Analysis of the hedging strategy for the huge loss of Sinopec Group

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Abstract. The use of crude oil futures for hedging is common for companies that use crude oil as a raw material. It helps companies to hedge against the risks associated with the volatility of crude oil prices and avoid major problems such as cash flow shortages. However, if hedging is abused, it can also have a significant impact on a company's profits. In late 2018, one of Sinopec Group's subsidiaries, United Petrochemical, mistakenly used financial derivatives to hedge, resulting in a plunge in net profit and share price for the entire group. This article analyses Sinopec Group's financial position for the three years 2017, 2018, and 2019, examines United Petrochemical's hedging strategy, and ultimately points out the reasons for and implications of its failure, with a view to providing lessons for the subsequent use of financial derivatives for hedging in related industries. The authors found that a subsidiary of Sinopec Group incurred large losses when international crude oil prices fell as it bought too many futures, causing Sinopec Group's profits to fall by more than 90% in the fourth quarter of 2018 and evaporating more than RMB 90 billion in market value in the two days the deal came to light.

Keywords: Hedging, Risk management strategies, Financial derivatives.

1. INTRODUCTION

The price of crude oil has always been highly volatile around the world. At a time when the global situation is volatile and the price of crude oil is rising, many companies that use crude oil as a raw material need to find a scientifically sound way to hedge their risks. By purchasing crude oil futures in the futures market, companies can offset potential losses in their main business: when the price of crude oil rises, they incur higher costs in their main business, but hedge their risk by making a profit on the futures side through derivatives.

However, not all companies that hedge their exposure through crude oil futures are able to hedge their risk, and in late 2018, when international oil prices were rapidly declining, United Petrochemical used an inappropriate hedging strategy, resulting in an operating loss of approximately RMB 4.65 billion and a significant decline in the share price of its parent company, Sinopec Group.

Many scholars have analyzed specific hedging strategies by examining specific hedging cases and deriving the specific impact of these hedging strategies on the company's operating conditions. In 2004, Fan Zhe introduced the use of hedging in fuel futures through a study of the Dejing incident [1]; In 2005, Zeng Qiugen analyzed the hedging strategies of China National Aviation and paid attention to the application of hedging in corporate risk management [2]; In 2011, Qian Zeng study on the advantages and risks of fuel hedging through a case study of Southwest Airlines and China Eastern Airlines [3]; In 2014, Qian Zhang and Yun Feng studied the hedging strategies of several Chinese listed companies and their financial data, and made a distinction between the functions of financial derivatives "speculation" and "hedging" [4]. In 2019, Zhao Xiaofei reviewed the "black swan" incident of Sinopec Group, which led to the topic of national regulation of financial derivatives trading [5].

This paper will first introduce the basic information of Sinopec Group and its financial situation in the three years of 2017,2018,2019. The paper then analyses the share price of Sinopec Group at the end of 2018, visually showing the large drop in the share price of Sinopec Group that occurred due to the losses of its subsidiaries in their hedging business. In Section 3 of this paper, the hedging strategy of Sinopec Group's subsidiary, Union Petrochemical, is analyzed and evaluated with a view to reducing similar cases.

2. COMPANY PROFILE

2.1 Background

Sinopec Group, located in *Beijing*, is a huge petroleum enterprise group established by the State in July 1998 on the basis of the former China Petroleum & Chemical Corporation. It is a central enterprise under the direct jurisdiction of the State Council of China at the vice-ministerial level.

Sinopec Group is the largest supplier of refined oil products and petrochemicals in China and the world's largest oil refining company, and it is ranked No. 1 in the 2017 Global Manufacturing 500 list released by the Global Manufacturers Group.

On 28 February 2000, the *Sinopec Group* established a joint stock company. From 9 to 12 October, *Sinopec* made its overseas initial public offering of 16.78 billion H shares, raising US$3.46 billion. And on the 18th and 19th of the same month, *Sinopec* H shares were listed in Hong Kong, New York, and London respectively.

