Hedge Strategy Analysis and Financial Analysis of Chinese Eastern Airlines

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ABSTRACT

Hedging is crucial to a company's financial status, a good hedging strategy can effectively avoid the loss caused by price fluctuations. However, a bad hedging strategy can lead a company into a crisis. This paper aims to study the failed case of fuel option hedging of China Eastern Airlines in 2008. We make a financial analysis based on the company's basic background, financial situation, and stock price. On this basis, the hedging schemes of fuel long call options, short put options, and short Call options are analyzed respectively, and the reasons for the company's huge losses are finally obtained. This paper will provide a reference for airlines to make hedging plans in the future, so as to avoid inappropriate hedging decisions.

Keywords: *Corporate background, Financial analysis, Fuel hedge.*

1. INTRODUCTION

Jet fuel is one of the main costs of airlines. Fluctuations in fuel prices will significantly affect airline profits. With the rapid development of derivatives and financial markets. Derivatives hedging becomes an important way for airlines to lock in costs. However, hedging is not always a good thing for airlines. It can also cause a loss sometimes. In 2008, because of the U.S. subprime mortgage crisis, oil prices fall sharply. And China Eastern Airlines faced a huge loss because of its hedging strategy. In the previous studies, many are analyzed in terms of specific hedging strategies and company earnings. Shiwen Yu get the reason for the loss by analyzing the specific hedging strategy[1]. Shaofang Li and Lingyi Kong analyze the reasons for the loss and make relevant suggestions from the perspective of information disclosure[2]. Qiujing Ran Analyzed the downside risk of Eastern Airlines' hedging from the perspective of hedging motivation and hedging ratio[3]. Hairui Li & Xingyi Liao analyzed the reasons for the failure of financial derivatives hedging from the perspective of state-owned enterprises[4]. We found that there is relevant literature on the analysis of Eastern Airlines' hedging from specific financial indicators and company conditions. So, in our article, we will analyze China Eastern Airlines' hedging strategy and the reasons for its losses from three perspectives. They are company profile, financial analysis, and specific fuel hedging strategies. We will analyze the reason for hedging from the company profile and financial analysis. Based on this, combined with specific hedging strategies, it further analyzes the reasons for the loss of Eastern Airlines' hedging. Finally, this article will point out hedging behaviors that could result in large losses and give relevant advice on the regulation of hedging and the company's hedging strategy.

2. COMPONY PROFILE

2.1. Background information

China Eastern Airlines is a wholly state-owned company directly under the jurisdiction of the central government. It is the first airline company of CAAC to be listed in Hong Kong, New York, and Shanghai. On February 4, 5 and November 5, 1997, China Eastern Airlines was successfully listed on New York Stock Exchange, Hong Kong Stock Exchange and Shanghai Stock Exchange respectively.

China Eastern Airlines Group is headquartered in Shanghai. As of the end of July 2014, the total assets of

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China Eastern Airlines Group is about ¥132.158 billion, with more than 460 large and medium-sized transport aircraft, 18 general aviation aircraft, 187 destinations and 1024 destinations, providing services to nearly 80 million passengers every year, ranking among the top five in the world in terms of passenger traffic.

2.2 business area

The business of China Eastern Airlines Group includes public air transport, general aviation business and production and sales of air transport-related products (including duty-free goods), maintenance of aviation equipment and equipment, air passenger, cargo and ground agency, aircraft leasing, aviation training and consulting and other businesses operated by the state.

The main business of China Eastern airlines is air transportation. It implements the strategy of ‘central network operation’ and establishes an air transportation network with Shanghai as the center, relying on the Yangtze River Delta region, connecting the global market, and paying equal attention to passengers and cargo. In addition to domestic routes, it also operates international routes from Shanghai and other places to major international cities. It has an air route network connecting east and west China, Asia, Europe, Australia, and America. By 2014, it had more than 350 aircraft of various types and reached 187 countries and 1,000 destinations in the world.

