Companies Comparison and Analysis in Technology Sector

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Abstract. Among the stocks of information technology companies, our group selected the stocks of 12 companies, and gradually analyzed them, studied the ROA, ROE, and other necessary information of the stocks of 12 information technology companies, and evaluated the risks of the stores. After many comparisons, according to the risk, profitability, and market ratio of the stocks of 12 companies, the most suitable stocks for investors are selected. Finally, it is concluded that Twitter, Meta Platform, Aerospace Information, and Microsoft are the most suitable stocks for investors. Their stocks have low risk and high income, and there will be more opportunities to make money in the market, which will not cause large-scale losses for investors.

Keywords-ROA, ROE, financial market

1 Introduction

As society evolves, information technology is becoming a popular segment of today's stock market. In many cases, investments in information technology stocks reflect the potential of this product as an essential object of research for future human society and the prospects of its application. As a result, these stocks always attract attention. How to invest in such stocks reasonably and appropriately has become a topic of interest for many people. In this article, we will compare 12 different stocks from three main perspectives: risk, market, and investor, in order to help investors interested in information and technology to make investments that are more in line with the needs of today's society.

In the article, first, elaborate the specific data of all the company's stocks, including four combinations and three stocks in each group. After a comparative discussion, select the four stocks that are most worthy of investment—finally, select the best one from the four stocks for an overall summary.

ICIDC 2022, June 17-19, Qingdao, People's Republic of China
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DOI 10.4108/eai.17-6-2022.2322852

2 DATA

The technology sector contains both goods and services which help to convenience people's life. Nowadays, people are more reliant on technology, and many of the products are made with artificial intelligence. For example, people can control the light in the room on the mobile phone before reaching home, and there are many of the same types of products existing on the market. So, technology can greatly facility people's life and have good forward prospects.

This article totally analysis twelve companies from the technology sector, and each person selects all the information and data about three companies. The twelve companies are from the software, semiconductors, and information technology service industry which a wider range may help to better analysis. We analyze the companies in three ways, risk, profitability, and market ratio. These ratios can help to analyze different views. For the market ratio, it finds out which investors will investor with the company from the data, and each person will compare all three ratios and choose one that recommends buying, after that will analysis the four companies and choose the best to buy it

3 ANALYSIS OF NTO

According to the current popularity of technology companies in the market, the stocks of three companies are Netflix, Twitter, and Oracle. After fully understanding the stock prices, risks, and some accurate data of the three companies, and found the previous data of the stocks of the three companies on the Internet and finally made a summary and analysis. Table 1 illustrates the trends in the three stocks of Nifty, Twitter and Oracle, which correspond to the technologies of media broadcasting, information exchange and data storage respectively.

In Table 1, the stock prices of these three companies are 658.29, 47.52, and 93.85, respectively. From the market cap, we can see that Netflix and Oracle are both large companies, in addition to Twitter's 37.69b, Netflix's 289.72b, and Oracle's 255.819b. Among the debt ratio, current ratio, and quick ratio of the stocks of the three companies, Twitter is generally high. Therefore, they may face greater risks in the market. The three data of twitter are 0.508, 4.09, and 4.09, respectively. The lowest is Netflix's stock, with three data of 0.647, 1.17, and 1.17, respectively.

In terms of profitability, the profit margins of the three companies' stocks are Netflix: 17.64%, Twitter: - 3.77%, and Oracle: 34.16%. This means that Oracle may make more money in the market. The ROA and roe of Netflix stock are 10.01% and 39.39%, respectively, the ROA and roe of twitter stock are 1.61% and - 2.42%, respectively, and the ROA and ROE of Oracle stock are 8.32% and 309.70%, respectively. It can be seen that the ROA and ROE of Oracle are generally high. The data of the Twitter company is very low, which means that they are likely to have large losses in the market.

In terms of market ratio, the values of P/E, P/B, and PEG of Netflix stock are 59.35, 18.92, and 1.60, respectively, the three data of Twitter stock are 98.48, 5.26, and N/A, respectively, and the three data of Oracle stock are 54.38, N/A and 2.51 respectively. In terms of dividend yield, the data of Netflix and Twitter are 0.00%, while the data of Oracle stock is 1.37%.

