

An Investigation of the Relationship between Changes of Balance Sheet Items and Stock Future Output: Iranian View

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[Abstract] The present study investigates analytically the relation between changes of balance sheet items and stock future output of listed companies in the Tehran Stock Exchange. Since these informative sources, which are available for investors and creditors and financial analysts, are fiscal lists of companies and, in principle, one of the main instruments as a final output of the accounting process and financial reporting, so the research aims to predict the stock output changes by investigating the balance sheet items. Along with the subject, six hypotheses are postulated, and the kind of research method is correlated during 2009-2014. The results show that changes of fixed assets and also shareholders emolument have influence on the future exchange output. Nevertheless, the determination coefficients in the following model were low. This reveals that independent coefficients in the model have a weak relation with the future exchange output. Consequently, there is a meaningful relationship between balance sheets and listed companies in Tehran Stock Exchange.

[Keywords] Exchange output, net operational assets, debts, Tehran Stock Exchange

Introduction

Nowadays, investment includes an important part of economical activities, and investment is one of the necessities of development in any society. We can claim that no society can progress without investment. We need some information for investing in a society. So, information is used for explaining the status of economical units. Most of investors are faced with the question about which of the above information can lead them toward optimized decision-making, a decision which leads to maximize investors' wealth and property. The accounting process provides the activity of understanding operation results and, also, reveals the cash flow companies' cash in an annual financial period. Investors and financial analysts can find unit's economical status by using this information.

In recent years, reporting methods and accounting information revealed have affected the intra-organizational and extra-organizational users and have been considered in accounting research. Most of the recent research has, also, investigated the ability of predicting accounting items. Users of financial sheets have more and profound considerations of the ability of forecasting the mentioned items in the lists. Various studies investigate the changes financial lists and their relation with exchange of output. In recent years, the information of balance sheets has enjoyed a special place in evaluating and forecasting stock efficiency. Investors, in fact, are a group of users who are interested in some information about substantial risk and their own investment's output, and, as providers of capital for commercial unit risk. In this respect, investors must perform some wide and profound investigations while investing in typical exchange. This subject is discussed in countries where their exchange market does not have the necessary efficiency. One of these instruments is mentioned in the financial list, so investors can invest in the exchange market of the accepted companies by using this information.

The purpose of the study is to investigate the informative content of balance sheets through analyzing real information to help investors in making their decisions so that they can gain more return from their own investments. In this paper, the relationship between balance sheets and exchange future output has been investigated.

Literature review

Rayburn (1986) studied the cash resulting from operation items with exchange output. His focus was mainly on operational cash progress instead of total cash progress. The results of Rayburn's research show that there is coordination between operational cash progress and exchange output. Ohlson and Penmen (1992) performed a study on a case of listed companies on New York Stock Exchange. They investigated the relationship between accounting information and exchange output, and they applied linear regression model with two or more variables. They investigated the relationship between exchange official value and exchange output, which surveyed the relationship between single balance sheet items and exchange output, such as current capital, stockpiled depreciation, properties, machines, and equipments rather assets, long-term debts and premier (superior) stock. They performed two series of regressions for the above instances. Following are the results of Ohlson and Penmen research.

- 1) The relationship between official value and exchange output in comparison with between income of every share and its output is very trivial.
- 2) The level of introducing the exchange output by single balance sheet items is less than introducing the exchange output by official value.
- 3) By increasing time periods, the level of introducing the exchange output through the balance sheet items is increased.

Sloan (1996) investigated this subject where the informative share price concerning mandatory items and pecuniary currents would show us the future profits. In this research, he concluded that there is a negative relationship between current capital and exchange future output. Chen et al. (2002) investigated the relationship between 9 companies, performing criteria stock price and exchange output by surveying 325 companies during 1991-1995. They compared 3 three new performance criteria: economical value added, cash current of investment output, and remaining cash flow with 6 traditional criteria of accounting. Results show that the performance criteria of economical asset values and investment output cash have a weak correlation with price and share output.

