

Apple Financial Analysis and Development Trend Research

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Abstract. Apple Inc is a world-renowned electronics company established in 1976 and went public in 1980. On January 4, 2022, Apple's market value exceeded \$3 trillion which is equivalent to the GDP of the world's fifth largest economy. So, it is drawn numerous attention to Apple's financial position. To determine the financial status of a company and to assess whether the management is successful or not, choosing financial statement analysis is a necessary method. On the one hand, this analysis can assess the financial status of the company, the company's ability to operate and manage, and whether the business prospects are bright. On the other hand, this analysis can identify the problems of the company's management and propose countermeasures to solve them. This paper combines case materials and financial data. First, from four aspects of profitability, operating, liquidity, and solvency, it uses trend analysis to analyze Apple's financial data, finds out the existing problems, and propose corresponding solutions to the problems. Secondly, it analyzes Apple's development ability from the two aspects of emergency resolution ability and enterprise business strategy and compares it with enterprises in the industry to propose solutions. This paper mainly analyzes Apple's financial level and development ability and puts forward targeted suggestions for investors to refer to.

Keywords: Apple Inc, financial statements, ratio analysis.

1. Introduction

1.1 Background

In recent years, the challenges posed by COVID-19, supply chains, and the conflict in Ukraine have taken an irreparable toll on the global economy, directly hitting demand for end-consumer electronics, extending the cycle of replacement of electronic products, and declining ASP, which has made competition among electronic products in the market more intense[1]. Apple CEO Tim Cook said Apple was not immune to the challenges posed by these factors, especially due to the COVID-19 pandemic and silicon shortages, especially as two reasons for increased supply chain problems[2]. However, in recent years, the novel coronavirus pneumonia epidemic has continued to expand, and working from home has become the norm, which has made people's demand for electronic products even greater. Apple maintains an edge in the competition with its constantly updated products and reputation, and its net revenue and net profit have increased compared with the same period last year, so Apple's future is more optimistic.

1.2 Related research

SWOT and pests are widely used in enterprise analysis. Gong et al. used the SWOT analysis and PEST analysis to illustrate Apple Inc.'s advantages and limitations, which have been established by the development features of the product and the market environment at the time, and that included political, economic, social, and technological elements. The results show that sociocultural issues

have a big impact on Apple's profitability. The technological aspect in general offers Apple a sizable number of options, enabling the business to innovate and create more useful services and products[3].

Using data obtained on their biggest rivals, Samsung, Google, and Microsoft, Aljafari demonstrated how well Apple performs in comparison to these rivals. He stated that Apple is the most profitable of the four companies because it has the highest net income. Although Apple has many advantages, it has a limited distribution network. Its products are at the high end of the price range. Customers complain that apple's products also have some problems with battery life. If Apple could get this issue under control, the customer would become more trusting of the brand which would increase brand equity and customer loyalty [4]. The research conducted by Zhang applied Apple's business model to demonstrate the value of innovation to an enterprise. Zhang explored the impact of Covid-19 on Apple and explained the steps it took to address the crisis occurrences, concluding that the epidemic has disrupted Apple's supply chain. However, it has significantly increased the company's income because more people now need equipment for distant work and study [5]. The research conducted by Mheiri et al. computed all financial ratios over four years between 2016 to 2020 and provided a line graph showing the trend line plotted. The result shows that Apple uses its resources efficiently and its financial situation is healthy. The company also produced large profits for the investors [6]. Lockamy utilized Bayesian networks to analyze Apple Inc.'s external risk components and concluded that there is a significant possibility that the supply chain would be disrupted if an external risk event occurred with a key supplier [7]. Zhang concluded from his research that value investing is an important approach to stock selection. Taking Apple as an example, improvement and selection of value factors for time series are proposed: based on 10-K data analysis, its main profit source is core profit. The value factor and fundamental indicators are then analyzed to conclude a short-term stock holding strategy. And it is concluded that the main reason for the long-term underperformance of PE is the market [8]. Choo et al. analyzed Apple's strategy using a variety of competitive analysis techniques, and each section of the assessment model shows how Apple overcame challenges and gained from increasing its market share internationally. In conclusion, Apple's success is a result of its capacity to adjust to a difficult situations [9]. Nagamia's research shows that the principles of environmental scanning and market segmentation can be applied to all product lines of the company. In addition, Apple was not negatively affected by the recession, as the iPad innovation increased Apple's revenue and improved the company's financial stability. In conclusion, Apple identifies its consumers not by gender or race, but by income, life stage, personality, and lifestyle [10].

