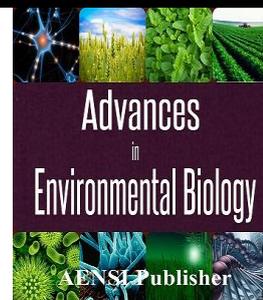




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The Relationship between Liquidity Assets and Stocks in Periods of Economic Recession and Boom

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ABSTRACT

In this study, the relationship between stock liquidity and asset tested in the course of boom and recession. Used data classification and audited financial companies active in Tehran Stock Exchange to test research hypotheses. The sample consists of 94 companies during the years 1382 to 1391. The study used measures of Amihud liquidity and zero efficiency for variable measuring liquidity stocks. Liquidity of assets is calculated using the weighted assets. Hypotheses are tested using regression models and the results of the research show that there is a significant relationship between the liquidity of assets and shares directly. The results show that this relationship is stronger in periods of economic prosperity.

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INTRODUCTION

Given the breadth and depth of the market, there are various tools for investing in financial markets. One of the fundamental problems in the capital, it is the liquidity of assets; because some investors may be required to finance their investment quickly. Liquidity rate is also related to trading on the Stock Exchange welcomed by investors. Liquidity risk stocks can be regarded as one of the factors involved in determining the expected return on investment. Set a benchmark based on company characteristics can lead to good decisions investors so that it can help to determine the amount of liquidity in the stock. Welcoming the securities that are traded on the stock exchange, it is indicative of the speed of their liquidity. Liquidity is a measure of multidimensional since there is a unique measure of liquidity so that it can cover all aspects of it, the use of several different criteria, so that each of them represents a dimension of liquidity.

Expressed Concern:

Liquidity is the ability to quickly deal with a high volume of securities with low cost and low price effects. Low price effect means that asset prices have not changed much in the period between the purchase orders. In the financial literature cited two types of liquidity, including liquidity of assets and stock liquidity. Cash assets and stocks are reacting when they can be converted into cash with high speed and low cost. Assets are subject to review as it is a high proportion of liquid assets such as accounts receivable subject. Companies' shares are a claim on their net assets. As a result, the company's stock liquidity could be a reflection of the underlying liquidity of their assets. Hence, it is expected that there is a positive correlation between stock liquidity and liquidity of corporate assets [15]. Liquidity of assets affects the cost of the financial crisis and it leads to a reduction in information asymmetry. The liquidity of assets with reduced information asymmetry causes a decrease in the price difference between the purchase and sale of shares and thus increases the liquidity of shares choosing costs account for much of the difference in price to buy and sell shares especially in inefficient markets. Choosing high costs are caused by asymmetric information. Liquidity in the real estate company, is an important factor in reducing uncertainty and information asymmetry and it can affect the liquidity of its shares this means that the cost reduction makes the wrong choice to reduce the price difference between the purchase and sale of shares and thus increase liquidity in the shares. Asset management companies are constantly being changed by the decision.

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Hence, the relationship between the liquidity of assets and shares depends on market expectations of management decisions. To illustrate this, consider a company that raises funds by issue of shares or other ways. Inject cash into the company that makes the company's cash balance increased in proportion to total assets. Consequently, liquidity increases in the company assets. On the contrary, if the manager decides to invest in projects and growth opportunities so that they are non-cash in nature even if the realizability of the company's assets, the weaker the relationship between the liquidity of assets and shares due to increased uncertainty and transaction risk assessments based on confidential information. On the other hand, the level of investment firms is linked to micro-economic status. Investment and growth opportunities are more likely to be in a period of economic boom and it becomes less during the recession. Therefore, the allocation of resources is expected to be more uncertain economic boom and decline in the liquidity of assets and shares. This relationship is reversed in the period of economic recession. There are many criteria for liquidity and asset liquidity stock so that they can be divided into different groups according to the nature of the assets and the market. The relationship between these measures and these relationships can also be subject to review. The research presented criteria for each type of liquidity and will examine the relationship between boom and recession relying on companies listed in Tehran Stock Exchange.

