Analysis of Investors' Choices in Technology Companies

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Abstract. This paper examines how to analyze which technology companies are suitable for different types of investors through various financial indicators. First, this paper chooses four technology companies, namely Tesla, Tencent, Microsoft and Apple. Next, Yahoo searches for various profit and loss metrics for several companies and groups these metrics into three categories, including risk, profitability and market ratio. Finally, reasonable suggestions are given by analyzing the investment preferences of nine kinds of investors. The nine types of Investors are price/earnings to growth ratio investors (PEG investors), discounted cash flow Investors (DCF investors), income investors, value investors, index investors, momentum investors, insider investors, ratio analysis and stock buyer. According to the analysis results, PEG investors and DCF investors may choose Tesla, while DCF investors and income investors may choose Tencent. In addition to index investors, other investors are likely to choose Microsoft. Apple is likely to be picked by PEG investors, value investors and momentum investors. The research significance of this paper is to help investors who lack certain financial knowledge to choose their own types of stocks, and to describe the characteristics of different types of investors to help investors judge which investment method is suitable for them.

Keywords: Risk, Profitability, Market ratio, Types of investors.

1. Introduction

Science and technology demonstrate a country's innovation-driven ability, and improving the level of science and technology is the only way for a country to innovate and develop [1-3]. The world in the 21st century is an era of scientific and technological competition, and if a country wants to have a strong economy, it needs to vigorously develop science and technology to promote the development of innovation and entrepreneurship in the whole industry. Since and technology are important factors to promote social development [4-6]. And with the development, scientific and technological innovation has a non-negligible contribution to social and economic development. As an important subject of scientific and technological innovation, science and technology enterprises have brought huge economic benefits and social value to the world, and continue to promote the pace of the industry with its innovative technology and advanced business model. Therefore, investing in technology companies in the stock markets is very important.

Stock market is an important place for investment trading. It is a complex dynamic system with high risks and high returns, and has the characteristics of randomness and instability [7]. Therefore, it is difficult for people who lack professional investment knowledge to make accurate judgments. This article examines the question of how to invest in technology companies for different types of investors. This article selects data from four technology companies which are Tesla, Microsoft, Tencent and Apple. Because these companies are the world's leading technology companies, in the automotive, electronic products, software research and development and other fields are ahead of the others. The point of studying this question is to help investors better understand which companies are suitable for them to invest in. Therefore, the importance of this study is to provide some suggestions for these investors who lack certain investment knowledge.

This paper will use the science and technology enterprises' financial status data including the risk profitability and market ratio searched from Yahoo to analyze and compare the data of these companies. Then this essay will analyze how different types of investors that include PEG investors, DCF investors, income investors, value investors, index investors, momentum investors, insider investors, ratio analysis and stock buyer choose the right stocks. The final conclusion is reached which companies are suitable for different types of investors.

2. Methodology and Data

This paper divides the collected data into three categories to evaluate the company's income, loss rate and risks.

2.1. Methodologies

2.1.1 Risk

The risk assessment of the company should refer to the market cap, beta, and total equity of the company. The market cap is multiplied total capital of the company by share price per share. Generally, the larger the market cap of a company, the more stable the stock is, and the risk is relatively small. According to the beta, the stock price will fluctuate by the same percentage when the index does. Therefore, as the market increases, select a portfolio with a high beta value in general. The opposite is true when the market decreases.

2.1.2 Profitability

The profitability analysis is based on the ROA (Return on Assets), ROE (Rate of Return on Common Stockholders' Equity), total asset and profit margin. Profit margin is the percentage of to sales revenue. Independent of other factors, the higher the company's gross profit margin, the company's total profit increased.

2.1.3 Market ratio

The contents of market ratio include PE (Price-to-Earnings Ratio), PEG, dividend yield, P/B, P/S and current ratio [8]. PE is a measure of stock prices and corporate profitability of the financial index, and the PE ratio reflects whether the stock has investment value. The PEG measure is a company's price-to-earnings ratio dividend by the company's earnings growth rate. Dividend yield is the ratio of the amount of dividends a company's stock pays out each year to its current stock price. P/B is the ratio of the stock price per share to the net asset value per share. P/S is calculated by dividing a company's total market value by its total business revenue over the past 12 months. The ratio is the ratio of current assets to current liabilities. Generally, the stronger the ratio, the more the business's assets' ability to be realized, and the greater the short-term solvency.

