

A Comparative Study on the Influencing Factors of the Large Chinese and Foreign Shipping Companies' Stock Price

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Abstract: The shipping industry is an important pillar of international trade and has a significant impact on global economy. The share price performance of Chinese and foreign large-scale shipping companies, as the leading companies in industrial, not only reflects the company's operating conditions and profitability, but also the development of international trade and world economies. In this study, two representative shipping companies, COSCO Shipping Holdings and Maersk been selected to conduct time series analysis, linear regression analysis, and correlation analysis on their stock price and profit data. The results of the study find the share prices of COSCO Shipping Holdings and Maersk are correlated with their profits. Between the profit and share price data, two companies are also highly positively correlated. At the same time, two companies share price volatility level, as well profit time synchronization and other aspects of the differences reflecting the company itself and differences in the development environment. Therefore, which can be concluded by: shipping industry is a mature industry, the company's profit is the main factor to affect the company's share price. By observing the share price can judge the development of the company and the industry. Shipping industry is a highly internationalized industry, the share price of similar shipping companies can be compared with references. The above conclusions can provide investors with references for decision-making and a perspective to observe the development of the shipping industry.

1 INTRODUCTION

The shipping industry playing an important role in international trade, and the statistics of the United Nations Conference on Trade and Development in 2023 shows the volume of international shipping transportation accounts more than 80% of the world merchandise trade (UNCTAD, 2023), so the development of the shipping industry reflects the development of international trade as a certain extent. The shipping industry is an industry with very high degree of internationalization and marketization, forming a relatively stable market pattern in long-term market competition. Among the world's shipping enterprises, Mediterranean Shipping, Maersk, Duffy Shipping, COSCO Shipping Holdings, and Hapag-Lloyd are forefronts. Influenced by world economic, trade development, capacity supply and other factors. the international shipping industry is characterized by cyclicity, which is clearly reflected in the shipping price index, also fully reflected in the

stock prices of shipping companies (JingMing, 2023). A comparative study of the factors influencing the stock prices of large Chinese and foreign shipping companies, not only provides valuable reference information for investors, but also helps to gain a deeper understanding of overall operation in shipping market and international trade.

The influence of company's stock price is more factors, according to general economic principles, which company's stock price reflects company's value, the main influencing factors include the company's profitability, growth, asset quality, etc., also by political factors, natural disasters, quality accidents and other incidental factors. Shipping industry more like mature industry, the head of company's development in general is relatively stable, overall quality of assets is better, there will be no explosive growth, so the quality of assets and growth are not the main factors affecting of stock price, this paper intends to take profitability as the main factory, study the relationship between the company's profitability

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and stock price, and at the same time on comparison of Chinese and foreign shipping company stock prices analyze and observe the correlation between the stock price of Chinese and foreign shipping companies.

This paper selects two representative shipping companies in and out China: COSCO Shipping Holdings and Maersk as the research targets. Both companies are listed companies, COSCO listed in Shanghai Stock Exchange and Hong Kong Stock Exchange, and Maersk listed in New York Stock Exchange. By checking the annual reports of listed companies to obtain the company's profit data, and at the same time checking of corresponding stock price information, linear regression analysis is performed on the data of same company to observe the relationship between two variables; and correlation analysis is used to compare the similarities and differences between the data of two companies. This study adopts a combination of quantitative and qualitative methods, using time series analysis, regression analysis, correlation analysis and other research methods (Shanghao, 2020). By analyzing the relationship between the share price and profit of Chinese and foreign shipping companies, finding the factors affecting share price of shipping companies, analyzing the similarities and differences of the influencing factors of domestic as well foreign shipping companies, this study provides investors with a reference for decision-making, a perspective for observing the development of the shipping industry, and a basis for subsequent in-depth research.

2 OVERVIEW OF THE CHINESE AND FOREIGN SHIPPING INDUSTRY

2.1 Shipping Industry Overview

The shipping industry has a long history, with its origins dating back to the beginning of human civilization. Owing to its advantages of large capacity, low freight rates, economy and environmental protection, maritime transport has become the most important mode of trade and transportation in the world, carrying more than 80 per cent of the world's trade volume. With the development of globalization, the shipping industry has played an important role in promoting international trade and regional economic development, at same time the shipping industry has become one of the important pillars of global economic development. The shipping industry and

related industries also be an important part of national economy. Related industries including shipbuilding, port construction and operation, logistics and transportation, shipping services, financial and legal services. These industries provide a large number of employment opportunities and great significance development of the national economy.

