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Semiparametric estimation of factors that affect the stock return

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Abstract

The stock market is full of dynamics and uncertainty, and much research has been done to study the factors that can drive the stock price to fluctuate. The previous study focused on firm-specific factors such as dividends, book value, earnings, etc. Moreover, numerous studies have proven that such firm-specific factors can influence the movement of stock prices.

In this paper, we not only want to study the firm-specific factors such as sales to earnings ratio and earnings book value ratios, market capitalization, etc., but also we want to study whether the beta value, as well as the sector categories, can determine the movement of the share price to some extent. In this sense, we choose the stock price of Russell 2000 and the associated factors to study the underlying empirical relationship between them. We want to give investors the best chance to pick the right stock with growth potential. We want investors to use these methods we lay out to find their stocks in the future. You can use these methods to sort out stocks by your requirement and pick—diversified sectors to have a high growth risk-averse portfolio.

We highlight safer stocks for investors looking for more steady stocks that don't fluctuate as much as the market. You can again manipulate the data to find stocks that fit your individual investing requirement. Only some people can stomach a very volatile stock with potentially significant gains. Some would rather have safer options that aren't as volatile.

1 Introduction

The stock market is full of uncertainty and volatility. Understanding the factors that cause the change in equity price can help investors to avoid huge unnecessary losses and maintain the healthy environment of the equity market. Many investors are looking for good companies that can grow their portfolios, and many want to do it in the safest way possible. In order to invest, the safest way is to know the metrics about a stock. This paper will help you learn the metrics you can analyze a stock with and how to use them. The paper will also explain why you should use them before investing in a company. We all have different risk tolerances and goals for investing in stocks, and these metrics can help identify the best stock for you. While you use the beta, market cap, and ps ratio metrics will ensure that you are investing only in the stocks that meet your requirements. That could mean you want safer stocks or stocks with the potential for the highest return; either way, you can manipulate the data to suit your investment needs best. Researching stocks before investing your hard-earned money into a company is always important.

Stock markets can be volatile, and the reasons particular stocks rise, and fall can be complex. More often than not, stock prices are affected by several factors and events, some of which influence stock prices directly and others that do so indirectly. Factors affecting stock prices include world news, company news, market sentiment, supply and demand, company earnings, company mergers or takeovers, and dividends. Ultimately, after a company's shares start trading on a stock exchange, its share price is determined by the supply and demand for its shares in the market. The price will increase if there is a high demand for its shares due to favorable factors. You can use the metrics to help you analyze a stock and if you think the demand will go up or down for that given company. The metrics will help you determine if the stock is under or overvalued. Then you can conclude if now is the time to buy the stock or look into a different company. That is the advantage of the stock market. There is always an alternative company you can invest in or an alternative sector. It would help if you kept performing the metrics until you find a company you believe is worth investing in. With all the external factors in the stock market, it is volatile that you do your research so you can pick the right companies to invest in.

During the past several decades, many researchers have been studying the causal relationship between dividends and the level of equity price. For example, before 1981, several kinds of literature argue that the present value of dividends is the main determinant of the level of stock prices. However, LeRoy and Porter (1981) and Shiller (1981) found that this is not the case. They asserted that This conclusion, known as the excess volatility hypothesis, argues that stock prices exhibit too much volatility to be justified by fundamental variables. Several papers (Flavin 1983; Kleidon 1986; Marsh and Merton

1986; Mankiw, Romer, and
Shapiro 1991) challenged the statistical validity of the variance bounds tests of LeRoy and Porter, and Shiller because stock prices and dividends were nonstationary processes; however, much of the subsequent literature found that stock price movements could not be explained solely by dividend variability, as suggested by the present value model with constant discounting (Campbell & Shiller, 1987; West, 1988a).

