

Examine the Relationship between Productivity of Capital, the Return on Shares in Companies Listed in Tehran Stock Exchange

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ABSTRACT

The concept of capital productivity, a measure of control and efficient use of capital, as a matter of limited resources, companies, deals, and it is expected that the shares of companies with high capital productivity, higher yields are. The purpose of this study is to examine the relationship between productivity, investment, and stock returns in Tehran Stock Exchange, and also influence the relationship between capital productivity and return on equity, applied research is a survey on 112 companies listed in the stock exchange Tehran Stock Exchange, for the period was 2012- 2008. The results of the panel unit root tests, and F tests Hausman and test Limr, in this study, it indicates that the productivity of capital and stock returns is positive and significant relationship between stock prices and capital productivity growth the significant positive correlation between investment and productivity growth in net income, a significant positive correlation, and the productivity of capital and dividend growth, there was a significant positive correlation. It is suggested that, given the financial Significantgers of these relationships, and the results of each variable of stock returns, optimal decisions regarding the best practices in productivity of capital, in order to achieve corporate goals adopt.

KEYWORDS: capital productivity, return on equity, dividend, stock price

INTRODUCTION

The concept of capital productivity, a measure of control and efficient use of capital as an important source of limited company pays, and it is expected that companies with high capital productivity, efficiency will be higher (Tehrani, 2008).

Capital inputs, including the most important inputs in the production of goods and services, the economic growth of any country, directly related to the amount of investment in the country, and the productivity of capital is higher, faster economic growth. Applying the backward technology, inability to use the full capacity, lack of attention to maintenance, shortage of skilled manpower and efficient use of capital, poor Significantgement, etc. are factors that, in the absence of capital productivity, the serve an essential and crucial, factor productivity, capital productivity is the ratio of value added to capital reserves in the economy achieved (Vojdani, 2009).

In recent decades, it is believed that the degree of economic development of countries to exploit the optimal amount of resources available, in order to achieve economic returns. Increase productivity, not only in the sense of optimal use of resources, but also to create a better balance between economic structures, social and political, of the community can help. In terms of economic productivity in development, is important .development comprehensive, non-optimal use of each of the factors of production are not allowed. One of the factors of production, capital. The main tool is an all-round human development, can make use of the capital investment used technological advances, from an increase in capital productivity, easier and faster way to get to the development of around the star. The experience of developed countries has shown that the dynamics and growth of the industrial sector has a major role in the growth and development of other sectors, and thus economic growth at the macro level plays. Hence, the majority of studies on the economic growth of the industrial sector most attention, with researchers there. Capital as a key factor of production, an undeniable role in achieving the goal of developed countries. Thus, the factors affecting the productivity of capital, areas for appropriate strategies in the policy making process in order to achieve economic growth and development, and such. Hence, measuring the productivity of capital in the national economy, and across different sectors, be quite useful (Tehrani, 2008).

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LITERATURE

Copland et al, 1996, stated that the relationship between productivity and maximize shareholder value, can not be ignored. Ayoyi and Matron 2006, the relationship between the correlation between stock price and productivity in the stock market America as well as European markets have, Krueger and Tansar 1998, productivity growth in the manufacturing industries in Turkey, in terms of the private and public sectors examined. Based on these results, a decrease in productivity growth in the industries of the country, was due to trade restrictions. Tsaov 2005, a study of industrial productivity growth in Singapore, showed that the productivity growth of industries in this country, is not associated with growth. Azerbaijan in 2004, a study for the purpose of determining branches and fields of industrial activities in Iran, the efficiency and economic productivity, the productivity of all factors of production, the separation of different groups of industries, two of Kendrick, and the production function Solo is calculated, and it Qatmiri and Qaderi 1996, with a slight overall productivity indicators, trends and factors affecting its productivity in industry groups in Iran, were studied during 1993-1973. Reza Tehrani, Mohammad Ali Khojasteh 2008, the relationship between capital productivity and return on equity, and its impact on the value of investment strategy, and growth was investigated. Mansoor Zeraenejad and Elaheh Ansari 2007, Measuring investment efficiency in large industries in the Khuzestan province did.