In addition, with the rapid development of science and technology, new technologies such as smart ships, automated terminals and clean energy have been gradually promoted in the shipping industry, pushing it in the direction of greater intelligence, greenness and efficiency. The application of these technologies not only improves the operational efficiency and environmental protection of the shipping industry, but also reduces costs and enhances the quality of its services.

2.2 Status of the Domestic Shipping Industry and Profiles of Domestic Shipping Companies

The "2021 China Maritime Day Main Forum" pointed out that about 95% of China's international trade cargo volume is completed by sea (China Maritime Day activities organization Working Committee, 2021). According to China's General Administration of Customs and the data from the Clarkson database in the United Kingdom website, in recent years, the proportion of import and export of the three typical bulk commodities in China's foreign trade, namely crude oil, iron ore and grain, 91% of volume of trade accounted by sea transportation to the total. 98% and 94% respectively. These data fully illustrate that the shipping industry has a dominant position in China's foreign trade transportation, and has made great contributions to the promotion of national economic growth and the development of foreign trade. In recent years, China's shipping industry has maintained a steady development trend, and overall maritime cargo turnover has shown an upward trend, with data from the National Bureau of Statistics showing that China's foreign trade cargo throughput will reach 5 billion tons in 2023, a year-on-year increase of 9.5% (National Bureau of Statistics, 2024). On the other hand, unfavourable factors such as adjustments in global trade patterns, trade wars, and rising ship operating costs have also brought certain challenges to China's shipping industry.

Incorporated in March 2005, COSCO Shipping Holdings Co., Ltd., one of the world's largest comprehensive shipping enterprises, focusing on shipping business and port business. The company

has a container fleet of 493 vessels, ranking 4th all over the world in terms of size, and has a well-developed route network around the world.

2.3 Status of Foreign Shipping Industry and Profiles of Foreign Shipping Companies

In recent years the foreign shipping industry has largely shown a trend of growth, shipping market demand is strong. 2023 United Nations Conference on Trade and Development statistics show that in 2022 the global seaborne trade volume reached 12.027 billion tons, the global ship capacity of about 2.2 billion deadweight tons. The future of international shipping industry is also facing considerable challenges, the global economic will slowdown, trade protectionism and other factors have brought adverse effects to the shipping industry, in addition to the continuing war by shipping industry will bring great uncertainty.

Maersk one of the world's largest container shipping company, with a container fleet size of 683 ships, with world No. 2 ranked, has its own route network all over the world, covering the world's major ports.

3 RESEARCH DESIGN

3.1 Data Analysis

Maersk and COSCO Shipping Holdings as two representative Chinese and foreign shipping companies, have been selected for analysis in this study for the period Q1 2016 to Q3 2023. The revenue and profit figures of 2 companies are obtained from public company reports, and the share price is based on the closing price of the company's stock on the first day of each quarter.

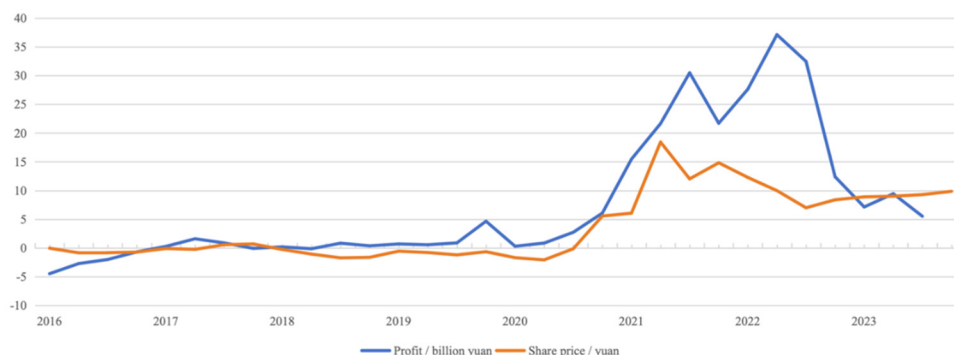


Figure 1: COSCO's share price and profit over time. (Picture credit: Original).