MATERIALS AND METHODS

Research hypotheses:

Much theoretical research suggests that both factors play a major role in the liquidity of the shares that are evaluation of uncertainties in the company's assets and transactions in shares conscious. The assets of the company also play an important role in the area of evaluation of uncertain, and deals with confidential information. For example, assets such as cash and cash equivalents can be evaluated easily and they cause a decrease in transactions based on confidential information. On the other hand, investment and growth opportunities are more difficult to assess and cause an increase in transactions based on confidential information. Since the company's stock is a claim on the cash flows generated by the assets under the control of the Company, we anticipate that the liquidity of assets in companies linked to the company's stock liquidity. Assets of a company are constantly changing by management decisions. Hence, the relationship between liquidity and asset depends on the stock market's expectations about management decisions. Management decides about the structure of assets. To clarify the above article, consider a company that raises funds by issue of shares or other ways. Inject cash into the company makes the cash balance increased compared to the total assets of the company followed by an increase in the liquidity of assets. On the contrary, if the manager decides to invest in projects and growth opportunities so that they are non-cash in nature even if the high liquidity in the assets of the company the relationship between the liquidity of assets and shares will become weaker due to an increase in the risk assessment based on unreliable and trade secret information. On the other hand, the level of investment in associated companies is usually the case in microeconomics. Investment and growth opportunities are more likely to be in a period of economic boom and it becomes less during the recession. Therefore, it is expected that the allocation of resources is more uncertain and a reduction in the liquidity of assets and shares in companies during the economic boom. This relationship holds true picture of the economic downturn. Hence, it is predicted that the relationship between the liquidity of assets and shares during the recession stronger than prosperity.

Operational definition of variables:

Changing the character, situation or condition that it can be converted to the quantity researcher to control, manipulate and view it is intended to test the hypothesis test. Then, the variables used in this study are defined as operational.

Amihud stock liquidity criteria:

Amihud liquidity measures that were optimized by Gopalan, is as follows:

$$\text{Liq}_{i,t} = \sqrt{\frac{|R_{i,t}|}{\text{VOL}_{i,t} \cdot P_{i,t-1}}}$$

Where,

$R_{i,t}$: Actual return of i share in year t

$\text{VOL}_{i,t}$: Trading volume of i share in year t

$P_{i,t-1}$: Final price of i share in year $t-1$

The second criterion is a measure of the liquidity of the shares, it return zero as it comes from the ratio of the total number of days with zero return of trading days during the period. We use the method of aggregation return to calculate the return there is days when the share exchange transaction and there is a pause. According to this method, the return is not considered to be zero in the days when the share exchange.

Liquidity of assets:

This variable is used to calculate the following three criteria:

1. Liquidity weighted assets, so that the score of 1 is assigned to the current assets in cash and cash equivalents (Including cash balances, accounts and notes receivable) and a score of zero on all other assets:

$$WAL-1_{i,t} = \frac{\text{Cash \& Equivalents}_{i,t}}{\text{Total Assets}_{i,t-1}} \times 1 + \frac{\text{Other Assets}_{i,t}}{\text{Total Assets}_{i,t-1}} \times 0.$$

2. In the second criterion, the assets are divided into two categories including cash equivalents (Advance payments, credit and short-term investments), and other assets. Thus, we will assign a score of 5.0 on Assets Cash equivalents:

$$WAL-2_{i,t} = \frac{\text{Cash \& Equivalents}_{i,t}}{\text{Total Assets}_{i,t-1}} \times 1 + \frac{\text{Non Cash CA}_{i,t}}{\text{Total Assets}_{i,t-1}} \times 0.5 + \frac{\text{Other Assets}_{i,t}}{\text{Total Assets}_{i,t-1}} \times 0.$$