The companies' stock prices in the same sector will usually move in tandem. This is because market conditions generally affect companies in the same industry in the same way. However, sometimes, a company's stock price will benefit from a piece of bad news for its competitor if the companies are competing in the same market. Some companies can also go up if they are complementary companies to each other. These factors can help investors understand the stock that they are picking better. Once you analyze a stock, you can determine if it is the correct buy based on your investing style—high-risk, high-reward, or safer stocks. Once you understand the stocks with market cap, ps ratio, and beta, you can better decide whether the stock is good for you. It would be best if you always researched before investing in a stock; these metrics will help you better understand a stock before investing in it. This paper will help you better understand how to use these metrics and why you should always look at them before you invest your money into a stock. You can also compare the metrics to other stocks in the industry to see if the stock is over or undervalued compared to the industry it is in.

We will be testing to see if there is a negative relationship between high beta and P/S ratios and stock performance along with the market cap. If the beta is substantially higher than the industry average of stocks' historical average, the stock will perform worse than a stock closer to one. That is the same with the P/S ratio. The higher the P/S ratio, or the more you pay for the company's sales compared to other companies in the same industry or the company's average ps ratio, the worse return you will have. Suppose the stock has a lower beta and P/S ratio than other companies or the company average in the same industry or overall market. In that case, they will be better companies to invest in to make higher returns. Market cap is also an indicator of stock returns. The larger the market cap, the more established a company is, and usually, the safer it is to invest in. That is said, smaller market caps are usually less established but can offer higher returns than larger ones.

You can see substantial gains if you invest in a small-cap stock, and it becomes a larger-Capone. It is also riskier, so you need to identify your risk tolerance. So again, the market cap can also play a role in the stock returns, large-cap stocks can still offer much growth with potentially lower risk, but small-cap stocks can be a high-risk, high reward for investors. You must identify which size companies you want to invest in. That is why it is essential to know all the dates of the industry the company is in and the historic P/S and beta the company usually has before investing. Just because it is a good company does not mean it is the ideal time to buy that company, and these metrics will help you identify when it is the ideal time to buy the company's stock. While other stock indicators move the price of a stock, we will focus on how the P/S ratio and beta affect stock prices and market cap affects stock returns.

2. beta

Beta measures a stock's volatility in relation to the overall market. By definition, the market, such as the S&P 500 Index, has a beta of 1, and individual stocks are ranked according to how much they deviate from the market. A higher beta stock is usually riskier than a lower beta stock. High beta stocks can also lead to higher returns depending on when you get in and out of the stock because high fluctuations in price can lead to good buying opportunities. If you want to buy a safer beta stock, you will look for one close to one of the below 1. If it is close to one, that will mean whatever the market moves, it will be around the same. If it is lower than one, that means it doesn't move as much as the market. That goes both ways, though, meaning if the market goes up a lot, it won't go up as much as the market, or if the market goes down a lot, it won't go down as much as the market.

So as an investor, you must weigh your risk tolerance before buying a high or low-beta stock. Both can be good, depending on what you are looking for. If you are looking for higher returns but can also stomach more dramatic drops in price, a higher beta stock will be good for you. If you are more concerned about not losing money, you will want a beta stock to be around one or lower.

You can also compare a company's beta over time. You can see the historic average beta, and if a company starts to get too much higher than the average, it can be a helpful signal that it might be becoming overvalued. That is easier to see in larger companies because they have a more steady beta over the years. It is a very useful tool for risk management in a portfolio. It is always good to look back on companies historic beta so you can understand if the beta is usually higher than the one or is historically closer to it. Some companies have high beta historically, then you can compare the current to the historic, and it still might be undervalued in terms of the beta historically that the company has. Beta can be stock company specific because there is a public beta you want to be around one, but that saying, you also want to know about the company-specific beta.

Comparing a company's beta to the overall sector can

be beneficial. If a company has a high beta in a sector where stocks historically have a beta closer to one can be a sign of why not invest in that stock. You can pick a safer alternative in that sector. But some sectors can all have high beta, like electric vehicle companies, and in that case, they can still compare companies' beta but shouldn't compare them to much lower beta sectors because their sector as a whole is volatile. Everything is relative, and you need to compare companies within the same sector to understand whether the company is over or undervalued.