2.2 Main Business

Sinopec Group's main business scope includes industrial investment and investment management, exploration, exploitation, storage, and transportation (including pipeline transportation), sales and comprehensive utilization of oil and natural gas, chemical production and operation, petroleum technology services, and product marketing services for natural gas, refined oil products, fuel oil, and many other energy sources.

2.3 Finance Condition

Sinopec Group's key financial indicators for 2017, 2018, and 2019 are shown in the table below.

Table 1. Key financial indicators of *Sinopec Group* in 2017-2019

Report date	2019-12-31	2018-12-31	2017-12-31
Net profit (RMB million)	5,759,100	6,308,900	5,111,900
Revenue from main business (RMB million)	296,619,300	289,117,900	236,019,300
Net assets per share (RMB)	6.11	5.93	6.01
Basic earnings per share (RMB)	0.48	0.52	0.42
Operating Profit Margin (%)	3.04	3.51	3.68
Total Assets Margin (%)	4.11	5.04	4.41
Current Ratio (%)	0.77	0.89	0.91
Quick Ratio (%)	0.44	0.57	0.59
Cash Ratio (%)	22.2	29.56	28.48
Gearing Ratio (%)	50.04	46.14	46.47

Source:NetEase Finance, http://quotes.money.163.com/f10/zycwzb_600028,year.html

As can be seen from the table, in 2017,2018,2019, *Sinopec Group's* net profit was 5,111.9billion, 6,308.9billion and 5,759.1billion respectively, with main operating income rising year on year and profitability stabilizing at a high level. Sinopec Group's profitability is good, with notable net profit and operating income growth even in 2018, when the international crude oil market was highly volatile. In fact, the Company achieved a record revenue of RMB 289.12 billion in 2018, an increase of 22.50% year on year.

In addition, in 2017, 2018, 2019, *Sinopec Group's* current ratios are 0.91, 0.89.0.77, quick ratios are 0.59,0.57,0.44, cash ratio is 28.48, 29.56, 22.2. *Sinopec Group's* financial data is stable in terms of current ratio, quick ratio, and cash ratio, which are three indicators reflecting the company's short-term solvency, and gearing ratio, which reflects the company's long-term solvency, indicating its relatively stable debt capacity.

Table 2. 2018 Partial Financial Data of *Sinopec Group*

Reporting Date	2018-12-31	2018-9-30	2018-6-30	2018-3-31
Revenue from main business (RMB million)	81820900	77271800	67900100	62125100
Profit from main business (RMB million)	5092400	6193300	6855800	6225400
Net profit (RMB million)	310900	1838000	2283000	1877000

However, if one focuses only on Sinopec Group's financial data for the four quarters of 2018, one will find anomalies in its financial data for the fourth quarter. In the fourth quarter of 2018, Sinopec Group's main operating revenue increased, but a huge decrease in main operating profit and net profit occurred.

In fact, this is strongly linked to the improper financial derivatives trading practices carried out by United Petrochemicals, a subsidiary of Sinopec Group, in late 2018. This matter will be analyzed in Section 3 of this article.

2.4 Share price analysis

Share price analysis for Sinopec Group was taken from the CHOICE database between 15 October 2018 and 14 January 2019. As shown in the chart below, the share price of Sinopec Group showed a general downward trend over the three-month period and saw a huge drop on December 27, 2018 .

On 27 December 2018, Sinopec began to dive at midday, falling by a minimum of over 7%, and *Sinopec's* market value flash 46 billion yuan. The dip then continued on the 28th, with a cumulative drop of over 10% for two consecutive trading days and a loss of over $90 billion in A-share market capitalization.

Fig.1 Sinopec Group share price: 15.10.2018 - 14.1.2019

*Source:*choice *financial terminal*

3. FUEL HEDGING STRATEGY

Hedging is a common business practice in which financial derivatives are used to hedge the risk of one's own business activities and has been widely recognized by the public in many areas. In particular, companies that rely on raw materials with high price volatility, such as crude oil, need hedging as a means of hedging their risks.

