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# Assessing the effects of various financing methods on profitability indicators of accepted Companies in Tehran stock exchange

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### ABSTRACT

This study pays attention to the assessment of the effects pertaining to various financing methods on profitability indicators and investigates various financing methods applied in stock exchange during the period 2001 to 2004. Varied factors influence on the choice of best financing method. Financing in different entities is carried out by applying various sources. In order to answer the main question of this study, two hypotheses have been used in which the relationship between various financing methods and profitability indicators has been examined. In this study we aimed at answering the question: What is the most commonly-used financing method in member companies of Tehran stock exchange? In this research we analyzed a sample including 46 member companies of Tehran stock exchange during the mentioned period. The analysis of hypotheses was done by making use of statistical test of multi-lateral regression. All hypotheses have been measured at 95% level. Research results revealed the fact that there is significance relationship among financing methods, return on assets and gross profit margin. Member companies of Tehran stock exchange are more willing to apply debt and borrowing for their financing.

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### Introduction

Companies need financial resources to expand and continue their activities and security of such resources is always faced with some limitations. Hendrickson believes that description of capital resources is valuable because it provides precious information for historical development of the company. He also depicts that whether a company is financed by internal resources or not. And also, whether external financing resources have led to development of the company or not (Breda and Michelob, 2008)? The results of accomplished studies show that companies' performances are systematically connected with their financing and its selected type. After financing, operational performance of the companies is influenced and performance decline or decrease is revealed. Additionally, types of financing (by capital or debt) have different effects on operational performance of the companies. Capital financing has more powerful effect, comparing with other financial resources like long-term debt-based resource, on companies' operational performance (Caesar, 2005). Baker and Geller in their studies found the fact that international differences in legal supports of investors are originated from different methods used for financing and ownership of the companies. If management and board of directors interfere investors' interests in a desirable, efficient and legal system, the investors can claim their legal rights in legal authorities (Baker, 2002).

In order to prepare and invest on short and long-term plans, allotment of useable financial resources including both internal and external ones for fund provision has a particular importance and the management is always confronted with such decision-makings. Accordingly, managers must choose these resources regarding costs and their effects on stockholders' proceedings, company's value and stocks' prices. Companies and economic entities require a macro capital to continue and develop their

own economic affairs. The manner of methods used for financing in accepted companies of Tehran stock exchange and the type and composition of their financial resources are of the main concerns for financial managers in these companies. Therefore in this study the manner by which accepted companies of Tehran stock exchange during the period 2001 to 2004 have used financing methods and the effects of these methods on profitability indicators and per-share proceeds are investigated. In this study the required financial data have been extracted from financial statements published by member companies of Tehran stock exchange. The goal of the following study is to optimize decisions pertaining to the manner of financing at different managerial levels in accepted companies of Tehran stock exchange, financial analysts, and investment counselors, financial and credit institutes and other users.

### Research methodology

In this research, variables are divided into dependent variables and independent variables. Dependent variables are per-share proceeds and profitability ratios and independent variables are financing methods. The profitability ratios used in this study are the two ratios of gross profit margin and return on assets along with per-share proceeds. And also financing methods include commercial payable accounts, non-commercial payable accounts, receivable facilities, tax reserves, pre-receptions, the reserve pertaining to staff redemption, other debts, the capital related to ordinary and outstanding stocks, accumulated earnings and other reserves. In this study we aim at finding out any existing relationship between financing methods in one hand and three ratios of per-share proceeds, return on assets and gross profit margin on the other hand. We tend to investigate the existence of such relationship in accepted companies of Tehran stock exchange and our investigation results will provide useful data for analyses and decision-

makings pertaining to the users including different managerial levels, internal and external investors of accepted companies of Tehran stock exchange, creditors and researchers. To find out the relationship among research variables, the following hypotheses have been analyzed:

The first hypothesis: there is a significant relationship between financing methods and per-share proceeds.

The second hypothesis: there is a significant relationship between financing methods and return on companies' assets.

The third hypothesis: there is a significant relationship between different financing methods and gross profit margin.

#### Statistical population

Statistical population of this study includes all accepted companies in Tehran stock exchange during the period 2001 to 2004. The total number of accepted companies in Tehran stock exchange was 422 at the end of the year 2001 and it reached to 435 companies at the end of the year 2004. The selection of 46 companies among all member companies of Tehran stock exchange was done based on classification of different 35 industries. Regarding each industry and the number of its available companies, the samples which were qualified enough were randomly selected. Based on similar researches, the reliability level %95 was considered. Data collection was done by making use of financial statements published by accepted companies of Tehran stock exchange which had been selected as research samples. The required qualitative data for calculating variables of research hypotheses were derived. The financial statements of accepted companies of Tehran stock exchange have been placed in Internet Library Site of Tehran stock exchange and Pdf files of financial statements of all companies are in Download file. After data collection and classification, data analysis was mostly done by Excel software in which there are suitable tests and statistical software.

