

# The effect of capital management on stock returns of accepted companies in Tehran Stock Exchange

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## Abstract

This study has investigated the impact of capital management on stock returns of accepted companies in Tehran Stock Exchange and the cash conversion cycle is used as a measure of working capital management because the most effective and efficient working capital management is equal to the reduction of cash conversion cycle. This research was conducted within the framework of deductive and by using statistical correlation methods, the relationship between cash conversion cycle and its components including accounts receivable collection period, goods inventory cycle period, accounts payable payment period, with stock returns about 112 companies were examined. The results showed that there is no significant relationship between accounts receivable collection period and stock returns, accounts payable payment period and stock return and also between cash conversion cycle with stock returns. But, there is a significant relationship between goods inventory cycle period and stock returns. Finally, we concluded that the efficient management of working capital did not have any influence on stock returns of accepted companies in Tehran Stock Exchange between the years 2002-2011.

**Keywords:** working capital management, cash conversion cycle, stock return

## Introduction

One of the basic tasks of financial management, application of management for working capital namely assets and current liabilities of the profit organization. Continuation of activities of enterprises to a great extent depends on its short-term resource management because operational activities in the ordinary period

are concerned to working capital understanding and its optimal management. The increasing importance of working capital in continuation of benefit units' activity and its role on shareholders' wealth has caused to creation of an independent management for guidance and control of working capital in benefit units.

Working capital is used as a suitable indicator for investigating and evaluating of the company's liquidity in front of the current debt repayment. A company has adequate liquidity which is able to repay all of its debt in its due date. Different components of working capital, including receivable accounts, goods inventory and payable accounts can be managed in various ways to maximize profits and company's value. The main objective of financial management is to maximize the wealth of shareholders and this maximization of shareholders wealth is possible through maximization of stock price. For maximizing of company's share value financial managers should consider the following three objectives:

A - Determine the size of the company and its future growth

B - Determine the best combination of companies' assets (funds consuming)

C - Determine the best combination of companies' resources (capital structure)

Determining the appropriate level of working capital in a type is in interaction with all three of the above mentioned objectives. A finance manager and other managers who are involved in financial decisions can give various strategies for the success or failure of an organization (Rimond, P. Nou., 2001).

## Statement of Problem

Evaluation of the business units' performance constitutes the main part of the books and articles on management, finance and accounting of world and many

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theoretical writings in this area has been devoted to this subject, in order to know which of the criteria (in the general evaluation of companies performance) is more valid. According to that, the company's stock return is one of the criteria of shareholders for performance of the business unit. With the proof of the existence of relationship between working capital management and stock returns, we can use the working capital management as a criterion for measurement of the business units' performance. In this study the applied criterion for evaluation of working capital management is cash conversion cycle because the most effective and efficient working capital management is equal to the reduction of cash conversion cycle. Cash conversion cycle is calculated by adding of accounts receivable collection period with good inventory cycle period and subtracting the accounts payable payment period from their sum. Investigation of relationship between working capital management and stock return which is less noticeable for researchers is the subject of this study to see whether there is any significant relationship between cash conversion cycle and its components with stock returns or not.

## Research objectives

1 - Evaluation of relationship between working capital management (cash conversion cycle) and stock returns during 2003-2007.

2 - Evaluation of the effect of different components of the cash conversion cycle on companies' stock returns.

3 - Finally, conclusions about the relationship between working capital management and companies' stock returns

## Theoretical background

### *Working capital management*

Working capital management is one of the sectors that plays crucial role in management structure of an organization. So that, in some cases working capital and liquidity in some cases is similar to a blood that flows in the veins of a business unit for surviving of business unit and the management of this sector is like the heart that has the duty of pumping blood into the veins of organization. Working capital management consists of the optimal composition of working capital items namely the current assets and current liabilities in such a way that maximizes the efficiency of the company and increase shareholder's wealth (Rimond, 2001).

Working capital management has great importance for the financial health of the business units in various

sizes. Sums invested in working capital are higher than total assets and so it is a vital issue that these sums are used effectively and efficiently and there is evidence that the business units in their working capital management do not operate in an efficient manner (Kissi, 2006).

