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# ANALYSIS OF INTERNAL AND EXTERNAL FACTORS AFFECTING TO THE STOCK MARKET PRICE OF NON- FINANCIAL JOINT STOCK COMPANIES LISTED ON THE VIETNAM'S STOCK MARKET

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#### Abtract

The paper clarifies the effect of internal and external factors to stock market price (MP) of non – financial joint stock companies listed on the Vietnam's Stock Market. Internal factors are financial performance (liquidity, solvency, profitability), dividend policy (dividend paid), foreign ownership ratio and size of company. External factors are GDP growth rate, inflation rate, interest rate and money suply. A sample of 421 non- financial companies is selected from companies listed on the Vietnam's Stock Market. Five years data is employed in this paper which extends from the year 2012 to the year 2016. A panel data regression models is used in this research with the support of Stata 14 software. The reseach results indicates that the internal factors including the financial performance, dividend policy, size of company and foreign ownership ratio and the external factors such as inflation rate and money suply have significant effect on MP.

#### Introduction

Over the past two decades, a lot of empirical and theoretical studies about stock price and the impact of factors on stock price have been published. The main factors which affect to the stock market price, are determined differently because of the scope of study and the dissimilar viewpoints. Some researchers focus on the internal factors such as profitability, dividend policy and solvency (Chang et al (2008), Nidhi and Kamini (2013), KabaJeh et al. (2012) etc.). Some other researchers study the external factors such as inflation, GDP growth, unemployment, money supply and interest rate (Fraser and Oyefeso (2002), Jang and Sul (2002), Moon (2001), Tessaromatis (1990) and Peel et al. (1990) etc.). Yet, having no consensus results from both the empirical and theoretical literature such as the positive or negative trend, and some factors are statistically significant in the research but not in others. The research of Chang et al (2008) pointed out that DPS had no impact on stock market price but the research of Asma et al. (2013) stated that DPS significantly affected to stock market price. The research of of Fisher (1930), Fraser and Oyefeso (2002), Jang and Sul (2002), Moon (2001), Tessaromatis (1990) and Peel et al. (1990) clarified the positive relationship between inflation and stock returns. In contrast, some studies indicated the negative impact of inflation on the stock price such as the study of Udegbunam et al. (2001), Ritter and Warr (2002).

This study focuses on both internal and external factors which affect to the stock market. The internal factors consist of financial performance, dividend policy, size and foreign ownership ratio. The external factors include GDP growth, inflation, unemployment, interest rate and money supply. The ratio method is used to calculate the measurement of variables such as ROA, Pcs, Z-Score etc. The research also uses the statics methods to test the relationship between internal and external factors and stock market price. The fixed effect model with the panel data is used in this research with the support of Stata 14 software.

# Literature review, theoritical framework and research methods *Literature review*

There are a lot of theoritical and emprical studies about the factors affecting to the stock market price. The factors consist of the internal factors and external factors such as financial performance, dividend policy, ownership ratio, GDP growth ratem inflation rate, interest rate, money supply and etc.

Chang et al (2008) used a sample of joint stock companies listed on the Taiwan Stock Exchange and showed that EPS has a significantly positive impact on the stock market price but DPS has no impact on the stock market price in long- term. In addition, the authors pointed out the different impact of EPS on the stock price between low growth companies and high growth companies.

Nidhi and Kamini (2013) used a sample of 95 companies listed on the Indian Stock Market. With the use of multiple regression method, the study demonstrated the significantly positive impact of EPS on the stock price.

KabaJeh et al. (2012) used the multiple regression to examine the effect of ROA, ROE, and ROI on the stock price of Jordanian insurance companies. The research result was shown the significant effect ROA, ROE and ROI on the stock price.

Pushpa et al. (2012) used a sample of 50 companies listed on the Indian stock market to examine the impact of DE on shareholder returns and market values. The shareholder returns were measured by ROE and EPS, while the measurements of market value were DPS and PE. With the use of a single regression method for each factor, the research result showed that DE has no impact on market value.

The research of Alroud (2013) was conducted on the Amman Stock Exchange with a sample of 15 commercial banks listed in the period of 2001 and 2010. The research result was shown that the 24 percent of change in share price of commercial banks was explained by debt repayment capacity.