2.2. Types and Characteristic of Investors

There are nine types of investors, which are PEG Investors, DCF Investors, Income Investors, Value Investors, Index Investors, Momentum Investors, Insider Investors, Ratio Analysis and Stock Buyers.

The first is PEG investors, who select stocks by investment strategies based on PE and Earning Growth. The rationale for the PEG value stock picking strategy is to select stocks with a low PEG value, meaning that these stocks have a relatively low P/E ratio and a relatively high earnings growth rate. Such stocks may be considered to have good investment value and growth potential because they are considered to have purchased high growth earnings at a relatively low price. DCF Investors will invest according to the following principles. The fundamental requirement for a company to develop its intrinsic value is that it must have a long enough functioning life. Second, the optimal operating outcome throughout an enterprise's running life should be able to provide a significant amount of free cash. In addition, when the expected return is expected, a reasonable discount must be made for the expected future acquisition of these free cash flows. The main purpose of Income Investors is to pick companies that can provide stable returns. They choose stocks with relatively stable prices. So Tesla is probably not on their list. Value investors do not pursue short-term profits, but focus on the intrinsic value of the enterprise and believe that the value of the enterprise will be reflected over time. Therefore, long-term investment is the key value for value investors to obtain returns. Investors usually choose those enterprises with potential and hold stocks for many years to realize long-term appreciation of investment. Investors in index purchase stock that mirror broader market segments. Graham thinks defensive investors might profit from this stock-picking approach.

Momentum investing is the practice of purchasing stocks while the market is rising and selling them when it is falling. When the whole stock market trend upward, it is appropriate to be long or buy stocks. When the stock market is stagnant or the stock price is trending downward, it is better to sell your holdings and have cash for emergencies. An insider investor is someone who has access to inside information and has some degree of management control. While having management control is an important characteristic of an insider investor, their most important characteristic is that they do not require significant income or net worth to be an insider investor. Through the ratio calculation of pertinent financial statement indicators, ratio analysis is an analytical technique used to examine the financial position and operating outcomes of businesses as well as their future development potential. It is a technique for comparing pertinent data from various significant items in the same period of financial statements to discover the ratio, which is used to analyze and evaluate the company's business operations and historical position. It is the most basic tool for financial analysis.

2.3. Data

This article selects four of the world's leading technology companies to compare and analyze their data. They are Tesla, Tencent, Microsoft and Apple.

Tesla is an electric vehicle and energy company which the main products are electric vehicle solar panels. Tencent's diversified services include social networking and messaging services QQ and Wechat. Tencent also peovides cloud computing, advertising, financial technology and other enterprise services. Microsoft is an American multinational technology corporation founded in 1975, to create, produce, license, and offer a variety of computer software services. The present scope of American-based global technology company Apple's operations includes design, research and development, mobile communications, and the selling of consumer products, computer software, and online services. Huawei is a multinational technology company headquartered in China, mainly engaged in the research and development and manufacturing of communication equipment and consumer electronics products, in addition to software development.

Figure 1 plots the price trend of sample companies. In general, Tesla's stock price has fluctuated considerably. In other words, investing in Tesla is relatively risky, but is can get more returns in a short period of time. So Tesla is not a good choice for a stable investor. The overall price of Microsoft stock has not fluctuated much, and has maintained an upward trend. It shows that the development of Microsoft is gradually getting better, and the risk of investing in Microsoft is relatively small. The stock prices of Apple and Tencent are basically flat, with little fluctuation. And Apple's stock is trending upward. If investors choose these two stocks may not get a great return in the short term, but it is a relatively sound investment way.