3.2 Data Analysis

First of all, time series analysis and correlation analysis are conducted on the stock price and profit data of COSCO (Chunyu, Wenjun, 2022). Since the company's stock price and profit have a close relationship, and a large part of the pricing in stock market reflects future expectations (Shouxi, Wei'an, 2004). Therefore, the author conducts regression analysis with the company stock price and profits of the corresponding time point: the previous quarter, the previous half year, the previous three quarters and the previous year respectively, in order to obtain the relationship between the company stock price and profits.

3.2.1 Comparison of Price and Profit of COSCO Shipping Holdings

First of all, the time series analysis of COSCO Shipping Holdings stock price and profit data, (Fig.1), Shows the two curves are more similar to the trend of change, there is a certain degree of correlation.

Continuing with the linear regression analysis of data, the results in Table 1 shows that the R Square of the first four items of the table are greater than 50%, indicating a good fit of the data. All regression equations F-test, $P < 0.05$, indicating the regression equations are all significant, the independent variable can significantly affect the dependent variable. The regression coefficients of five items in the table are all greater than 0, and the second regression coefficient is 0.4447, which is the largest among five items, and the significance level is $P < 0.01$, which indicates that the correlation between price of COSCO and profit of the quarter before corresponding time point is the most significant.

Table 1: COSCO share price and profit regression analysis results.

Regression analysis results		Coefficients	P-value	R Square	F
1	Stock Price and Corresponding Point-in-Time Profit	0.4099	3.7469E-08	0.6537	54.7496
2	Stock price and profit for the quarter before the corresponding point in time	0.4447	2.3457E-10	0.7670	92.1815
3	Share price and half-yearly profit before the corresponding point in time	0.4061	1.7669E-07	0.6420	48.4273
4	Stock price and profits for the three quarters prior to the corresponding point in time	0.3635	1.5805E-05	0.5180	27.9463
5	Stock price and profit for the year before the corresponding point in time	0.2883	0.0017	0.3290	12.2592

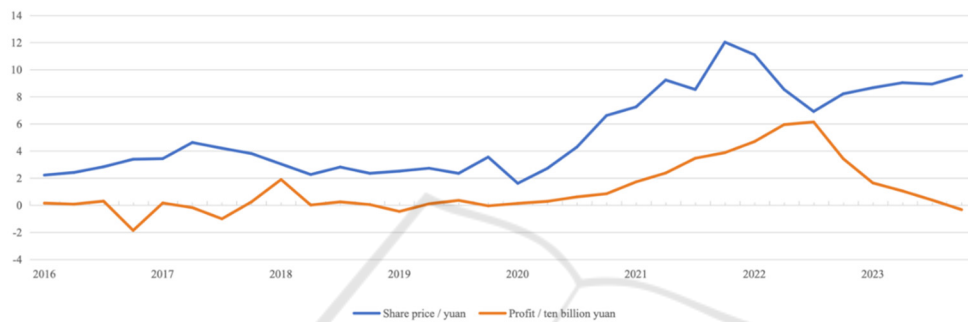


Figure 2: Maersk's share price and profits over time. (Picture credit: Original).

Table 2: Maersk share price and profit regression analysis results.

Regression analysis results		Coefficients	P-value	R Square	F
1	Stock Price and Corresponding Point-in-Time Profit	1.0438	6.3030E-05	0.4185	21.5935
2	Stock price and profit for the quarter before the corresponding point in time	1.1582	2.2278E-06	0.5437	34.5496
3	Share price and half-yearly profit before the corresponding point in time	1.2025	3.4798E-07	0.6104	43.8683
4	Stock price and profits for the three quarters prior to the corresponding point in time	1.0978	6.1838E-06	0.5369	31.3078
5	Stock price and profit for the year before the corresponding point in time	0.8626	0.0017	0.3201	12.2384

3.2.2 Comparison of Maersk's Share Price and Profits

A time series analysis of Maersk stock price and profit data, as shown in Figure 2, reveals that the stock price changes before the profit and the trend is similar.