Haw et al. (2004) investigated rate of using financial information in analyst's decision making. Regarding that the information was primarily under consideration of the company information break down into 3 parts and then introduced the question: A) Company annual financial report includes a management activity report, an accounting report, a management letter, a balance sheet assets (fund), a balance sheet of debts, profit and loss invoices, a cash-flow statement, 3 months of reports, and stockholders' salaries that have been investigated. B) Information related to economy and industry, which included industrial and economical information, has been investigated. C) A company's other information, which was the company's history and specifications, stock price information, management and specifications, stock price information, management and staff, past profit summary, and key proportions have been investigated. The analysts were questioned about which sets of information to analyze the company's status. The previous fiscal year information had been present to analysts, and they were asked to predict the company's next year status. Prediction accuracy levels show the relevant items in the prediction and deviation from the real output, which represents mistake in the prediction. After analyzing received responses, they found that the shareholders' salary statement, balance sheet, debt balance sheet funds, probable debts, taxes, long-term debts, and inventory have a lower prediction accuracy level, and analysts do not make use of them for predicating very often.

Fairfield, Whishenat, and Lambardy (2003) investigated the connotative concepts for future profitability and market inappropriate pricing. It is stated in this research that obligations are a progressive (growth) element in operational net assets (funds) and also are a part of future profitability. They separated profitability inside obligation, cash flow from operation, and growth in obligatory operational net assets (fund) from growth in long-term operational net assets. They concluded that net growth of operational assets has a negative relation with exchange output.

Hirshleifer et al. (2004) investigated that if investors limit their consideration, they use the results of accounting in which by a soft method and positive aspects of a company's performance will be confirmed. They state that when balance sheet is assessed, investors give a high value (position) to the company by

their limited consideration they suggested in their conclusion that operational net assets (stock) output. Richardson et al. (2010) investigated the effects of operational net funds and their influence on future exchange output.

Objective of the Study

Stock output as one the important factors in making the best choice for investors are the basic financial lists of companies and generally are one of the main instruments for transmitting the information to the related persons and are final product of the accounting process and financial reporting. So, this paper aims to help investors and analysts make correct decisions by calculating the stock future output and investigating its relationship with balance sheet items. Balance sheet items consist of various elements, and this paper investigates current assets, fixed assets (funds), current debts, long-term debts, shareholder's salaries, and, also, operational net assets, which are gained from balance sheet items. The following are the concepts used in this study.

Current Assets concept. The Current Assets concept embodies those assets which change into cash by normal operation and those assets which the company speculates as cash available in the future

Fixed assets concept. Most of the commercial units have considerable investments in physical properties and use them in operations to make their investment profitable in many periods. Important assets in this class consist of land, buildings, machines, equipment, installments, and optimizing rental properties. There is a need for an asset included in this class, and it is that the company makes use of pertinent asset to have income through operation.

Current Debt concept. A time debt should be classified as current debt when it is anticipated to be settled during an operational circle of the commercial unit or during one year after the balance sheet date.

Long-term debt concept. Non-current debts are obligations which will be settled after a one-year operational circle. The most common long-term debts are bonds, movable taxes, obligations of retirement and other advantages after retirement, and rental obligations. The effects of above obligations are on company's future operation; conditions of their reimbursement include original debt and profit payments.

Shareholders' equity concept. By replacement in accounting equation we have ownership equity = debts - assets (funds). Ownership's equity in single owner units is merely an accounts name. Reporting of ownership's equity of a joint stock company is, somehow, more complicated. Legal limitations, accounting guidelines, and, also, separation of ownership and management provide a need for gathering more information about owners' profits in the joint stock company. Shareholder's equity typically consists of three classes: (1) paid assets, (2) stock-piled profit, and (3) other items stock piled for comprehensive profit.