After comparing the data, the P/E of the three stocks is greater than 10, the P/B of Netflix and Twitter is greater than 2, the dividend yield of the three stocks is not greater than 3, and the PEG of Netflix and Oracle is greater than 1. Therefore, momentum investors will be interested in these three stocks

Generally speaking, Twitter's stock has the highest risk and is the most meaningless company for investors because investors can hardly benefit from Twitter's stock and have a great risk of loss. Based on data analysis, Oracle's stock is most worth investing. They have the largest profit space in the market, and all year round, The company's stock price has been very high, and the risk is relatively low

Table 1. Data of NTO

Name	Netflix	Twitter	Oracle
symbol	NFLX	TWTR	ORAL
stock price	658.29	47.52	93.58
market cap	289.72B	37.69B	255.819B
Beta	0.81	0.67	0.80
debt ratios	0.647	0.508	0.28
current ratio	1.17	4.09	2.04
quick ratio	1.17	4.09	2.04
profit margin	17.64%	-3.77%	34.16%
Asset turnover	0.514	0.24	0.37
ROA	10.01%	1.61%	8.32%
ROE	39.39%	-2.42%	309.70%
P/E	59.35	98.48	54.38
P/B	18.92	5.26	N/A
PEG	1.60	N/A	2.51
Dividend Yield	0.00%	0.00%	1.37%
Insider buying	1	1	1
investor	momentum	momentum	momentum

4 ANALYSIS OF MAQ

Looking at the data for information and technology stocks on the NASDAQ stock market. Due to the breakthroughs and developments in information technology in recent years, the growth rate of such stocks has generally outperformed. This is particularly evident in Blockchain, Metaverse, and emerging information technology concepts. In addition, the physical IT industry, such as chip manufacturing, has also trended significantly higher as a result of the new technological revolution. Table 2 shows the stock market volatility of three information technology companies to help information technology-focused investors better predict future investment trends in the sector.

Three representative stocks, Meta Platforms (FB), Adobe (ADBE), and Qualcomm (QCOM), have been selected below. Meta Platforms represents the emerging IT industry, Adobe is more focused on the development of application technology, and Qualcomm represents the core physical technology, which is in some ways the foundation of most of the IT industry. Meta Platform has the highest market capitalization at 911.69B. A higher market capitalization causes a good investment effect, which indicates that investors are extremely enthusiastic about such stocks (meta-universe), and Meta Platform seems to be easier to raise funds compared to Qualcomm and Adobe. A high market capitalization means that there are more investors, which increases the safety of the investment because there are more people with a stake in it. Qualcomm has the highest beta among the three stocks at 1.33. When the beta is higher than 1, the stock has a higher risk. But high risk is often closely related to the high return. The beta value of all three stocks selected here is greater than 1, which proves that the stock is more volatile and risky. Adobe and Meta platforms also reach 1.27 and 1.05, respectively, where Adobe has the smallest risk index among the three. Debt ratio is also an important factor affecting riskiness. A higher debt ratio increases the financial risk of the company, which leads to a possible limitation of the stock's upward trend.

Meta Platforms' debt ratio has exceeded 50%, which indicates the company's poor solvency. Due to the recent transition to Metaverse, the FB debt ratio has increased significantly, somewhat scaling back the risk taken by the company based on the fact that Metaverse has a huge market cap and growth prospects. On the other hand, Adobe is certainly more stable at the data level, as evidenced by the debt ratio, and it does not have the same risk issues as Meta Platforms. Meta Platforms has an overwhelming advantage in terms of current ratio, and as mentioned before, although Meta Platforms has a higher debt ratio, an equally high current ratio of 5.05 combined with the project's outlook is enough to even out its risk. From a profit margin perspective, Meta Platforms is in a completely new phase, which is impossible to characterize in the short term, and the new concept is also full of risks, resulting in a higher profit margin for the company.