Further linear regression analysis was conducted, and the results are shown in Table 2. The R Square of items 2, 3 and 4 of the table is greater than 50%, which indicates that the data are well fitted. The F test of all regression equations, $P < 0.05$, which indicates that the regression equations are all significant.

Which means that the independent variable is able to significantly affect the dependent variable. The regression coefficient of item 3 in the table is 1.2025, which is the largest among five items and significance level of $P < 0.01$. This indicates that Maersk's stock price is significantly correlated with the company's profit in six months prior to the corresponding time point.

To summarize, there is some correlation between share prices and profits for both Chinese and foreign shipping companies. However, since the stock price has an expected component in future, the correlation between the stock price and the profits at

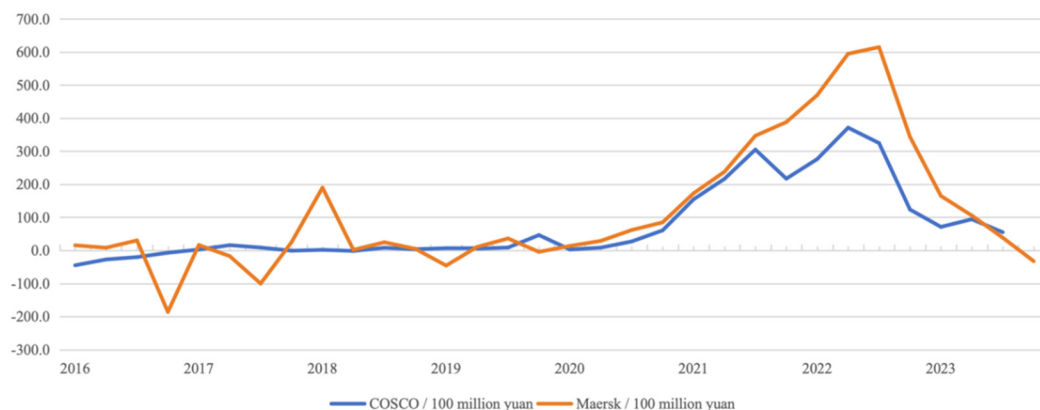


Figure 3: Line graph of profit over time between COSCO and Maersk. (Picture credit: Original).

Table 3: Profit Correlation Analysis between COSCO and Maersk.

	COSCO	Maersk
COSCO	1	
Maersk	0.9160653	1

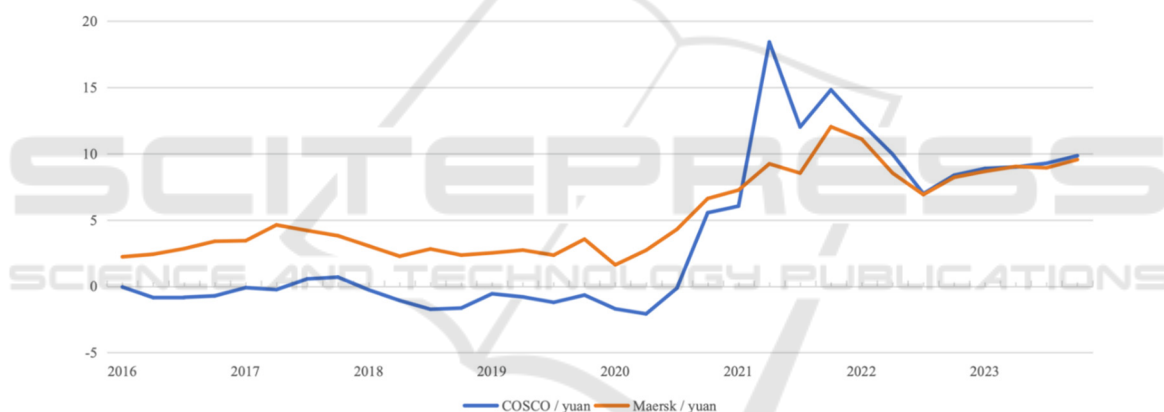


Figure 4: Line graph of COSCO and Maersk share prices over time. (Picture credit: Original).

corresponding time point will not be the best. COSCO's stock price has the most significant correlation with the profit of quarter before corresponding time point, while Maersk's stock price has the highest fit with the company's profit of the half year before the corresponding time point. This may be related to the company's assets, politics and other factors.

