and time of paying payment account and so the cycle of shorter and more profitable liquidity of companies and companies by having liquidity cycle and its component can achieve high profitability at optimized level.

Khalatbari in (2013) in his research entitled as " assessing and comparing explanatory poer of value added, profit and cash flow of operation at predicting stock output and determining proper pattern " at discussing assessment of economic unit performance concluded that index based in value added, have meaningful profit and liquidity at 95% certainty with output.

Taghavi and Pourali in (2014) in a research entitled as "considering and analyzing financial ratio at distinguishing different levels of financial health of productive units of Iran" have considered 80 companies that 16 companies were healthy, 45 companies moderate and 19 companies were divided insolvent. Findings of research showed that regarding leverage relationship ,activity and market value, important statistical difference doesn't exist between these companies at different levels of financial health but the difference of liquidity situation of these three levels is important and regarding paired test of Dant and Toki , the factor creating difference, are insolvent companies that is statistically insolvent companies on the one hand and moderate and healthy companies are located on the other hand.

In a study that kritsonis(2005) entitled as "distinguishing future financial health of a company" concluded that deviations in financial ratio (in the form of case study of company of Harley Davidson in California) can be the reason on balance and financial health of companies. He concluded that the best tool of analysis of financial statements is using financial ratio that has been divided into 5 groups in his belief. 1- liquidity ratio 2- ratio of assetsmanagement 3- debt management ratio 4- profitability ratio 5- ratio of stock market value

Naido (2010) in his Ph.D thesis entitled as "presenting a predicting model of financial health in south African countries," choosed 42 bankrupted and non-bankrupted companies and analyzed financial statement of these companies for determining the process of profit that leads to distinguishing their health situation. He divided the whole sample into two experimental and control samples, experimental sample for creating model and control sample for determining accuracy of model

Basham (2013) in his research entitled as "using analysis of models for distinguishing financial constancy" pointed some effective financial ratio on financial constancy that were in the form of 1- profitability ratio(side gross profit, side operational profit, assets output rate, stockholders output rate) 2- liquidity ratio(current and future ration) 3- debt ratio (debt ratio and ratio of benefit coverage) 4- activity ratio (average period of getting demands, flow of reservoirs, ratio of total turn of assets).

Hypothesis of research

Hypothesis of this research are identified as below:

H1: liquidity situation of healthy, moderate and insolvent Iranian financial companies are different with each other.

In this research liquidity situation were measured by using current and future ratio, so we will have two subordinate hypotheses:

H1-1: current ratio of healthy, moderate and bankrupted Iranian financial companies are different with each other.

H1-2: constant ratio of healthy, moderate and bankrupted Iranian financial companies is different with each other.

H2: activity situation and management of assets of healthy, moderate and bankrupted Iranian financial companies are different with each other.

In this research activity situation are measured by using ratio of total turn of assets, turn of material reservoir, period of achieving demands so we will have three subordinate hypotheses:

H2-1: Total turn of assets of healthy, moderate and bankrupted Iranian financial companies is different with each other.

H2-2: turn of storage of material of healthy, moderate and bankrupted Iranian financial companies are different with each other.

H2-3: period of getting demands of healthy, moderate and bankrupted Iranian financial companies are different with each other.

H3: situation of financial leverage and debt management of healthy, moderate and bankrupted Iranan financial companies are different with each other.

In this research activity situation are measured by using debt ratio to total asset, debt to stock equity so we will have two subordinate hypotheses:

H3-1: debt ratio to total assets of healthy, moderate and bankrupted Iranian financial companies is different with each other.

H3-2: debt ratio to equity of healthy, moderate and bankrupted Iranian financial companies is different with each other.

H4: profitability situation of healthy, moderate and bankrupted Iranian financial companies are different with each other.

In this research activity situation are measured by using ratio of asset output, capital output, side operating profit so we will have three subordinate hypotheses:

H4-1: output of assets of healthy, moderate and bankrupted Iranian financial companies are different with each other.

H4-2: side operating profit of healthy, moderate and bankrupted Iranian financial companies are different with each other.