2.3 the financial situation

According to the analysis of the financial report of China Eastern Airlines, in 2008, the domestic and foreign economic fluctuations, the air passenger volume decreased significantly, coupled with the rising cost of jet fuel. On the one hand, the enterprise income declined significantly. On the other hand, it has to bear the operating pressure brought by rising costs, and the operating indicators of this large airline have declined to a large extent. In this year, China Eastern Airlines has a book loss of nearly 1.4 billion yuan related to financial derivatives, a net loss of 14 billion yuan, a net income per share of -2.86 yuan, a total asset of 73.1 billion yuan, a total liability of 84.2 billion yuan, and an asset-liability ratio of 115% [5] . China Eastern Airlines has fallen into the financial dilemma of long-term insolvency, especially the continuous negative net profit growth and high debt ratio of China Eastern Airlines, forcing the State-owned Assets Supervision and Administration Commission to continuously inject capital into it. Following a Rmb3bn capital injection from SASAC in 2008, China Eastern had received two more Rmb7bn investments from the regulator.

Table 1. Main Corporate Financial indicators of China Eastern Airlines in 2007-2009

Financial indicators		2007	2008	2009
Key indicators	Operating income (¥100 million)	425.34	410.73	389.9
	Net profit(¥100 million)	3.79	-152.69	1.69
A share index	Basic earnings per share (After adjustment) (¥)	0.08	-3.14	0.03
	Total profit per share (¥)	0.24	-9.74	0.03
profitability	Gross profit margin (%)	87.84	87.15	86.00
Financial risk	Asset-liability ratio (%)	95.67	117.30	97.67
	Current ratio	0.27	0.19	0.19
	Quick ratio	0.24	0.18	0.17
Operating Ability	Inventory conversion cycle (days)	82	69	60
	Accounts receivable conversion cycle (days)	16	14	12
	Accounts payable conversion Cycle (days)	35	38	56

Source: *Annual financial report of China Eastern Airlines, https://xueqiu.com/snowman/S/00670/detail#/ZYCWZB*

2.4 Share price analysis

In September 2007, Singapore Airlines and Temasek decided to invest in China Eastern Airlines and subscribed for 1.884 billion H shares issued by China Eastern Airlines at a price of HK $3.80 per share, or HK

$7.161 billion in total, accounting for 24% of the shares of China Eastern Airlines after the capital increase. At the time, China Eastern's Hong Kong-listed shares, trading at about HK $3.73 each, had been suspended since May.

When China Eastern's Hong Kong-listed shares resumed trading after the deal was signed, they jumped to HK $6.54 before climbing to more than HK $8 and even topping HK $10 during the session. After the gradual decline from November, has shrunk substantially. In just over a year, China Eastern's Hong Kong-listed shares have been on a roller-coaster ride, rising, falling, and finally hitting bottom. China Eastern's Hong Kong shares closed at HK $1.70 on August 27, less than a quarter of their value at the start of the year.

When China Eastern's shares were trading at about HK $7, cNAC accused China Eastern of selling state assets too cheaply and raised hopes of a bid by offering HK $5 a share. On January 8, 2008, after CNAC formally proposed to invest in China Eastern Airlines, CNAC subscribed for 2.985 billion H shares to be issued by China Eastern Airlines at a price no less than HK $5 per share. The offer was significantly higher than the rmb3.80 a share sia had agreed with China Eastern.

Since then, as the market has weakened, China Eastern's prices have gradually fallen. China Eastern's Hong Kong shares fell as low as HK $3.75 on March 11, below Singapore Airlines' HK $3.80 offer for the stake. On August 28, China Eastern's Hong Kong-listed shares had fallen to HK $1.62, a long way from HK $3.80 [6].

3. FINANCIAL ANALYSIS

3.1 solvency ratio analysis

3.1.1 current ratio

The current ratio is the ratio of current assets to current liabilities, which measures the ability of current assets to be converted into cash before short-term debt matures. In general, airlines have liquidity ratios of around 50%. If the liquidity ratio is too low, it indicates that the short-term solvency of the enterprise is poor. If the current ratio is too high, the enterprise has too many idle funds. As can be seen from Table 1, China Eastern Airlines has a low liquidity ratio, indicating its poor solvency and great debt repayment pressure [7].