METHOD

The descriptive survey research methods, data types, and the type of correlation.

Method according to target, and how to implement

Study, the objective component of applied research, the results of which can be for a wide range including investors in financial markets at the stock exchange, shareholders, stock brokers, financial analysts, and researchers in the capital market, in order to providing transparent information space, helping to optimize investment decisions in the stock market, and provide new research horizons, to be employed. In this study, the classification of financial data and audited companies listed in Tehran Stock Exchange, during the years 2008-2012, using the outcomes of the new software, is used. In this study, estimation models are based on combined data (panel) that, econometric models and interpretation, and analysis of results is done. To analyze the relationship between the independent variables and the dependent variable, the single-equation multivariate regression models used. Software programs used in this study, a statistical software program Excel and the econometric Eviws8.

Statistical community, and how to choose the companies studied, to test the research hypotheses

The population in this study consists of all companies listed in Tehran Stock Exchange during the period 2012-2008. Companies studied, in order to test the research hypotheses, have been chosen so that initially all firms listed in Tehran Stock Exchange at the end of the year 2008-2012 were listed, then among the firms selected, all conditions, respectively, and those of the companies listed in Tehran Stock Exchange, which did not have the conditions of the study population, statistical data are used to test the research hypotheses, have been removed. Sample through the filter, and selected according to the following conditions:

- They fiscal year end is March.
- a member of the investment industry companies, financial intermediaries and banks are not offered.
- information about the variables, the annual reports of companies, is available.
- Component companies are Losses that.

Given the above conditions, the study sample consisted of 112 companies per year, and a total of 5 years, 551 companies are eligible, and were selected as samples.

Table 1. The table Combined data unit root test results, the model with the intercept

Meaningful tests - to intercept								
Prob	pp-Fisher	Prob	ADF-Fisher	prob	IPS	Prob	LLC	Exams Variables
0/000	372/67	0/000	288/48	0/000	-25/4	0/000	-18/28	cp
In the level		In the level		In the level		In the level		Significant degree

Source: Computing Research

Table 2. Combined data unit root test results, the model with the intercept

Significance tests - with intercept and trend								
Prob	pp-Fisher	Prob	ADF-Fisher	prob	IPS	Prob	LLC	Exams Variables
0/000	443/000	0/000	382/01	0/000	-10/28	0/000	-25/06	sr
In the level		In the level		In the level		In the level		Significant degree
0/000	409/380	0/000	233/18	0/000	-6/52	0/000	-23/23	sp
In the level		In the level		In the level		In the level		Significant degree
0/000	470/63	0/000	424/7	0/000	-3/01	0/000	-13/38	dp
1		1		1		In the level		Significant degree
0/000	/76	/031	/96	0/000	4/22	0/000	31/39	np
In the level		In the level		In the level		In the level		Significant degree

Source: Computing Research

Based on the results in the table, the 95% confidence level, the dependent variable (capital productivity), and all the independent variables in the model intercept, or by an order of difference in the level of steady. The results, according to the numerical value statistics Levin, Lin and Chu Pesaran and Shin, Dickey Fuller Fisher and Phillips-Perron Fisher extension, and the level of these variables, were extracted. For variable capital utilization, given that the test statistics Levin, Lin and Chu have both boys and Shin, Dickey Fuller Fisher and Phillips-Perron Fisher extension, equivalent to 18/28, -4/25, 288/48 and 372/67 (critical level between 2 and -2), and the probability is zero for this variable, the variable is stationary in levels, and does not Difference. The same analysis holds for other variables, except variable dividends that testing Levin, Lin and Chu, Significant degree, but on the other three tests, the level of non-viable, with a time difference of their Significant.

