

CPU company investment advice

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Abstract. The semiconductor industry is the backbone of the information technology sector. It is a strategic, fundamental, and leading sector that supports economic and social development and ensures national security, and its technical level and development scale have become one of the key indicators of a nation's overall national strength and industrial competitiveness. In 2019 Chinese mainland semiconductor equipment sales will be 13.45 billion US dollars. It is crucial to evaluate the stock in the semiconductor industry, which would help the investor to investment. This paper primarily offers a thorough examination of the semiconductor business from a data perspective. The article selected AMD and QCOM.AMD and intel corporation to analyze the investment value based on profit analysis, market analysis, and risk analysis. Based on a variety of analysis frameworks, the article determines that QCOM is the most strongly advised investment. Nonetheless, QCOM's unusual data still implies that there is a significant risk involved in investing in QCOM. Investors may make enormous profits from it as well.

Keywords: Stocks, Invest value analysis, Semiconductor industry.

1. Introduction

According to SEMI statistics, front-end equipment accounts for 81% of the overall market size of integrated circuit equipment, and packaging and testing equipment accounts for about 14% [1]. Among the front-end equipment, etching equipment accounted for 20%, exceeding the proportion of lithography equipment (18%), and chemical deposition equipment, detection and control equipment, and cleaning equipment accounted for 15%, 11%, and 6% respectively [2-4]. In 2019 Chinese mainland semiconductor equipment sales will be 13.45 billion US dollars, according to the above proportions, the annual market size of Chinese mainland front-end equipment exceeds 10 billion US dollars, and the annual market size of etching machines, lithography machines, and chemical deposition equipment in the front section is about 2.2 billion US dollars, 2 billion US dollars, and 1.6 billion US dollars, respectively [5-7].

The semiconductor industry is the basic support of the modern electronic information industry, and the scale of the global semiconductor market has spiraled since the commercialization of semiconductors, and the market sales increased by 174% in the 20 years from 1999 to 2019. The semiconductor industry has a strong cyclicality, and the slowdown and backwardness of the industry are often accompanied by a strong recovery. In 2019, global semiconductor sales fell by 12.8% year-on-year, and the industry entered a period of decline. At the beginning of 2020, the global semiconductor industry gradually returned to positive growth, global sales increased by 5% in February, but the sudden new crown epidemic led to a decline in industry demand, the semiconductor industry recovery lacked momentum, domestic and foreign research institutions are more pessimistic about the semiconductor market in 2020, McKinsey expects the global semiconductor market to decline by 5%-15% in 2020.

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In view of the increasingly important position of the semiconductor industry in the entire national strategy, the significance of this paper's research is mainly reflected in the comprehensive analysis of the semiconductor industry from the data, which not only helps investors have a basic understanding of the basic framework of the entire industry [8], the stage of the industry [9], the industry competition

structure, supply and demand relationship, and industry opportunities but also helps to strengthen investors' risk awareness of investment in the semiconductor industry and strengthen the concept of rational investment [10]. This paper mainly provides a comprehensive analysis of the semiconductor industry from the data perspective

This paper begins with the development of the research questions, research plan, literature review, and the gathering and organization of relevant literature. This study provides a fundamental understanding of the research direction and investment value of the CPU technology sector and also provides theoretical support for the research of this paper by reviewing and summarizing the existing literature on the research issue of investment value.

2. Firm description

2.1. AMD Background

AMD Semiconductor Corporation specializes in the computer, communications, and consumer electronics industries to design and manufacture a variety of innovative microprocessors (CPUs, GPUs, motherboard chipsets, TV card chips, etc.), as well as provide flash memory and low-power processor solutions, the company was founded in 1969. AMD is committed to providing standards-based, customer-centric solutions for technology users, from enterprises and government agencies to individual consumers.

In its early days, AMD's main business was to redesign products for Intel, improve their speed and efficiency, and deliver these products to the market as a "second supplier." AMD's slogan at the time was "better parameter performance". To strengthen its sales advantage, the company offers a quality guarantee unprecedented in the industry – all products are manufactured and tested to the stringent MIL-STD-883 standard for all customers at no additional cost.