1.3 Objective

Through the annual report on Apple's official website, calculate and analyze the relevant financial data of profitability, operating, solvency, and liquidity, to understand Apple's financial situation in detail. By analyzing Apple's ability to deal with emergencies, enterprise marketing strategy, innovation ability, and market share, and comparing it with other companies in the industry, we can predict Apple's future development.

2. Fundamental Analysis and Discussion

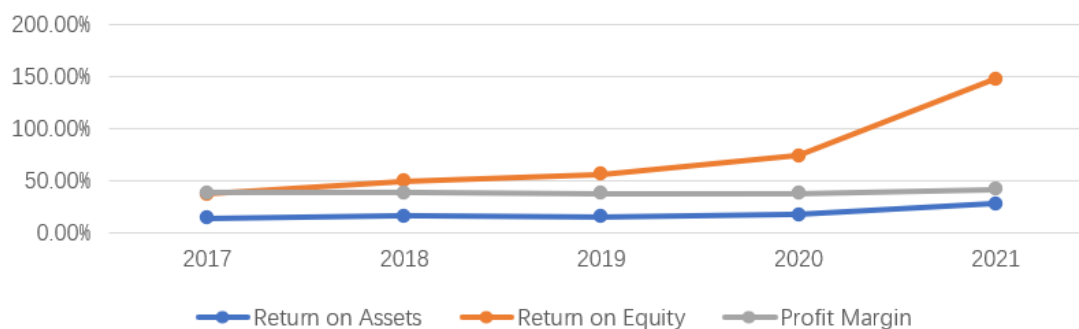
The following section analyzes and discusses Apple's financial situation from four aspects: profitability, operating, liquidity, and solvency.

2.1 Profitability analysis

One of the most important aims of a company is to earn profits. So, it is necessary to analyze the company's profitability which indicates the company's ability to earn profits in a period. For the operator, they hope to have a higher profit margin because it shows higher profitability of the company. Moreover, profitability analysis can help the operator identify the issues that exist in the management chain.

Table 1. Profitability Ratio

	2017	2018	2019	2020	2021
Return on assets	13.9%	16.1%	15.7%	17.3%	28.1%
Return on equity	36.9%	49.4%	55.9%	73.7%	147.4%
Gross Profit Margin	38.5%	38.3%	37.8%	38.2%	41.8%

**Fig. 1** Apple Profitability Ratio

2.1.1 Return on asset

The Return on Asset (ROA), which compares a company's profit to its total assets, shows how effectively a business utilizes its assets to produce profits. In 2019, the Return on assets decreased 0.4% from 2018, This is the only year showing a downward trend in the past five years. Based on the graph above, it is obvious that the lowest ROA among all years is 2017 which is only 13.9%. This implies that apple was not using its assets effectively. After 2019, the trend of ROA increased stable, which is good for apple.

Compare with the competitors, Samsung has decreased from 15% to 6.3% from 2017 to 2019, and from 2019 to 2021, it has increased to 9.9%. It suggests that they have not been effectively utilizing the assets to make a profit. As a result, the investor may prefer to choose Apple, because they are seeking an enterprise that can promise high returns from their investments.

2.1.2 Return on equity

Return on equity (ROE), which demonstrates a company's capacity for converting the equity of its shareholders into profits. The majority of shareholders prefer to see a high percentage since it means they will receive higher returns on their investments and that the firm seems to be using their investor's funds to generate profit effectively. The ROA has increased stably from 2017 to 2020, and 2020 has increased a lot, from 73.7% to 147.4%, which indicates that Apple has been utilizing its shareholder's equity effectively to make profits.

Compare with its competitor, the ROE of Samsung is not stable, from 2017 to 2019, it decreased from 20% to 8%. As a result of their inefficient use of their investors' funds starting in 2017, Samsung may have slowed down in trying to earn returns for them. Although this figure has increased since 2019, the overall situation is not as stable as Apple's. From the perspective of investors, Apple will have more competitive advantages.

2.1.3 Gross Profit margin

Gross profit margin demonstrates how effectively a business makes profits from the sales that it has made. It can be seen in the figure that apple's Profit Margin only has a slight change from 2017 to 2020. It has increased by 3.6% from 2020 to 2021, the main reason is that Apple's margins increased significantly once the first iPhone with 5G capability was released. The revenue shifted toward Apple's higher-end products.