A stock that swings more than the market over time has a beta above 1.0. If a stock moves less than the market, the stock's beta is less than 1.0. High-beta stocks are supposed to be riskier but provide higher return potential; low-beta stocks pose less risk but also lower returns. That is why the beta is a handy metric to look at before investing in a company and to identify the type of investor you are risk-averse.

3. Model

We want to use the SLS model to estimate and examine whether a relationship exists between the beta value and the stock return, adding other co-variants-market capitalization, price-sales ratio (P/S), and sector categories. Because there is no exact function form to match such correlations, SLS is a perfect candidate to study such kind of relationship.

The model is stated as follows:

• The standard OLS model of the stock return is:

$$Y_i = \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \epsilon_i$$

Where X_{1i} is the market capitalization, X_{2i} is the beta value, X_{3i} is the P/S ratio, X_{4i} is the dummy variable indicating whether the company belongs to the financial industry, *and* X_{5i} is another dummy variable denoting the whether they belong to the healthcare industry. We define

$$X'_{2i} = [X_{2i}, X_{3i}, X_{4i}, X_{5i}]'$$

it as the vector form of the dependent variables. With the SLS form.

$$Y_i = M(V_i(\theta_0)) + \epsilon_i$$

$$V_i(\theta_0) = X_{1i} + X'_{2i}\theta_0$$

• Where we denote the actual parameter value vector as

$$\theta 0 = [\beta 20/\beta 10, \beta 30/\beta 10, \beta 40/\beta 10, \beta 50/\beta 10]$$

• We denote the estimator vector as

$$\theta = [\beta_2/\beta_1, \beta_3/\beta_1, \beta_4/\beta_1, \beta_5/\beta_1]$$

We made the standard assumptions as follows:

• The X_i are *i.i.d* observations.

•

$$E(\epsilon|X) = 0$$

$$E(\epsilon\epsilon'|X) = \sigma^2 I$$

And we solve the following objective function to get our estimator.

•

$$\hat{Q}(\theta) = -\frac{1}{2}([Y - \hat{M}(\theta)]^2)$$

•

$$M\hat{} (\theta) = CE(Y,V,V,r) \equiv E\hat{}(Y|V)$$

•

$$\Theta = \hat{}\text{argmin}Q\hat{}(\theta) = \text{argmin}Q\hat{}(\theta) - Q\hat{}(\theta_0) \quad (1)\ \theta \quad \theta$$

Moreover, we know that the error term in the regression is uncorrelated with the independent variables.

We choose the stock return of 1888 companies from Russell 2000 and treat this as the dependent variable Y_i. Our independent variable includes the P/S ratio and beta value (a measurement of the risk of a company's stock price). And we also add two dummy variables that indicate the companies' sector belongings. If a company belongs to the financial service industry, we set the dummy to 1 and 0 otherwise. Moreover, if a company belongs to the healthcare industry, we set the dummy to 1 and 0 otherwise. Through SLS, we can only identify the parameter value vector.

$$[\beta_2/\beta_1, \beta_3/\beta_1, \beta_4/\beta_1, \beta_5/\beta_1]$$

Through the regression, we want to find whether the P/S ratio, beta value, and sector belongings can impact the stock return. Furthermore, we want to find which factor affects the company's stock return most.

Moreover, we compare our SLS regression result to that of OLS regression. We find that the parameters estimated from OLS were not significant. More specifically, under OLS regression, P/S ratio, beta value, and sector categories do not affect stock return, which contradicts common sense. By contrast, we get significant results under the SLS regression. The P/S ratio, sector categories, and beta value significantly impact the stock return.

3.1 PS ratio

The PS ratio is a valuation in which you can judge a stock based on a company's market capitalization divided by the company's sales for the previous 12 months to see how much an investor is paying per dollar of sales.