Maintaining an optimal level of cash for payment of the due date debt, and use of sudden appropriate opportunities for investment which refers to flexibility sign of the business unit and access to raw materials for production so that the company be able to meet customer demand in a timely manner indicate the importance of working capital. Any decision that is made in this sector by commercial unit's managers has powerful effects on its operational efficiency and will change the company's value and eventually shareholder wealth (Nikoomaram and Rahnamaye Rodpooshti, 2002).

The company's liquidity status is currently in inappropriate situation and most Iranian companies due to the inflationary situation that is prevailing in the country prefer to convert cash into other assets and this makes companies desperate in their due date debt and damages to the reputation of the organization. Also, experience has shown that most companies are faced with financial distress and, ultimately, some of them are bankrupt and working capital management is one of its reasons (Rahnamaye Rodpooshti and Kiai, 2008).

### *Cash Conversion Cycle*

Companies often buy goods on credit and sell them on credit and then collect the receivable accounts so that this status is called cash conversion cycle. The correct policy in working capital refers to minimizing the time between cash expenditures for acquisition of goods inventory and the receipt of cash from its selling.

One of the criteria for assessment of working capital refers to cash conversion cycle. Cash conversion cycle points to the required time between the purchase of raw materials and collection of funds from sale of constructed goods. How much this duration be longer, the more investment in working capital be required. Longer cash conversion cycle might increase company's profitability through increased sales. However, if the cost of investing in working capital be more than the gains from the investments in the stock or granting more trade credit, the company's profitability may decrease (Mark Delof, 2003).

To calculate the cash conversion cycle, the delay in payment of payable accounts will be deducted from the period of operation. Therefore, the more delay period in payable accounts leads to the shorter cash conversion cycle and apparently, the shorter cash conversion cycle indicates better liquidity position while the delay

in payment of payable accounts can be due to the inappropriate liquidity situation. The more delay leads to the more inappropriate situation but when this figure is used in calculation of the cash conversion cycle the different result is obtained. Namely, longer delays result lower the cash conversion cycle and indicate appropriate liquidity. Thus, the mentioned probable conflict must be resolved in such a way. (Khorram Nejad, 2007).

The combination of incoming cash flow and improvement of working capital for a long time can significantly increase the company's value. Recent research shows a strong correlation between a company's cash conversion cycle and its performance. The results also show that the 10-day improvement in cash conversion cycle of companies will result in 12/76% to 13/2% improvement in operating profit before tax deduction. Also, the companies that their cash conversion cycle is 10 days less than the average companies, their stock returns about the 1/7% is higher than the average companies. (Han Shin, and Soenen, 1998). Given the importance of working capital management, particularly the cash conversion cycle and its components (including accounts receivable collection period, goods inventory circulation period and accounts payable payment period) which is considered the most important criterion for evaluating the working capital. This study intends to investigate the impact of working capital management on stock returns to obtain the evidence to solve the problems facing managers and shareholders, because stock returns is one of the major criteria of shareholders for measuring of business unit's performance.

In the following, the investigations that involve some aspects of present study are considered and expressed based on their importance:

Hasan Pur (2009) conducted a study entitled "Evaluation of Working Capital Strategies effect on stock returns of accepted companies in Tehran Stock Exchange". The results showed that the mean of returns in different strategies has significant differences with each other and bold strategy has the maximum returns among other strategies in all industries.

Tajeri Majlan (2004) conducted a study entitled "Evaluation of Working Capital Strategies and its relation with the returns and risk of investment companies and the cement industry accepted in Tehran Stock Exchange". The results showed that there is a statistically significant relationship between the efficiency of profit unit and working capital management strategy. Also, there is an inverse relationship between the profit unit's liquidity ability and working

capital management strategy and finally, there is a direct and meaningful relationship between the profit unit's ability to pay debt and working capital strategy.

Alipour (2008), conducted another study entitled "The relationship between working capital management and profitability". The results indicated that, in studied companies, there is a significant relationship between working capital management and profitability. Also, there is a significant inverse relationship between cash conversion cycle and profitability amounts. Also, there is a significant inverse relationship among components of the cash conversion cycle, accounts receivable collection period, goods inventory circulation period excluding the accounts payable payment period with profitability.