Higher gross profit margins are a sign that a business made a large profit during a certain period, which shows Apple's products are both high-quality and profitable. It also means that apple has a competitive advantage in the industry. Compared to its competitor, Apple has an advantage in the

profit margin because its data is relatively stable. Due to the trade war between China and US, Samsung has been negatively affected so the profit margin has dropped.

2.2 Operating Ratios

The comparison of operating ratios between apple and other companies in the same industry is as follows:

Table 2. Activity Ratios of Apple, Samsung, and HUAWEI

Ratio	Company/Year	2017	2018	2019	2020	2021
Inventory Turnover	Apple	31.31	37.17	40.13	41.52	40.03
	Samsung	5.18	4.57	5.50	5.07	4.38
	HUAWEI	5.00	3.73	2.84	3.37	2.04
Accounts Receivable Turnover	Apple	5.66	6.27	5.49	6.60	8.23
	Samsung	8.56	7.20	6.56	6.85	6.18
	HUAWEI	5.49	7.55	9.54	11.33	8.03
Assets Turnover	Apple	0.60	0.72	0.77	0.85	1.04
	Samsung	0.79	0.72	0.65	0.67	0.67
	HUAWEI	1.19	1.08	1.00	1.02	0.91

2.2.1 Inventory Turnover

This ratio can measure the ability of inventory management. From 2017 to 2020, the inventory turnover of Apple kept on raising which meant Apple enhanced its inventory management methods. In 2021, inventory turnover decreased from 41.52 to 40.03. It probably influenced the storage and other holding costs. However, compared with Samsung and HUAWEI, Apple had much better inventory management.

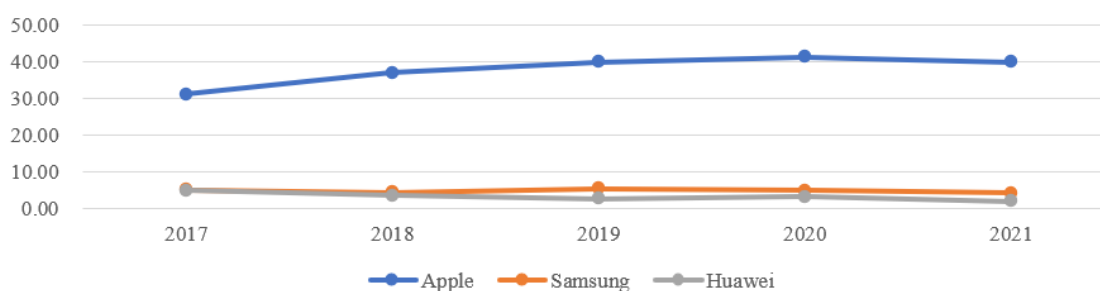


Fig. 2 Inventory Turnover of three companies

2.2.2 Accounts Receivable Turnover

Accounts Receivable Turnover indicates the company's operational and financial abilities. This ratio was increased from 2020 to 2021 which was a good signal. The rising ratio meant the company can receive money from customers more quickly. Based on the time value of money principle, the later the company receives money, the more money the company loses. Compared with previous years, the net sales of all products and services categories increased so this ratio was increased. The above chart indicates that even though the ratio of Apple was lower than other companies most of the time, Apple's ratio was almost increasing year by year. This was what Apple desired.

