Investigation on the Factors Influencing Stock Prices

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Abstract: This article focuses on the impact of financial data of some companies that can be found from financial websites n the company's stock price. This is because investors always lack trust in financial analysts because they are suspicious of their motives. Therefore, this article discusses the impact of some financial data on stock prices in addition to the traditional models such as dividends, ROE and other factors. For example, profit, solvency, forward P/E ratio, etc. The intention is to help external investors to judge the change of stock price more accurately by using basic financial data. This will ensure their interest as much as possible.

Keywords: stock price, solvency, current ratio, P/E ratio, profit

1. Introduction

Companies have been going public and issuing shares for decades. The price of the stock is of interest to both shareholders or managers within the company and to outside investors who are simply looking for profit. Therefore, the study of the factors influencing stock prices has become a popular topic for scholars and analysts.

Although, nowadays, investors choose to get financial and economic analysts to help them analyze stock price movements so that they can make the right decision. But there are some problems with this as well. In some cases, investors look for experts to help them analyze and give them guidance. However, investors are always concerned about the lack of transparency in the incentives for experts to provide advice [1]. Such problems often occur between investors and analysts. This leads investors to question the safety of the advice and forecasts given by experts and analysts.

Moreover, in addition to this reason for investors to question analysts' incentives, market uncertainty can lead experts and analysts to give inaccurate analyses. Analysts are more likely to give more optimistic investment advice in the presence of high market uncertainty [2]. This is because high market uncertainty results in analysts not being penalized for inaccurate forecasts. And optimistic forecasts lead to more trading activity. But it does lead to higher forecast inaccuracy, which affects investors' interests.

Therefore, investors cannot leave their investment decisions entirely to analysts' forecasts. It is necessary for investors to make their own predictions about the share price of the target company by means of some important data that are publicly available. The purpose of this paper is to build economic models from some companies' publicly available data so that external investors can make some reasonable predictions about the share price.

In addition, due to the diversification of the industry nowadays, we are aware that in different industries, the company's assets, profits and other factors may have a slightly different impact on the

stock price. During the Covid19 epidemic, we can see that technology companies have better outlook forecasts than companies in other industries. Therefore, we will create a separate factor in our analysis to see if the company is a technology company will be one of the factors that will affect the stock price during the epidemic.

2. Literature Review

The factors associated with stock price are complex, including some external factors such as political, environmental, noise factors, etc. It also includes more intuitive factors that companies will disclose, such as assets, cash flow, profits, etc. The different types of information are divided into four parts, which describe the impact of noise, private firm-specific information disclosed through transactions, firm-specific information disclosed through public sources, and market-wide information, respectively, on stock prices [3]. So we can learn that indeed information, an external factor, can have an impact on the stock price. However, these are external factors and they cannot be measured accurately. Therefore, the author prefers to use factors that directly reflect the current state of the company, such as assets, profits, etc. This allows investors to predict the price of a stock more intuitively with some information. For example, if a company releases information that it is going to reduce its assets, some of its subsidiaries are separating from the parent company, investors can react in a timely manners.

Near-term dividend value fluctuates more than the future dividend value during a period of declining stock prices [4]. We all know that the epidemic will transit from a period of severity to a period of stock market recovery. So, since this article analyzing stock prices is mainly for external investors, we focus on the relationship between dividends, retained earnings, profits and stock prices. In Addition, the crash of the stock market was driven by a drop in the value of both near- and distant-future dividends, whereas the rebound was largely driven by a recovery in the value of distant-future dividends [4]. Also, perhaps the company will change its dividend and retained earnings distribution under the impact of the epidemic. Thus, the author will additionally analyze whether the company will affect investors' returns to some extent in this situation by changing the dividend payout ratio through the difference between the Beta of profits and dividends.

By analyzing Indonesian companies related to manufacturing industry, accounting profit has a significant effect on stock price, but total cash flow has no significant effect on stock price [5]. Therefore, this article is going to analyze the impact of these two factors on the share price from a combination of companies from different industries. And the most obvious volatility due to the epidemic is the disparity between the impact on the technology industry and other industries. So in addition to these two factors, the author is going to add an additional dummy variable. "Whether the company is highly correlated with the technology industry".

During the outbreak, the company's share price, revenue, and assets changed significantly. But generally speaking, we are more bullish on the prospects of technology companies. COVID-19 has already had on technology companies. The conclusion reached is that the epidemic does bring adverse effects such as production stoppages and sales declines to technology companies. But technology companies will also generate more opportunities for growth during this period [6]. For example, during the quarantine, people get used to online meetings, etc. More people realize the importance of technology products. So good growth prospects may give technology companies extra financing cash flow, thus affecting the stock price. Secondly, technology companies are more likely to use and develop internet-related industries, which will have a different impact on their share price. Therefore, this is another reason why the author chooses to include a dummy variable to analyze the relationship between a technology company and its stock price.