Hussainey et al. (2011) studied the relationship between dividend policy and the fluctuation trend of stock price on the sample of UK listed companies. The research result was shown that DY, Pcs has a significant impact on the changes in stock price.

Asma et al. (2013) used samples of companies listed on the Pakistan Stock Exchange in the period of 2006 to 2011 to examine the effect of DPS on the share price. The research showed that the share price is significantly affected by DPS.

Aleyemi (2013) studied the relationship between Pcs and the stock price of listed food companies on the Nigerian Stock Market. The study confirmed that Pcs has a significant and positive impact on the stock price.

The Research of Bohn and Tesar (1996) and the research of Froot et al. (2001) ... showed that there is positive effect of foreign inflows on the stock price trends. The study of Wang (2007), Yan (2007) also showed that foreign ownership significantly affects to the stock price trends. In addition, these studies also showed that during the crisis, foreign capital flows helped to stabilize the stock market.

The study of Fisher (1930) clarified the positive relationship between inflation and stock returns. The increase in inflation leads to the increase in the stock price, and so the stock returns are on the rise. Some studies also pointed to the positive effect of inflation to stock prices such as the research of Fraser and Oyefeso (2002), Jang and Sul (2002), Moon (2001), Tessaromatis (1990) and Peel et al. (1990). In contrast, some studies indicated the negative impact of inflation on the stock price such as the study of Udegbunam et al. (2001), Ritter and Warr (2002), Sharpe study (2002) and Ahmed and Igbinovia (2015). In addition, there are also studies that did not prove the impact of

inflation on stock prices such as the study of Pearce and Roley (1985) and Hardouvelis (1988).

Arango, L.E. et al. (2002) used a sample of daily data from January 1994 to February 2000 on the Bogota Stock Market to examine the effect of interest rate on stock market price. The research showed that there was significantly negative effect of interest rate on the stock price and this impact is non-linear. The study of Mahmudul A and Gazi SU (2009) with a sample of 15 countries including developed and developing countries in the period of 1988 to 2003 showed the negative relationship between interest rates and the stock price. Wu Seng-Yeh et al. (2014) studied the relationship between interest rates and stock prices of G-8 countries. The research showed that there was the nonlinear and inverse relationship between interest rate and the stock market. However, there are also studies showing the positive effect of interest rates to the trend of stock price such as the study of Barsky (1989), Shiller and Beltrati (1992) and Domian et al (1996)...

Nisa and Nishat (2012) used a sample of companies listed on the Karachi Stock Exchange in the period of 2002 to 2006. The research showed that GDP growth had a significant impact on stock prices. In contrast, Xing-Qui Zhao (2010) studied the relationship between stock prices and the factors consisting of inflation and GDP. The research showed the negative effect of expected GDP growth to the stock market price.

The study of Maysami and Koh (2000) showed the significantly relationship between money supply and the development of the Singapore Stock Market. The authors also hypothesized that rising money supply would cause inflation and increase future cash flows and stock price. Brahmasrene and Jiranyaku (2007) used a sample of companies listed on the Thai Stock Market in the period of 1992 and 2003 to test the effect of money supply to stock price. The research showed the significantly positive effect of money supply to stock price.

Kumuda P.R and Simi. S.V (2015) used a sample of companies listed on the Indian stock market in 10 years from 2005 to 2014 to prove the relationship between unemployment rate and stock price. The research showed that the unemployment rate had the significantly positive effect on stock prices. The study of Jesus.G and Abderrahim.T (2017) also pointed out the impact of predictable unemployment and unpredictable unemployment on stock prices in the short run.

#### Reseach model and hypothesis

On the basis of literature review and the status of the stock market price of non – financial joint stock companies listed on Vietnam 's Stock Market, the model is given as the followings:

#### LnPave = $\beta$ 0+ $\beta$ 1\*EPS + $\beta$ 2\*ROA + $\beta$ 3\*DPS + $\beta$ 4\*Pcs + $\beta$ 5\*Z-score + $\beta$ 6\* Size + $\beta$ 7\*FO +

## $\beta$ 8\* DA + $\beta$ 9\* GDP+ $\beta$ 10\*Infla + $\beta$ 11\*MoneyS + $\beta$ 12\* Rate + $\beta$ 13\* Unem + $\epsilon$