It is a very useful tool in order to show if the stock is worth buying or not. Usually speaking, if you analyze a list of low P/S stocks shows that most of these companies have low profitability or high levels of debt. For P/S ratios, you want to be between 1 and 2. They are considered to be the best value for stocks. If you see a stock with a higher P/S ratio, it could be overvalued at its current price. That is because you pay more money per sale than a different company. That can be okay if you have high conviction about that company's ability to grow its sales, but if you see them the same as its competitor, it is overvalued. If you see it as a stock with a lower P/S ratio, it is currently undervalued at its current price and can be a good company to invest in. Fisher's (1984) theory suggests that investors should only purchase stock in companies with

low P/S ratios because each invested dollar will buy more sales dollars, resulting in a higher probability of greater returns for an investor's stock portfolio. He firmly believes in a low P/S ratio to high stock return. Fisher (1984) also says That the P/S ratio may have become a more helpful stock return predictor due to intangible assets, which are not in other calculations. Fisher points out the importance of using the ps ratio before you invest in a company.

One downside of calculating a company's sales ratio is that it needs to show if a company is profitable or ever will be profitable. Being profitable is critical to a company's success. You can only go on collecting investors' money for so long and not being profitable. At some point, a company will have to show profits, which is why the ps ratio can have a downside of not showing profitability. It would help if you had insight into the profitability of the sales. You can see if, sales-wise, it is under or overvalued. Vruwink (2007) says you also need help understanding a company's long-term debt. Debt can weigh a company down if it has less of it. The company will eventually need to repay the debt, so it is essential to see how much it has. Debt is not calculated in the factor of ps ratio, which can be a downside of seeing if the company is a good buy. Those limitations of the ps ratio can be easily overcome with some extra research.

If combined with the ps ratio will have an effective investing strategy. Most of the time, for the P/S ratio to be the most successful, you will want to compare it to other companies in the same industry. For example, if a company's P/S ratio is 2.2 and the industry average is 1.5, you are paying a premium for that company's sales compared to the industry. That is telling you that company sales are a premium, and it is up to the investor to see if they qualify that as overvalued, or if they have high conviction that the company will continue to grow sales, they can justify it. That works both ways. Suppose a stock P/S ratio is under the industry average. In that case, you can classify that as cheap compared to the industry or not a good investment if you do not have a high conviction that their sales will increase as fast as other companies.

That is up for the investor to decide and make an educated decision now based on the data. Then you can see the overall industry average and see if the company you're looking to invest in is either over or undervalued compared to its market sector. While it doesn't determine the company's profitability, it is still a very useful tool for investors and should be something you look at before buying a stock.

3.2 Market Capitalization

Market capitalization is the amount of money that the company is worth. It is the number of shares multiplied by the price of the stock. Market capitalization can be helpful to know before you buy a stock. Some people prefer only being in big, medium, or small companies. In that case, you must know the market capitalization before investing in the stock.

When it comes to safety, the companies with a large market cap are safer than those with smaller ones. That is because larger companies are more established than smaller ones. The advantage of smaller market cap stocks is that the return could be higher than a more extensive market cap stock. People use the market cap to identify a potentially safer stock or a riskier one with potentially higher returns.

One reason that many experts cite is that smaller firms are less liquid. That means they need higher returns for investors to take their money out without damaging the stock price. That is because investors will have a more significant impact on the company if they invest 100 in a small company compared to a big company. It is easier to pull money out of big companies making them more liquid. More enormous market capitalization stocks are more liquid, so investors can quickly move in and out of the stocks. Again proves the point of safety in a larger company rather than a smaller one; you can easily pull your money out of large-cap stocks if you need to, whereas, in smaller ones, it is hard.

Investors should know about the risk in smaller cap stocks, but that says no risk, no reward. Many smaller cap stocks can offer a much more substantial return if you pick the right stock. Banz (1981) and Reingranum (1881a,1981b) established that smaller firms, on average, had higher returns than larger ones. Reingranum (1891) also did a study from 1963 to 1980 and found that small-cap stocks' average return was 32.77 annually, whereas the large-cap stocks in the portfolio had, on average, a 9.47 annual rate of return. That proves that on average small-cap companies can yield a greater return to the investor. One of the main reasons is that a small company is just starting to grow and can become a big company. Much rapid growth can happen in the beginning stages, whereas it is a lot harder for a larger company to proliferate because they are more established. Smaller cap stocks need higher returns to make them more prominent companies, which will allow investors to pull money out of the company if needed safely. Suppose you successfully get into a small company and hold its stock until it is more extensive. Your return can be higher than investing in a more established, slower-growing, more giant company.