3.1.2 quick ratio

The quick ratio of airlines is less than 200% of other industries. According to the Standard Value of Enterprise Performance Evaluation formulated by the Financial Supervision and Assessment Bureau of the State-owned Assets Supervision and Administration Commission of the State Council, the average quick ratio of the aviation industry is about 40%. It can be seen from Table 1 that the quick ratio of China Eastern Airlines is lower than the average index of the industry, and in 2008, the quick ratio increased by -26.75% year on year, which is largely related to the 2008 financial crisis. The company's poor liquidity ability and its internal liquidity are obviously insufficient, which makes China Eastern Airlines face a greater short-term debt repayment risk. [8]

3.1.3 asset-liability ratio

Due to the particularity of the airline's high debt operation, its asset-liability ratio is generally 70%~80%. However, the asset-liability ratio of China Eastern Airlines is significantly higher than the industry average, especially in 2008, the asset-liability ratio of China Eastern Airlines was as high as 117.30% (table 1), with a year-on-year growth of 22.61%, indicating that China Eastern Airlines has been insolvent. On the one hand, domestic factors such as the earthquake and Olympic Games as well as the global economic crisis have greatly reduced aviation demand in 2008. On the other hand, China Eastern Airlines has a greater loss in hedging.

3.2 Risks in the fuel hedging business

In order to control jet fuel costs, China Eastern Airlines has carried out crude oil hedging transactions, which are financial derivatives based on assets such as WTI crude oil of the United States and Jet fuel of Singapore. In the case of rising jet fuel prices, the company reduced the impact of jet fuel purchase price fluctuations through a variety of financial derivatives. As of December 31, 2007, and 2008, the actual delivery volume of the company's crude oil hedging accounted for 34.20% and 41.58% of the spot purchase volume of jet fuel.

Eastern airline's fuel hedging business purpose is to lock in jet fuel costs, the company by choosing the right tool to a certain extent, such as locking value price range, but if fuel prices have exceeded the set price volatility and lock, could lead to the related transactions from actual delivery the risk of loss and book was negative. As of December 31, 2007, and 2008, the actual delivery of the business generated gains and losses of about 120 million yuan and about 8.58 million yuan respectively. [9]

Table 2. The breakdown of fuel cost of China Eastern Airlines.

	2008	2007
	RMB million	RMB million

Fuel costs	18,480	15,237
Realized hedging loss/(profit)	8	(120)
Total fuel cost	18,488	15,117
Unrealized fair Value measurement Hedging loss/(profit)	6,256	(97)

Source: *The data is from China Eastern Airlines Co. LTD (600115) Annual Report, 2008*

4. Fuel hedging strategy

The airline's cost of fuel is influenced by the international jet fuel market volatility and exchange rate fluctuations greatly. If the fuel price sharply increases, the airline will face a huge cost of fuel. Its profit will decrease. The purpose of hedging is to avoid the risk of a sharp rise in aviation oil prices and reduce the company's operating uncertainty caused by rising oil prices. It can also reduce the business risk because of the increase in fuel price [10]. So, fuel hedging is the main way for airlines to lock in fuel prices. Fuel hedging is commonly used by airlines around the world. It is also used by China Eastern Airlines.

Between 2002 and 2008, jet fuel costs rose from 21% to 40% of operating costs. As the proportion of jet fuel cost in the company's operating cost increased year by year, it seriously affects the company's operating efficiency. To avoid the risk of fuel prices increasing, the amount of hedging accounted for 35.9% of the company's estimated fuel consumption for the year 2008 [11].

Take China Eastern Airlines' 2008 fuel hedging as an example, let's explore its strategy. It shows that a total of 55 forward fuel contracts were signed for fuel hedging in 2008. These contracts included a long call option, short put option, and short call option.

Firstly, analyzes the long call options. The strike price of the call option is \$62.35/barrel-\$150/barrel [12]. It had the right to buy 11.35 million barrels of fuel. In this case, if the fuel price is greater than \$150/barrel, China Eastern Airlines will choose to exercise the right. And the profit is (fuel price -150) USD/barrel. If the fuel price is lower than \$150/barrel but greater than \$62.35/barrel, whether or not China Eastern Airlines exercises its right, the loss will equal to the option premium. If the fuel price is lower than \$62.35/barrel. China Eastern Airlines will not exercise the right. And the loss will equal the option premium. We can find that as an active contract, it can be very good to lock in fuel prices. It can greatly help China Eastern Airlines hedge the risk of international jet fuel market volatility and exchange rate fluctuations. Its maximum loss is the option premium. But its income is infinite. Therefore, it plays a very good hedging role.