Qualcomm's figure is better than Meta Platforms and Adobe's in terms of asset turnover. Qualcomm's asset turnover is 0.87, while the other two figures are between 0.5 and 0.6, which shows that Qualcomm, as a company developing a physical information technology industry, has a definite advantage in terms of capital realization. The ROA of Meta Platforms is 19.92, which just confirms the previous conclusion of high risk, high reward. The higher the risk, the higher the return. Apart from the various factors, ROE is the most important point. Net income tends to represent the true revenue level of the company, and companies with high net income have quite desirable growth prospects and high self-regulation. Adobe has the highest P/E ratio of the three, which means that its stock market value exceeds what it should be. At 54.35, this company is clearly overvalued, and there may be a significant difference between its actual level and stock market performance, so it remains a matter of concern as to whether it really has value as an investment. Investors mainly refer to the P/E ratio, while banks refer relatively to the P/B ratio.

Combining both PEG and P/B ratios, the next analysis shows that Adobe is significantly more likely to be overvalued. In fact, a PEG greater than one means that the company is worth more than it should be, and Adobe has a PEG of 2.41. However, this reflects the fact that investors are extremely enthusiastic about the company and that growth prospects are promising. Stocks with a high dividend yield are considered income stocks, and many investors choose to assess the value of their investment by reference to the dividend yield. The higher the dividend yield, the more attractive the company or the company's product can be to investors. This seems to be the reason why Meta Platforms has a dividend yield of 2.65%, a topic that is more appealing to investors in the Metaverse, an investment that may even influence future social trends.

In general, Adobe and Qualcomm are friendly to quantitative investors, and they rarely, as in the case of Meta Platforms, have a short-term plunge or a sharp fall, like a roller coaster. Meta Platforms, on the other hand, is suitable for growth investors, who are mostly bullish on the future and growth potential of the Metaverse

Table 2. Data of MAQ

Name	**Meta Platforms**	**Adobe**	**Qualcomm**
Symbol	FB	ADBE	QCOM
Stock price	340.89	657.6	164.94
Market cap	911.69B	306.02B	184.733B
Beta	1.27	1.05	1.33
Debt ratios	56.45%	19%	34.58%
Current ratio	5.05	1.45	1.68
Quick ratio	5.05	1.45	1.41
Profit margin	35.88%	38.67%	26.94%
Asset turnover	0.59	0.57	0.87
ROA	19.92%	14.20%	15.93%
ROE	25.42	44.35	112.85
P/E	24.34	54.35	20.96
P/B	6.07	17.23	15.14
PEG	0.93	2.41	1.06
Dividend Yield	2.65%	1.88%	1.67%
Insider buying	1	1	1
Investor	Growth	Momentum	Momentum

5 ANALYSIS OF ADN

All these three technology companies are from China. Aerospace Information (AEI) is a company to helps adhere to serving the national strategy and the national economy and people's livelihood. Dahua Co., Ltd (DCL) is the world's leading provider and operator of intelligent IoT solutions with video as the core.NAN TIAN(NTN) is a professional digital service provider. The company has more than 30 years of rich experience in building information projects in the financial industry and some key national industries. Table 3 shows a lot of information about the investment of the three companies. This can provide reference information for those who want to invest in these companies.

Aerospace information has established a third-party electronic invoice platform with national influence, with an annual electronic invoice of more than 3 billion. Its market value is 5.58 billion. The risk of investing in this company is very small because it faces the government and enterprise market, not the public market. The debt ratio of aerospace information is about 28%, which shows that the stock risk of the company will be lower. The current ratio of aerospace information is 2.15, which shows that the company has strong short-term solvency. The profit margin of Aerospace Information is about 12%. For electronic information companies, the company's annual income is very good. The company's rate of return will be very stable. Its P/E value is 22, indicating that the P/E ratio of the stock market is slightly overestimated. But its PEG is less than one, so the market underestimated the value of the stock. Generally speaking, this stock still has great purchasing potential.

The main profit sources of Dahua Co., Ltd. are the development, service, and sales of computer software, as well as the design, development, production, installation, and sales of electronic products and communication products. The debt ratio of Dahua Co., Ltd is about 44%, which shows that investing in the company's shares has certain risks. The current ratio of Dahua shares is 1.99, which means that although the company's short-term solvency is not as strong as aerospace information, it is also very capable of short-term solvency. The annual return of the company's stock is about 18%, which is a very high return. The market it faces is the same as aerospace information. There is no high risk. The main market is the government. Its P/E value is 18, which belongs to the normal P/E ratio. Its PEG value is 0.84, lower than one. However, unlike aerospace information, its PEG value is not so low, indicating that the market has slightly miscalculated its expectations for the stock.