H4-3: output of capital of healthy, moderate and bankrupted Iranian financial companies are different with each other.

Methodology

Regarding the problem and goal of research, direction of this research is applied regarding goal (applied) and regarding method of implementation it is descriptive.

Society of this research includes reports and financial statements of companies accepted at Tehran stock exchange. Common features of these companies for determining; its statistical society is:

- Be accepted in stock exchange before 2009.
- Present all his financial statements during 2009-2013 to the stock exchange.
- Don't have change of activity during mentioned financial years.
- Regarding increase of capability of comparing selective samples, type of their activities was productive and investment companies haven't been chosen as sample due to their difference.

Therefore companies membering statistical society was determined 128 companies. By using Cochran formula among 128 statistical society, 61 companies was determined as member of statistical samples for current research; then through simple random sampling and regarding presented definition of 3 levels of documented variable(financial health) and calculations, type of membering companies have been classified that 31 companies were healthy, 22 ones moderate and 8 companies were insolvent.

Variables of research includes A) documented variable: an arbitrary variable named financial health to the concept of profitability power and continuity of activity of economic unit (international committee of money, 2000). For distinguishing financial health situation, basd on Naido studies (2010) company health are divided into three levels:

Healthy: a company is healthy that in current year profit after reducing its tax is positive and growth of its real profit during time range is zero or positive. Regarding the supposition of continuity of activities of companies, in this research it was supposed that a company that was profitable 2 continuous years and ratio of its stored profit to its capital has had the highest amount, can have continuity of activity(Nikoumaram and pourzamani, 2010).

Moderate: a company has moderate situation that in current year profit after decreasing its tax was positive and growth of its real profit during time territory was negative (that of course this action causes endangering continuity of its activity).

Insolvent: it is a situation o economic unit in which it gets losses and as this loss is in the way that 2 continuous years leading to current year, its collected losses isn't more than 50% of capital, has disapproved supposition of continuing activity (Nikomaram and Pourzamani, 2010).

B) Predicting variables: predicting variables of this research is ratio and financial assessment extracted from financial statements of statistical samples that based on its nature includes:

Current ratio, constant ratio in the form of liquidity ratio

Asset total turn, good storage turn, period of achieving demands in the for of activity ratio

Debt ratio, debt ratio to equity in the form of leverage ratio

Asset output, capital output, side operating profit in the form of profitability of companies

Research method in this research is correlation type and for data analysis multivariable regression method and ranking logistic regression model is used and also for assessing suppositions EVIEWS7 software has been used.

Research findings

Firstly we have described research variables:

Table 1) describing research variables

	Number	Least	Most	Mean	Standard deviation	Variance
Current ratio	61	0/42	2/36	1/1894	0/52247	0/191
Instant ratio	61	0/17	1/52	0/7849	0/3147	0/113
Total asset turn	61	0/14	3/23	0/7991	0/59477	0/441
Period of material turn	61	0/33	323/82	95/7319	74/18839	5316/957
Ratio of debt to total assets	61	0/07	1/74	0/7249	0/29583	0/08
Ratio of debt to equity	61	-282877/23	23609979	1/7998	4/88263	2/326
Asset output	61	-27/83	39/14	7/2246	10/56745	133/144
Capital output	61	-58/47	92/63	20/6629	32/27692	1023/082
Side operating profit	61	-61/53	103/90	13/1599	26/58412	666/874
Getting demands	61	14/74	1439/11	235/5654	327/415712	108247/6

Considering normality of variables

By using Kolmogorov-smirnov test we considered normality of main variables of research

Table 2) Kolmogorov-smirnov test for research variables

	Current ratio	Instant ratio	Total asset turn	Period of material turn	Ratio of debt to total assets	Ratio of debt to equity	Asset output	Capital output	Side operating pforit	Getting demands
Z	0/671	0/385	1/331	0/627	1/133	0/743	0/626	0/642	0/924	0/763
Sig.	0/759	0/998	0/058	0/827	0/154	0/639	0/828	0/804	0/36	0/605

Regarding table 2 it is observed that obtained sig for each variable is higher than 0.05, so research variables in considering samples has normal distribution (null hypothesis). Now we can use parametric methods for considering hypothesis of current research.

