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The role of swap contracts in hedging the risks of high oil prices

Asia Ali Hadi

College of Administration &Economics/University of Basrah, Basrah, Iraq

pgsadmin.Asia.ali@uobasrah.edu.iq

Prof. Muntadhar Fadhil Saad Al Battat

College of Administration &Economics/University of Basrah, Basrah, Iraq

Muntader.saad@uobasrah.edu.iq

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Abstract:

The Iraqi economy depends in dealing with various risks on traditional methods, therefore the research seeks to provide a knowledge framework about swap contracts and clarify how to employ these contracts in the oil sector, in order to hedge the risks of high oil prices. The research sample includes the South Refineries Company (Shuaiba Refinery) and the Basra Oil Company (BOC) , where the research has relied on the monthly reports issued by OPEC on Basra crude oil prices, the annual statistical bulletin issued by the Central Bank for the year 2021, and the reports of the South Refineries Company (Shuaiba Refinery), as well as the book issued by the Iraqi National Oil Company to determine the costs of purchasing oil for the company. The main hypothesis of the study states: "Swap contracts cannot be used to hedge the risk of high oil prices for the consumer." One of the most important conclusions of this research is that swap contracts can be used to hedge the risks of high oil prices by oil consuming companies, and one of the most prominent recommendations proposed is the need to use commodity swap contracts to hedge the risks of high oil prices in oil-consuming companies in order to reduce costs and increase profits.

Key Words: swaps contracts, financial risks, oil price volatility, hedging.

1- Introduction

Financial and non-financial institutions are full of risks and can face two general types of risks, some risks have related to the nature of business and deal with things such as uncertainty about future sales or the cost of inputs, these risks are called business risks. Another category of risks deal with uncertainties such as interest rates, exchange rates, stock prices and commodity prices, these are called financial risks. Financial risks are a different matter, as uncertainty from changeable interest rates can cripple an institution's ability to obtain financing at a reasonable cost, enabling it to provide its products and services.

As well , companies operating in foreign markets can also have excellent sales performance if their own currency is strong , where companies that use raw materials may find it difficult to obtain their basic inputs at a price that allows profitability. Although our system is full of risks, it also provides an appropriate way to deal with them, one of these ways is to use

derivatives and, in this research, we use swap contracts as one of the derivatives tools to hedge financial risks with a focus on the risks of high oil prices and hedge them using commodity swap (oil) for the consumer. Accordingly, the research has dealt with the theoretical aspects of swap contracts and some financial methods in the applied aspect to evaluate and analyze the results of hedging.

This research importance is derived from the importance and modernity of this subject in Iraq, and because oil consumers are exposed to great risks towards future crude oil costs, it is necessary to know a tool to hedge the risks of high oil prices, so the importance of the research is highlighted in being theoretically reviewed and practically tested the role of Swaps contracts in hedging the risks of high oil prices, in addition this research try to direct the Iraqi economy towards such financial innovations and shed the light on the knowledge of Swaps contracts. The main objective of this paper is to propose a derivative financial instrument (swaps) to hedge the risk of high oil prices for oil consumers.

2- Literature review

2-1- Concept and nature of swap contracts

The development of the over the counter (OTC) swap market can be traced to the currency swap agreed between IBM and the World Bank in 1981, where the World Bank borrowed in US dollars while IBM had loans denominated in Deutsche Mark and Swiss francs. The World Bank (which was restricted to the Deutsche Mark and could borrow in Swiss francs directly) agreed to make interest payments on IBM loans while IBM agreed in return to make interest payments on World Bank loans. Since that first transaction in 1981, the swap market has experienced tremendous growth (Hull, 2018:155).

A swap has been defined as a contract that obliges the parties to conduct a series of transactions on different specific future dates, which typically involve exchanging a series of cash flows (Chance & Brooks, 2016: 30). There are those who assert that a swap is a contractual agreement between two parties in which they have agreed to make periodic payments to each other according to two different indicators (Röman, 2017: 91). A swap is seen as an agreement between two parties to exchange cash flows calculated on the basis of predetermined conditions at predetermined points in time (Parameswaran, 2022: 18).

From the previous definitions, the researchers can define the swap as a financial or physical contract as agreed upon by the two parties, since these contracts are one of the unregulated market tools (OTC) and the contract specifies the payments at each settlement, the duration of the contract and the settlement periods in the future .

It is called a swap because the two parties, the buyer and the seller, swap an agreed fixed price on a given day at an unknown floating price in the future (James, 2008: 31). Also, swaps can be designed especially to meet the needs of the counterparties if they desire that, as potential counterparties can start with a white paper and draw up a contract entirely customized to meet their specific needs (Kolb & Overdahl, 2003: 167). The swap is arranged in the form of a pure exchange of cash flows and therefore should not require any additional net cash

payments at the start, i.e. the initial value of the swap contract is zero. (Kosowski & Neftci, 2015:115).