NAN TIAN information's business is to develop software and information products to help customers' needs. Of course, it also includes a series of services such as manufacturing, sales, technical support, and after-sales service. The debt ratio of NANTIAN information is about 50%, which shows that the risks and benefits of investing in the company's shares coexist. It is difficult to predict whether you can make money in the end. The current ratio of NANTIAN information is 1.66, which shows that the company has moderate short-term solvency and can repay part of its debts. The income of such companies is basically fixed, so the rate of return is difficult to grow, only 3%. Its P/E exceeds 28, and the stock market is prone to speculative bubbles. Different from the first two stocks, this stock has great risk and needs to be considered carefully. Its PEG value is one, indicating that the market has accurately predicted the future performance of the stock. The first two stocks have the prospect of improving performance, and this stock is likely to lose money. We should carefully consider whether to buy it.

Each type of company has different ways of making profits. For example, music companies make money by relying on the music copyright and album of their artists or film companies. They can make attractive films and make box office for them to make huge profits. However, the profitability of these companies is uncertain. They are not sure whether the audience likes their products, which also has a certain risk. The income of media companies or information technology resources companies is very stable every year, and there are few artificial risks. Because the main way they make profits is not for the masses, they all rely on third-party investment.

Generally speaking, information technology is the main market for future market development, and more people will be engaged in this industry. It shows that the IT industry is the leader in employment prospects and development prospects

Table 3. Data of ADN

Name	**Aerospace Information**	**Dahua Co., Ltd**	**NANTIAN**
Symbol	AEI	DCL	NTN
Stock price	12.33	24.58	14.68
Market cap	5.58B	5.9B	0.76B
Beta	0.92	0.84	1.22
Debt ratios	28.61%	44.18%	50.95%
Current ratio	2.15	1.99	1.66
Quick ratio	2.07	1.65	1.05
Profit margin	12%	18%	3%
ROA	4%	10%	2%
ROE	4.13%	10.59%	1.46%
P/E	22.01	18.34	56.46
P/B	1.87	3.72	2.45
PEG	-17.5	0.84	1
Dividend Yield	4.54%	5.45%	1.77%
Insider buying	1	1	1
Investor	Value Income	Growth Income	Momentum

6 ANALYSIS OF MNA

All these three companies are in the technology sector. Microsoft Corporation (MSFT) is the world's largest computer software provider. NVIDIA Corporation (NVDA) is an artificial intelligence computing company. It operates through two segments: Graphics and Compute & Networking. ASML Holding N.V. (ASML) is one of the world's largest manufacturers of semiconductor equipment. Its headquarters is the location in the Netherlands. Furthermore, Microsoft is in the software industry, which has a relatively low inventory than others. NVIDIA and ASML are in the Semiconductors industry. Both these three companies may convenience people's life. To find out the best company, Table 4 shows that the data for three ratios collected about three companies and used to analyze to choose the most recommended company.

To analyze the risk ratio, all these three companies have large stock prices, especially the ASML at 833.27, which may be because the technology sector will become important in the future and have high expected value than other sectors. For the market capitalization, ASML has the lowest at 352.9B, and Microsoft has the greatest value, about 2.58T. About the beta ratio, Microsoft and ASML are both less than 1, it means that security is theoretically less volatile than the market. NVIDIA's beta value is greater than 1, so the security's price is theoretically more volatile than the market. So, Microsoft and ASML have less risk according to with beta ratio. All its debt ratio is less than 1, so both three companies have more assets than debt, so companies with less risk. The current ratio and quick ratio for the three companies are greater than 1, so it's a relatively low risk. Overall, according to the data and compared, NVIDIA is relatively riskier than the other two companies, and Microsoft has the lowest risk.