There are differences in the profitability and dividend distribution of listed companies under different life cycles, and investors' expectations and assessments of listed companies under different

life cycles are also different [7]. When we analyze dividends, we inevitably have to analyze the company's retained earnings. So, the author will continue to analyze the relationship between dividends and retained earnings and stock price. In the meantime, the author will use the relationship to find whether they change the distribution of dividends and retained earnings when a company's earnings fluctuate.

The "divestitures asset" do not have a significant impact on the stock price, for companies with low solvency, it can have a positive impact on the stock price [8]. The author will build regression models to find the relationship between assets and solvency and stock price.

3. Theoretical Model

Usually, when we want to know the fair value of a stock, we use models such as the Gordon Growth Model (GGM) and the Dividend Discount Model (DDM) to do the calculations. We can see that dividends are an important factor in stock prices. Also, analysts make estimates by referring to the company's Return on Equity, Return on Assets, P/E ratio, etc. So we look for factors related to these ratios from the financial website to build regression models that can give investors a better visualization of what financial information can affect the stock price.

The author found some factors that may affect the stock price in the underlying financial information of Yahoo's website. First we will start by presenting the independent variables we have chosen in our regression model and explaining them. The first independent variable is "solv", which represents the solvency of the company, and we choose to use the current ratio to represent the solvency of the company. The higher the solvency ratio, the stronger the financial strength. The author thinks that the expected sign of this variable is positive. The second variable is "profit", which represents the company's annual earnings. The author chooses to use the company's EBIT to represent its earnings. The third variable is "rearn", which is the company's retained earnings, because the company's equity is divided into dividends and retained earnings. So retained earnings may also be a factor in the stock price. The fourth variable is "cafl", which represents the company's free cash flow, because sufficient cash flow means that the company is doing well, and to a certain extent, it reflects the company's financial position. Therefore, the author believes that this variable also has a positive expected sign. The fifth variable is "technology", which represents whether the company is a technology company. In the current situation where technology companies are doing well, it is important to find out if the share price of technology companies is higher than other companies. The sixth variable is "TrailingPE", which represents the estimated P/E ratio given the actual earnings of the past 12 months. The seventh variable is "forwardPE", which represents the P/E ratio based on projected earnings for the next 12 months. The last variable is "enterprisevalue", which represents the current market value of the company. Usually a high enterprise value is also a reflection of an increase in stock price to some extent. So we can predict the expected sign of this variable to be positive.

4. Data and Empirical Model

The first thing we need to do is to build a predictive regression model with the previously selected independent variable and the dependent variable "price".

price: stock price   solv: companies' solvency(current ratio)
EBIT: companies' EBIT   rearn: companies' retained earning
cafl: companies' free cash flow   tech: whether the corporation is a technology corporation
trailingPE: the estimated P/E ratio given the actual earnings of the past 12 month
forwardPE: the P/E ratio based on projected earnings for the next 12 months
Enterprisevalue: current market value of the company

Because of the large values of some of the companies' data, the author uses logs for the variables "EBIT", "rearn", and "cafl". The predicted regression model is as follows.:

$$price_i = \beta_0 + \beta_1 solv_i + \beta_2 \log(EBIT_i) + \beta_3 \log(rearn_i) + \beta_4 \log(cafl_i) + \beta_5 tech_i + \beta_6 trailingPE_i + \beta_7 forwardPE_i + \beta_8 Enterprisevalue_i + u_i \tag{1}$$

Next we proceed to the description of the data. The author selected 70 companies from the S&P 500 companies and conducted the data from Yahoo Finance [9]. Share prices are in U.S. dollars. The rest are in billions of dollars. The stock price and the date of the company's annual report are the same day. The data are described as follows

Table 1: Data description of 70 companies.

Variable	Observations	Mean	Std. dev.	Min	Max
Independent variable					
price	70	169.0763	130.1413	21.72	721.54
Dependent variable					
solv	70	2.10495	3.367822	.4744826	27.92412
EBIT	70	9.109714	13.81381	-27.725	69.964
rearn	70	40.43945	57.2277	-21.408	383.943
cafl	70	9.025607	12.37466	-19.713	73.365
tech	70	.3714286	.4866755	0	1
trailingPE	65	62.64015	163.9807	9.79	1340
forwardPE	70	30.39771	23.44843	8.19	175.44
Enterprisevalue	70	283.3311	346.5769	48.31	1990

We can see a very large difference in share prices between the different companies, from $21.72 to $721.54. This is very good for us to see what factors can cause the share price to become higher. These companies all have relatively high enterprise values, ranging from $48.31billion to $1990billion, so they are representative public companies with sufficient consideration.

5. Estimation and Analysis

With the data above, we can obtain the regression model：

Table 2: Estimated stock price (2020) regression (standard errors in parentheses) level of significance (**=5%, ***= 1%).