2-2- Uses of Swap Contracts

Although the main motives and purpose of swap contracts differ for participants, the uses of swap contracts can be summarized as follows: (Kim&Kim, 2006:187) (Andersen, 2006:222) (Jarrow &Chatterjea, 2013: 165) (Jarrow&Chatterjea, 2019:135).

1- Companies use swap contracts to provide protection against future changes in exchange rates.

2- Companies use swap contracts to eliminate interest rate risk arising from business operations.

3- Companies use swaps to reduce financing costs.

4- Swap contracts can be used to take advantage of expected price movements or to stabilize future prices when the market seems favorable.

5- Loan conversion, the company can replace a loan at a variable interest rate with a loan at a fixed interest rate and vice versa through a vanilla interest rate swap.

6- Creating gains that are difficult to achieve, as there are no derivatives traded on the stock exchange on jet fuel, as the airline can hedge fuel costs by entering into a commodity swap that pays the average price of jet fuel calculated over a month for a fixed payment.

7- To avoid market restrictions, an international investor who is prohibited from investing in state stocks under local government rules can circumvent this restriction by entering into a stock swap to which it pays an amount linked to the return on the local stock index.

2-3- Types of Swap Contracts

There are four main types of swap contracts based on the nature of the base variable:

A- Interest Rate Swaps:

An interest rate swap is defined as an agreement whereby two parties agree to exchange fixed and variable interest rates periodically over a number of time periods, one of the counterparties of the swap, known as the Long Interest Rate Swap Center, agrees to receive a floating rate and pay a fixed rate periodically, and the other party in the other swap, known as the short interest rate swap Center, agrees to receive a fixed rate and pay a floating rate periodically (Gottesman, 2016:243).

That is, the swap consists of two legs, from the point of view of the counterparty there is a payment leg and a receipt leg. The applied interest rates can be a fixed rate or a variable rate and the fixed rate leg has a predetermined interest rate, which may be fixed or may change during the swap period. In any case, the floating price leg refers to the interest rate index, such as the London Interbank Bid Rate (LIBOR) or the Bank Invoice Swap Rate (BBSW). A floating-price leg usually has a fixed spread, which is pushed above the floating index, for example, LIBOR+20 basis points (Aarons et al, 2019: 61).

Although there are many types of interest rate swaps, such as those that are traded at a floating rate versus another, vanilla swaps make up the vast majority of the market (Dempsey, 2021: 89).

Vanilla Swaps determine: (Mishkin & Eakins, 2018:637)

1) The interest rate on exchanged payments.
2) Type of interest payments (variable or fixed interest rate)
3) The amount of the default asset, which is the amount on which interest is paid.

B- Currency Swaps:

It is an agreement between two parties to exchange principal amounts in two different currencies, where the interest is paid on the basis of those amounts over a certain period of time, and principal amounts are re-replaced at maturity. As well, the principal amounts of each currency remain fixed throughout the transaction, and interest payments are a function of fixed or variable rates of each currency (Day, 2010: 120). Both the initial and final swap of key principles are conducted at the initial immediate exchange rate prevailing when the currency swap is contracted at the first time (Jacque,2014:219).

C. Equity Swaps:

It is an agreement whereby two parties agree to swap equity returns at an interest rate, later one counterpart receives equity returns and pays an interest rate while the other party receives the interest rate and pays equity returns (Gottesman, 2016: 273).

Payments are made as follows (Marroni & Perdomo, 2014: 48):

a) A party pays the total realized return, i.e. dividends as well as capital gains on a reference asset; this party is called the payer of the total return.
b) The other counterparty pays a floating interest rate, i.e. LIBOR; this party is called a floating rate payer.

D. Commodity Swaps:

It is a swap in which counterparties make payments based on the price of a specified quantity of the commodity, where the first party pays a fixed price during the swap period, and the second party pays a floating or variable price (Kolb&Overdahl,2003:186).It is an effective means of securing input and output prices (Whaley,2006:736). A commodity swap is designed to work similarly to an interest rate swap in which one party agrees to pay a fixed price for the agreed nominal quantity of the commodity while the other party agrees to pay whatever the market value of the commodity is on the date of payment (Johnson,1999:12).That is to say that the exchange of payments by counterparties depends on the value of a particular physical commodity, physical commodities include precious metals, main commodities, energy stores (such as natural gas or crude oil),and food (including wheat, livestock, etc.).Furthermore, most commodity swaps include oil (Fabozzi&Drake,2009: 207).

