



The study and analysis of value creating criteria of performance assessment in identification of different levels of financial health: Evidence from Iran

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Abstract

The present research aims at studying the significant differences of the performance assessment value creation in different levels of financial health of companies. Companies in this research have been divided into three groups of healthy, intermediate and distressed. The Economic Value Added (EVA), Market value Added (MVA) and Cash Value Added (CVA) differences of these three levels have been analyzed. From the 37 industrial entities and 224 Iranian companies, 84 companies have been selected through Cochran formula and they have been divided into 16 healthy, 45 intermediate and 19 distressed companies. The Excel software and SPSS software was used to test the hypotheses and Kruskal-Wallis statistical method was applied to compare the value added classified ratios at the level of 5% error. Research finding shows the significant statistical differences among the companies at different levels of financial health using MVA and EVA criteria, but there is no significant different in CVA of the above mentioned companies.

Keywords: Financial health, companies, Performance assessment, value creation, Tehran Stock Exchange (TSE).

Introduction

Financial health is concerned with the activity continuation, bankruptcy, financial distress and the qualitative characteristics of accounting information (validity and reliability). Therefore, the companies' performance assessment in the areas of operation, marketing, finance and accounting seems a necessity (Kritsonis, 2005). The performance measurement criteria fall under accounting models and economical models (Jahankhani & Zariffard, 1996) or as financial and non financial group (Rahnamay Roodposhti *et al.*, 2007, 2009).

Economic value added (EVA)

EVA is a criterion which is generally used for value creation in the company. EVA is not a strategy but a way to measure the results. EVA is produced by multiplying the difference between rate of return (r) and rate of capital cost (c) by the amount of capital.

$EVA = (r - c) * \text{capital}$ (or) $EVA = (r * \text{capital}) - (c * \text{capital})$

and (or) $EVA = \text{NOPAT} - (c * \text{capital})$

Market value added (MVA)

MVA indicates that how the company can predict and plan the future profit making opportunities and to be successful in the application of the capital. MVA is calculated as follows:

Market value of stockholders' equity - Book value of stockholders' equity (applied capital) = MVA

Cash value added (CVA)

CVA is the surplus cash which is deduced after the deduction of cash capital cost from operational cash profit. The surplus is sometimes called surplus profit.

$CVA = \text{operational cash profit after tax} - \text{cash capital cost}$
In the above formula:

Cash profit after tax = cash earned from operational activities after paid tax according to standard no.2 of

Iran accounting standards. The operational cash profit is calculated as follows:

Operational cash profit = operational profit (loss) + Accruals + non cash costs

By cash capital costs we mean the remainder of paid interest and stock profit. Both items can be obtained from cash flow statement prepared according to standard no.2 of Iran Accounting standards.

Domestic evidence

Ahmad Pour and Ahmadi (2009) concluded that profit is one of the most basic components of financial statements (income statements) which are always paid attention by all stakeholders. It is used as a criterion to evaluate activity continuation, entities' performance, measurement of profitability and forcibility of entities' next activities. Khalatbari (2011) concluded that the parameters based on value added, profit and cash are 95% significantly meaningful. Noravesh and Mashaykhi (2005) tested the relationship between accounting profit changes with the data of cash value added and EVA of accepted manufacturing companies in TSE from 1997 to 2003. The results reveal a significant relationship between accounting profit changes and EVA changes. Ghorbani (1999) studied the relationship between profit changes and value added changes in the manufacturing companies affiliated to Restoration and Expression Organization of Iran industries. The results show that there is no significant linear relationship between profit changes and value added changes in the companies under study. Shariat (2004) studied the relationship between EVA and accounting profit of automobile manufacturing industry accepted in TSE. Significant relationship between profit and EVA was observed. According to Izadinia (2004), in Iran capital market, there is a significant relationship between stock prices, companies' market value; and market value added with



value creation factors such as EVA and free cash flow. Noravesh *et al.* (2005) suggested the relationship between operational cash flows, operational profit and EVA with the wealth produced by stockholders. The results show that EVA is a more concise index to predict CSV in the companies accepted in TSE.