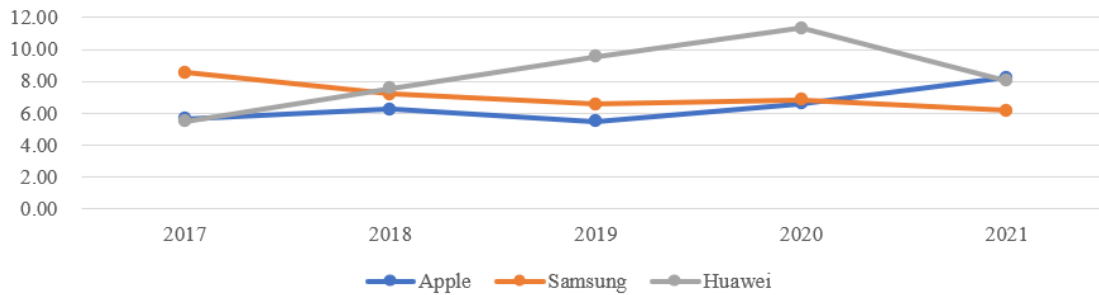


Fig. 3 Accounts Receivable Turnover of three companies

2.2.3 Assets Turnover

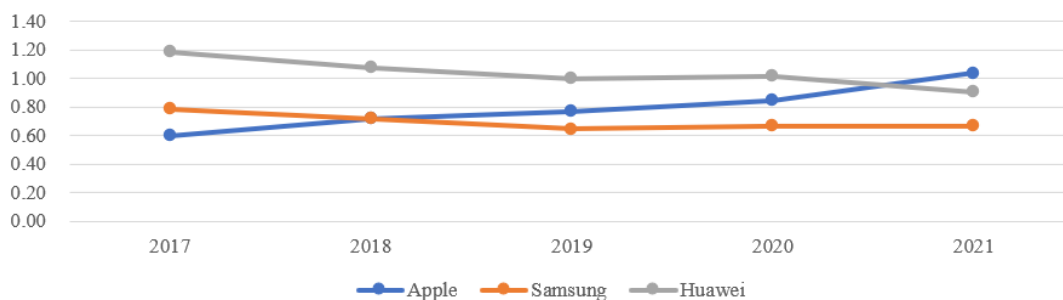


Fig. 4 Assets Turnover of three companies

Assets Turnover shows the relationship between the assets and the net sales. From 2017 to 2021, this ratio increased by 73.33%. The risen net sales played an important role. Compared with other companies, Apple was at the middle level in the consumer electronics industry. But the good signal was that the assets turnover of Apple was in a growing phase, and the ratios of the other companies decreased.

2.3 Liquidity Analysis

The Liquidity ratio emphasizes the ability to repay debts with current assets or cash assets. The level of short-term solvency is usually determined by ratios, and the following three indicators analyze Apple's short-term solvency from the relationship between current assets and current liabilities.

2.3.1 Current Ratio

Generally speaking, the higher the current ratio, the stronger the group's ability to settle its current liabilities, the less short-term liquidity risk the company faces, and the higher the degree of creditor safety.

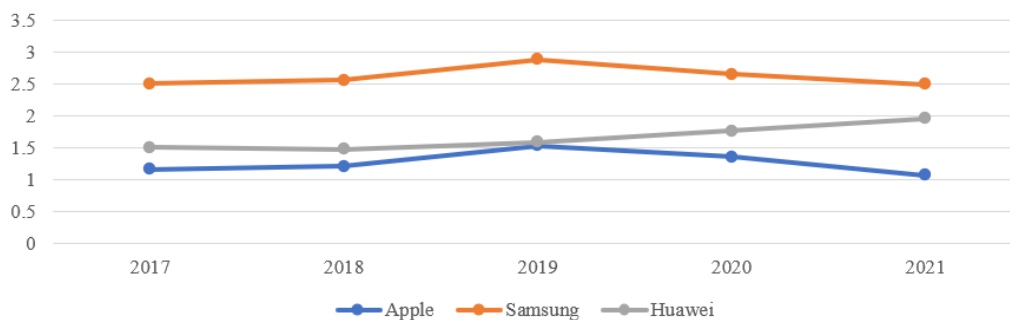


Fig. 5 Current ratio

In Fig 5, Apple's current ratio is greater than 1 but does not reach the minimum of 2.0, indicating that its short-term liquidity reserves meet short-term debt service requirements; and that the company

has operating capital needs, which can meet the company's capital needs in addition to debt service. Compared to its peers, the current ratio is generally high and stable, indicating that Apple has a strong and stable short-term debt service capability in its industry.

2.3.2 Quick Ratio

The quick ratio is an indicator of a company's current asset position and is used to measure the ability of a company to immediately repay current liabilities with near-cash assets.

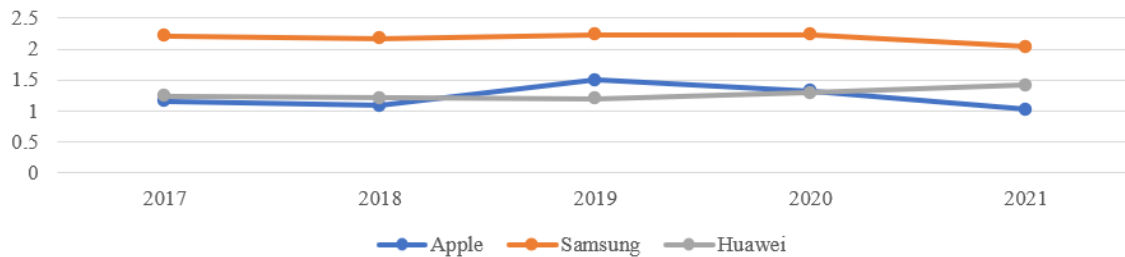


Fig. 6 Quick ratio

Fig.6 displays that Apple's quick ratio is greater than one but not 1.5, which is lower than its peers, indicating that the company has fewer monetary assets and thus may indicate a more efficient use of funds and that the company is considered to have sufficient capacity to pay off its short-term liabilities, which is a more reliable indicator of the company's short-term solvency.