Variable	Coefficient
solv	17.84819 (3.702889) ***
lEBIT	24.7032 (35.26958)
lrearn	-11.43398 (16.17809)
lcafl	36.2627 (20.51137)
tech	-20.80174 (30.69299)
trailingPE	-1.541257 (.9880445)
forwardPE	9.293271 (2.087767) ***
Enterprisevalue	-.1714308 (.0700713) **
intercept	-62.52265 (79.30259)
R-squared	0.5469
observation	53

Here we can see that only three variables have a significant effect on the stock price, "solv", "fowardPE", and "Enterprisevalue ". So we will focus our analysis on these three factors. First of all, we can see that the company's solvency coefficient is positive, and the solvency we use is the current ratio, so it itself exists in the form of a percentage. We can interpret this to mean that when the company's current ratio increases by 1%, the company's stock price increases by $0.178. This is the same as our estimate that the more solvent a company is, the higher his stock price is likely to be. The higher the value of a company's Current Ratio, the better the company's financial position is and the more profits it can obtain [10]. A financially sound company can influence the share price of the company in the capital market. This is consistent with the conclusion reached by this regression model.

Next, we analyze the forward P/E ratio. We can see that the coefficient of the forward P/E ratio is also positive. And it is also in the form of a percentage, which we can interpret as an increase in the stock price of $0.093 for every 1% increase in the forward P/E ratio. Moreover, from the regression

model we can find that the effect of trailing P/E ratio on the stock price is not significant. Moreover, the results obtained using the forward P/E ratio are more consistent with the theoretical predictions than using the trailing P/E ratio [11]. Therefore, an increase in the forward P/E ratio may also indicate an increase in stock price, and it is more reasonable to use the forward P/E ratio for stock price prediction.

The coefficient between the value of the firm and the stock price is negatively correlated, and it is known that for every $1 billion increase in the value of the firm, the stock price will decrease by $0.17. The significance of this variable is not very strong. So, the author will use the data of these same 70 companies in 2019 to verify the coefficient of these variables again.

Table 3: Estimated Stock Price (2019) Regression (Standard Errors in Parentheses) Level of Significance (**=5%, ***= 1%).

Variable	Coefficient
Solv2019	15.47273 (3.891609) ***
lEBIT2019	25.42401 (33.92197)
lrearn2019	8.417829 (11.83918)
lcafl2019	4.652329 (27.44509)
tech	-19.49328 (22.70388)
trailingPE2019	-.0854348 (.1493626)
forwardPE2019	5.060306 (1.847826) ***
Enterprisevalue2019	-.1802627 (.1224244)
intercept	-44.11826 (85.31424)
R-squared	0.3635
observation	57

With the 2019 data we have another model out and here we can see that the company's solvency and forward P/E ratio also have a significant impact on the company's share price. And the variable firm value is not significant in this regression model. So, when investors invest, the company value is not suitable as a consideration for the increase of the share price.

Of course, the effect of profits on stock prices also needs to be explained here. In both regression models, the variable "EBIT", which represents the company's profit, is not significant. But as we all know, profit is an important factor that affects the company's dividend, so it should have a significant

impact on the company's share price. In fact, profit in this model is the amount of profit. Since the volume of each company is different, the value of profit does not directly reflect the growth of the share price. So thea author further analyzed the relationship between the growth rate of the company's profit and the growth rate of the share price. We build the model using the company's profit growth rate and share price growth rate from 2019 to 2020.

Table 4: The relationship between profit growth rate and stock price growth rate.

Variable	Coefficient
profit	.0775624 (.0029142) ***
intercept	-44.11826
intercept	.1935438 (.0329222)
R-squared	0.9124
observation	70

Here we can see that the coefficient of the variable profit shows that when the growth rate of profit increases by 1%, the growth rate of the stock increases by 0.077%. Therefore, 91% of the growth rate of companies' stock price can be explained by growth rate of profit. Therefore, the growth rate of profit is the factor that affects the stock price, not the value of profit.

6. Conclusion

From the analysis, we can conclude that, among the eight factors mentioned above, the two factors that have the most significant impact on the stock price are the company's solvency and the company's forward P/E ratio. This means that investors get information from financial websites, in addition to dividends, ROE, ROA and other data from traditional financial models. They also need to pay attention to the changes in the company's current assets and current liabilities, and they pay more attention to the forward P/E ratio rather than the trailing P/E ratio. By using these data changes, investors can make more accurate judgments about the stock price. And since these factors are the underlying financial information. When they change, investors can be more sensitive to the changes in stock prices. Moreover, when we focus on the impact of profit on stock price, we should focus more on the level of company's profitability rather than the value of profit. In addition, we may think that people now think that technology companies may have better growth prospects, so their stock prices may be higher compared to other companies. However, when analyzed through the regression model, it is not obvious that whether a company is a technology company has an impact on its share price.

Of course, there are some problems with this analysis, first of all, the observations are only for 70 companies, so more accurate results could be obtained if more observations were available. In addition, the R-squared of the regression model is only 0.55. so there could be other factors that could have an important impact on the stock price.

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