Testing hypothesis of research

For considering hypothesis variance analysis test is used:

First subordinate hypothesis: current ratio of healthy, moderate and insolvent Iranian financial companies are different with each other.

Table3) variance analysis of the variable of current ratio

	Square sum	Freedom degree	Mean square	F statistics	sig
Within group	0/688	5	0/344	1/958	0/157
Intra group	5/794	56	0/176		
Sum	6/482	61			

Regarding table 3 it is observed that amount of obtained sig for this variable is 0.157 that is bigger than 0.05 thus research hypothesis at the level of 95% is rejected.

Second subordinate hypothesis: constant ratio of healthy, moderate and insolvent Iranian financial companies isdifferent with each other.

Regarding the result of variance analysis test of constant it is observed that f statistic is 2.619 and obtained sig for this variable is 0.088 that is bigger than 0.05. so research hypothesis is rejected at the level of 95%.

Third subordinate hypothesis: total turn of assets of healthy, moderate and insolvent Iranian financial companies is different with each other. Regarding the result of variance analysis test of the variable of total turn of companies it is observed that obtained f statistics is 2.847 and amount of sig for this variable is 0.0001 that this amount is less than 0.05. So research hypothesis is approved at the level of 95% that is total turn of assets of healthy, moderate and insolvent Iranian financial companies are different with each other. For considering the way of this difference wee refer to the result of Duncan test:

Table 4) Duncan test table between levels of financial health and variable of total asset turns of companies

Financial health	Number	Subset t 5% level		
		1	2	3
Healthy	31	0/3597		
Moderate	22		0/9024	
Financial insolvent	8			2/1448

Regarding Duncan test table it is distinguished that at the first subset there are total asset turn of healthy companies and at the second subset there are total asset turn of moderate companies and at the third subset there are total asset turns of insolvent companies. There was meaningful difference betweenthese three subset that finally at the third subset of total asset of insolvent companies is more than total asset turn of moderate and healthy companies.

Fourth subordinate hypothesis: storage turn of materials of healthy, moderate and insolvent Iranian financial companies is different with each other.

Regarding result of variance analysis test of the variable of material storage turn of companies it is observed that F statistics is 31.194 and amount of sig for this variable is 0.0001 that this amount is less than 0.05. Therefore hypothesis of research are approved at the level of 95% that is material storage turn of healthy, moderate and insolvent Iranian financial companies are different with each other. For considering the way of this difference Duncan test was used, result of Duncan test states that in first subset material storage turn of healthy company and in second subset material storage turn of moderate companies and in third subset there is material storage turn of insolvent companies. There are meaningful difference between these three subset in variable of material storage turn that finally in third subset, material storage turn of insolvent companies (229.2489) more than material storage turn of moderate companies(99.12.8) and healthy(55.4498) companies.

Fifth subordinate hypothesis: period of getting demands of healthy, moderate and insolvent Iranian financial companies are different with each other.

Regarding result of variance analysis of the variable of getting demands of companies it is observed that F statistics obtained is 36.509 and obtained sig for this variable is 0.0001 that this amount is less than 0.05%. Therefore hypothesis of research is approved at the level of 95% that is getting demands of healthy, moderate and insolvent Iranian financial companies is different with each other. For considering the way of this difference Duncan test is assesed, result of Duncan test denotes that in the first subset getting demands of healthy, moderate and in second subset getting demands of insolvent companies exist. There was meaningful difference between these two subset in the variable of getting demands that finally in second subset getting demands of insolvent financial companies (887.7711) is more than moderate companiesdemands (210.5917) and healthy companies (59.6412).

Sixth subordinate hypothesis: ratio of debt to total asset of healthy, moderate and insolvent Iranian financial companies is different with each other.