3.2.3 Inter-Firm Comparisons

This study also conducts time series analysis and correlation analysis of stock price data and profit data between two companies. Analysing their characteristics over time to understand the similarities and differences in the impact of shipping market by shipping companies.

First of all, the profit data of Chinese and foreign two shipping companies are plotted as line graphs, as in Figure 3, and it shows Maersk's profit has a large fluctuation, but the two sets of data show a similar trend. So then the two sets of data for correlation analysis, the results are shown in Table 3, the correlation coefficient is 0.9160653, the correlation coefficient is greater than 0 and close to 1, indicating that the two companies' profit data are positively correlated and the degree of correlation is high.

Table 4: Share price correlation analysis between COSCO and Maersk.

	COSCO	Maersk
COSCO	1	
Maersk	0.9514304	1

By plotting the relationship between the share prices of two companies by time, as shown in Figure 4, it shows that the change of the share prices of two companies before 2021 is relatively smooth, and the share price of Maersk has higher than COSCO Shipping Holdings. The share price of COSCO Shipping Holdings started to rise significantly from the first quarter of 2021 and exceeded that of Maersk; and the share prices of the two companies started to decline after the fourth quarter of 2021. In addition, the changes and trends of the two sets of data are roughly same. Therefore, this study continues to conduct correlation analysis between the two sets of data, the results are shown in Table 4. The correlation coefficient is 0.9514304, which is greater than 0 and close to 1. It shows that the stock price data of the two companies are positively correlated with a high degree of correlation.

The results of the correlation analysis show that the profits of the two companies and the share prices of the two companies have high correlation. This shows that the shipping industry is an international and fully competitive industry, and the characteristics of the industry determined the performance and the share prices of the two companies are affected by same factors. Examples include the global macroeconomic environment, trade policies, oil prices, shipping demand, etc., In addition, as leading companies in shipping industry, COSCO and Maersk have both competitive relationships and may cooperate in certain areas, which may also make the share prices of the two companies show a certain degree of correlation.

4 FACTORS AFFECTING THE SHARE PRICE OF SHIPPING COMPANIES

4.1 Similarities in the Factors Affecting the Share Price of Domestic and Foreign Shipping Companies

As a highly internationalized industry, the shipping industry is characterized by full market competition and obvious cyclicality (Shuhan, 2014). Shipping market demand and shipping capacity supply determine the freight rate, which greatly affects the profitability of the companies. Combine the company's earnings and market's expectations of the company's future earnings together, will determine the stock price of the shipping company.

At First, shipping company share prices are affected by changes in international trade. When the global economy is growing, international trade activity will be more activity. The shipping industry usually be benefited, with profits and share prices rising. When the economy is unstable, international trade is constrained, and the shipping industry will be impacted. When indicators such as GDP, imports and exports, and exchange rates change, global trade will be affected, which in turn affects the shipping industry.

Secondly, supply and demand will affect the profits and share prices of shipping companies. When the scale of global trade increases, the demand of the shipping industry increases, and the shipping company's capacity is relatively insufficient, freight rates rising, profits and share prices will correspondingly increase. On the other hand, it will also encourage shipping companies to increase capacity and expand scale. The increase in capacity will eventually lead to lower freight rates, which will lead to lower profits and stock prices. On the contrary, when there is insufficient demand, the shipping market will face a situation of excess capacity. Shipping companies will eliminate outdated capacity or mothballing some excess capacity to bring freight rates back to reasonable levels. The interaction of supply and demand leads to periodic fluctuations in shipping companies' profits and stock prices, with high profits at the peak and even large losses at the trough. Cyclical fluctuations are also a significant feature of the shipping market.