#### Statistical methodology used for data analysis

Data analysis of this study has been done at two descriptive and inferential levels. At descriptive level, frequency, percentage, mean, standard deviation and other statistics have been used. And at inferential level, multi-lateral Regression was used to examine research hypotheses.

#### Multi-lateral regressive analysis

Regression analysis is a statistical tool to estimate the value of a quantitative variable regarding its relationship with one or more other quantitative variables. Such relationship is of a kind that a variable can be predicted by other variables. Which  $y$  refers to the dependent variable and  $x_i$  refers to the independent variables.

Refers to the stable factor in the model and coefficients of independent variables of the model. In order to investigate the relationship between each of independent variables with the dependent variable, their coefficient amounts are investigated by making use of T-Test. In this model the null hypothesis is the acceptance of null hypothesis will mean that there is no relationship between the dependent variable and independent variables.

In order to investigate the degree of linear correlation between dependent and independent variables, we use a criterion called determination coefficient which as much as is closer to the number 1, linear correlation between dependent and independent variables will be greater. Multi-lateral Regression is used to investigate linear relationship between the dependent and independent variables. In order to perform Regression, current methods can be used. Back ward method has been used in this study. In this method, first all independent variables enter the model and then one by one and regarding their quantitative

importance and linear relationship are removed from the model and finally the best model will be identified.

#### Data analysis

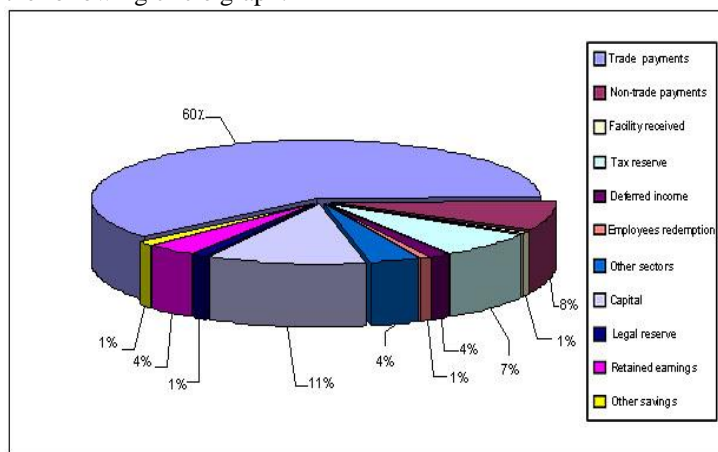
Descriptive statistics of companies' data are summarized in statistical tables, graphs and diagrams and include frequency, percentage, mean, standard deviation and other statistics. Since during the three studied years (2001, 2002, and 2003) 46 companies were investigated, the total number of studied samples during this three-year period was  $3 \times 46 = 138$ .

The results of some regressive, descriptive and statistical analyses are presented as follows:

In 2001, 5 companies from 46 available companies, equal to %10/9 of the total sample number, have lost between 0 to 150 billion rials and on the other hand 30 companies, equal to %65/2, have gained net income between 0 to 150 billion rials, 2 companies have earned net income between 150 to 300 billion rials, and 3 companies have earned net income between 300 to 450 billion rials. Regarding such numbers and their comparison in different years (2002, 2003 and 2004), we found that companies' net income in 2004 has been better than that of 2001 and 2002.

For example, regarding the available data mentioned in above table, in 2001, proceedings of 14 companies of 46 available companies being equal to %30/4 of the whole sample number was between 0 to 150 billion rials, 6 companies being equal to %13 were between 150 to 300 billion rials, 6 companies were between 300 to 450 billion rials, 1 company was between 450 to 600 billion rials and the wealth of 16 companies was more than 750 billion rials. Based on these numbers and their comparisons, we found that the proceedings of these companies has had a growing performance during these three years.