3. In this section, we divide the Assets of the tangible and intangible. Due to this, we will assign a score of 1 to Assets and cash equivalents in the third measure of liquidity and a score of 0.75 to non-cash current assets (cash equivalents), 0.5 points to tangible fixed assets and a score of zero for the assets:

$$WAL-3_{i,t} = \frac{\text{Cash \& Equivalents}_{i,t}}{\text{Total Assets}_{i,t-1}} \times 1 + \frac{\text{Non Cash CA}_{i,t}}{\text{Total Assets}_{i,t-1}} \times 0.75 \\ + \frac{\text{Tangible Fixed Assets}_{i,t}}{\text{Total Assets}_{i,t-1}} \times 0.5 + \frac{\text{Other Assets}_{i,t}}{\text{Total Assets}_{i,t-1}} \times 0.$$

We will calculate the difference between the book value of tangible fixed assets to total assets and total current assets, book value of goodwill and other intangible assets. Control variables in this study are:

Logarithm of market value to book value:

To control the size of the company, we use the logarithm of the market value of the shares as it is one of the most important determinants of the capital stock.

The ratio of market value to book value:

We use the ratio of market value to book value of the company to measure the rate of growth opportunities.

Return on assets of the company:

The study used the return on assets for the company's performance as it is, the ratio of operating profit to total assets at historical value.

Abnormal stock returns over the past year:

Another measure to control the abnormal returns on the company's performance over the past year this variable is calculated from the difference between the actual return and the expected return on the share over the previous year. Also, the average return on a portfolio of shares used to calculate the expected return. This means that companies will be ordered from large to small, based on actual returns the 94 companies are divided into 5 portfolios. Average real return is considered as the expected return of all stocks in each of portfolio. To break the cycle of boom and recession years used to measure the rate of return on the capital markets during the last 10 years that was the geometric mean as a measure of market returns over the past 10 years. Year that is greater than the average market rate of return, it will be considered as the boom and year out of a recession that is smaller. The liquidity of the shares and assets of each of the criteria are compared with each other in the two periods and will examine the relationship between stock liquidity and asset boom and recession.

Regression models in research:

The regression equations used for assessing the hypothesis is as follows:

Model (1):

$$Liq_{i,t} = \alpha + \beta_1 WAL_{-1i,t} + \beta_2 WAL_{-2i,t} + \beta_3 WAL_{-3i,t} + \beta_4 \log(\text{Mkt.Cap.})_{i,t} + \beta_5 M/B_{i,t} + \beta_6 ROA_{i,t} + \beta_7 BHAR_{i,t} \\ + \varepsilon$$

Model (2):

$$\text{Zero ret}_{i,t} = \alpha + \beta_1 WAL_{-1i,t} + \beta_2 WAL_{-2i,t} + \beta_3 WAL_{-3i,t} + \beta_4 \log(\text{Mkt.Cap.})_{i,t} + \beta_5 M/B_{i,t} + \beta_6 ROA_{i,t} + \beta_7 BHAR_{i,t} \\ + \varepsilon$$

Population and sample:

The population consists of a set of members, people and objects that have at least one common characteristic. It contains all the elements of society that are the subject of a specific study finds evidence of it.

In the present study was to test the research hypotheses, is used to classify and audited financial data of manufacturing companies listed on the Tehran Stock Exchange. The population of the reasons for this choice is that the Tehran Stock Exchange has comprehensive information about the companies and the financial and economic performance it can be said, is the only source of information that can be accessed using the information in the corporate finance as well as research models can be tested. It is also often associated with the elimination method of sampling is to act in the world. In this way, the conditions defined for the selection and the lack of these conditions are removed from the sample. This condition is determined according to the correlation between the variables. The reason for using this method of defining such a situation is expected in the sample studied by the community and the possibility of generalizing the results of the sample. For this purpose, the sample in this study is those of companies listed on the Stock Exchange who have the following conditions:

- ✓ It should be required data for 10 consecutive years from 1382 to 1391.
- ✓ To enhance comparability and integration of enterprise conditions of their fiscal year end to March each year.
- ✓ Financial year has not changed during the study.
- ✓ To obtain reliable market prices stock company should be consistent and stay there for more than six months.
- ✓ To similarity and classification of items in the financial statements.