Thirdly, international trade policies and emergencies have a direct impact on the shipping market. First of all, trade policy will affect the degree of activity of world trade activities. Free trade agreements, tariff reduction and other policies are conducive to promoting the free flow of goods, thus driving the increase in shipping demand, shipping company profits, stock prices will increase. Trade barriers and trade wars have a significant adverse impact on international trade, and have a negative impact on shipping companies' profits and stock prices. Emergencies including natural disasters, epidemics, wars, major accidents, etc., these emergencies will disrupt the normal trade order or transportation environment, interference in international trade, the shipping industry, resulting in a certain period of significant fluctuations in freight rates. During the New Crown Epidemic, the global supply chain was affected, resulting in a significant increase in shipping prices and a sharp increase in the profits and share prices of shipping companies, which gradually returned to a steady state after the epidemic.

The Suez Canal container ship grounding incident and the war in the Red Sea also caused disruptions to international shipping, resulting in increased distances and time and price volatility.

4.2 Differences in the Factors Affecting the Share Price of Domestic and Foreign Shipping Companies

First of all, there are differences between companies, including the quality of the company's assets, operating strategy, management level, etc., which have a direct impact on the company's share price. The quality of the company's assets has a direct impact on company's operating quality, which in turn affects the stock price. The company's business strategy determines the company's market layout and market competitiveness. The company's investment strategy affects the increase or decrease of transportation capacity and the quality of market operation ability. Whether the capacity scale matches the market demand will affect the company's business performance, and then affect the stock price. Management level includes safety management, cost control, etc., Safety accidents can cause economic and reputational losses, and cost control can affect profit levels, all of which will also have an impact on the company's share price.

Secondly, companies in the industry are affected by the environment of the countries in which they operate. The government's shipping policy directly affects the pattern and development direction of China's shipping market, which in turn affects the competitiveness and profitability of companies. The degree of openness will affect the development of international shipping. Positive trade policies, such as tariff reduction and expansion of development, will promote the prosperity of the shipping industry and increase the stock price of the shipping market. On the contrary, trade protection and tariff increases will discourage trade enthusiasm, and shipping companies will reduce profits and share prices. There are also differences in the stock market. China's stock market has a short development time and still has a significant "government-driven" characteristics (Bin Liu, Liang Yao, 2003). The government plays an important role in China's stock market, so the share price of China's shipping companies by the impact of policy news is more obvious (Jingwen, Hui Liu, 2022).

In addition, there are certain differences in the structure of the domestic and international shipping markets. Chinese market has huge potential, the international shipping market is highly concentrated,

the domestic shipping market is more competitive, and the competition in the domestic and international markets will form mutual influence. The foreign shipping market is more reflective of international competition, and after years of development, the stability and maturity will stronger, and the corresponding stock price volatility is relatively low.

5 CONCLUSION

By analysing the stock price and profit data of COSCO Shipping Control and Maersk from the first quarter of 2016 to the third quarter of 2023. This study finds that there is a certain correlation between the stock price and profit of both companies. COSCO's share price has the most significant correlation with the profit of the quarter prior to the corresponding time point, while Maersk's share price has the most correlation with the profit of the six months prior to the corresponding time point. This suggests that for a mature industry like shipping, company profits are the main factor affecting of company's share price, and the development of the company and the industry can be judged by observing the share price.

Comparing the correlation between the profit and stock price of the two companies, it can be seen that the profit data and stock price data of the two companies are positively correlated, and the correlation is high. This indicates that the shipping industry is a highly internationalized industry, and the share prices of the companies are greatly affected by common influencing factors. The share prices of similar shipping companies at home and abroad can be compared for reference.

The study found that although there are obvious similarities in the stock price changes of domestic and foreign shipping companies, there are also some differences in earnings and stock price levels, volatility levels, and stock price and profit correlations. This is related to the political environment, economic environment, market structure, the quality of the company's own development, operational strategy and other factors that reflect the differences in the development of different companies.

This study focuses on a comparative study of two large shipping companies, and the conclusions can provide a reference for investors to make decisions and a perspective to observe the development of the shipping industry. However, the content, methodology and conclusions of the study still have some limitations. This study provides a basis for

further research. In the future, the scope of research can be extended to more countries and shipping companies of different sizes. More influencing factors can be introduced, and more perfect analysis as well prediction models can be established. So as to have a more comprehensive understanding of the operation law and development trend of the global shipping market. To provide more reliable reference information for industry development research and investor decision-making.

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