LnPave: Natural logarithm of the average stock market price. The average stock market price is the mean value of the maximum and minimum of stock price; EPS: Earnings per share; ROA: Return on total assets; DPS: Dividend per share; Pcs: Dividend payout ratio; Z-score is calculated by Z-score method; SIZE: Natural logarithm of total assets; FO: Foreign Ownership ratio; DA: Debts to total assets; GDP: GDP growth rate; Infla: Inflation rate; MoneyS: Money supply; Rate: Interest rate; Unem: Unemployment rate The following hypotheses have been developed for this study based on the literature review:

H01: EPS has no effect on LnPave; H11: EPS has a significant effect on LnPave
H02: ROA has no effect on LnPave; H12: ROA has a significant effect on LnPave
H03: RDPS has no effect on LnPave; H13: DPS has a significant effect on LnPave
H04: Pcs has no effect on LnPave; H14: PCs has a significant effect on LnPave
H05: Z-score has no effect on LnPave; H15: Z-Score has a significant effect on LnPave
H06: Size has no effect on LnPave; H16: Size has a significant effect on LnPave
H07: FO has no effect on LnPave; H17: FO has no effect on LnPave
H08: DA has no effect on LnPave; H18: DA has no effect on LnPave
H09: GDP has no effect on LnPave; H19: GDP has no effect on LnPave
H010: Infla has no effect on LnPave; H110: Infla has no effect on LnPave
H011: MoneyS has no effect on LnPave; H112: Rate has no effect on LnPave
H012: Rate has no effect on LnPave; H113: Unemhas no effect on LnPave

#### **Research methods**

Research sample consists of 421 non-financial joint stock companies listed on the Vietnam 's Stock Market in the period of 2012 to 2016. The research data is collected from the financial reports, the data of the stock market price on the website of the Ho Chi Minh Stock Exchange and the Hanoi Stock Exchange. The data analysis methods being used in the research consist of the ratio method (This method is used to calculate ROA,FO and Z-score) and the statistical analysis methods including descriptive statistics, testing auto-correlation, testing multi-collinear and regression method (These methods are used to point out the relationship between the stock market price and independent variables)

	Table 1. Descriptve Statistics						
Variable	Obs	Mean	Std. Dev.	Min	Max		
LnPave	2,105	9.114295	.7402164	6.046189	12.0674		
				-	22,327.00		
EPS	2,105	1,559.8540	2,268.3560	18,574.00	0		
ROA	2,105	0.0487	0.0839	-0.65	0.6102		
					21,000.00		
DPS	2,105	1,057.9930	1,455.5300	0.00	0		
Pcs	2,105	0.6823	26.4773	-5.600	400.000		
Zcore	2,105	2.9410	3.9052	-4.43	131.456		
SIZE	2,105	13.3179	1.6832	9.47	20.671		
FO	2,105	0.0978	0.1335	0.00	0.998		
DA	2,105	0.5017	0.2287	0.002	0.967		
GDP	2,105	0.0591	0.0052	0.05	0.067		
Infla	2,105	0.0401	0.0240	0.01	0.068		
MoneyS	2,105	5,285,637	1,202,328	3,702,867	7,125,801		
Rate	2,105	0.0876	0.0264	0.07	0.140		
Unem	2,105	0.0272	0.0072	0.02	0.034		