Regarding the result of variance analysis test ratio of debt to total asset of company it is observed that obtained F statistic is 0.113 and amount of sig for this variable is 0.894 that this amount is bigger than 0.05 thus research hypothesis is rejected at 95% level.

Seventh subordinate hypothesis:ratio of debt to equity of healthy, moderate and insolvent Iranian financial companies is different with each other.

Regarding result of variance analysis of ratio of debt to equity of companies it is observed that obtained F statistics is 0.508 and amount of sig for this variable is 0.606 that is bigger than 0.05 thus research hypothesis is rejected at 95% level.

Eighth hypothesis: output of assets of healthy, moderate and insolvent Iranian financial companies are different with each other.

Regarding the result of variance analysis test of the variable of asset output of companies it is observed that obtained F statistic is 5.278 and amount of obtained sig for this variable is 0.010 that this amount is less than 0.05. Therefore research hypothesis is approved at the level of 95% that is asset of healthy, moderate and insolvent Iranian financial companies are different with

each other. For considering this difference Duncan test is used, result of Duncan test states that in first subset output of asset of insolvent and moderate companies and in second subset output of assets of healthy and moderate companies exist. Meaningful difference existed between these two subsets in the variable of asset output that finally in second subset output of company's asset (moderate:5.0921 and healthy:14.0767) is more than output of asset of companies of first subset(insolvent: -1.3650 and moderate:5.0921).

Ninth subordinate hypothesis:side operating profit of healthy, moderate and insolvent Iranian financial companies is different with each other.

Regarding the result of variance analysis of the variable of side operating profit of companies, it is observed that obtained F statistics is 4.727 and obtained sig for this variable is 0.016 that this amount is less than 0.05. Therefore research hypothesis is approved at 95% level that is side operating profit of healthy, moderate and insolvent Iranian financial companies are different with each other. For considering the way of this difference Duncan test is used, result of Duncan test denotes that at the first subset there is side operating profit of insolvent and moderate companies and at the second subset there are side operating profit of moderate and healthy companies. There has been meaningful difference between these two subset in side operating profit that finally in second subset side operating profit of companies(moderate: 7.7746 and healthy:26.6617) is more than side operating profit of first subset of companies(insolvent:-6.5604 and moderate:7.7746.

Tenth subordinate hypothesis: output of capital of healthy, moderate and insolvent Iranian financial companies are different with each other.

Regarding result of variance analysis test of the variable of capital output of companies it is observed that F statistics obtained is 13.297 and amount of obtained sig for this variable is 0.0001 that this amount is less than 0.05. Therefore research hypothesis approved at the level of 95% that is output of capital of healthy, moderate and insolvent Iranian financial companies are different with each other. For considering the way of this difference Duncan test is applied, result of Duncan test states that at the first subset there are output of capital of insolvent and moderate companies and at the second subset there are output of capital of healthy companies. There has been meaningful difference between these two subset at capital output that finally in the second subset capital output of healthy companies (45.6857) is more than capital output of moderate companies(9.9195) and insolvent companies(-12.9121).

First main hypothesis: liquidity situation of healthy, moderate and insolvent Iranian financial companies are different with each other.

For considering the relationship of activity ratio two current and instant ratio were chosen that both these ratio were rejected at 95% certainty, so liquidity situation doesn't create meaningful difference between healthy, moderate and insolvent companies.

Second main hypothesis: activity situation and management of assets of healthy, moderate and insolvent Iranian financial companies are different with each other.

For considering the relationship of activity ratio three ratio of total asset turn and material storage turn, period of getting demands were chosen that all three ratio were approved at 95% certainty and all three ratio has created diverse relationship with healthy companies and direct relationship with moderate nd insolvent companies, so activity situation and management of assets creates meaningful difference between healthy, moderate and insolvent companies and main hypothesis are approved based on the fallowing three subordinate hypothesis.

Third main hypothesis: financial leverage situation and debt management of healthy, moderate and insolvent Iranian financial companies are different with each other.