As high price fluctuations are a distinctive feature of the oil industry, there are many factors that affect the determination of crude oil prices, which worries many specialists and interested parties who believe that oil is not only subject to the laws of the market (supply and demand

forces), but there are other factors affecting oil prices like environmental, financial, political, productive and economic factors (Al-Basam and Al-Sharida,2013:6).Oil price risks are rapid, large and unexpected fluctuations in global oil prices, in other words, they are those cases in which sudden imbalances in the oil market appear, that lead to a sharp rise or fall in prices, and this continues for a certain period, as a result of factors affecting the supply or demand for oil or both (Al-Mazuri, 2021: 28).

3- Practical side

An interesting example of the subject of this research is the case of the South Refineries Company (Shuaiba Refinery), whose main risk is the price of oil, as refineries develop purchase plans based on market expectations for crude oil in order to maximize profits, and when implementing the plan they are exposed to financial risks due to fluctuations in crude oil prices during the period between purchase and payment, if the price rises, the refinery must pay a larger amount than originally planned. In this case, the company that must buy the oil in the future like the South Refineries Company (Shuaiba Refinery) staves off high oil prices, as this will lead to increasing of oil buying costs .On the other hand, the oil producer such as the Basra Oil Company (BOC) wants to fix the price of oil at a certain level to avoid the risks of falling oil prices during a certain period.

To compensate the increased costs of purchasing crude oil, the company can enter into a swap contract with another company such as the Basra Oil Company and use the gains to reduce the cost of buying oil, and in return the Basra Oil Company (BOC) wants to avoid falling oil prices and get a profit from the swap contract, so both parties can enter into a commodity swap contract (oil).

When the investor wants to enter into a commodity swap contract (oil), it is necessary to predict or predict future oil prices in order to determine the direction of oil prices as well as to price commodity swaps by estimating the future price of the commodity .This research has relied on the Holt-Winters method for forecasting, which depends on the constants of the boot α, λ, β and the following equations.

$$S_t = \alpha \frac{Y_t}{I_{t-L}} + (1-\alpha)(S_{t-1} + b_{t-1}) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

This equation smoothest the values of the series and removes the seasonal effect from the series ((Yt) by dividing it by the seasonal factor of the duration t. To smooth the time series (oil prices of 2021), the researcher uses the smoothing constants (α= 0.2, λ= 0.3, β= 0.1)

$$b_t = \lambda (S_t - S_{t-1}) + (1-\lambda) b_{t-1} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

The above equation paves the way for the general trend (i.e. removes the effect of the general trend).

$$\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3) I_t = \beta \frac{Y_t}{S_t} + (1 - \beta) I_{t-L}$$

This equation gives us an estimate of the seasonal effect on time t.

$$\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4) Y_{t+m} = (S_t + b_t . m) I_t$$

The last equation is to predict the duration of future (m)(Tirkeş et al,2017:505).

Where : S_t : Random Smoothed Value

b_T: General trend value

α, λ, β: smoothing constants (between zero and one)

I: Seasonal Factor

m: the number of periods to be predicted forward .

L: Length of seasonal repetitions = 4

Table (1): Smooth of the Time Series for 2021 Using Holt-Winters Model

L	T	Y_t	S_t	b_t	I_t
1	1	54.73	0	0	0.89
	2	61.4	0	0	1.003
	3	65.17	0	0	1.06
2	4	63.48	62.24	2.36	1.03
	5	66.96	66.72	3	0.9
	6	71.79	70.09	3.11	1.005
3	7	73.4	72.41	2.9	1.06
	8	70.39	73.91	2.5	1.02
	9	73.75	77.52	2.83	0.91
4	10	81.48	80.5	2.9	1.006
	11	79.62	81.74	2.4	1.05
	12	74.09	81.84	2.03	1.041

Source: Prepared by the researcher.

The researchers have relied on the smoothing values in Table 1 rather than the original values (which are expected to represent the overall pattern of the time series flow) in the forecast. Oil prices for the first six months of 2022 were predicted using the Holt Winters model, as in the following table:

Table 2: Forecasting Future Oil Prices

Month	Forecast values
2022/1	87.3
2022/2	89.42
2022/3	91.53
2022/4	93.65
2022/5	95.76
2022/6	97.87

Source: Prepared by the researcher.