About the profitability, usually, the software company has a high-profit margin. Microsoft has the largest value in profit margin at 38.51%, which makes more sales into a profit. Compared with the asset turnover rate, NVIDIA has a high asset turnover rate than others, so it means that NVIDIA is more efficient in generating sales from its asset base. ASML has the highest ratio at ROA, and Microsoft has the highest ratio at ROE, so Microsoft is efficient in generating profits, and ASML is efficient at using its assets to generate earnings. To sum up, Microsoft is more profitable in these three companies because both profit margin, ROA, and ROE are relatively high than others.

For the market ratio, all P/E ratios are greater than 10, and P/B ratios are greater than 2, which three companies' stocks are overvalued so that no value investor will invest in these companies. With the PEG ratio above 1, which is overvalued, then growth investors will not be interested in it. The dividend yield for the three companies is less than 3% which income investors only interest with that greater than 3%—all companies have momentum, so momentum investors will be interested in it. Microsoft and NVIDIA are having 1 in insider buying.

Overall, Microsoft is most recommended to buy in these three companies because it is a large company which software company has less inventory. It has a relatively low risk because its risk ratio is almost the lowest, so the buyer will not bear more risk than buying others. Moreover, Microsoft has more profitability than the other two. Although its only attractive momentum investor to invest in it, compared with all data, it has many potentials.

Table 4. Data of MNA

Name	**Microsoft corporation**	**NVIDIA corporation**	**ASML holding**
Symbol	MSFT	NVDA	ASML
Stock price	334.57	304.68	833.27
Market cap	2.58T	759.03B	352.9B
Beta	0.86	1.45	0.95
Debt ratios	0.19	0.33	0.15
Current ratio	2.08	4.09	2.41
Quick ratio	2.05	2.95	1.68
Profit margin	38.51%	32.32%	30.54%
Asset turnover	0.53	0.72	0.66
ROA	14.59%	14.36%	14.76%
ROE	49.3%	40.38%	43.26%

P/E	38.01	98.48	54.38
P/B	16.95	19.07	11.94
PEG	1.63	4.47	1.38
Dividend Yield	0.72%	0.05%	0.39%
Insider buying	1	1	1
Investor	momentum	momentum	momentum

7 DISCUSSION

After comparing the four best companies, Aerospace Information ranked the most promising companies to invest in. Unlike the other three, its market cap is not that big, with a stock price of around $12, which is very profitable potential for many fewer wealthy investors, while the other three require a stock price of more than $500, which is hard for many to pay. In addition, the stock's price-earnings ratio is very reasonable. Aerospace Information has a profit margin of 12%, which ensures that investors will make a profit rather than lose money every year. Combined with the above information, we think Aerospace Information is the most likely to invest in the stock.

The first best company is Twitter which has the highest risk and is the most meaningless company for investors because investors can hardly benefit from Twitter's stock and have a great risk of loss. Based on data analysis, Oracle's stock is the worthiest of investing. They have the largest profit space in the market, and all year round, the company's stock price has been very high, and the risk is relatively low.

Meta Platform is more suitable for investment than Adobe and Qualcomm, which is the second-best company. Firstly, it has a high enough market capitalization and is subject to many, and has a greater ability to take risks. Secondly, Meta Platform belongs to the higher amount of investment, the highest risk, but the highest risk, which just proves that its return rate is extremely high. Combined with the current trend of the meta-universe, Meta Platform, as the leader in this area, is highly anticipated. Therefore, in general, most shareholders, between Adobe, Qualcomm, and Meta Platform may consider Meta Platform more, sometimes the investment is not only the product, but also the application prospects, and even the company's Sometimes the investment is not only in the product, but also in the application prospects and even in the spokesperson of the company, and Zuckerberg himself is an entrepreneur with close enough attention, so in a way, the investment in Meta Platform is a careful consideration of all these objective data and subjective influence.

The third best company is Aerospace Information which has the best return among those three IT stocks. Aerospace Information has the highest market value. Investing in the company's shares is also a way to obtain stable returns. Because the company has high popularity in China, investors don't have to worry about investing in unknown companies. Aerospace Information is also committed to developing more Internet technologies, such as AI face recognition systems. In addition, they will try their best to meet the requirements of customers to make their company's reputation very good. The company has a history of 7 years since its establishment in 2014, and everyone has recognized its philosophy. Their four slogans are innovation, efficiency, pragmatism, and win; they are undoubtedly good for investors with investment tendencies.