Another great reason some investors choose larger market caps over small ones is that the dividends have historically been safer. If you rely on dividends for payment, you will want a larger market cap company because they will have more cash on hand, usually that even in bad times, they can still afford to pay out their shareholders. Smaller companies with less cash might have to cut or suspend their dividends from shareholders, making them less reliable for stable dividend payments. Small and big-cap stocks have many pros and cons, but you need to have

your specific investing goals in mind. Some investors will take potential lower stock returns with safer dividends, which will still increase the return for the investor. If you can handle higher-risk stocks and want higher returns, you should invest in small-cap companies. The data shows that they can yield higher returns over the years. If you are more conservative investors, who want stable, safe dividend payments, you should invest in larger-cap companies. Once you identify your risk tolerance and investing goals, you can then look at what market cap you want to be in.

3.3 Data

The data was collected over the summer of 2021. We collected the stock name, price, beta, P/S ratio, sector, and 1888 small and mid-cap stocks market cap. Of the 1888 stocks, there are ones in all different industries so that you can diversify your portfolio with a wide variety of stocks. The beta, P/S ratio, and market cap are critical variables you, as an investor, should pay attention to, why this paper covers them. As a successful investor, if you look at these metrics, you will have a higher chance of successfully picking stocks. The more you can learn about a stock, the better. You only want to buy a stock after doing the research beforehand, and this data is an excellent example of how to do that. The paper analyzed small to mid-caps in particular because they can have potential higher rewards; it also wanted to see how volatile some are. For an investor looking at smaller companies before they turn into bigger ones is a great way to get high returns; that saying does not come without risk, and that is why you should look at these variables before investing.

For these stocks in particular, you want to research because small caps are less solidified businesses, so they have a higher potential to fail. Collecting data over 2000 stocks allows you to have a wide variety in different sectors, so you're not overweight in any given sector to help minimize the risk of your portfolio. When you can find different stocks in different sectors, you can manage your portfolio risk because if one industry is down, you don't want it to be the only industry you invested in. If you are properly diversified, you can weather one destructive industry with the good ones, which will help you minimize the risk of losing all your money. It also allows you to manipulate the data for that stock to hit your investment requirement, so you can organize the stocks into investment categories based on their beta, P/S ratio, or market cap. The P/S ratio, beta, and market cap, all metrics we collected, are beneficial tools for an investor to understand better the stock they are looking into. This feature can help you sort out the stocks you are not interested in investing in based on your requirements for specific metrics. You will be left with the ones that meet your requirements and then can invest in those companies. The more data and options you have when investing, the better off you should be. You always want to analyze many stocks before investing to see if there are any better stocks than your requirements. When you research a stock and have a lot of data to back up why you are investing in the company, you will have the most outstanding results while minimizing your risk. This data will allow you to create the successful portfolio you want to make by properly examining key metrics to stock performances.

3.4 Results

The data descriptions are summarized in the following table.

Some of these metrics can be historically high right now as these numbers were taken in the Covid-19 pandemic, which has significantly impacted companies.