2.3.3 Cash Ratio

Cash is the most liquid asset and the cash ratio is the most direct signal of a company's short-term solvency. It can also reflect a company's direct solvency because cash is the ultimate means to repay debts.

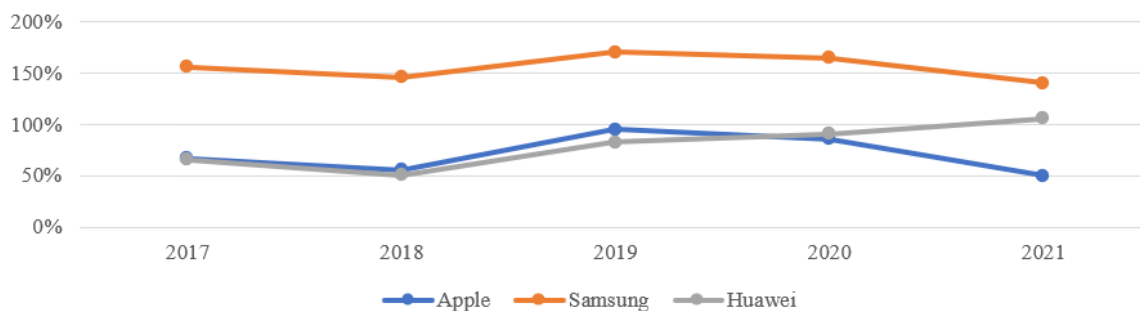


Fig. 7 Cash ratio

Fig.7 shows that Apple's cash ratio is higher than 20% but lower than that of its peers, indicating that Apple has better payment ability and is secure in paying off its debts, while it shows that Apple's current liabilities can be used reasonably, its cash-based assets have high profitability and its corporate opportunity cost is stable. It also reflects that Apple has fewer cash-type assets with lower profitability and that the enterprise's assets can be used effectively.

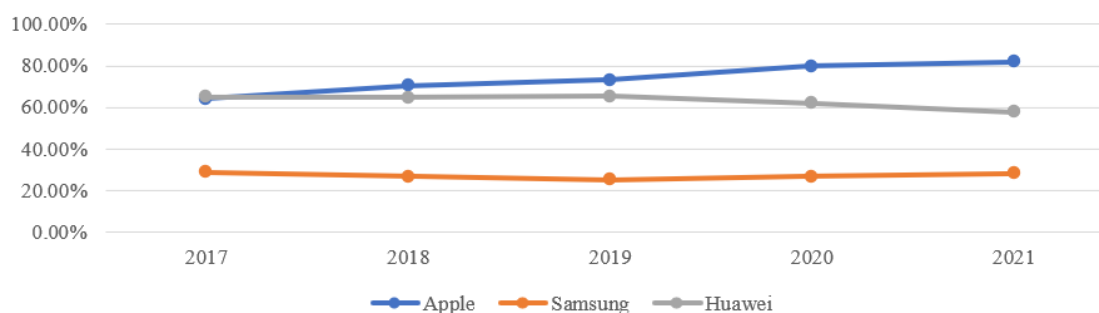
2.4 Solvency analysis

A company's long-term solvency index refers to the ability to repay long-term debt. The long-term solvency of a company is measured by whether the capital structure is sufficient reasonable and stable, as well as the long-term profitability of the company. A solvency ratio is an important performance measurement that helps people examine a company's financial health.

Table 3. Solvency ratio

Ratio	Company/Year	2017	2018	2019	2020	2021
Debt to assets ratio	Apple	64.28%	70.70%	73.27%	79.83%	82.03%
	HUAWEI	65.2%	65.00%	65.60%	62.30%	57.8%
	Samsung	28.92%	27.00%	25.43%	27.04%	28.52%
Debt to equity ratio	Apple	179.99%	241.33%	274.10%	395.70%	456.35%
	HUAWEI	187.72%	185.66%	190.82%	165.426%	137.09%
	Samsung	28.47%	38.16%	35.18%	49.21%	41.09%
Equity multiplier	Apple	2.66	3.07	3.56	4.25	5.25
	HUAWEI	2.87	2.86	2.95	2.65	2.37
	Samsung	1.47	1.25	1.36	1.37	1.47

2.4.1 Debt to assets ratio

**Fig. 8** Debt to assets ratio

Analyzing the asset-liability ratio is a good way to assess a company's debt level. Meanwhile, it is also a metric of a company's ability to operate with creditor funds to make business activities run successfully. Also, it shows the degree of safety of creditors in granting loans.