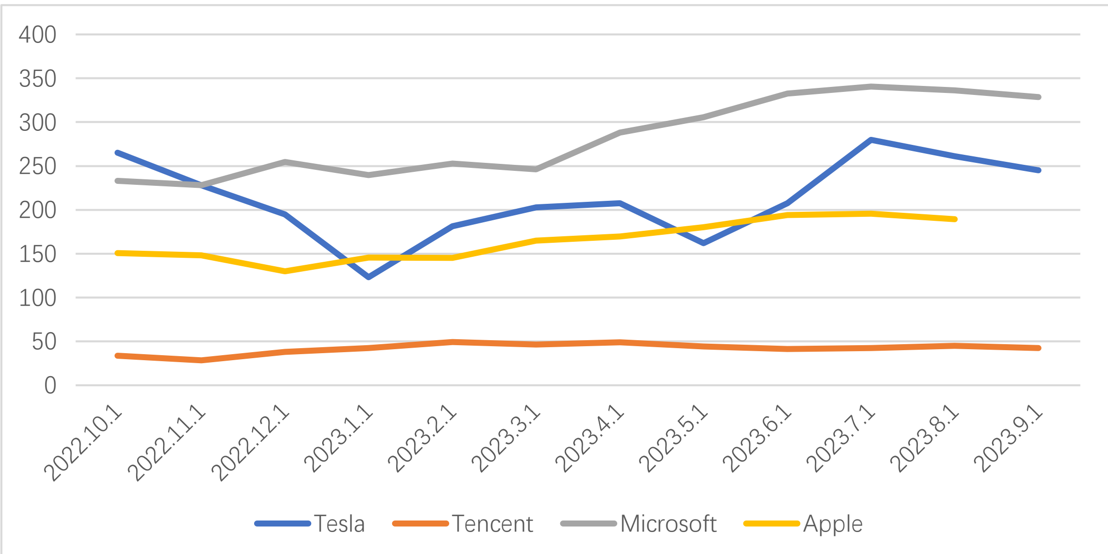

Fig 1. Stock trend

3. Results and Discussions

Table 1 reports the summary of risk, profitability and market ratio for sample companies. Table 2 reports the stock choice for different investors.

The methods of stock investment in this paper are introduced into two categories by following Chen [9] and Liu et al. [10]. They are Fundamental Analysis and Technical Analysis respectively. Fundamental Analysis mainly uses the research of economics to analyze the current financial analysis of enterprises, so as to evaluate enterprises and predict the trend of listed companies' stocks or bonds. Technical Analysis uses market information to predict the stock market. Based on the above two investment methods, there are nine types of investors.

PEG investors mainly focus on the PEG and PE ratio of the company. A low P/E ratio means a relatively low stock price relative to the company's profitability and is considered to be more undervalued. A high P/E ratio means that investors are willing to pay more for each unit of profit. So they might choose Tesla, Tencent or Microsoft.

DCF investors need to accurately forecast and estimate the future free cash flow of the business. So they look at the Current Ratio of the business, which is Current Asset/Current Liability. Generally speaking, it is better to control the data of the Current ratio at about 1.5-2. The liquidity capabilities of an asset and short-term solvency are both stronger the higher the current ratio. On the other hand, if the current ratio is too great, it suggests that the current assets occupy more money, which is unfavorable to the turnover of funds, and if it is too small, it could indicate that the company’s solvency is weak. So DCF investors can choose Tesla, Tencent and Microsoft to investment.

Income investors will choose some stocks with less risk. Therefore, it is necessary to refer to the Risk data of several companies. The larger the Market Cap, the more stable the stock, but the less flexible the stock. Looking at the Market Cap, Tencent, Microsoft and Apple are all good choices. If the Beta is greater than 1, it means that the volatility of the individual stock is higher than the market, otherwise it is less than the market. Therefore, Income investors usually choose those whose Beta value is less than 1. Tencent and Microsoft meet both criteria.

Value investors primarily consider the cash flow statement, which represents the company’s available cash; the more, the better: the balance sheet, which shows the company’s liabilities; the less, the better, primarily based on the current ratio and quick ratio; and the income statement, which shows the company’s earnings; the more the better. In general, the profit margin of Tencent, Microsoft and Apple is relatively good, but the Total Equity of Tencent is relatively large. So the choices for Value investors are more likely to be Microsoft and Apple.