The profitability of companies whose operations include the processing of crude oil is affected by the volatility of crude oil prices. If oil prices fall, companies that need to process crude oil will make a profit, but if oil prices rise significantly, companies that need to process crude oil will suffer severe losses.

With the volatile international environment and fluctuating crude oil prices, energy processing companies such as Sinopec Group need to find ways to hedge their risks and minimize the risk of price fluctuations, and futures hedging provides a scientific and reasonable way for petrochemical companies to hedge their risks. If petrochemical companies purchase the right amount of crude oil futures, they will profit when the price of crude oil rises, hedging against the risk of higher oil prices.

United Petrochemicals, a subsidiary of Sinopec Group, is mainly engaged in trading crude oil and petrochemical products and is the largest international trading company in China. It has large purchases of crude oil and uses derivatives such as futures options to hedge against the risk of crude oil price fluctuations [8].

But errors in hedging its own risks with financial derivatives by United Petrochemicals directly contributed to a net profit loss of approximately 90% for its parent company, Sinopec Group, in the fourth quarter of 2018.

In retrospect, there were initial public rumors that the Unilever executives involved had engaged in speculative futures trading by way of Zero Collar, misjudging the international crude oil price situation at the time and incurring huge losses.

Zero Collar refers to the practice of buying an option and selling another option at the same premium, thereby creating a zero-cost portfolio of options [6]. This is effectively a complete call, or put, on the futures price. It is believed that Sinopec chose this aggressive speculative option portfolio in the blind belief that the price of crude oil would continue to rise, and it was rumored that his counterparty was the well-known Goldman Sachs Group in the financial world - outright speculation. However, in China, where such speculation is strictly limited, such rumors did not find a good basis in reality.

In the end, Sinopec clarified that the large losses it incurred were mainly due to the futures side of the hedging business: Sinopec purchased a large amount of futures when international crude oil was rising and was overly optimistic about the rise in oil prices, ultimately defeating the purpose of using financial derivatives to hedge against the consequences of bad speculation: the hedging strategy did not effectively cover the risk of changes in oil prices. the hedging strategy was not effective in covering the risk of changes in oil prices, with Sinopec having to bear losses on the futures side.

As analyzed above, appropriate purchases of futures by crude oil-processing companies can protect against the risks posed by rising crude oil prices to their own business activities, but if there is the unrestrained purchase of futures and blind faith that oil prices will keep rising, the purchase is already for speculation rather than hedging. And disaster often strikes when we use financial derivatives in the wrong way to speculate.

4. Conclusion

The above article analyses Sinopec Group's key financial data for 2017,2018,2019 and points out the changes in its share price before and after the failed transactions of its subsidiaries. Based on a financial analysis of Sinopec Group and a study of its share price, this paper examines the impact of the failed hedging strategy of its subsidiary on the company's operations and identifies the main reasons for the failed hedging strategy in this case.

2018 was a year of ups and downs in international oil prices, but Sinopec Group withstood the pressure of fluctuating raw material prices during the year, with operating revenue (RMB 2.88 trillion) up 22.09% over the previous year; and total profit (RMB 100.32 billion) up 15.88% over the previous year.

Sinopec Group's wholly-owned subsidiary, Union Petrochemical, suffered a significant drop in net profit in the fourth quarter and its share price fell by more than 10% in two days on 27 and 28 December, resulting in a loss of more than RMB 90 billion in market value due to a hedging strategy that was based on blind confidence in international oil price trends. This failed hedging case has limited the possibility of Sinopec Group's performance breaking new highs in 2018. We conclude that the financial derivatives hedging strategy of Sinopec did not meet the requirements of hedging and ultimately caused irreparable losses to itself and its parent company.

This paper focuses more on the failed hedging strategy of Sinopec's subsidiary, Sinopec, and its impact on Sinopec's financial position, and fails to systematically summarise the appropriate hedging strategy for the crude oil processing industry, so as to provide more reference for the use of financial derivatives for risk management in the same industry. It is the author's future research that will focus on hedging strategies for the crude oil industry in a positive and scientific manner.

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