Operational net assets concept. To define the operational net asset, first we must determine its two main parts, which are operational debts and operational assets. Operational debts, in fact, are equal to a figure which is calculated after subtracting long-term debts, short-term debts, and shareholders' salary from total debts. Operational asset is calculated by subtracting cash and short-term investment from total assets; finally, operational net assets are calculated by subtracting operational debts from operational assets. Operational net assets are used as a measure for evaluating and predicting stock output.

Research Question and Research Hypotheses

Based on the research objectives, we investigate whether there is a meaningful relationship between changes of balance sheet items and changes of stock future output. According to this question, we have postulated the following six hypotheses: 1) There is a meaningful relationship between changes of current assets and changes of stock future output. 2) There is a meaningful relationship between changes of fixed assets and changes of stock future output. 3) There is a meaningful relationship between current debts and changes of stock future output. 4) There is a meaningful relationship between changes of current long-term debts and changes of stock future output. 5) There is a meaningful relationship between changes of current operational net assets and changes of stock future output. 6) There is a meaningful relationship between changes of current shareholders' salary and changes of stock future output.

Research Variables and Their Measurement's Method

In this paper, we investigate the relationship between dependent variable (stock future output changes) and independent variables (current assets, fixed assets, short-term debts, long-term debts, operational net assets, and minority shareholders' salary). In this research, stock future output is calculated as **total stock output: share priority value + share value + cash profit + increasing share price at the beginning of year.**

Current Assets are regarded as an independent variable, and to calculate it we detract the amount of current asserts in the past year from the amount of current asset in a year and then divide it to the absolute value of current asset amount in the past year.

$$\text{Current asset changes} = \frac{CA_t - AC_T - 1}{|CA_t - 1|}$$

The **fixed assets** are regarded as an independent variable, and to calculation it we subtract the amount of a fixed asset in the past year from the amount of a fixed asset in a year and then divide it into the absolute value of the fixed asset in the past year.

$$\text{Fixed assets changes} = \frac{FA_t - FA_T - 1}{|FA_t - 1|}$$

The **short-term debts** are regarded as an independent variable, and to calculate it we subtract the amount of short-term debt in the past year from the amount of the short-term debt in a year, and then we divide it into the absolute value of short-term debts in the past year.

$$\text{Short term liability changes} = \frac{CL_t - CL_T - 1}{|CL_t - 1|}$$

Long-term liabilities are regarded as an independent variable, and to calculate it, we subtract long-term liability in patsy year from long-term liability in a year, then divide it into the absolute value of the amount of long-term liability amount in the past year.

$$\text{Long term liability changes} = \frac{Ncl_t - Ncl_T - 1}{|Ncl_t - 1|}$$

Net operational assets are regarded as independent variables, and to calculate them, we subtract the amount of net operational assets in the past year from net operational assets in year and then divide them into the absolute value amount of net operational asset in the past year.

$$\text{Net operational assets changes (variation)} = \frac{NoA_t - NoA_T - 1}{|NoA_t - 1|}$$

Shareholders' equity is regarded as an independent variable, and to calculate it, we subtract the amount of shareholders' emolument in the past year from the amount of shareholders' equity in a year and then divide it into the amount of the absolute value of the shareholders' equity in the past year.

$$\text{Shareholders' equity changes} = \frac{SE_t - SE_T - 1}{|SE_t - 1|}$$

Statistical society. In this paper, listed companies on the Tehran Stock Exchange are selected as a statistical society. The reason for this selection is more consideration of investors and availability of information and, also, the transparency of those companies' accounting information data. On the other hand, the joint stock nature of listed companies on the Tehran Stock Exchange and making the financial lists available for vast variety of users was the reason for selecting these companies.

Statistical Sample and Sampling Method

Sampling is completely systematic. So, we selected qualified companies among the listed companies on the Tehran Stock Exchange according to the following: 1) The regarded company must be listed before

the year of 2009. 2) The end of the regarded company's fiscal year must be 29 March of each year. 3) The regarded company should not have any transaction stop at the studied period. 4) The regarded company should not have any change in fiscal years during the studied period. 5) The regarded company must be among active members in the market. Since we have calculated stock future output in this paper, it is required that the existing company in the sample be an active one; thus, the number of the company's transactions on the stock exchange must be so that we can say share price reflects stock facts. Consequently, the regarded company's transactions should not be below 40 times in a year. 6) The data of the regarded company must be available (in access).