International evidence

Hoong *et al.* (1994) have analyzed the coefficient correlation of value added and profitability of cooperative companies in Singapore (except to financial institutes) and have also analyzed the effect of companies' size on this correlation. The results show that in 1986 to 1991 there is a close correlation between value added and favorite performance. But when the companies experience net loss, the correlation between value added and performance is very low and sometimes even negative. In addition to that changes in the value added are usually strongly correlated with the changes in net profit but it is very low at the time of net loss. Tracey and Writhing (2000) have studied the content of EVA information and compared it with operational profit and operational cash flows. They have concluded that the operational profit with a determination coefficient of 23.67% is more defining the total stock return in comparison to operational cash flows (18.1%) and EVA (14.29%). Peixoto (2000) has studied the information content of economical value added in comparison to operational profit and net profit. The results show that the net profit with the determination coefficient of 53.86% is more defining the total in comparison to operational profit (51.35%) and EVA (54.22%). Clinton and Chen (1998) comparing the stock price and return with CVA criteria, EVA and other traditional criteria suggested that the companies which use EVA criterion to assess performance consider CVA as a substitution.

Financial health, the capability of making profit and the continuation of industrial activity, is of great importance for all stockholders and stakeholders. Basically all stakeholders are interested in achieving proper tools to predict and analyze profit making and the continuation of these entities' activities (IMF, 2000). Financial statements are the common informative source available for stakeholder. Generally, some important points not reflected in the reports are the financial health and the relative strength which are needed to continue their activity in the future.

The rapid progress of technology and wide environmental changes has accelerated industrial growth. The ascending competition among industrial entities has limited the access to profit and has increased the improbability of abiding by their commitments and a halt to their activities. Recent unprecedented bankruptcies in main companies at the international level, the undulation of Iran stock exchange, the presence of financial crises in main companies and industries have created worries which necessitate the creation of tools to evaluate the

ability and financial health of companies. One of the tools to evaluate the financial ability of companies is to use financial ratios extracted from financial statements and all kinds of properties based on value creation as predicting variables of companies' financial health (Kritsonis, 2005).

The purpose of the present research is: to identify and determine proper dependable criteria (of accounting information qualitative features) of the kind of value creation having the ability to evaluate the events of economical units taken out of financial reports; the capital markets for all stakeholders; activists in financial markets (capital, money and insurance) in order to promote the capability of the company to pay the return and expected by investors and creditors; to make a proper background to continue activity; to evaluate it in Iranian environmental conditions. As a result three criteria have been identified and analyzed.

Methodology

The objective orientation of the paper is "functional" and its performance is "descriptively" oriented. The research sample includes the financial statements and reports of the accepted companies in TSE. Some of the common features of these companies for the researcher to select the appropriate sample are: 1- To be accepted in TSE before 2002. 2- Having delivered all their financial statements to TSE from 2003 to 2009. 3- Having not changed their activity during the mentioned financial years. 4- To increase the comparability of the selected samples, their kind of activity is manufacturing and the investing companies are not included in the sample because of their activity difference.

224 companies from 37 divided industries in the TSE were selected to comprise the statistical sample of the research. Using Cochran formula, 84 companies were selected as samples from the previous sample. All the companies of the sample have been classified using simple random sampling and based on the presented definition of the three levels of the variable (financial health) and the statistics applied (Healthy: 16 companies; Intermediate: 49 companies; Distressed: 19 companies).

Research variables

A) criterion variable: It is a virtual variable called financial health which means profit making ability and economical unit activity continuation (IMF, 2000). Naidoo (2007) divides companies into three levels based on their financial health:

Healthy: A company is considered to be healthy that its profit after tax deduction is positive in the current year and its real earnings growth during the research time zone is zero or positive. Based on the companies' activity continuation assumption, it is supposed that if a company is profitable for 7 continuous years and the ratio of its accumulated earning to its capital reaches the highest amount, it can continue its activity (Nikoumaram & Pour Zamani, 2007).

Intermediate: A company is called intermediate if its profit after tax in the current year is positive and its real earnings growth is negative in the research time zone (Which will certainly endanger its activity continuation).

Distressed: It's a entity's status which has brought about losses (its profit after tax is negative) and if this loss is in a way that in two years leading to the current year its total loss is more than 50% of its capital, it has violated the activity continuation assumption (ibid.).

B) predicting variables: The predicting variables are EVA, MVA and CVA being extracted from the statistical sample's financial reports and capital market.

After calculating the proportion of predicting variables through decipherable data of the capital market and financial statements of the present companies in the statistical sample on every level of the financial health using Excel 2007 software, because value creation data are not comparable quantitatively, using numerical codes for qualitative variables the three variables have been qualitatively analyzed. By using SPSS (17) software and variables ranks and Kruskal-Wallis statistical method, different levels of value creation comparison test have been performed.