The fourth best company is Microsoft because it is a large company with less inventory of software companies. Its risk is relatively low because almost all its risk ratios are the lowest which its debt ratio only at 0.19, so buyers will take less risk than others. In addition, Microsoft's profitability is also high which a profit margin of around 38.81%. It is the highest of those three companies. Nevertheless, it is the only attractive momentum for investors to invest in it, but compared with all data, it has many potential and good growth in the future, which is the most recommended to buy it in those three companies

8 CONCLUSION

This article has analyzed 12 IT industry stocks (3 for each person). Technology is the mainstream industry for future development, and it has a good chance to surpass all other industries and become the leader. This article understands the information and compares it with other stocks through risk, profitability, and market ratios.

By comparing the debt ratio of each stock, this essay finds that the debt ratio of most successful enterprises is about 50%. This means that investors do not need to recover the principal and interest on schedule because the debt ratio is too low. Of course, there are some exceptions. The debt ratio of the fourth group member's shares is about 15% - 30%. Her three stocks are all from the United States, and they are the stocks of very famous companies. The low debt ratio indicates that the enterprise has sufficient funds and does not need to borrow money, so their debt ratio is not high. The current ratio of most of the twelve companies are between 1.5-2, which is a very appropriate current ratio, but the current ratio of several companies is too high or even more than 5, which shows that the liquidity of enterprise assets is very strong and the short-term solvency is also very strong. Comparing the profit margins of various enterprises, we find that the profit margins are seriously polarized. The first is about 30%, a reasonable profit margin in the technology industry. The second is a profit margin lower than 10% or even negative, which means that the company's income does not meet expectations and even loses a lot of money. In addition, this article also analyzed the P/E value of all companies. We found that most enterprises had some risks. There were still a few P/E values indicating that the stock price was a bubble and the value was overvalued.

This article did not spend enough energy to analyze the future prospects of each stock but only made a certain analysis of the existing situation, which is obviously not enough. After that, we will pay part of our energy to study the future development prospects of each company. They may continue to increase the market value or plummet. This article thinks analyzing a company's future is also a very important part of whether it can invest

Y.Yuniningsih found that investors should consider the impact of various internal and external factors when investing. Internal factors start from the investment truth itself. The latter considers both macro and micro aspects such as politics and the economic conditions of the company's industry. And they are analyzed in a reasonable manner to make an investment [1]. There are many ways in which investors can invest their spare, excess funds in many areas, including real estate, stocks, bonds, funds, and more. In this way, they can achieve a return on their money [2]. The study of financial theory has evolved and is divided into the traditional financial theory of "careful" investing. However, as more and more theory is applied to the market modern portfolio theory and capital asset pricing models show that investors are not confused by the size of information [3]. Defrizal, D., Romli, K., Purnomo, A., & Subing, H. A proposed approach to equity investment is an investment strategy to achieve an investment objective and benefit from buying and selling through changes in stock prices. In the event of a rise or fall, investors should observe as many changes in capital market information as possible in order to judge the position of buying or selling shares [4].

Nugraha, B. A., & Rahadi, R. A found that a person's personality likewise impacts stock investments and an investor's intentions, depending on how they invest. Better awareness in the matter of stock investment helps the investor to improve financially. The government, for example, is also a beneficiary, and therefore they encourage people to learn and understand about stock investments [5]. The research of NGUYEN, Phi-Hung, et al. Shows Investors should consider exchange rates and inflation when investing. Stock selection is often closely linked to the performance of that company [6]. Some investors are not entirely rational in their investments and may make investment choices that are not the best for them for temporary gain [7]. Scientific and technological progress and capitalization have a mutually reinforcing effect, as scientific and technological progress and advanced "knowledge" enable them to introduce capital goods at a lower cost [8]. In the stock market, high-tech stocks are starting to dominate, but at the same time, there is a hidden bubble. The potential bubbles change over time [9]. Over-performance of theoretical models may cause investors too -over-trade [10].

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