Because the goal of this research is to investigate the relationship between variables, we use the correlation method. In order to test the hypotheses statistically, we use the multi-variable regression and F, T, and, also, SPSS software to estimate coefficients and calculate needed figures for explanation and analytical statistics. The required data, collected through observation, includes company's financial list information and also the information related to company stock on the Tehran Stock Exchange. According to this process, all of the applied information are collected by Tadbirpardaz and Sahra software, and, also, from the Tehran Stock Exchange archives.

Hypotheses Test Results

Taking into consideration of the data table of the first hypothesis, we found there is no relationship between changes of current assets and changes of stock future output. Since, the meaningful level T is greater than 5%, there is no meaningful relationship between changes of current assets and changes of stock future output at the confidence level of 95%.

For the second hypothesis, by considering the data table, it can be seen that there is a relationship between changes of fixed assets and changes of stock future output, since it is positive and direct. Because mean level T is less than 5%, there is a meaningful relationship between changes of fixed assets and changes of stock future output at a confidence level of 95%.

For the third hypothesis, by considering the data table, it is clear that there is no relationship between changes of current liabilities and changes of stock future output. Because mean level T is greater than 5%, there is no meaningful relationship between changes of current liabilities and changes of stock future output at the confidence level of 95%.

For the fourth hypothesis, by considering the data table, it is clear that there is no relationship between changes of long-term liability and changes of stock future output. Since the mean level T is greater than 5%, there is no meaningful relationship between changes of long-term liabilities and changes of stock future output at the confidence level of 95%.

For the fifth hypothesis, according to the data table, there is no relationship between changes of operational assets and changes of stock future output.

Since the mean level T is greater than 5%, so there is no meaningful relationship between changes of net operational asset and changes of stock future output at the confidence level of 95%.

For the sixth hypothesis, according to the data table, there is a relationship between changes of shareholders' salary and stock future output. Since it is negative, it is a reverse. Since the mean level T is lesser than 5%, there is a meaningful relationship between changes of shareholder's salary and stock future output at the confidence level of 95%.

So, the main hypothesis, that there is a relationship between changes of balance sheet items changes and changes of stock future output, has been tested. In order to test the hypothesis, we used a multivariable regression and the following equation: $y=b_0+b_1x_1+b_2x_2+b_3x_3+b_4x_4+b_5x_5+b_6x_6$.

The results, according to regression model (multiple) stepwise, are presented in Table 1.

Table 1. The Regression Model (Multiple) Stepwise Of Testing Of Hypotheses

Variable	Stock future output	Current assets	Short term liability	Long-term liability	Net operational assets	Shareholder equity	Fixed asset
Correlation coefficient	1.000	0.000	-0.001	-0.001	0.003	-0.115	0.250
Stock future output by meaningful Level total	0.000	0.994	0.989	0.989	0.954	0.011	0.000
	480	480	480	480	480	480	480
Correlation coefficient	0.00	1	0.999	0.999	0.902	-0.004	0.000
Current asset by meaningful level total	0.994	0.000	0.000	0.000	0.000	0.000	0.994
	480	480	480	480	480	480	480
Correlation coefficient	-0.001	0.999	1	0.999	0.902	-0.006	-0.002
Current liabilities by meaningful level total	0.989	0.000	0.000	0.000	0.000	0.000	0.964
	480	480	480	480	480	480	480
Correlation coefficient	-0.001	0.999	0.999	1.000	0.902	0.011	-0.002
Long term liabilities by meaning full level total	0.988	0.000	0.000	0.00	0.000	0.806	0.969
	480	480	480	480	480	480	480
Correlation coefficient	0.003	0.902	0.902	0.902	1.000	0.188	-0.002
Net operational assets by meaningful level total	0.954	0.000	0.000	0.000	0.000	0.000	0.969
	480	480	480	480	480	480	480
Correlation coefficient	-0.115	-0.004	-0.006	-0.011	0.188	1.000	-0.011
Share holders' salary by meaningful level total	0.011	0.933	0.889	0.806	0.000	0.000	0.803
	480	480	480	480	480	480	480
Correlation coefficient	0.250	0.000	-0.002	-0.002	-0.002	-0.011	1.000
Fixed assets by meaningful level total	0.000	0.994	0.964	0.961	0.969	0.803	0.000
	480	480	480	480	480	480	480