For considering the relationship of financial leverage ratio and debt management two ratio of debt to total assets and debt to equity were chosen that both these ratio were rejected at 95% certainty so financial leverage situation and management of debts doesn't create meaningful difference between healthy, moderate and insolvent companies.

Fourth main hypothesis: profitability situation of healthy, moderate and insolvent Iranian financial companies are different with each other.

For considering the relationship of ratio of profitability three ratio of asset output, capital output and side operating profit were chosen that all three ratio were approved at 95% certainty and all three ratio have created direct relationship with healthy companies and diverse relationship with moderate and insolvent companies, so profitability situation creates meaningful difference between healthy, moderate and insolvent companies and main hypothesis is approved base on the fallowing three subordinate hypothesis.

6 out of 10 subordinate hypotheses were approved with over 95% certainty but generally by geometrical collection,hypothesis confirmed and most of them are the reason for this claim that there is meaningful difference between financial ratio and financial health of companies accepted in Tehran stock exchange.

Conclusion

Achieving profit, continuity of activity, enhancing value of a company and maximizing wealth of shareholders is counted as the main goal of private units and economic institutes. The goal of financial accounting in formal claims of legislative organizations like statement of theoretical concepts of Iran financial accounting has been stated by concentration on consumers. Therefore it was stated that financial report should provide useful information for consumers. One necessary condition for being useful, is related to information reported by type of decision that is made by people and for relatedness of information, capability of using them is in predicting. Since one of applications of accounting is prediction about profitability and continuity of activity of companies. Regarding the problem of research result of this research shows that financial information distributed (regarding studying calculation) in different financial levels of companies have proper information load although this point is important that information load of different reported cases isn't equal in financial cases. Result of research denotes that ratio related to analysis of liquidity situation, financial leverage and debt management of healthy, moderate and insolvent companies couldn't have important share at showing difference in classification, although in activity situation and management of assets and profitability situation it shows meaningful difference at different levels of health and on the other hand ratio related to analysis of liquidity situation have important share at predicting different levels of financial health.

Information obtained can help them at predicting result of potential investment and rank of financial health of companies beside other considerations and analysis that an aware capital (or other users) applies for predicting.

Managers of companies can be aware of the degree of activity and profitability of their company by using these information so managers of failed companies(insolvent) are suggested for doing actions for improving situation and increasing level of company to healthy, change monetary and financial to expansion such as existing strategies for attracting investors and distributing share and increasing liquidity and entering technology andequipment's to internal industries for increasing and improving activity and fallowing that increasing profitability and especial attention to net profit for better situation.

References

1. Ahmadipour, A., Ahmadi, H. (2010), Using qualitative financial information features at assessing profit quality. Accounting and auditing consideration, period 15, No 52, p 3-16.
2. Basham, M. (2013), Using ratio Analysis to assecs financial stability ,www.associatedcontect.com.
3. Khalatbari, A. (2013), Assessing and comparing explanatory powe of value added, profit and cash flow and profit of operation in predicting stock output and determining proper pattern, thesis of Ph.D accouting, Islamic azad university of Tehran science and research unit.
4. Kritsonis, A. (2005), Assessing a Firms future financial health, International Journal of scholary Academic Intellectual Diversity, California state university, Vol.8, no.7.
5. Naidoo, R. S. (2010), A predictive model of the state of financial health, in south African Bussinesses, PH.D dissertation, university of south Africa, Johannesburg.
6. Nikomaram, H., pourzamani, A. (2010), Corporate governance and predicting failiure of companies, Ph.D thesis, Islamic azad university of Tehran.
7. Raei, R., Fallahpour, S. (2013), Predicting financial insolvency of companies by using artificial neurosis networks, financial research journal, sixth year, No 17, p 39-70.
8. Taghavi, M., Pourali, M. (2014), Consideration and analysis of financial ratio at distinguishing different levels of financial health of Iran productive units "fiancila studies journal, No 8, p 23-51.
9. Tavakoli, S. Y. (2011), Considering the relationship between turning capital management and financial performance of economic institutes, M.A thesis, business consideration, No 36, Aug, Sep.