### Results and discussions Analyzing the descriptive statistics

Source: Calculating with the supporting of Stata14 software

Descriptive statistic (table 1) shows the minimum and maximum values of variables in this study. It also presents the mean and standard deviation of the different variables that help in getting a clear picture about the variables used in this study. The maximum value of natural logarithm Pave is 12.0674 and minimum value of natural logarithm Pave is 6.046189. The mean value of LnPave is 9.114295 with the standard deviation of .7402164. The maximum value of EPS is VND 22,327 and minimum value is VND -18,754. EPS is calculated from earnings of company, so the value of EPS is positive or negative. The mean value of EPS is 1,559.85 and standard deviation of EPS is 1455,53. The result is showed high dispersion of EPS among company. Like EPS, the value of ROA has both positive value and negative value with the maximum value of 0.6102 (this is ROA of SHN) and the minimum value of -0.65 (this is ROA of LAF). The dispersion of ROA is high with the mean value of 0.0487 and standard deviation of 0.0839. The maximum value of DPS is VND 21,000 and minimum value is VND 0. This implies some companies did not pay dividends and some companies paid a huge value of dividends. Standard deviation of DPS is VND 1,455.53. It shows that the high variations among DPS. The minimum value of Pcs is -5.6 (this is Pcs value of PVG in 2014) and maximum value is 400 (this is Pcs value of PCG in 2016). This means that some companies have the unreasonable dividend policies because these companies paid dividends larger than earnings after taxes or these companies did not have any income but they still paid dividends. Further, the standard deviation of Pcs is large (26.477), there is high variations among Pcs value of companies. The maximum value of Z-score is 131.45 and minimum value of Z-score is -4.43. The mean value of Z-score is 2.9401 with the standard deviation of 3.9052. The maximum value of Size is 20.671 and minimum value of Size is 9.47. Size of companies listed on the Vietnam's Stock Market is large difference with the mean value of 13.3179 and the standard deviation of 1.683. The value of FO is from 0 to 0.998 with the mean of 0.0978 and the standard deviation of 0.1335. This means that some companies are attractive to foreign investors and some companies are not taken interest by foreign investors. There is high variation of DA with standard deviation of 0.2287 and mean of 0.5017. Some companies invested their assets by using mainly debt but some companies were not. The standard deviation of external variables is small, so the variation is low.

#### Analyzing the regression model

Testing the collinearity dialonostic: On the base of collinearity Diagnostics Test, the VIF and Tolerance coefficient is calculated from the data. The VIF coefficients of ROA, GDP, Unem and rate variable are larger than 2. It means that there is able to have multi-collinearity in the model. Therefore, these varialbes are not given in the research model. The final result of collinearity Diagnostics Test (see table 2) is pointed out that all VIF coefficients of remain variables are smaller than 2 and so the model does not have multi-collinearity signal.

Variable	VIF		Tolerance
EPS		1.76	0.5673
DPS		1.75	0.5724
Pcs		1.01	0.9928
Zcore		1.29	0.7735
SIZE		1.47	0.6809

FO	1.33	0.7529
DA	1.46	0.6846
Infla	1.33	0.7521
MoneyS	1.36	0.7331

- Source: Calculating with the supporting of Stata14 software Hausman's testing to choose GLS random effect model or fixed effect model: According to Hausman's test, the P-value of 0.0051 (Prob >chi2 = 0.0051) is less than the significant level of 0.05. Therefore, Ho- Hypothesis is rejected and accepted the H1- Hypothesis. This means that the fixed effect model is more suitable for analyzing regression.
- **Testing the auto correlations:** According to Wooldridge test for autocorrelation in panel data, the P-value which is 0.7347 (Prob > F = 0.7347) is more than the significant level of 0.05. So, there is no first-order autocorrelation in this model.
- Analyzing the regression model:

#### Fixed-effects (within) regression Number of obs = 2,105Group variable: MaCK1 Number of groups = 421R-sq: Obs per group: within = 0.4322min = 5between = 0.3347 avg = 5.0overall = 0.3624max = 5F(10,1674) = 127.42corr(u i, Xb) = -0.1625Prob > F = 0.0000Coef. Std.Err P>t [95% Conf.Interval] LnPave t EPS 0.000053 0.0000 7.7400 0.0000 0.0000 0.0001 DPS 0.0000493 0.0000 0.0001 0.0000 5.1800 0.0000 0.0003356 0.2870 Pcs 0.0003 1.0000 -0.0003 0.0010 Zcore 0.0089097 0.0028 4.0600 0.0000 0.0059 0.0170 SIZE 0.217113 0.0357 6.0800 0.0000 0.1471 0.2871 FO 0.958972 0.0000 1.2553 0.1511 6.3500 0.6626 DA -0.371116 0.1169 -3.18000.0020 -0.6003 0.1419 -4.2705 Infla -3.526161 0.3795 -9.2900 0.0000 2.7816 0.0000019 0.0000 14.5400 0.0000 0.0000 MoneyS 0.0000 5.6667 0.4494 12.6100 0.0000 4.7853 6.5480 cons

# Table 3. The result of regression

Source: Calculating with the supporting of Stata14 software

The Predicted model table 3 below is: LnPave =  $5.667 + 0.000053*EPS + 0.0000493*DPS + 0.0003356*Pcs + 0.0089097*Zscore + 0.217113*SIZE + 0.958972*FO - 0.371116*DA - 3.526161*Infla + 0.0000019*MoneyS +<math>\epsilon$ . The Adjust R- square from table 3 shows that 43.22 percent of the variance in LnPave is predicted. The value of Prob>F in table 3 is less than the significant level of 0.05, hence at least one coefficient of model is not equal zero and the model is fit to use in regression analysis.