Lancaster Stevens (1996) conducted a study entitled "The relationship between corporate return and cash conversion cycle". In this research, the cash conversion cycle is used as a criterion to assess the liquidity management and to calculate the companies' returns the ratio of total return on assets (ROA) and return on equity ratio (ROE) are used. The results of this study indicate that there is a significant relationship between the cash conversion cycle and profitability criteria (ROA) and (ROE). Also, results of study indicate that the reduction in trade credit reduces the profitability of companies and enhancement of working capital policies increases companies' profitability.

Filbeck, Krueger, Preece (2007) conducted a study entitled "Working capital survey on the selected companies work for shareholders". The results of their study indicated that there is a direct significant relationship between companies' returns and sufficient cash, but there is no relationship between companies' returns and working capital cycle. They also concluded that the investors pay particular attention to working capital policies and companies with weak and inefficient working capital management, lose their flexibility and potential comparative advantage.

Poirters (2004) conducted a case study entitled "Working capital management and its impact on Heinz company value (Companies dealt with food materials)". The results of this study showed that there is a significant relationship between cash conversion cycle and the company's market value and the high working capital increase company's operating costs and reduces company's value.

Lyrودي and Lazaridis (2000) conducted a study entitled "The cash conversion cycle and liquidity and its relationship with profitability in the food industry in Greece. They used the cash conversion cycle as criterion for assessing the liquidity and they used the

Net Profit Margin Criterion (NPM) and the Return on Equity ratio (ROE) and the Return on Investment ratio (ROI) for the companies' profitability assessment. The results shows that there is a direct significant relationship between the cash conversion cycle and return on investment ratio and net profit margin, also there is verse significant relationship between the cash conversion cycle and return on equity ratio.

## Hypotheses

First hypothesis: There is significant relationship between accounts receivable collection period and return stock.

Second hypothesis: There is significant relationship between goods inventory turnover period and return stock.

Third hypothesis: There is significant relationship between account payable payment period and return stock.

Fourth hypothesis: There is a significant relationship between cash conversion cycle and return stock.

## Variables and statistical models to test hypotheses

Independent variables included cash conversion cycle, accounts receivable collection period, inventory turnover in days, and average payment period.

Dependent variable: return stock

## Calculation method

Cash conversion cycle (in days):

Average payment period - inventory turnover in days + accounts receivable collection period  
Accounts receivable collection period:

$$\frac{\text{Account payable}}{\text{sold}} \times 365$$

Inventory turnover in days:

$$\frac{\text{Goods inventory}}{\text{Cost of goods sold}} \times 365$$

Average payment period (in day):

$$\frac{\text{Goods inventory}}{\text{Cost of goods sold}} \times 365$$

Return stock:

$$R_{it} = \frac{(1 + X + Y)P_{it} - P_{io} - YP_{ni} + DPS_{it}}{P_{io} + YP_{ni}}$$

In this regard:

$R_{it}$  = Rate of return on stock i in year t;

$P_{it}$  = price of share i at the end of year t;

$P_{io}$  = price of share i at the beginning of year t;

$P_{ni}$  = nominal value of share i;

$DPS_{it}$  = cash dividend share i in year t;

X = percentage increase in capital from reserves location;

Y = percentage increase in capital from the receivables and the cash incoming

The statistical model used:

$$R_{it} = \beta_o + \sum_{i=1}^n \beta_i X_{it} + \varepsilon_i$$

$R_{it}$  = Return on stock (dependent variable)

$\beta_o$  = Constant coefficient or constant equation

$\beta_i$  = Coefficients of the independent variables

$X_{it}$  = Independent variables of research (cash conversion cycle, accounts receivable collection period and ...)

$\varepsilon$  = Error of model estimation

## Methodology

This study is inductive in terms of applied logic and in terms of statistical models and methods is cross-sectional. Due to the quantitative variables, the Pearson's correlation model was used. In this study, 4 sets of data on the independent variable and 1 set of data on the dependent variable were calculated and used by using collected data from tact processor software, by using panel data method and by using e-views software.

### Statistical population and sample

The statistical population of this study consisted of the listed companies on the Stock Exchange that have had the following criteria:

1 - Financial year of companies must be ended to 29/12 and should have joined to stock exchange before year 2001.