It is essential to do the averages because you want to find stocks you believe are undervalued that have the potential to go up. If you find stocks that are below the averages for the metrics you are looking at, it could mean that it is a good deal. By analyzing many stocks, you can better understand what is overvalued or undervalued. The more you analyze, the better your chance of finding a good deal. We have tested to see if the negative relationship is accurate, and it is. Generally speaking, you want to invest in stocks with a beta closer to one than substantially higher than one. Also, you want to invest in lower P/S ratios. The stock performance is worse in high beta and P/S ratio stocks. You want to invest in companies that are undervalued beta and P/S ratio-wise, and you will have the best returns. We see the negative relationship because you want to invest in a company's price-to-sales ratio as low as possible. You would want to spend five dollars instead of ten dollars for every dollar of sales, generally speaking, because you get more for your money. The beta also makes sense because higher beta stocks are more volatile, so if the market drops, those stocks will be even worse. That affects stock price returns because once a stock goes down, it will need to go up more proportionally to get back to the original price. That is why it is crucial to research before investing in a company. The more stocks you research, the better because you have more companies to compare it to. Also very important to compare the ps ratio and beta to the other stocks in the industry and the company's historic ps ratio and beta before investing. You want to buy when the stock is deemed undervalued compared to other companies in the same industry of that specific company's average ps ratio and beta history.

Since we know the adverse effect, you will want to look at companies with low P/S ratios and beta compared to other companies. You can also see if the P/S ratio or beta is historically low for that specific company, and that would be a good buy indicator. You can also compare a market's beta and P/S ratio to see if it is an excellent time to buy the overall market. Knowing the adverse effect, it is essential to research undervalued P/S ratios and beta stocks because

that could have the best returns. When the P/S ratio and beta are low or historically low for that specific company, that is usually considered a good time to buy. When you have many stocks to look at on the list, you can filter them out by the P/S ratio and beta that you want, only to see the companies that hit your investing qualifications. Once you sort the stocks out, you then buy the stocks that meet your qualifications and can that companies in different sectors have a diverse portfolio. When you properly risk manage your portfolio, you will be best set up for success.

It is easy to see that estimators from the OLS regression are highly insignificant, whereas that from SLS are significant. The results are summarized in the following table.

4. Data Summary

Table 1: Data Description

Variable	Mean	Std. Dev.	Man.	Min.
Stock Price	29.55	35.67	619.48	0.776
Mkt Cap	774.6	2139.07	15406	0
P/S Ratio	12.74	136.84	3201.55	0
Beta	0.76	0.536	1.98	-2.8
N		771		

We selected 1888 companies from the Russell 2000. We fixed the period on 05/15/2021.

We specifically looked at their stock price, beta value, market cap, and P/S ratio.

They were all collected as panel data. Their detailed descriptions are summarized in the above table.

5 Result Summary

5.1 Regression Results from SLS and OLS

Table 2: Semi-parametric Estimates and OLS Estimates

VARIABLES	(1) Coefficient Ratio Semiparametric	(2) Coefficients OLS
Market Cap	1	26.188961*
		(1.3071180)
Beta	-0.9359712***	-10.057406
	(0.0015238979)	(4.5014614)
P/S ratio	***	-0.4325
	(0.0015238979)	(2.03671)
Financial Industry	0.050968***	-0.3554
	(0.00090702713)	(0.8998)
Healthcare Industry	0.0630985***	-8.9264593
	(0.0040893052)	(0.28871477)
Constant		49.974290 *
		(5.3071754)
Observations	771	771

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

5.2 Results Interpretation

We run the regression for the above data using OLS and Semi-Parametric, respectively. In the Semi-parametric cases, we use parameter value $\frac{\beta_2}{\beta_1}$ to represent the average impact of beta on the stock return conditional on their market capitalization. Similarly, $\frac{\beta_3}{\beta_1}$ represent the overall impact of the P/S ratio on the stock return. $\frac{\beta_4}{\beta_1}$And $\frac{\beta_5}{\beta_1}$ represent the overall impact of whether a company in Russell 2000 belongs to the financial industry on their stock return and whether a company in Russell 2000 belongs to the healthcare industry can have an impact on their stock returns, respectively. By doing this, we can control for their market capitalization while we look at the impact of other variables on the stock returns conditional on the market capitalization. For the OLS regression, I use one model to estimate all the companies.

We can easily observe that the standard error in OLS is enormous, and the parameters must be better estimated. By comparison, the parameters in SLS are very well estimated, and the results are highly significant. For example, we focus on the impact of beta on stock return. The estimators in SLS are highly significant, and from that, we can argue that the beta value has a negative relationship with the stock price. And all the estimators we derived from OLS are highly insignificant.