We will not examine banks, credit institutions and other financial institutions, other financial intermediation, financial investments and industrial Conglomerates. Based on the above criteria, 94 companies from 18 industries surveyed are stock.

RESULTS AND DISCUSSIONS

The first hypothesis testing:

First hypothesis: there is a direct relationship between the liquidity of assets and stock liquidity. To investigate this hypothesis, the models used are as follows:

Model (1):

$$Liq_{i,t} = \alpha + \beta_1 WAL_{-1i,t} + \beta_2 WAL_{-2i,t} + \beta_3 WAL_{-3i,t} + \beta_4 \log(Mkt.Cap.)_{i,t} + \beta_5 M/B_{i,t} + \beta_6 ROA_{i,t} + \beta_7 BHAR_{i,t} + \varepsilon$$

Model (2):

$$Zero\ ret_{i,t} = \alpha + \beta_1 WAL_{-1i,t} + \beta_2 WAL_{-2i,t} + \beta_3 WAL_{-3i,t} + \beta_4 \log(Mkt.Cap.)_{i,t} + \beta_5 M/B_{i,t} + \beta_6 ROA_{i,t} + \beta_7 BHAR_{i,t} + \varepsilon$$

The results of the Panel are listed in the following table:

Table 1: Results of the test the first hypothesis

Variable	Variable symbol	Model (1)		Model (2)	
		Coefficients in the model	t Statistic	Coefficients in the model	t Statistic
Constant	A	1.50	2.35	7.51	14.23
		(0.02)		0.00	
Liquidity of assets (1)	WAL _{-1i,t}	0.81	2.44	-0.94	-3.34
		(0.01)		0.000	
Liquidity of assets (2)	WAL _{-2i,t}	1.13	2.94	-1.63	-4.36
		(0.00)		0.00	
Liquidity of assets (3)	WAL _{-3i,t}	0.56	2.42	-0.68	-2.91
		(0.02)		0.00	
Market value Logarithm	Log (Mkt.Cap.) _{i,t}	0.22	4.06	-0.60	-13.37
		(0.00)		0.00	
Market value to book	M/B _{i,t}	-0.09	-0.31	-0.19	-0.71
		(0.76)		0.48	
Return on assets	ROA _{i,t}	0.16	1.38	-0.14	-1.17
		(0.17)		0.24	
Abnormal return year ago	BHAR _{i,t}	0.05	4.97	0.02	1.88
		(0.00)		0.06	
	F	8.89		35.05	
	P-Value	0.00		0.00	
	R ²	7.2%		25.6%	
	R ² Adjusted	6.4%		24.9%	
	Durbin Watson	1.80		1.804	

The possibility F is equal to 0.000 in both models. Since this value is less than 0.05, so the null hypothesis is rejected at the 95% confidence level. This means that there is a significant model. In other words, the relationship between the dependent and independent variables is linear in this model. Since the t value obtained in variable of WAL_{-1i,t}, WAL_{-2i,t}, WAL_{-3i,t} and Log (Mkt.Cap.)_{i,t}, they are larger than the corresponding

value in the table ($ta-0.975 = 1.96$) in both models, so we can say that there is a significant relationship between these variables and liquidity criteria Amihud (Illiq) and stock return is statistically zero. Also P-Values calculated of these variables also suggest so that P-Value in each of the four variables, it is less than 5%. Since the values in variables coefficient of $WAL-1i,t$, $WAL-2i,t$, $WAL-3i,t$ and $\text{Log (Mkt.Cap.)}_{i,t}$, it is positive in model (1), this is a direct relationship in other words, the increase in the value of this variable, increases in liquidity criterion variable Myhvd (Illiq). Also value of this variable is negative in the second model, in other words, the increase in the value of this variable, it reduces the benchmark stock return zero it means that relationship is reversed. Most relevant measure of the liquidity of assets in both models, it is related to the variable $WAL-2i,t$ so that it is the largest factor in the model. Durbin Watson in both models values close to 2 so that it is indicative of his lack of correlation between the errors of the model. Also coefficient of determination is approximately equal to 7 percent in the first model and the second model is almost 25%. This factor indicates that independent variables in the model in order to have the ability to explain the 7 and 25% of the variability.