The line chart shows that the asset-liability ratio of Apple has been rising in the past five years, which shows that total liabilities as a percentage of total assets are relatively high, the ability of the company to repay debts is decreasing and as a result, the development capacity is weakening. A company is considered to have a high asset-liability ratio when it has an asset-liability ratio higher than 60%. Compared with companies in the same industry, Apple's asset-liability ratio is higher; Samsung's asset-liability ratio is the lowest, which indicates that it has sufficient cash flow, but at the same time, it also shows that Samsung's financial utilization is insufficient; The asset-liability ratio of Huawei has gradually dropped to below 60% in the past five years, showing a good trend. The company's high asset-liability ratio and relatively high financial risk may lead to a break in the capital chain when cash flow is inadequate, and the company will not be able to repay its debts promptly, resulting in bankruptcy. In addition, a higher asset-liability ratio will lead to an increase in financing costs in the future.

2.4.2 Debt to equity ratio

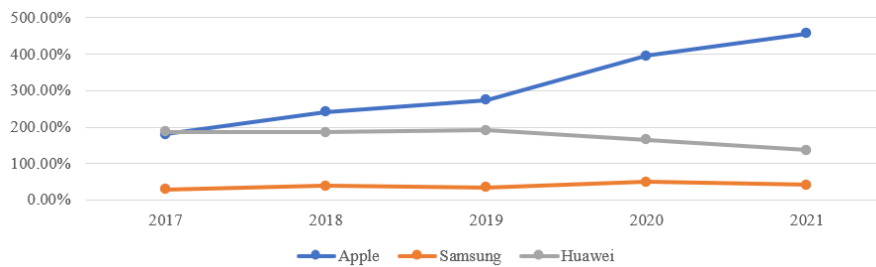


Fig. 9 Debt to Equity ratio

The Debt-to-Equity ratio reveals the relationship between total liabilities and shareholder equity. It is an indicator to evaluate the company’s financial leverage. It is a significant indication of the soundness of a company's financial structure. Compared with Huawei and Samsung, Apple's long-term debt paying ability is the worst, it has been rising significantly in the past five years, which shows that the company is less able to repay long-term debt. At the same time, apple is a high-risk, high-reward financial structure. Samsung’s long-term debt-paying ability is the strongest. Its creditors' rights and interests are highly protected, and its risks are small. Huawei's equity ratio has declined in the past five years, and its long-term debt-paying ability is improving. Apple can reduce the equity ratio by paying off part of its debts and increasing its assets through equity financing.

2.4.3 Equity multiplier

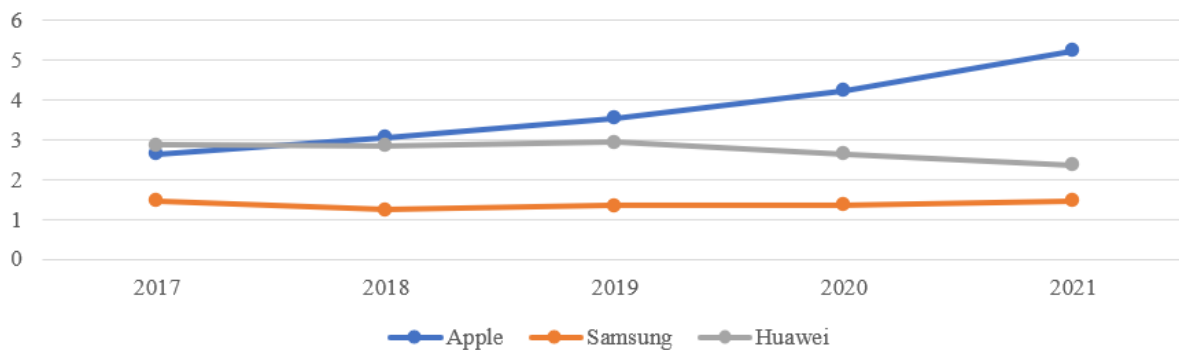


Fig. 10 Equity multiplier

Fig.10 shows that Apple's equity multiplier continues to rise. In other words, the company will face greater financial risk due to the company's external financing needing higher financial leverage. Through comparison, it is found that the equity multiplier of Huawei and Samsung is small, which means that the proportion of liabilities is small, which indicates that the enterprise has stronger solvency and a more stable capital structure.