6 Conclusion

The ratios provide helpful ways to analyze stocks to determine their values. Each of them is good in their own respect, but a wise investor should consider all of them before buying a stock. You can interpret the stock data for your investment if you want high-risk, high-reward stocks or safer blue-chip companies. These calculations will help you determine what type of stock it is. Market cap, can you show more prominent companies that are usually safer? I can check with other ratios to confirm that. The smaller cap companies can be riskier because of a lack of liquidity and the company's cash on hand. That saying has more room to grow faster because it is a smaller company. You can also see more small and less established companies that could yield high returns. Market cap can also determine how safe a dividend a company is. More extensive cap stocks usually have more money on hand, so they can pay dividends even in downturns where most smaller companies would have to cut or suspend dividends.

The P/S ratio can show how much you pay for the company's sales. You can compare to other companies in

the industry to see if stock is under or overvalued. You always want to see what other stocks in the same industry are doing because those are direct competitors and give a good baseline on if the stock is under or overvalued. The only downside about the price-to-sales ratio is you need to find out if a company is profitable. You are strictly looking at its sales and seeing if it is under or overvalued compared to other companies in the industry. The P/S ratio is helpful for investors to look at before investing their money into a particular company. Some industries have historically high P/S ratios, so it is necessary to compare them with industries. We found a negative correlation between the P/S ratio and stock returns, so you want to find a lower P/S ratio.

You can also look at the beta of a stock to see how volatile a stock is. If it has a beta of more than one, it moves more than the market, riskier but could yield higher returns if bought at the proper time; also, safer stocks that are a beta of one or around one. If the beta is lower than one, that moves less than the Sp 500, which means it goes down less and up less than the SP 500 when it swings. Beta is significant to understand, especially for investors' risk tolerance. If you like more steady stocks, try to buy a stock with a beta around one; if you can handle the swings, you can look for a more volatile beta, one stock that has a beta greater than one. There is also a negative correlation between high-beta stocks and stock returns. That means you want a beta closer to one for the best long-term results.

You can also look at multiple companies' mean, standard deviation, summation, and min and max. Just another way to get baselines to compare to other companies. The more data and comparisons you can do with stocks, the better you will be. It would help if you analyzed everything thoroughly to be in the best position to invest in the right company. Everything is relative, so comparing it to other stocks in the same industry is essential. Getting all the metrics can also tell you if the index is overpriced before investing. You can see the history of the mean, standard deviation, summation, and min and max over the years to see if it is a good time to invest.

We found a negative correlation between the P/S ratio and beta to stock returns. Investing when the beta or P/S ratio is too high negatively affects the stock return. So that is why it is vital to do your homework on stocks before investing in them. Seeing that relationship will show that you want lower P/S ratios and beta stocks relative to the market or their historical averages. That is the best way to see the stock returns you are looking for.

You can analyze all of these metrics in order to suit stocks to your personal investing goals. Some people will like safe dividend stocks and be able to identify them with these metrics, while others like smaller riskier stocks that they hope for higher returns. Either way, you will be able to identify the stocks and make a decision if they fit into your profile. Whatever strategy you decide to use, it is always important to do your homework so you can buy them at the most ideal times. You want to get the best deal for any stock you are looking to invest in, and these metrics can help you understand what is under or overvalued. There are many different stocks that can provide many different unique investment opportunities to people. The key is knowing how to manipulate the data to get the stocks you are interested in investing in. Combining all these methods will help you make the most informed decision about stocks. You must do your research before investing in a company to ensure it checks all the boxes. Once you have done all the necessary research, it is time to invest in the stock you believe will be the best for your portfolio. You can also diversify your portfolio with different sectors to minimize the risk. You still do the same research but pick stocks you want to invest in different sectors. For investors that like diversity, you want only some of your money in a couple of stocks; you want them in many stocks from many different industries. If you do your homework before investing and use the metrics described in this paper, you will have the best chance of buying the best stocks at the best time to maximize your returns as an investor.

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