As a method of asset allocation, index investment involves copying the index to create a stock portfolio with the goal of achieving the lowest possible tracking error between the return on the portfolio and the return on the index as a performance benchmark. So Index investors probably won't pick those four stocks.

Momentum investors are investors who look for and trade trends in stocks and market movements. They usually do little research on the economic situation and development of individual companies. The core idea of this type of investor is to buy stocks with good trends in order to obtain more returns. According to Figure 1, the stock prices of Microsoft and Apple are on an upward trend, so these two companies are good choices for them.

Insider investors are the investors who know the internal information of a company and has a certain degree of management control. Therefore, relying on these data cannot give clear advice to internal investors.

Through the ratio calculation of pertinent financial statement indicators, ratio analysis is an analytical technique used to examine the financial position and operating outcomes of businesses as well as their future development potential. The first is ROA, which may be used by investors to assess how effectively a company utilizes its assets. A company's ability to use its assets more effectively and generate better profit margins is indicated by a high ROA. ROA numbers in the 20%-30% range are good, so Microsoft and Apple fit that bill. The higher the ROE, the more profitable the company will be and the higher the return on investment will be. ROE values between 15% and 40% are better.

So Tesla, Tencent and Microsoft fit the bill. Overall, Microsoft meets both requirements of ratio analysis.

Stock buyers need to pay attention to the rising trend and risks of stocks to choose stocks. In general, they want to choose stocks that are trending upward but are relatively cheap and less risky. Combined with the data analyzed above, this article argues that Microsoft is a good choice for them.

Table 1. Summary of risk, profitability and market ratio for sample companies

	Tesla	Tencent	Microsoft	Apple
Risk				
Market cap	812.57B	3.32T	2.43T	2.75T
Beta	1.51	0.83	0.63	1.25
(TA-TE)/TE	0.84	1.18	1.00	1.21
Total equity	44704000	721391000	206223000	302083000
Profitability				
ROA	12.19%	4.30%	20.28%	23.84%
ROE	26.31%	22.69%	40.70%	129.91%
Total asset	86.83B	220.83B	411.90B	352.76B
Profit margin	15.45%	33.51%	33.25%	44.52%
Market ratio				
PE	71.99	15.84	33.69	29.63
PEG	1.28	1.05	1.82	1.83
Dividend yield	0.01%	0.70%	0.83%	0.55%
P/B	16.40	3.78	12.19	45.73
P/S	9.52	5.25	11.86	6.91

Table 2. Stock choice for different investors

	Tesla	Tencent	Microsoft	Apple
PEG investor	YES	NO	YES	YES
DCF investor	YES	YES	YES	NO
Income investor	NO	YES	YES	NO
Value investor	NO	NO	YES	YES
Index investor	NO	NO	NO	NO
Momentum investor	NO	NO	YES	YES
Insider investor	/	/	/	/
Ratio analysis	NO	NO	YES	NO
Stock buyers	NO	NO	YES	NO

4. Conclusion

This paper mainly studies and analyzes how nine types of investors choose the stocks of technology companies.

The status of the four enterprises, namely Tesla, Tencent, Microsoft and Apple, are analyzed through the economic status data such as the Statement of Financial Position found on Yahoo. Based on analyzing the risk, profitability and market ratio for sample companies, this paper studies that the different types of investors will choose what kind of technology enterprises investment. According to the analysis results, PEG investors are likely to pick Tesla, Microsoft and Apple. DCF investors tend to pick Tesla, Tencent and Microsoft. Income investors are more likely to choose Tencent and Microsoft. Both value investors and momentum investors prefer Microsoft and Apple. Index investors may not choose these companies. Ratio analysis and stock buyer are highly likely to pick Microsoft.

The shortcoming of this study is that the sample number is not large enough, only four scientific and technological enterprises are selected. The sample size should be increased to improve the reliability of the article in the future.

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