Fig 1. The stock price of AMD

It can be seen that the general trend of the stock price is downward. The fluctuation range is large. It peaked at 73 and 127, and after that, the stock price continued to be depressed, reaching its lowest point at 173 and the stock price began to rise slowly (Fig 1)

2.2. QCOM Background

Qualcomm, which was established in 1985 and has its headquarters in San Diego, California, earned \$44.2 billion in revenue and employed more than 35,400 people globally in its fiscal year 2022. The foremost wireless technology innovator in the world, Qualcomm has completely changed how people connect, compute, and communicate. Qualcomm's breakthrough launched the era of

mobile Internet by linking mobile phones to the Internet. Every 3G, 4G, and 5G smartphone has cutting-edge innovations from Qualcomm that power the entire mobile ecosystem.

Leading the way in the research and development of 3G and 4G technologies, Qualcomm has licensed its technology to several manufacturers worldwide, working with every major brand of telecommunications hardware and consumer electronics. Since it began working in China more than 20 years ago, Qualcomm has expanded its collaboration with Chinese environmental partners to a variety of sectors, including smartphones, integrated circuits, the Internet of Things, big data, software, and vehicles.

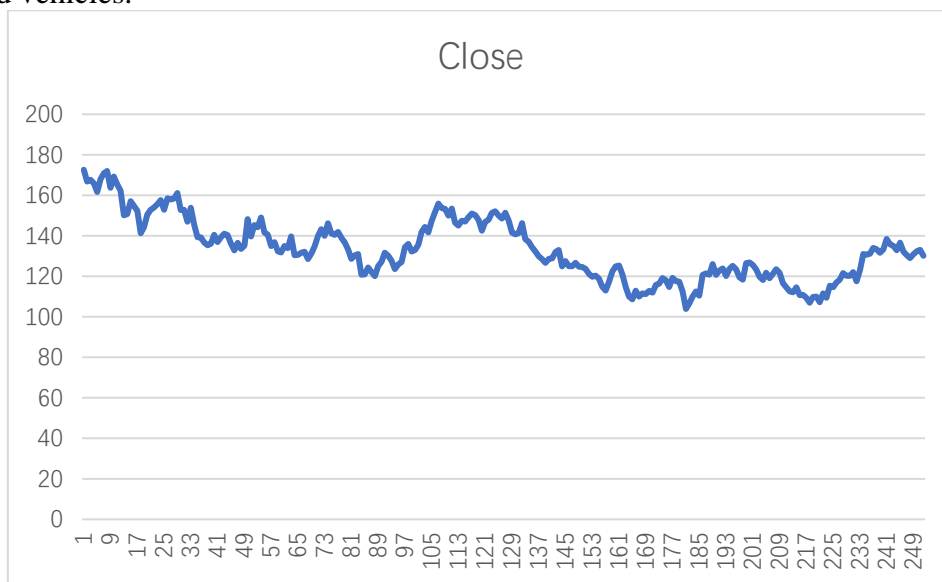


Fig 2. The stock price of qcom

The overall share price fell slightly and fluctuated less, peaking at 109 to 127 and then slowly declining. A stable trend began to form after 190 (Fig 2).

2.3. Intel corporation Background

Since its founding in 1968, Intel has been a leader in the semiconductor business and in computing innovation. Currently, Intel is evolving into a data-centric business. In order to advance a smart, connected society, Intel collaborates with partners to foster research and application breakthroughs in transformational technologies like artificial intelligence, 5G, and intelligent edge.



Fig 3. Stock price of intc

The overall stock price showed a downward trend, and stable volatility and the stock price continued to fall from 28, and after 172, the stock price began to fluctuate around 29 (Fig 3).

3. Research Analysis

This article chooses three companies. there are intel corporations AMD and QCOM.AMD and intel corporations are semiconductor industry and computing innovation. intel is the leader of them.QCOM's main products and services include OmniTRACS satellite positioning and communications services

From the point of view of risk analysis, AMD is the most worth buying of the three firms.