However, if the company's business activities are on an upward trend, then a higher equity multiplier will generate greater profits for the company, thus improving the return on shareholders' equity and providing a positive incentive to the value of the company's stock.

3. Development Analysis

3.1 Emergency Response Capability

The new coronavirus has swept across the country, causing serious economic damage worldwide, and many well-known companies have been severely affected. Apple, as a well-known electronics manufacturer, reacted actively during the outbreak and took emergency measures.

3.1.1 Practices to protect employees

During the outbreak, Apple organized employees to report their life and work problems to the company and motivated them to share their experiences in fighting and protecting themselves from the new coronavirus outbreak, and also expanded its leave policy to address personal or family health problems caused by the new coronavirus pneumonia outbreak[11]. Apple's main goal is to ensure the personal health and safety of employees and the normal operation of work, in which the first consideration is the difficulty of employees' life with work, and the use of video conferencing to reduce the gathering of employees and suppress the virus outbreak[12]. In this regard, Huawei gives employees a medical collaboration system and rewards partners for outstanding contributions[13], and Samsung states that international travel for employees is limited to "mission-critical travel" and also sends care packages to some employees who work from home or undergo self-isolation[14]. Compared with its peers, Apple has always put the physical and mental health of its employees first, even more, important than the normal operation of work, a move that is undoubtedly more humane than its peers.

3.1.2 Work strain

Apple began implementing flexible work at the start of the outbreak, giving employees the option to telecommute if the nature of their work permits, while colleagues who must work on-site are expected to follow guidance and maintain interpersonal distance as far away as possible.

The company's annual Worldwide Developers Conference will be held online in a new format, while Apple adds new courses to its existing education program and professional development program for technical employees, including Developing Apps with Swift. The first participants in this program built more than 40 apps, covering multiple categories from workplace tools to games[11]. In this regard, Huawei provides its employees with the WeLink cloud platform for free to help them work remotely while adjusting performance thresholds according to the impact of the epidemic [13], and Samsung's employees must undergo health checks when entering the workplace and can work immediately without quarantine if the results are negative[14]. Compared to its peers, Apple focuses more on education programs for its technical employees and takes responsibility for the working environment of its technical employees.

In conclusion, Apple is well prepared to deal with New Crown in the future, and the current supply chain can meet the challenges of the New Crown pneumonia outbreak.

3.2 Strategy

3.2.1 Differentiation strategy

An enterprise has to create a distinctive product that customers will identify in order to pursue a differentiation strategy. Differentiation can be manifested with distinctive quality, unique service, innovative design, etc. Apple produces only one to two products in each area, thus ensuring that each product is characterized by perfection and refinement. Apple uses product differentiation to make it the star product in that field. The price of all Apple products is much higher than the price of similar products in the market this is the use of price differentiation. In addition to increasing the profit margin per unit of goods, price differentiation also explains the product's uniqueness to customers, making them less price sensitive. Marketing first creates momentum, and Apple's use of marketing differentiation allowed Apple followers to expect the release of the Apple phone, and the media kept speculating until the release date when people saw the real iPhone and marveled at how different it was.

In terms of differentiation, Huawei adopts product differentiation, with special emphasis on the use of the "Hongmeng system" for research input. Samsung adjusts low-end brand marketing channels for high-end, thus achieving low cost and high growth of the brand. Compared with its peers, Apple's annual innovation and "speed management" to become the leader of the electronics market.

3.2.2 Focusing strategy

Focusing strategy involves concentrating the objective in a small market that may be segmented based on the type of customer base, the range of products, and the geographic location of the customer. Although the high-end mobile phone models are pricey, Apple's worldwide market is not concentrated, which is consistent with the focus strategy for the high consumption level of customers.

In terms of focus strategy, Huawei uses a focus strategy of "deep beaching, low weir" to reduce development projects and focus resources on a few key development areas. Samsung's development is broader, from electronic products to home appliances, so the application of this strategy is also not high. Compared with its peers, Apple is successful in applying the focus strategy.

In short, with these strategies, Apple has managed to stand out among the many electronics companies and become the leader in electronics companies.

3.3 Innovation

Apple, Samsung, and Huawei are well-known electronic companies. Their financial reports indicate that the revenue of smartphones plays an important role in their total sales. However, the global smartphone market declined in Q2 2022 due to the war in Ukraine, the COVID-19 pandemic, and the shortage of chips. It is important to produce new products or develop new features for the phone[15].