Findings

Statistical analysis of the first hypothesis

H_0 : There is no significant difference among healthy, intermediate and distressed companies in regard to their EVA.

H_1 : There is significant difference among healthy, intermediate and distressed companies in regard to their EVA.

Table1. Descriptive table of the EVA variable

Mean	Min.	Max	Std deviation
143672	-891925	5785073	659532.5

The EVA of all samples have been qualitatively evaluated in this hypothesis and the minimum observation to the point zero (negative numbers), from point zero to intermediate (intermediate numbers) and from the point intermediate to maximum observation (the numbers above EVA) have been taken into consideration. The EVA variable has been divided into three levels in the ranking .Because of ranking data and for the reason of three independent health variables i.e. healthy, intermediate and distressed companies, using Kruskal - Wallis method in non -parametric statistics, the mean of ranks have been compared to see if the rank are equal or are significantly different. Therefore, using the SPSS software the output is presented as Tables 1 & 2.

Table 2. The table of scores related to EVA variable

Health variable	Mean of ranks	Frequency
Distressed	13.71	19
Intermediate	52.39	49
Healthy	46.41	16
Total		84

We have the result of kruskal - wallis test in Table 3:

Table 3. The result of Kruskal-wallis test related to EVA variable

Significant level	Degree freedom	χ^2 statistic
0.001	2	41.433

Because the statistic of χ^2 of Kruskal-Wallis table is 41.433, and because of the significance level less than 5% , the hypothesis of significant difference for EVA variable on three levels of health (H_1) is verified.

Statistical analysis of the second Hypothesis data

H_0 : There is no significant difference among the MVA of healthy, intermediate and distressed companies.

H_1 : There is significant difference among the MVA of healthy, intermediate and distressed companies.

Table 4. Descriptive table of MVA variable

Mean	Min.	Max	Std deviation
46624.64	-4000000	2868215	780616.6

Through classifying MVA variable in the hypothesis using ranking. Data test on three levels of companies' health, the hypothesis is either rejected or accepted leading to SPSS software output shown in Table 4 and 5.

Table 5. Table of scores related to MVA variable.

Mean of ranks	Number	Health variable
49.71	19	Distressed
36.95	49	Intermediate
50.94	16	Healthy
---	84	Total

Using kruskal-wallis statistic (comparison of the mean of ranks in the independent sample) the significant difference of the means on 3 levels of health (healthy, intermediate and distressed) are evaluated which are shown in Table 6 as follows:

Table 6. Kruskal -wallis statistic related to MVA variable

Significant level	Degree of freedom	χ^2 statistic
0.024	2	7.435

Because Kruskal-wallis test statistic is equal to 7.435 with significant level of 0.024, the significantly difference hypothesis of the MVA variable on three levels of financial health variable (H_1) is verified.

Statistical analysis of the third hypothesis data

H_0 : There is no significant difference among the CVA of healthy, intermediate and distressed companies.

H_1 : There is significant difference among the CVA of healthy, intermediate and distressed companies.

Table 7. Descriptive table of CVA variable

Mean	Min.	Max	Std. deviation
100501	-356596	4377096	532925.9

Table 8. Table of scores related to CVA

Health variable	Mean of ranks	Number
Distressed	33.26	19
Intermediate	46.36	49
Healthy	41.66	16
Total		84

CVA variable has been divided into three groups at the beginning, using the SPSS software output in Tables 7 and 8. Using kruskal-wallis test statistic (χ^2 comparison of the mean of ranks), H_0 is either rejected or accepted as is shown in Table 9:

Table 9. Kruskal-wallis test statistic related to CVA variable

Significant level	Degree freedom	χ^2 statistic
0.093	2	4.745

In regard Kruskal-Wallis statistic which is equal to 4.745, and because the significance level is more than 5%, H_0 hypothesis is verified and there is no significant difference among the three levels of health (healthy, intermediate, distressed) for cash value added variable.