The second hypothesis testing:

The second hypothesis: the relationship between the liquidity of assets and shares during the economic downturn stronger than prosperity. To investigate this hypothesis, the economic boom and recession have been separated from each other. For this purpose, we calculated the geometric mean return on the market for 10 years sample then, if the average market return obtained over the years. It is considered to be a boom year and otherwise, it is considered as the recession so that results of which are summarized in the following table:

Table 2: Breakdown of the boom years of the Great Depression

Year	Capital market return	Geometric average of market return over 10 years	Economic Condition
1382	124.77	20.44	Boom
1383	6.45	20.44	Depression
1384	-21.91	20.44	Depression
1385	3.82	20.44	Depression
1386	2.66	20.44	Depression
1387	-20.98	20.44	Depression
1388	57.37	20.44	Boom
1389	85.81	20.44	Boom
1390	26.21	20.44	Boom
1391	26.21	20.44	Boom

After classification of the comparison between them is done using any of the models 1 and 2 so that results of these tests are summarized in the following table:

Table 3: Results of the second hypothesis testing using model 1.

Variable	Variable symbol	Year of economic recession		Years of economic boom	
		Coefficients in the model	t Statistic	Coefficients in the model	t Statistic
Constant	A	-0.64	-0.84	2.50	3.09
		0.40		0.00	
Liquidity of assets (1)	$WAL-1i,t$	0.60	1.40	0.90	2.12
		0.16		0.03	
Liquidity of assets (2)	$WAL-2i,t$	-0.65	-1.16	1.48	2.82
		0.25		0.01	
Liquidity of assets (3)	$WAL-3i,t$	0.42	1.17	0.82	2.56
		0.24		0.01	
Market value Logarithm	$\text{Log (Mkt.Cap.)}_{i,t}$	-0.03	-0.49	0.31	4.47
		0.62		0.00	
Market value to book	$M/B_{i,t}$	-0.19	-0.54	-0.11	-0.27
		0.59		0.79	
Return on assets	$ROA_{i,t}$	0.14	0.96	0.21	1.06
		0.34		0.29	
Abnormal return year ago	$BHAR_{i,t}$	0.05	4.87	0.04	2.25
		0.00		0.02	
	F	4.31		5.54	
	P-Value	0.00		0.00	
	R^2	7.4%		8.5%	
	R^2 Adjusted	5.7%		7.0%	
	Durbin Watson	1.59		1.88	

The possibility F is equal to 0.000 in both models. Since this value is less than 0.05, so the null hypothesis is rejected at the 95% confidence level. This means that there is a significant model. In other words, the relationship between the dependent and independent variables is linear in this model. Since the t value obtained

in variable of $WAL-1_{i,t}$, $WAL-2_{i,t}$, $WAL-3_{i,t}$ and $\text{Log (Mkt.Cap.)}_{i,t}$, they are larger than the corresponding value in the table ($t_{\alpha=0.975} = 1.96$) in years of economic boom, also, the values of these variables are positive so we can say that in years of economic boom, there is a significant relationship between these variables and liquidity criteria Amihud (Illiq) statistically. Also P-Values calculated of these variables confirm it so that P-Value in each of these variables, it is less than 5%. But in years of economic recession there is not significant relationship between these variables and liquidity criteria Amihud (Illiq) statistically. Also coefficient of determination is approximately equal to 8.5 percent in years of economic boom and it is 7.5 percent in years of economic recession. So, can be said that liquidity of assets and stocks in more than a year with the economic boom of the recession. Durbin Watson in both models values close to 2 so that it is indicative of his lack of correlation between the errors of the model. After reviewing the above hypothesis by Model 1, the hypothesis is now being investigated by the model 2:

Table 4: Results of the second hypothesis testing using model 2.