2. By the end of year 2011, do not have financial year change.

3 - Sample companies do not have operating losses during the period of investigation.

4 - Surveyed companies should not be included in investment companies.

In this study, the population is equal to sample. Therefore, with considering of the foregoing limitations, the study's population was 112 between 2002 to 2011.

### Hypothesis testing

According to the presented hypothesis, this paper aims to examine the relationship between stock returns as the dependent variable and accounts receivable collection period, inventory turnover period, payment of accounts payable and cash conversion cycle as the independent variable. The panel data method is used for analysis of regression models because observations are the time-series cross-sectional. In other words, the observations are used for specific companies and in a period of 10 years. So, if we use multiple regressions correlation will be between observations of each company, so the panel data method is suitable. The results of this analysis are presented in Tables 1 to 4. To evaluate each hypothesis, we will use the interpretation of each coefficients and t-statistics which are appropriate with the independent variables.

First hypothesis: There is significant relationship between accounts receivable collection period and return stock.

Results of Table 1 show that the coefficient associated with receivable collection period is 0/007.

Therefore, the relationship between this variable and stock return as the dependent variable is incomplete and reverse. Thus, the reduction of accounting receivable collection period can lead to an increase in the return stock. The statistics corresponding to the regression coefficient for accounts receivable collection period is 1/503 and given that its absolute value is less than the corresponding value in the table t- student ( $t_{(\alpha=0.05, n>120)} \cong 1/96$ ). Thus, the null hypothesis ( $H_0$ ) with 0/95 reliability was accepted. Therefore, due to the collected information, the first hypothesis "There is significant relationship between accounts receivable collection period and return stock." with 95/0 reliability can be rejected. In fact, the following model is supposed between the receivable collection period and stock returns.

$$Rs_{it} = \beta_0 + \beta_1 acp_{it} + \varepsilon_{it}$$

With replacing the coefficients of Table 1 we have:

$$Rs_{it} = 10.02 - 0.007550 * acp_{it} + \varepsilon_{it}$$

**Table 1. Panel data for stock returns model against the collect receivables**

Dependent Variable: RS?				
Sample: 1 10				
Included observations: 10				
Cross-sections included: 112				
Total pool (unbalanced) observations: 1066				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.52956	1.361511	11.40612	0.0000
ACP?	-0.007550	0.005023	-1.503032	0.1331
R-squared	-0.029030	Mean dependent var		30.68029
Adjusted R-squared	-0.029997	S.D. dependent var		66.61001
S.E. of regression	67.60168	Sum squared resid		4862466.
F-statistic	-30.01621	Durbin-Watson stat		1.996538
Prob(F-statistic)	1.000000			

Second hypothesis: There is significant relationship between goods inventory turnover period and return stock.

Results of Table 2 show that the coefficient associated with inventory turnover period is 0/0037. Therefore, the relationship between this variable and stock return as the dependent variable is incomplete and direct. Thus, enhancement of inventory turnover period can increase the return stock. The statistics corresponding to the regression coefficient for inventory turnover period is 1/81 and given that it is less than the corresponding value in the table t- student ( $t_{(\alpha=0.05, n>120)} \cong 1/96$ ), the null hypothesis ( $H_0$ ) with 0/95 reliability can be accepted. Noting that the significance level cor-

responding to this statistic is 0/0691 and less than 0/1 (p-value= 0/0691 < 0/1), the second hypothesis that is "There is significant relationship between goods inventory turnover period and return stock" can be accepted with 0/90 reliability (Note that at the 0/95 reliability, the hypothesis cannot be accepted).

Thus, the following model is fitted to the observations.

$$Rs_{it} = \beta_0 + \beta_1 itid_{it} + \varepsilon_{it}$$

With replacing of the independent variable coefficient that is presented in Table 2 we have:

$$Rs_{it} = 10.78 + 0.0037 * itid_{it} + \varepsilon_{it}$$

**Table 2. Panel data for stock returns model against the inventory turnover period**

Dependent Variable: RS?				
Sample: 1 10				
Included observations: 10				
Cross-sections included: 112				
Total pool (unbalanced) observations: 1059				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.64703	1.310762	11.93735	0.0000
ITID?	0.000374	0.000206	1.819752	0.0691
R-squared	-0.028113	Mean dependent var		30.75300
Adjusted R-squared	-0.029086	S.D. dependent var		66.76278
S.E. of regression	67.72675	Sum squared resid		4848367.
F-statistic	-28.90314	Durbin-Watson stat		2.014989
Prob(F-statistic)	1.000000			

Third hypothesis: There is a significant relationship between average payment period and return stock.