Summary and conclusions

The accounting objectives have been announced in the official statements of legislating organizations such as Iran financial accounting theoretical implications statement focusing on the users. In the concluding part it is said that financial report should provide useful information to the users. One of the requisite conditions to be useful is that the information reported should be related to the kind of decisions made by these people and one of the requisite conditions for the information relatedness, is their predictability. Because one of the uses of accounting information is to predict company profitability and activity continuation, regarding the research problem, the results obtained show that the published financial information (In regard to the calculation of the criteria under study). About different health level of the companies are enough informatively loaded even though it is of importance that the informative load of the reported cases are not equal in the financial reports and the capital market. The research findings show that CVA variable of healthy, intermediate and distressed companies could not play an important role in showing the differences in the classifications. EVA and MVA play an important role in predicting the different levels of financial health. The results of this research complement the earlier reports (Shariat, 2004; Noravesh & Mashaykhi, 2005).

The information obtained can help a wise investor or other users in predicting the results of his potential and present investments and the rank companies' financial health besides other analyses at hand.

References

- Adnann Aziz M and Humayon A Dar (2002) Predicting corporate bankruptcy: Weither do we stand? Dept. Econom. Loughborough University, UK.
- Ahmadpour A and Ahmadi A (2009) Using qualitative characteristics of financial information in evaluating profit quality. *Iranian Accounting & Auditing Rev.* circulation. 15(52), 3-16.
- Charalambookis EC, Espenlaub SK and Garrett I (2009) Assessing the probability of financial distress of UK firms. *Manchester Bus. School*, Univ. of Manchester, UK.
- Clinton BD and Chen S (1998) Do new performance measures measure up. *Managt. Accounting.* 80(4), 38-44.
- Codifying Accounting Standards Committee of Auditing organization (2007) Accounting and auditing principles and Maxims. Accounting Standards. No .1, How to present financial invoices, Issue 160.
- Ghorbani S(1999) A research on the profit changes because of value added changes in manufacturing companies affiliated to restoration and expansion organization of Iran industries. Master Thesis, Managt. College, Tehran Univ.
- IMF (2000) Financial Sector Assessment Program-(FSIP) Nov. A review lessons from the pilot and issues going forward, International Monetary Fund SM/00/263.
- Izadinia N (2004) Evaluating commercial units using economical value added models and free cash flow (FCF) and determining the gap between price and stock value, Ph.D dissertation, Allame Tabatabai Univ., Tehran.
- Jahankhani A and Zariffard A (1996) Do the managers and stockholders use proper standards to measure the company's turnover? *Financ. Res. Period.* Tehran, 7&8.
- Khalatbari A (2011) Measuring and comparing the descriptiveness of value added, profit, cash flows and operational profit in predicting stock output and determining a suitable model, Ph.D. Accounting dissertation, Azad University, *Sci. & Res. Branch*, Tehran.
- Kritsonis and Alicia (2005) Assessing a firms future financial health. *Intl. J. Scholarly Acad. Intellectual Diversity.* California State Univ. 8, 1.
- Naidoo and Ramoorthee Surendra (2006) A predictive model of the states of financial health in South African Businesses, Ph.D. Dissertation, Univ. of South Africa, Johannesburg.
- Nikoumaram H and pourzamani M (2007) Corporate Governance and predicting companies' bankruptcy. Ph.D. Dissertation, Azad Univ., *Sci. & Res. Branch, Tehran.*
- Noravesh I and Mashaykhi B (2005) Value added profitability in predicting the accounting profit of manufacturing companies accepted in TSE during 1997-2003. *The Iranian Accou & Auditing Rev.* 11(36), 95-108.
- Noravesh I, Salehi F and karami G (2005) The study of the relationship of operational cash flows, operational profit, economic value added with the produced wealth for stockholders. *Iranian Accou.&Auditing Rev.*11(37),121-146.
- Pang Yang Hoong, Low Siew Siang and Leong Koowng Sin (1994) Do Value Added Statements add Value to Financial Statement? *SEC J. Singapore.* pp: 16.
- Peixoto S (2000) Economic value added: application to Portuguese public. *J. Accou. Portug.* (3), 25-40.
- Rahnamay Roodposhti F, Nikoomaram H and Shahverdiani S (2007) Strategic financial management (value creation). MCG Publ., 1st edition, Tehran.
- Rahnamay Roodposhti F (2009) Strategic management accounting based on value creation cost management. Azad Univ. *Sci. & Res. Branch*, Tehran.
- Shariat MT (2004) The study of the relationship between economic value added and accounting profit in automobile Manufacturing companies accepted in TSE during 1996-2001, M.A. Thesis, Management College, Tehran Univ.
- Tracey W and Worthington A (2000) The information content of EVA: A comparative analysis with earnings, cash flow and residual income. *J. finance.* www.elsevier.com.