Table 3. Combined data unit root test results, the model with intercept and trend

Significance tests - with intercept and trend								
Prob	pp-Fisher	Prob	ADF-Fisher	prob	IPS	Prob	LLC	Exams Variables
0/000	479/11	0/000	303/45	0/000	-6/05	0/000	-56/74	cp
In the level		In the level		In the level		In the level		Significant degree

Source: Computing Research

Table 4. Combined data unit root test results, the model with intercept and trend

Significance tests - with intercept and trend								
Prob	pp-Fisher	Prob	ADF-Fisher	prob	IPS	Prob	LLC	Exams Variables
0/000	25/579	0/000	26/356	0/000	-9/427	0/000	-49/05	sr
In the level		In the level		In the level		In the level		Significant degree
0/000	4/504	0/000	49/324	0/000	-8/528	0/000	-23/85	sp
In the level		In the level		In the level		In the level		Significant degree
0/000	10/451	0/000	30/134	0/000	-67/108	0/000	-5/827	dp
1		1		1		1		Significant degree
0/000	81/360	0/340	15/232	0/016	-2/137	0/000	-20/84	np
1		1		1		1		Significant degree

Source: Computing Research

As evidenced in the table, the model with intercept and trend, the independent variables included (capital productivity, return on equity and stock price), according to the statistics values in all tests than the critical value, and the probability of zero, and less than 05/0 is, on the surface are stationary. But in relation to variables such as dividends, and net profit for the first significantly in the study, but the results are also presented in the Appendix, indicating that these variables are non-viable. Significantly test again, with a time difference of these two variables was performed; the results suggest significantly times with a difference, for this variable.

Table5. Table explore co integration test results

Cointegration test mining		Long-run relationship between the variables
p-value	The test statistic	
0/0122	-2/250	Productivity of capital, and the firm's future stock returns
0/0000	-4/071	Productivity of capital, and the firm's stock price
0/0000	-8/351	Productivity of capital, and corporate net income
0/0000	-6/534	Productivity of capital and dividend growth companies

Source: Computing Research

The results of the cointegration tests explored in Table (5), a long-term relationship between the dependent variable (capital productivity), and each of the independent variables, in the confidence level of 5% is accepted. Given that the value of the test statistic, in four states, the greater the critical value and the probability is less than 05/0, the null hypothesis, based on the lack of co-integration is rejected, and the opposite hypothesis (no cointegration and long-term relationship) is accepted. These results indicate that a strong long-term relationship between the variables exists.

Hypothesis 1: First, the productivity of capital and stock returns, there is a significant relationship.

Table 6. Table results of the Hausman and test F-test Limr

Hausman test	F test Limr	Type of test
75/333	1/484	Amount of Statistics
0/0000	0/0040	P-Value
Fixed effects	Panels	Model

Source: Computing Research

Limr F test on the table in the first hypothesis, given that the P-Value, at a confidence level of 95%, equal to (0/0040) is, in other words, P-Value <0.05, so the null hypothesis that the Poling model (the hypothesis that the intercept for all sections), the hypothesis is rejected and the other accepted. Thus, for each of the study sections (companies) shall be considered a separate intercept. So it can be used for the estimation of the panel. Also, according to the results of the Hausman test for the model, given that in return = 0.05 a, the Hausman test (75/333), and the rate P- Value <0.05, so the null hypothesis is rejected. Reject the null hypothesis (H0) show that the method is incompatible with the random effects and fixed effects methods must be used.