The results of implementing the panel data indicate that the coefficient corresponding to the average payment period is 0.000. Although this coefficient is very small, it shows that the relationship between this variable and stock return is imperfect and direct. Thus, the enhancement of average payment period increases the return stock. The statistics corresponding to the regression coefficient for average payment period is 0/334 and given that it is less than the corresponding value in the table t- student ( $t_{(\alpha=0.05, n>120)} \cong 1/96$ ), the null hypothesis ( $H_0$ ) with 0/95 reliability can be accepted

(p-value= 0/738 > 0/05). Therefore, due to the collected data and accepting of null hypothesis the second hypothesis that is “There is significant relationship between average payment period and return stock” can be rejected with 0/90 reliability.

Thus, the following model is fitted to the observations.

$$RS_{it} = \beta_0 + \beta_1 app_{it} + \varepsilon_{it}$$

With replacing of the independent variable coefficient that is presented in Table 3 we have:

$$RS_{it} = 16.86944 + 0.000197 * app_{it} + \varepsilon_{it}$$

**Table 3. Panel data for stock returns model against the average payment period**

Dependent Variable: RS?				
Sample: 1 10				
Included observations: 10				
Cross-sections included: 111				
Total pool (unbalanced) observations: 1050				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.86944	1.233202	13.67938	0.0000
APP?	0.000197	0.000587	0.334558	0.7380
R-squared	-0.030624	Mean dependent var		31.03968
Adjusted R-squared	-0.031607	S.D. dependent var		66.90518
S.E. of regression	67.95431	Sum squared resid		4839442.
F-statistic	-31.14031	Durbin-Watson stat		1.992768
Prob(F-statistic)	1.000000			

Fourth hypothesis: There is a significant relationship between cash conversion cycle and return stock.

The results of implementing the regression model by the help of panel data indicate that the coefficient

corresponding to the cash conversion cycle is - 0/000 121. Negativeness of this coefficient shows that the relationship between this variable and stock return is imperfect and reverse. Thus, the reduction of cash

conversion cycle has increased the return stock. The statistics corresponding to the regression coefficient for cash conversion cycle is -1/099 and given that its absolute value is less than the corresponding value in the table t- student ( $t_{(\alpha=0.05, n>120)} \cong 1/96$ ), the null hypothesis ( $H_0$ ) with 0/95 reliability can be accepted ( $p\text{-value} = 0/271 > 0/05$ ). Therefore, due to the collected data and accepting the null hypothesis, the fourth hypothesis that is a significant relationship between cash conversion cycle and return stock will be rejected with 0/90 reliability. Additionally, the following model is fitted to the observations in which items of  $I$  and  $t$ , respectively, is related to the com-

pany and fiscal year. In intended studies, the value of  $i$  is from 1 to 112 companies and the value of  $t$  can change in years of 2002 to 2012.

$$Rs_{it} = \beta_0 + \beta_1 ccc_{it} + \varepsilon_{it}$$

With replacing of the independent variable coefficient that is presented in Table 4 we have:

$$Rs_{it} = 16.21 - 0.000121 * ccc_{it} + \varepsilon_{it}$$

As it is clear, the above coefficient is very small, therefore, the above hypothesis may be influenced by other parameters, leading to different results.