The regression result (table 3) shows that most of independent variables affect significantly to the stock market price at significant level of 0.05. Pcs variable is insignificant impact on the stock market price with P>t of 0.32. The impact of independent variables on the stock market price (LnPave) is explained as the following s:

- Financial performance and the stock market price:
  - Profitability and the stock market price: Profitability is measured by earnings per share (EPS). The P>t of EPS is smaller than 5 percent and its coefficient is 0.000053 (table 3). This outcome basically implies that with all other variables held constant, an increase of VND 1 in EPS will on the average bring about a 0.000053 percent increase in the stock market price. That is an increase in the EPS will also lead to a positive movement in the stock market price. The result is suitable for theory and practice because of the following reasons. Firstly, the higher the EPS value, the more profitable the company is and the shareholder can be divided more profit. The current shareholders want to hold the company's stock in longer way and the investors who want to become company's shareholders, will have to pay more money for having company stock. This lead to the growth of stock market price. For example, West Coach Station Joint Stock Company (WCS) always maintained the high EPS value from 2014 to 2016 with value between VND 19,130 and VND 22,327 and its dividend per share which was paid for its shareholders, was about from VND 2000 to VND 4000. As the result, its stock price was larger than VND 100,000. In contrast, Song Da 7 Joint Stock Company (SD7) had negative EPS value in the almost period of 2012 to 2016 with the average EPS value of VND -4032 and of course its shareholders did not receive any dividend in this period. Its stock price was very low and was lower than par value, it was only about VND 8580 and the minimum price was VND 3700. Secondly, if the company had positive incomes, the part of incomes will be paid for its shareholders and the remain incomes will be used to reinvest and expand its business. This lead to increase future earnings and its stock price will be on the rise. Finally, the high EPS is good signal about company's financial situation, this makes the expectation of investors and shareholder increasing and so its stock price increase occurs. The research result is same the research of Chang et al (2008), Nidhi and Kamini (2013) and Pusha and Sumangala (2012).
  - Liquidity and the stock market price: According to table 3, Z-score variable has a significantly positive impact on the stock market price with P>t value of 0.000 and positive coefficient of 0.0089097. When Z-score increases by 1 unit, the stock market price also increases by 0.008907 percent. It is explained that when Z-score increases, the liquidity of company is better. The risks of company tend to fall, the expectation of investors increases and the demand of company's stock is on the rise. As the result, there is the improvement of the stock price.
  - Solvency and the stock market price: According to table 3, DA variable has a significantly negative impact on the stock market price with P>t value of 0.002 and negative coefficient of -0.371116. This result shows that as the companies use more debts to finance their assets, the risks which companies incur, will increase. This affect to the belief of investors and makes the stock price decreasing. This result complies with the asymmetric information theory, the

signaling theory and the agency cost theory. The research result is in line with the research of Alroud (2013).