On 7th September 2022, Apple held an event to introduce new products and services including the iPhone 14 series, the new Apple Watch, Apple Fitness+ and so on. One of the highlights of the new iPhone is Dynamic Island, which bubbles up music, FaceTime and so much more. This feature is unprecedented and attractive, which can bring a new trend. Other features like Emergency SOS, advanced camera, and battery life were also launched with the new iPhone. The slogan of the new Apple Watch was a healthy leap ahead. The innovations of the new Apple Watch are temperature sensing, period predictions, blood oxygen measurement and so on[16]. By analyzing Apple's new products, it is not hard to find that Apple has developed advanced technologies and created the newest innovations.

In the aspect of Samsung, the sales of smartphones increased, which was the only one in the top-five smartphone brands that had positive growth. But the operating profit of smartphones decreased. Samsung started to research and produce a smartwatch tracker, which got a second-place position just behind Apple[17]. Moreover, Samsung announced that they will expand advanced nodes and new applications and try their best to increase the sales of foldable products[18].

The last part is about Huawei, which focuses on the smartphone, carrier business, big data and so on. Huawei also produces smartwatches and ranks No.3 in the market behind Apple and Samsung. But Xiaomi, another China brand can access Huawei in the future probably. Huawei launched the newest smartwatch on 27th July 2022, named Huawei Watch 3 Pro. The newest smartwatch has a new appearance design, applied symmetry, networks in a new way, and other highlights[19]. In addition, Huawei has plenty of perspectives on other aspects of the future. Based on the achievements in 2021, Huawei publishes its 6G vision. They will focus on relative technologies, products, and services. Also, Huawei will concentrate on advanced optical communications, AI image encoding and decoding technologies, and other Carrier and Enterprise Businesses[20].

In conclusion, although Apple has advanced technologies and designs, there are still some risks to face. Due to the similar product structure, Apple needs to ensure that they have more attractive and unprecedented developments than other brands. What's more, Apple needs to keep a balance between high R&D expenses and total sales. But see currently, Apple maintained the top position with its advanced products and services.

3.4 Market Share and Brand Value

Market share and brand value can indicate the performance and monetary worth of a brand. Because more than 50% of sales were contributed by smartphones in Apple, it is necessary to focus Apple's market share on the smartphone market. Apple had the second largest market share in the

past six months. Meantime, Apple is still the most valuable brand in Brand Finance Global 500 2022, which is \$355,080M. Also, this brand value is the highest on record. Several reasons can explain this phenomenon. Firstly, Apple notices that its brand can be applied effectively to broaden its service fields. Ranging from Apple Pay to Apple TV. Secondly, Apple tries its best to provide a safer environment to protect users' privacy. Lastly, Apple has strong customer loyalty due to its special ecosystem, advanced products, and reputation. This allows Apple to compete with other brands strongly and choose a differentiation strategy[21]. According to Apple's history and the above evidence, Apple is likely to maintain these existing advantages and remain in a high position.

Samsung ranked No.1 in the smartphone market share and Huawei had the smallest market share. Meanwhile, in the brand value ranking, Samsung got the sixth position which was lower than the last year and Huawei went up from fifteenth to ninth. In order to reduce the negative impacts of US sanctions, Huawei changed its strategies to focus on the domestic market and cloud services. This can explain Huawei's current situation.

To sum up, Apple has a bright future, but the competitors still should not be ignored. Under the fierce competition, all brands are looking for the best breakthrough because high market share and brand value can prove this company has a good performance strongly and more investors would like to invest in this company.

4. Conclusion

In a word, this paper analyzes Apple's finance and studies its development strategy. For financial analysis, this paper analyzes the financial situation of Apple through its profitability, operating capacity, liquidity, and solvency, and draws a conclusion compared with its peers; Apple's ability to earn profits is high, its business efficiency is high, and all kinds of resources can be fully utilized, its short-term solvency is strong, and its long-term solvency is weak. These factors make Apple more popular among investors in many electronic product companies. Given Apple's development, and strategic research, this paper analyzes its stress response-ability, strategy, innovation, market coverage and brand value, and draws a conclusion compared with its peers; Apple can deal with emergencies well. It stands out from electronic product companies through its differentiation strategy and focuses strategy. It has advanced technology, design, and services. At the same time, as the most valuable brand, Apple has great advantages in long-term development to win more investors' investment with its special ecosystem and reputation.

It is difficult to point out the specific factors that attract investors in this paper. The special reason for this is that this report does not investigate the customer's interest in these capabilities and development. Therefore, in order to further study, we will conduct a questionnaire survey of investors' preferences and conduct an analysis.

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