Secondly, analyzes the short put options. The strike price of the put option is \$62.35/barrel. The contracted transaction volume is 11.35 million barrels of fuel. If the fuel price is greater than \$62.35/barrel, the counterparty will not exercise the right. China Eastern Airlines will earn an option premium. If the fuel price is lower than \$62.35/barrel. The counterparty will exercise the right. China Eastern Airlines must buy jet fuel from its counterparty at \$62.35 per barrel. At this time, China Eastern Airlines will face a loss of (62.35-fuel price) USD/barrel. We can find that China Eastern Airlines short-put options to earn the option premium for speculation instead of hedging.

The last one is a short call option. The strike price of the call option is \$72.35/barrel-\$200/barrel. The contracted transaction volume is 3million barrels of fuel. If the fuel price is greater than \$200/barrel. The counterparty will exercise the right. China Eastern Airlines will face a loss of (fuel price-200) USD/barrel. If the fuel price is lower than \$200/barrel but greater than \$72.35/barrel, China Eastern Airlines will earn an option premium. As can be found that China Eastern Airlines short put options and short call options for speculative profit. China Eastern Airlines ignored the risk of speculation. If the fuel price decrease too much, the loss is infinite.

July 2008 affected by the US subprime mortgage crisis, the fuel demand fell, and the fuel price is lower than \$62.35/barrel. China Eastern Airlines had to face a huge loss. The long call option and short call option will not exercise, but the short put option will face a huge loss. The counterparty will exercise the right and China Eastern Airlines had to buy fuel at \$62.35/barrel and the price is much higher than the market price. The short put option is the main source of loss.

5. CONCLUSION

The global airline industry has entered a severe winter, weighed down by weak markets and high oil prices. In the first half of 2008, 25 airlines around the world announced closures or suspensions, according to iATA.In this context, compared with the beginning of the year, China Eastern airline's assets and operating conditions have deteriorated. China Eastern reported a net profit of 41.62 million yuan in the first half of 2008, down 28.5 percent from a year earlier. In addition, China Eastern's asset-liability ratio was 95.23%, up from 94.69% at the end of last year, while net operating cash flow decreased by 61.6% year-on-year. In the second half of 2008 and 2009, the exchange income of China Eastern Airlines will be greatly reduced due to the slow appreciation of RMB, so the net profit will also be significantly reduced, the situation is not optimistic. Starting from the financial data and stock price index, this paper analyzes the relationship between China Eastern Airlines' hedging strategy and its financial status, the advantages and disadvantages of China Eastern Airlines' financial derivatives strategy, and puts forward relevant suggestions for improvement.

The hedging of jet fuel has been recognized by the public as a stable jet fuel price for various airlines and as a tool to lock in the cost of oil prices and stabilize profits. However, the jet fuel option transaction of China Eastern Airlines does not conform to the hedging principle. From China Eastern Airlines' fuel hedging strategy, we can easily find that China Eastern Airlines avoided the risk of rising oil prices, it also created a new risk of falling prices. Most of Eastern Airlines' so-called hedging behavior is actually speculative behavior. The trading cycle of jet fuel options does not correspond to the spot cycle. And the contracted transaction volume is too much for hedging. Derivatives trading volume is higher than actual spot jet fuel volume because the annual jet fuel option exercise cycle is three years, far exceeding the spot trade cycle. From this event, we can know that the reason for the huge losses was speculation under the guise of hedging. And there is no free lunch in the world. Any trading activity that yields a profit has a cost. In this case, China Eastern Airlines had to face a huge loss because of the sharply volatility of the market.

In this paper, we have many deficiencies in the hedging strategy of China Eastern Airlines. First of all, in the financial analysis part, we did not point out the internal financial risk control strategy of China Eastern Airlines. Second, we did not study the remedial measures taken by the company at the later stage of the fuel hedging. At last, the paper did not combine the hedging strategies of other airlines in the same period and drew corresponding conclusions by comparison. In view of the above problems, our next research plans are as follows. First, we will further analyze the company's current financial risk control. At the same time, combined with the successful hedging cases of other airlines, this paper analyzes the reasons for the failure of China Eastern Airlines and remedial measures and puts forward reasonable planning and suggestions for the current hedging scheme of the company.

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