**Table 4. Panel data for stock returns model against the cash conversion cycle**

Dependent Variable: RS?				
Sample: 1 10				
Included observations: 10				
Cross-sections included: 112				
Total pool (unbalanced) observations: 1065				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.21891	1.221352	13.27947	0.0000
CCC?	-0.000121	0.000110	-1.099294	0.2719
R-squared	0.030668	Mean dependent var		30.63792
Adjusted R-squared	0.031637	S.D. dependent var		66.51425
S.E. of regression	67.55821	Sum squared resid		4851651.
F-statistic	-31.62959	Durbin-Watson stat		2.011961
Prob(F-statistic)	1.000000			

After reviewing the research hypotheses that each of them separately examined the relationship of independent variables with stock return by the fitness of following model, the simultaneous impact of variables of cash conversion cycle, accounts receivable collection period, inventory turnover in days and average payment period on stock return through the panel data method by the help of **e-views** software can be examined.

$$Rs_{it} = \beta_0 + \beta_1 acp_{it} + \beta_2 app_{it} + \beta_3 ccc_{it} + \beta_4 itid_{it} + \varepsilon_{it}$$

In fact, the above model is appropriate to determine the appropriate and applicable model that can be used in future research in order to analyze the relationship between the research's variables because it simultaneously considers all indicators.

$$Rs_{it} = 15.141 + 0.00749 * acp_{it} + 0.000206 * app_{it} - 0.000013 * ccc_{it} + 0.008336 * itid_{it} + \varepsilon_{it}$$

Results of the above table indicate that the effect of indicators of average payment period and inventory turnover period on stock returns is direct simultaneously. However, the mentioned relationship is only significant about inventory turnover period. While the impact of variables of accounts receivable collection period and cash conversion cycle is negative, its influence is not significant. The model with replacing the obtained coefficients in analysis of panel data is as follows:

Absolute value of the coefficient in the mentioned model is 2/65 percent. So, about 3 percent of stock returns' changes come from the independent variables' changes. Therefore, in future research, we can look at the other variables that affect on the stock return variable.

**Table 5. Panel data for stock returns model against the independent variables of research.**

Dependent Variable: RS?				
Sample: 1 10				
Included observations: 10				
Cross-sections included: 111				
Total pool (unbalanced) observations: 1040				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.14189	1.475346	10.26327	0.0000
ACP?	-0.007490	0.005177	-1.446758	0.1483
APP?	0.000206	0.000588	0.350361	0.7261
CCC?	-0.000013	0.000122	-0.111460	0.9113
ITID?	0.008336	0.000242	1.687974	0.0654
R-squared	0.026506	Mean dependent var		31.26840
Adjusted R-squared	0.030473	S.D. dependent var		67.18032
S.E. of regression	68.19624	Sum squared resid		4813502.
F-statistic	-6.681306	Durbin-Watson stat		2.013936
Prob(F-statistic)	1.000000			

## Conclusions

In the process of doing each research, the research findings are of the utmost importance because the results of the research can be the basis for resolving the existed problems and improve the current situation to the desired situation. According to the second statistical hypothesis, that was accepted, there is a significant relationship between stock returns and inventory turnover period. Therefore, the enhancement of inventory turnover period will increase the stock return. But, due to the lack of significant relationship in the first, third and fourth hypotheses, about the relationship between stock returns and accounts receivable collection period, average payment period and cash conversion cycle, it may be argued that, due to the decline in stocks in 2003 to 2007 years, as well as intervening variables which is out of the company's management, has effected stock returns and because of this, the results of the first, third and fourth hypotheses are not confirmed. One of the most important intervening variables refers to special features of each industry, policies imposed by government, capital market inefficiency and many other variables. Although, this factors make management to be successful to somewhat with application of the methods for reduction of cash conversion cycle, accounts receivable collection period and, average payment period, but results of these activities are less important in ultimate conclusion on stock returns. Finally, according to the obtained results of this research, since the cash conversion cycle is used as a measure of working capital management, it can be concluded that, in general, the working capital manage-

ment is unaffected on the stock return of accepted companies in Tehran Stock Exchange.

## Practical Implications

1. Financial managers of companies can provide the increased stock return of companies through reduction of accounts receivable collection period and by postponing of average payment period, payable evidences and liabilities.

2. The companies' financial managers are recommended to try to maximize the value of the common stock through the most appropriate policy to invest surplus funds, appropriate program, debt collection, avoid the use of financial resources with high interest costs and unnecessary loans.

3. Preparation and implementing policies of current asset management such as timely inventory management, and maintaining appropriate levels of cash can, on one hand, prevent company from facing to liquidity crisis and on the other hand, avoid stagnation of cash.

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