Variable	Variable symbol	Year of economic recession		Years of economic boom	
		Coefficients in the model	t Statistic	Coefficients in the model	t Statistic
Constant	A	7.83	8.65	8.51	9.08
		0.00		0.00	
Liquidity of assets (1)	$WAL-1_{i,t}$	0.43	1.05	0.76	1.83
		0.29		0.07	
Liquidity of assets (2)	$WAL-2_{i,t}$	-0.67	-1.07	1.39	2.42
		0.28		0.02	
Liquidity of assets (3)	$WAL-3_{i,t}$	0.39	1.03	0.37	1.13
		0.31		0.26	
Market value Logarithm	$\text{Log (Mkt.Cap.)}_{i,t}$	-0.63	-8.28	-0.65	-7.96
		0.00		0.00	
Market value to book	$M/B_{i,t}$	-0.77	-2.08	0.00	0.01
		0.04		0.99	
Return on assets	$ROA_{i,t}$	-0.03	-0.21	0.05	0.36
		0.83		0.72	
Abnormal return year ago	$BHAR_{i,t}$	0.03	2.21	0.00	0.05
		0.03		0.96	
	F	11.57		12.87	
	P-Value	0.00		0.00	
	R^2	18.6%		20.4%	
	R^2 Adjusted	17.0%		18.8%	
	Durbin Watson	1.66		1.81	

The possibility F is equal to 0.000 in both models. Since this value is less than 0.05, so the null hypothesis is rejected at the 95% confidence level. This means that there is a significant model. In other words, the relationship between the dependent and independent variables is linear in this model. Since the t value obtained in variable of Liquidity of assets is larger than the corresponding value in the table ($t_{\alpha=0.975} = 1.96$) in years of economic boom, also, the values of these variables are positive so we can say that in years of economic boom, there is a significant relationship between these variables and liquidity criteria return zero statistically. This relationship is converse in years of economic recession because the coefficient is negative variable in the model. Also P-Values calculated of these variables confirm it so that P-Value in each of these variables, it is less than 5%. So, there is a significant relationship between zero return and liquidity criteria. This relationship is reversed because there is a negative factor in the model in years of economic boom and recession. Also coefficient of determination is approximately equal to 20.4 percent in years of economic boom and it is 18.6 percent in years of economic recession. Liquidity of assets and shares in years of economic boom, it is more than years of economic recession. Durbin Watson in both models values close to 2 so that it is indicative of his lack of correlation between the errors of the model.

Conclusion:

In the first hypothesis, we investigated the relationship between liquidity and asset liquidity. For this purpose, we have used both the standard and efficiency Myhvd zero as the results of this thesis show that companies that have higher liquidity of assets, liquidity is higher benchmark stock Myhvd they are a measure of the efficiency of the zero lower as the relationship between measures of liquidity assets with liquidity measure (Myhvd) is a significant and direct and their correlation with stock returns is zero inverse and significant measure of liquidity. As expected, the correlation between stock liquidity and liquidity of the assets directly

linked. However, this relationship will reduce the asymmetry of information, thus reducing the cost of a false choice because the impact on the costs of financial crisis liquidity of assets leads to a reduction in information asymmetry and thus reduce the price difference between buying and selling stocks. This leads to an increase in the liquidity of the stock. This hypothesis is consistent with the results that were obtained results Gopalan [17].

The second hypothesis is the relationship between liquidity of shares and asset in periods of recession and economic prosperity. The results showed that in periods of economic prosperity, the relationship between liquidity and asset liquidity measures are meaningful and direct proportion to the period of stagnation. In other words, the increase in the cash assets of the company, the liquidity of the stock increases in periods of prosperity because the investment is usually dependent on the macroeconomic and investment risk and opportunities for further growth in prosperity and less during the recession. Thus, contrary to what was expected, during the economic boom, resource allocation is more uncertain due to the increased liquidity of assets and shares in the company and in the course of the recession, there was no significant relationship.

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