In the first model, fixed assets changes are regarded as independent variables, while in the second model, we use changes of shareholders' salary and, also, changes of fixed assets changes. So, these two models, as shown in the table, are investigated to show how much the dependant variable states the independent variable. In the first model, R- square= 63%, and in the second model, R-square=-75%. As a result, regarding the increase at the second model, it is clear that this model is better able to state the relationship between changes of balance sheet items and changes of stock future output (results shown in Table 2).

Table 2. The Results According to Regression Model

Model	R	R square	Adjusted R square	S.D	Durbin-Watson
1	0.250	0.03	0.061	3513.48742215	
2	0.275	0.075	0.072	3493.34024708	2.016

At the ANOVA table, models are tested from the view of mean level F. Since the mean level F is less than 5%, there is a linear relationship between changes of stock future output and the independent variable. The results are presented in Table 3.

Table 3. Variance Analysis Table (ANOVA)

Model	Second square total	D.F	Second square average	F test	Sig.
Regression	3.95	1	394938740		
1 residual	5.90	478	12344593.87	31.933	0.000
total	6.30	479			
Regression	4.75	2	23710183.3		
1 residual	5.82	477	12203426.08	19.446	0.000
total	6.30	479			

In the coefficient Table B, models are tested for the B amount. Since the second model is regarded in this research, the coefficients B0 are investigated in the investigation; regarding the mean level T concerning B0, since its level is 5%, the amount of B in the model is not regarded as cross coefficient from offset. The results are shown in Table 4.

Table 4. Coefficients Table

model	None-standardized Recessional coefficients		Standardized Recessional coefficients	T	Sig.
	B	S.D	beta		
1 fixed value	8.856	160.535		0.053	0.957
Fixed assets	0.005	0.001	0.250	5.656	0.000
2 fixed value	76.681	161.824		0.474	0.636
Fixed assets	0.005	0.001	0.0249	5.659	0.00
Shareholders' equity	-172.872	67.653	0.113	2.555	0.011

Finally, the following model is concluded as case model.

$$Y=0.005 x_1= -172.872x_2$$

Conclusion and Remarks

The research results show that there is no meaningful relationship between changes of current assets and changes of stock future output. Perhaps one of the reasons is that investors have less consideration in this item to invest in the fiscal list. Also, they have much focus on profit and its content parts. So, it has no effect on stock output. In this paper, it is determined that there is a meaningful relationship between fixed assets and stock future output. One also shows that this relationship is direct. It means that by increasing the fixed assets changes, stock future output increases. One reason can be the fact that changes of fixed assets and increasing amount of it means that the company aims to increase its activity and production by applying these assets. Another result of this paper is that there is no meaningful relationship between current liabilities and stock future output. It suggests that financial analysts have not regarded this indicator to evaluate the stock. In this paper, the relationship between long-term liabilities changes and stock future output is investigated. Finally it is determined that there is no meaningful relationship between long-term liabilities and stock future output.

The results of this paper show that there is no meaningful relationship between changes of shareholders' equity and future stock output. This relationship is reversed. What is determined is that company financial assets can be provided through taking loans, issuing stock, and current operations. There is a relationship between changes of fixed assets and shareholders' equity as balance sheet items and stock future output; however, as determined by above model, this relationship is weak and suggests that balance sheet items change because one of the financial lists has a little information content and cannot be applied to predict stock output of the listed companies on the Tehran Stock Exchange.

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