Regarding the available data in above table, we found that the studied companies have exploited commercial payable accounts( %60), non-commercial payable accounts (%8), receivable facilities( %1), tax reserve (%7), pre-receptions (%2), reserve of staff redemption (%1), other debts (%4), capital (%11), legal reserve (%1), cumulated earnings (%4) and other reserves (%1). In order to see above-mentioned data, we draw the following circle graph:



Multi-lateral regressive analysis: in order to investigate the linear relationship between dependent variable of stock efficiency in one hand and independent variables pertaining to financing methods including commercial payable accounts, non-commercial payable accounts, receivable facilities, tax reserve, pre-receptions, the reserve of staff redemption, other debts, capital, legal reserve, accumulated earnings and other reserves, multi-lateral regression has been used. The regression can be carried out by making use of current methods as Back ward which has been used here.

**Table 1-1: frequency distribution and efficiency percentage of the companies**

Per-share proceeds (Return)	2001		2002		2003	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Under 500 Rials	23	50	25	54/3	25	54/3
Between 500 to 1000 Rials	9	19/6	8	17/4	6	13
Between 1000 to 1500 Rials	5	10/9	6	13	8	17/4
Between 1500 to 2000 Rials	6	13	2	4/3	1	2/2
Between 2000 to 2500 Rials	0	0	3	6/5	1	2/2
Between 2500 to 3000 Rials	0	0	0	0	3	6/5
Above 3000 Rials	3	6/5	2	4/3	2	4/3
Mean	1449/15		2408/85		1358/87	
Maximum	23000		79000		29000	
Standard deviation	11567/418		4842/623		4250/645	

**Table 1-2: frequency distribution and companies' asset percentage**

Proceedings (Billion rials)	2001		2002		2003	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
0 to 150	14	30/4	14	30/4	14	30/4
150 to 300	6	13	8	17/4	9	19/6
300 to 450	6	13	4	8/7	4	8/7
450 to 600	1	2/2	0	0	0	0
600 to 750	3	6/5	2	4/3	0	0
Above 750	16	34/8	18	39/1	19	41/3
Mean	1710		3530		4050	
Maximum	34000		95800		117000	
Standard deviation	5140		14200		17300	

**Table 1-3: frequency distribution and the companies' application percentage pertaining to financing methods**

Financing methods	Mean	Percentage
Commercial payable accounts	1/89 E + 12	60
Non-commercial payable accounts	2/55 E + 11	8
Receivable facilities	3/28 E + 10	1
Tax reserves	2/2 E + 11	7
Pre-receptions	4/74 E + 10	2
Reserve of staff redemption	2/35 E + 10	1
Other debts	1/11 E + 11	4
Capital	3/6 E + 11	11
Legal reserve	2/94 E + 10	1
Cumulated earnings	1/18 E + 11	4
Other reserves	3/19 E + 10	1

**Table 1-1-2: Variance Analysis**

Model		Sum of Squares	Freedom degree	Mean of squares	F Size	Significance level
1	Regression	4/55 E+9	11	413335588/31	15/436	0/000
	Rest	3/37 E+9	126	2677146/558		
	Total	7/92 E+9	137			
2	Regression	4/54 E+9	10	454336307/56	17/084	0/000
	Rest	3/38 E+9	127	26593502/851		
	Total	7/92 E+9	137			
3	Regression	4/52 E+9	9	502109857/69	18/893	0/000
	Rest	3/40 E+9	128	26607119/769		
	Total	7/92 E+9	137			
4	Regression	4/49 E+9	8	561052439/24	23/839	0/000
	Rest	3/43 E+9	129	26607119/564		
	Total	7/92 E+9	137			
5	Regression	4/45 E+9	7	636036443/15	23/839	0/000
	Rest	3/47 E+9	130	26680637/198		
	Total	7/92 E+9	137			
6	Regression	4/39 E+9	6	731553275/84	23/137	0/000
	Rest	3/53 E+9	131	26957391/471		
	Total	7/92 E+9	137			
7	Regression	4/33 E+9	5	865183772/71	31/769	0/000
	Rest	3/59 E+9	132	27233477/835		
	Total	7/92 E+9	137			

In this method independent variables firstly enter the model and then are respectively omitted from the model based on their quantitative importance and linear relationship.

### Conclusions

Regarding available data in table 1-1-2-4, SPSS offers 7 models. Noticing significance level of data in above table and the respective comparisons with allowed error amount of %5 and reliability level %95, we conclude that all the above-mentioned models are suitable but the seventh model is the best one.

In order to clarify the regressive model, we firstly analyze table of regressive coefficients and then interpret this table.

Regarding statistical tests, it was observed that the best regressive model proposed by SPSS is as follows:

Results of the first hypothesis: there is a significant relationship between the financing method and per-share proceeds.