- Dividend policy and the stock market price: According to table 3, DPS variable significantly affect to the stock market price at the significant level of 0.05 but Pcs variable has insignificant impact on the stock market price with the P>t value of 0.287. The impact of DPS is positive with its coefficient of 0.0000493. The companies with a high dividend payment would be valued more highly than the companies with a low dividend payment because of some reasons as the followings: Firstly, due to uncertainty of future cash flow, investors prefer dividends to retain earnings. Secondly, due to conflicting between manager benefits and shareholder benefits, managers can perform some activities having no benefit to shareholder such as undertaking unprofitable investment. These costs are borne by shareholders. Hence shareholders would require high dividend payment. Thirdly, an increase in dividend payment may be created the good news about the financial situation and brighter prospects. Therefore, the rise of stock market price occurs. The research result abides by the bird in hand theory of Gordon (1963) and the dividend signaling theory. Moreover, the research result pointed that the dividend irrelevant theory of Modigliani and Miller (1961) was not suitable for the companies listed the Vietnam's Stock market to apply. The research result is same the research of Hussainey et al (2011), Asma et al (2013).
- Foreign ownership and the stock market price: According to table 3, FO has significantly positive impact on the stock market price at the significant level of 0.05. Its coefficient is 0.95872 which means that when FO increases by 1 unit, the stock market price also increases by 0.95872 percent. The companies which have the higher FO, have the higher stock market price. The research result is in line with the research of Bekaert and Harvey (2000), Kim and Singal (2000), Pavabutr and Yan (2007), Bohn and Tesar (1996).
- Size of company and the stock market price: According to table 3, Size variable is significant relationship to the stock market price with the P>t value of 0.000 and its coefficient is positive. It means that the increase in size will make the stock price being on the rise. In reality, the large companies are often able to manage their cash flow better than the small companies. In addition, the large companies can invest in long-term projects and so they can create the more stable and long-term cash flows than the small companies. In other hand, the larger companies have the ability to invest and innovate their technology and the value of companies tends to increase. The bigger companies also attract professional managers and thereby bringing more benefits to shareholder than the small companies. As the result, the bigger companies often have the higher MP. The research result is similar to the research of Fouzan et al (2016).
- Inflation and the stock market price: According to table 3, the P>t value of inflation (Infla) is smaller than the significant level of 0.05 so the inflation affects significantly to the stock market price. Its coefficient of -3.526161 means that the inflation is negative impact on the stock market price. When the inflation increases by 1 unit, the stock market price decreases by 3.52616 percent. The inverse relationship between inflation and stock market price is the following reasons: The investors use nominal interest rate to discount the real cash flow. Hence the real cash flow is smaller when the investors use real interest rate to discount. As the result, the stock market price tends to decrease. Moreover, the increase in inflation affects to

the expected returns and the risks of investing the stock market price. The research result is same of the research of Ahmed and Igbinovia (2015), Udegbunam et al (2001), Ritter and Warr (2002) and Sharpe (2002) ... and is difference from the research of Fraser and Oyefeso (2002), Jang and Sul (2002), Moon (2001), Tessaromatis (1990), Peel et al (1990).

Money supply (MoneyS) and the stock market price: According to table 2, money supply is significantly positive impact on the stock market price at the significant level of 5 percent. Its coefficient of 0.0000019 means that when MoneyS increases by VND 1 billion, the stock market price also increases by 0.0000019 percent. This is explained as the followings: the money supply rises, the economy has more money. As the result, the interest rate falls, demand for investment and consumption increases. The increase in money supply has a positive impact on the stock market price. The research result abides by the research of Maysami and Koh (2000), Brahmasrene and Jiranyaku (2007) etc.

#### **Conclusions and policy implications**

Basing on data of non – financial companies listed on the Vietnam's Stock Market in the period of 2012 to 2016, this study found a relationship between internal and external factors and the stock market price. With the significant level of 0.05, almost independent variables affected to the stock market price exception for Pcs. The finding showed that the theory of Miller and Modigliani is not fit for the state of Vietnam's Stock Market. The results of the research also identify that the agency cost theory, the signaling theory and the dividend theory are consistent with being putted to the nonfinancial companies listed on Vietnam's Stock Market.

On the basis of above findings, some specific suggestions are given. Firstly, managers should enhance the financial performance including liquidity, solvency and profitability and focus on improving EPS, Z-score and using reasonably debts. Moreover, managers should be particularly interested in dividend policy. Secondly, the investors should take into account the internal factors such as the annually financial performance, size of company and foreign ownership ratio before deciding to buy stock. In addition, they should consider the impact of external factors such as inflation rate and money supply. They should keep in record the information related to the companies as well as macroeconomics. Finally, the policy makers should set their monetary and fiscal policies suitably to enhance the development of Vietnam's Stock Market.

In conclusion, the research result assists managers and investors in understanding the internal and external factors that affect to stock market price. In the base on the knowledge of both internal and external factors, they will be better informed on how to gauge their investment option. In addition, the research result also helps the stockbrokers give the better advice to investors. This study based on the data collected in five years from 2012 to 2016 that is limited data, so the research result may differ if the data is more.

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