Table 7. By the results of the fixed effects model (hypothesis 1)

P-Value	T-statistics	SD	Coefficients	Fixed effects model
0/000	8/223	0/0130	0/106	C
0/022	2/291	0/462	1/059	
0/000	6/542	0/054	0/355	
0/74				R ²
0/65				
2/1				D.W
(0/0000)prob (=8/508				fisher

Source: Computing Research

According to the results presented in the table, the companies studied, the significant positive correlation between stock returns and capital productivity, and increase a unit's future stock returns in year t leads to an increase in plant productivity 1/059 capital. The relationship between productivity of capital in year t and year t-1 is positive and significant. The correlation coefficient (R2) obtained indicates that the explanatory variables are able to explain 74% of variability. According to the adjusted coefficient of determination (65%), it is clear that this ratio is high, and the ability to explain the concept of fit model. Watson statistic is computed camera (D.W =2/1), indicating the absence of autocorrelation in the model. According to Fisher's test statistic F (8/508), and (prob =0/000), the fit of the regression is valid.

- Second hypothesis: the productivity of capital, and growth in share prices of listed companies on the stock exchange there is a significant relationship.

Table8. Table results of the Hausman test and F-test Limr

Hausman test	F test Limr	Type of test
73/663	1/647	Amount of Statistics
0/0000	0/0000	P-Value
Fixed effects	Panels	Model

Source: Computing Research

Table 9. By the results of the fixed effects model (hypothesis 2)

P-Value	T-statistics	SD	Coefficients	Fixed effects model
0/000	7/329	0/0120	0/088	C
0/000	5/885	1/321	7/761	
0/000	5/895	0/052	0/310	
0/76				R ²
0/68				
2/1				D.W
(0000)0prob (=9/501				Fisher

Source: Computing Research

Based on the results of the fixed effects model in the table, the productivity of capital and growth equity prices, there is a significant positive correlation in year t, and a unit increase in the stock price, leading to an increase in the productivity of capital is 7/761 units. The productivity of capital in year t and year t-1 is positive and significant relationship exists, and to increase the productivity of capital, leading to higher productivity of capital in 1- t in year t is the amount 0/310. Other statistics were calculated, including correlation coefficients, adjusted coefficient of determination, Camera Watson statistic, and Fisher F test statistic indicates that the regression is appropriate.

- The third hypothesis: the productivity of capital, and growth in net profit per share listed companies, there is a significant correlation in stock.

Table 10. Table results of the Hausman test and F-test Limr

Hausman test	F test Limr	Type of test
82/913	2/077	Amount of Statistics
0/0000	0/0000	P-Value
Fixed effects	Panels	Model

Source: Computing Research

Table 11 . the fixed effects model (hypothesis 3)

P-Value	T-statistics	SD	Coefficients	Fixed effects model
0/000	6/343	0/010	0/067	C
0/000	11/240	4/881	5/481	
0/000	7/380	0/046	0/344	
0/80				R ²
0/74				
2/2				D.W
(0000/0prob (=12/600				Fisher

Source: Computing Research

Based on the results of the fixed effects model in the table, the productivity of capital and net profit growth in year t, and a positive correlation exists, and for every one unit increase in net income, capital productivity rate of 5/481, increased. Relationship between productivity of capital in year t and year t-1 is positive and significant, and increasing the productivity of capital in a single year t-1, resulting in an increase in the productivity of capital increase 0/344 year t, and it is.

- The fourth hypothesis: the productivity of capital and dividend growth of listed companies on the stock exchange there is a significant relationship.

Table 12. Table results of the Hausman test and F-test Limr

Hausman test	F test Limr	Type of test
67/584	1/659	Amount of Statistics
0/0000	0/0003	P-Value
Fixed effects	Panels	Model

Source: Computing Research

Table 13. By the results of the fixed effects model (hypothesis 4)

P-Value	T-statistics	SD	Coefficients	Fixed effects model
0/000	6/255	0/011	0/083	C
0/000	7/206	6/981	5/031	
0/000	6/728	0/0509	0/342	
0/77				R ²
0/69				
2/1				D.W
(0000/0prob (=10/085				Fisher

Source: Computing Research

As evidenced in the table, the productivity of capital and dividend growth, and a positive correlation exists in year t, and for every one unit increase in dividends, capital productivity has increased by about 5/031. Relationship between productivity of capital in year t and year t-1 is positive and significant, and increasing the productivity of capital in a single year t-1, leading to increased 0/342 increase in the productivity of capital in year t is.