If R is supposed as per-share proceeds, we will have

$$R = (1/101 \text{ E-9})x_1 + (-3/597 \text{ E-8})x_3 + (-9/429 \text{ E-8})x_6 + (9/707 \text{ E-9})x_8 + (-1/407 \text{ E-7})x_9 + (-731/137)$$

It must be noted that the determination coefficient of the proposed model as the best and most proper method is /729 and the Watson's Camera statistic is 2/148 which proves the suitability of the desired model. Regarding the available data and related comparisons with allowed error amount %5 and reliability %95, we conclude that the above model is our best and most proper model. So H1 is verified.

Results of the second hypothesis:

There is a significant relationship between financing methods and profitability ratios.

Profitability ratios of this research include return on assets and gross profit margin. So first the relationship between financing methods and gross profits of the sales is investigated and then the relationship between different financing methods and return on assets is investigated.

In order to examine the linear relationship between dependent variable of gross profits of the sales and independent variables of financing methods, multi-lateral regression is used. Regarding the available data, the best regressive model proposed by SPSS is as follows:

If G is supposed as margin of gross profit, we will have

$$G = (-6/08.3 - 13) x_1 + (9/870 \text{ E-13})x_9 + (-1/085 \text{ E-14})x_{10} + 0/268$$

$$\text{Other reserves} \times (-6/08.3-13) + \text{accumulated earnings} \times (9/870 \text{ E-13}) + \text{commercial payable account} \times (-1/085 \text{ E} - 14) + /267 = \text{gross profits of the sales}$$

It should be reminded that the determination coefficient in proposed model as the best and most proper model is /599 and Watson's Camera statistic is 1/998 which proves the suitability of the desired model. Regarding the available data and related comparisons with allowed error amount %5 and reliability level %95, we conclude that the above model is our best and most proper model. So our H2 is verified.

In order to investigate the linear relationship between the dependent variable of return of total assets and independent variables of financing methods, multi-lateral regression is used.

There is a significant relationship between different financing methods and the return on assets.

$$\text{If z is supposed as the return on assets, we will have } z = (-6/853-8)x_{11} + (2/909 \text{ E-8})x_{10} + (4/418 \text{ E-7})x_9 + (-9/693 \text{ E-9})x_8 + (-4/656 \text{ E-8})x_7 + (3/129 \text{ E-7})x_3 + (-4/612-9)x_1 - 2627/724$$

$$\text{Return on total assets} - (-2627/724) + (-4/612 \text{ E-9}) \times \text{commercial payable account} + (3/129 \text{ E-7}) \times \text{tax reserve} + (-4/656 \text{ E-8}) \times \text{other debts} + (-9/693 \text{ E-9}) \times \text{capital} + (4/418 \text{ E-7}) \times \text{legal reserve} + (2/909 \text{ E} - 8) \times \text{accumulated earnings} + (-6/835 \text{ E} - 8) \times \text{other reserves.}$$

It must be stated that the determination coefficient in the proposed model as the best and most proper model is /762 and Watson's Camera statistic is 1/982 which proves the suitability of the desired model. Based on allowed error amount %5 and reliability level %95, we conclude that the above model is our best and most proper model. Therefore, our H2 is verified.

### Research limitations

1. Lack of mid-period data required for calculating profitability ratios made us to focus on final( after the end of the period ) data.
2. Lack of a credit-ranking institution for ranking member companies of Tehran stock exchange to provide analysts, investors and other outsiders with information about the status of capital structure of these companies to evaluate their debts

### Research suggestions

The assessment of the effects of different financing methods on per-share proceeds and profitability of member companies of Tehran stock exchange showed that the methods of financial security have some influences on EPS, return on assets and margin of gross profit. It also showed that member companies of the exchange would rather use debt and borrowing for their financing. So it is suggested to the managers of these companies that:

1. They should pay more attention to return on assets, margin of gross profits and EPS. Regarding the importance of EPS for the internal and external users, they must choose those financing methods that have the least negative effects on profitability ratios and EPS.
2. Since in most companies of developed countries intra-organizational resources are used for financing and then other methods like debts are used, some procedures must be considered to firstly use intra-company resources and cash for financing.
3. It seemed that the use of borrowing in most companies for financing is because of its tax advantages. But its disadvantages must also be considered. The plenty of debts can lead to increase of the possibility of bankruptcy, inability to repay the debts in their specified dues and decrease of their credit ranking and finally can endanger the permanence of companies' operation.
4. At the end, it is suggested that companies use innovative ideas, development of new products and tips for their financing.

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