Table 1. Risk analysis table

	Intel Corporation	Amd	Qcom
market cap:	124.896	121.169	151.77
risk ratios:			
beta	0.76	1.98	1.25
total debt ratio	0.43	0.4	0.63
current ratio	1.57	2.02	1.75
debt/equity ratio	0.76	0.66	1.72

All three companies have a similar market cap. The total debt of AMD is the least only 0.4. The other company Intel Corporation and Qcom are 0.43 and 0.63, respectively. And the debt/equity ratio of AMD is the least only 0.66. The other company Intel Corporation and Qcom are 0.76 and 1.72, respectively. it means that the proportion of debt in AMD's assets is not large and the proportion of debt in QCOM's assets is large. the current ratio of AMD is the largest at 2.02. The other company Intel Corporation and Qcom are 0.76 and 1.72. It shows that AMD has a stronger ability to repay, as well as the AMD has a 1.98 beta. so as long as we see the form of the market.AMD will be the most worth buying of the three firms (Table 1).

From a profitability point of view, QCOM is the most worth buying of the three firms (Table 2).

Table 2. Profitability table

	Intel Corporation	Amd	Qcom
profitability ratios:			
Total asset turnover ratio	0.43	0.48	0.58
profit margin	12.71%	9.96%	29.27%
return on assets	0.83%	4.73%	21.97%
return on equity	8.07%	7.37%	92.88%

Because QCOM is the largest in both profit margin and return. The profit margin of QCOM is 29.27% and the return on assets of QCOM is 21.97%.it is mean that the business performance of the enterprise is good, the operating conditions are on a normal upward track, and the better earning power. The return on equity of QCOM is 92.88%.it is mean that As a shareholder of this company, there will be a higher percentage of returns. AMD is the least in both profit margin and returns on equity. The profit margin of AMD is 9.96%. The return on equity of AMD is 7.37% and the return on equity of AMD is 7.37%.it means that as a shareholder of QCOM, you may have higher returns. Strangely, QCOM 's ratio is much higher than that of other companies. So I went to Financial on Yahoo to find the answer

Table 3. Total revenue and Operating income of the company.

breakdown	ttm	9/29/2022	9/29/2021	9/29/2020	9/29/2019
Total revenue	42958000	44200000	33566000	23531000	24273000
Operating income	14461000	15860000	9789000	6255000	7667000

Then I found out that QCOM' operating income was only one-third of total revenue. Maybe the company is selling land or technology, so, it is recommended to buy AMD stock. Because AMD's data is strange and the data of other companies is relatively similar (Table 3). Finally, from the point of market value ratios, value investor and peg investors will not buy them

Table 4. Market value ration table

	Intel corporation	amd	qcom
Market value ratios:	1.16	N/A	8.16
P/b	15.56	47.87	11.91
P/e	15.56	47.87	11.91
Divident yield	5.02%	N/A	2.07%
peg	14.58	1	1.12

Because Intel Corporation's P/E is 15.56. AMD has a p/e of 47.87. The QCOM p/e is 11.91. PE is appropriate when p/e is between 0 and 10. No business has a PE below 10. This suggests that the stock's valuation might be excessive. Intel Corporation's peg is 14.58. AMD has a peg of 1. QCOM's peg is 1.12, which is reasonable in the 0–peg–1 range. No business has a PEG lower than 1. Stocks are expensive and there are bubbles, which is a bad thing. Their stock price can be a little excessive. So, it is not advised to purchase their shares (Table 4).

If you want to try investing in these three companies, then QCOM is the most recommended. However, QCOM's unusual data still suggests that investing in QCOM is not a small risk.

4. Conclusion

This article mainly analyzes the fluctuation and trend of high-tech companies' stocks under the influence of the epidemic, as well as the stock comparison and buying suggestions of leading companies

Overall, QCOM's stock is indeed the best choice in terms of data, but because of the outlier of the main income and total income, it is not recommended to take risks, so AMD is the best choice among the three stocks

The disadvantage of this article is that it does not fully understand all the company's situation, but only reflects the purchase value of the company's shares from the data, and the professionalism is relatively lacking, so the content of the article is for reference only

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