The test research hypotheses

The present study has four hypothesis is that, one by one, we will describe the results.

First hypothesis:

According to the results of the first hypothesis, that the productivity of capital and stock returns is positive and significant. Therefore, the hypothesis is accepted, indicating a significant positive relationship between investment, productivity, and return on the following stocks. This means that if the stock returns increased capital productivity also increases.

The above results with previous results (Copland, Coler and Morin, 1996; Campbell and Schiller, 2001; Hellman, Marten and Siorgen, 2002; Kitava, 2002, Ayoyi and Matron, 2006, and consistent alignment. Used in this study is shown that is, between different indices of productivity, there is a huge difference in explaining stock returns, and the indices of productivity, capital productivity, higher power in explaining stock returns.

Second hypothesis:

According to the results of the second hypothesis, that the productivity of capital and stock price growth, there is a significant positive relationship. Thus, we can conclude that the positive correlation between productivity of capital, the growth of the stock price. This means that if stock prices rose, capital productivity also increases.

The above results with the results of the investigation, Copland and colleagues (1996), Hellman et al (2002) Ayoyi and Matron (2006) and consistent alignment. And expressed the relationship between productivity and maximize shareholder value, can not be ignored, and the correlation relationship between share prices and stock market income- productivity in America, and European markets have, they to the conclusion that, in America exchange Rate productivity growth, is positively correlated with the rate of change of the stock price.

The third hypothesis:

According to the results of the third hypothesis, the positive relationship between capital productivity and profit growth there. Thus it can be concluded that represents a significant and positive relationship between productivity and investment, with net profit growth there. So if growth in net profit increased capital productivity also increases.

The result of this research, the results of research (Balorz and hang 2007; Behm, Kikuchi and Vachadzeh 2008 (aligned and consistent, although the indicators used in this study are not the same, but look beyond, indicating the existence of a relationship generally , and undeniably the concept of interest-productivity, and future value of companies in the capital market.

The fourth hypothesis:

Finally, the fourth hypothesis is thus seen that the productivity of capital and dividend growth, there is a significant positive relationship. Thus, we can conclude that the positive correlation between productivity of capital, dividend growth there. This means that if the growth dividend increased capital productivity also increases.

The above results with previous results (Krueger and Tansar 1982, Tsayv 1985), and consistent alignment, as well as the positive relationship between stock return and productivity indicators found in the companies, and also showed that stock returns even two years after the improvement, or reduction in productivity associated with it.

Recommend

Implementing recommendations from the results of testing hypotheses:

Since, in this study the results achieved in the first hypothesis, the productivity of capital, and there is a significant relationship between stock returns. It is desirable, in order to increase the investment of resources that companies in order to grow and progress made. Considering the results of the investigation, and reveal the relationship between each independent variable and dependent on each other, shareholders, investors and Significant in corporate finance, is proposed, which requires the attention of Significant, the productivity of capital identification and its impact in achieving these goals, and identify obstacles to this relationship. In the investment process, efficiency is the driving force, motivate, and reward for investment is considered.

According to the second hypothesis: the inputs of capital, including the most effective elements in its stock price growth, economic growth of any country, directly related to the amount of investment in the country, and the productivity of capital is higher, the growth rate of the economy faster. If a company can be derived from the capital, so the optimal use and increase the profitability of the company, after a sharp drop in share prices, will rise, and may, within a short period of price, prior to the capital increase well beyond.

According to the third hypothesis, the productivity of capital, Significant can measure the efficient use of capital as an important source of corporate deals and limited, and it is expected that the shares of firms with productivity high capital also have higher efficiency, if capital is increased productivity growth in net profit also increased.

The fourth hypothesis increased investment and productivity impacts directly; the effect will be to increase shareholder dividends. So if the interest-increased productivity of capital, dividend growth is also increasing.

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