Through Table (2), it is clear that oil prices are heading to rise for the year 2022 compared to the year 2021, and this forecast corresponds to the expectations of the Iraqi National Oil Company according to the book issued by the company, which includes the estimates of the planning budget (operational and capital) for the year 2022, indicating the high price of oil . According to this book, the price of a barrel of crude oil for refinery companies was determined by the Ministry of Oil (Economic Authority) where this price was higher than the

price of crude oil specified for the year 2021 due to expectations of higher oil prices. Accordingly,refinery companies, including the South Refineries Company (Shuaiba Refinery), must adhere to this price until the end of 2022. The researches have estimated the purchase costs of crude oil for the year 2022 for the South Refineries Company (Shuaiba Refinery) at the price determined by the Ministry of Oil (Economic Authority) as shown in Table (3).

Table (3): Purchase costs of oil for the South Refineries Company (Shuaiba Refinery) (amounts in Iraqi dinars)

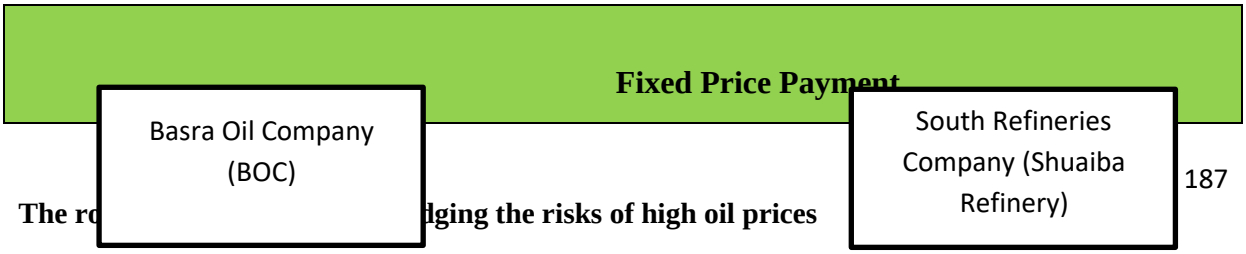
Purchase cost for 2022	Purchase cost for 2021	Month
46043866800	52806870000	1
51043737600	43659162000	2
59162475600	41215680000	3
55942725600	48914064000	4
58051684800	49310118000	5
47454012000	44054154000	6
317698502400	279960048000	Total

Source: Prepared by the researcher based on the reports of the South Refineries Company (Shuaiba Refinery).

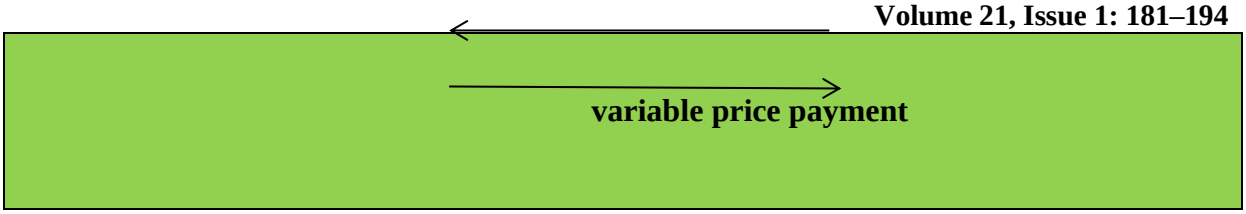
From Table (3), it is clear that the costs of purchasing oil for the South Refineries Company (Shuaiba Refinery), which amounted to (317698502400) Iraqi dinars for six months, have increased as a result of the increase in the price of oil compared to the year 2021 (279960048000 Iraqi dinars), i.e. the costs of buying oil have increased by (37738454400) Iraqi dinars. To compensate for the increase in the costs of purchasing crude oil, the company can enter into a swap contract with another company such as the Basra Oil Company and use the gains to reduce the cost of buying oil. In return, the Basra Oil Company (BOC) wants to avoid falling of oil prices and get a profit from the swap contract, so both parties can enter into a commodity (oil) swap contract.

This research has presented a hypothetical scenario that includes arranging the swap contract directly with the two companies and not with the broker (bank or financial institution) in order to avoid the costs of the broker. It has been assumed that the South Refineries Company (Shuaiba Refinery) has concluded a commodity swap contract (oil) with the Basra Oil Company on the date of 2021/ 11/ 27 for a period of six months, in this contract the South Refineries Company (Shuaiba Refinery) took the position of the fixed price payer during the contract term while the Basra Oil Company (BOC) took the center of variable or floating price motive. Figure (1) shows the mechanism of the contract between the two companies.

Figure (1): Commodity Swap (Oil) Contract between the South Refineries Company (Shuaiba Refinery) and the Basra Oil Company (BOC)



The ro dging the risks of high oil prices



Source: Prepared by the author.

Commodity (oil) swaps are an off-balance sheet arrangement that does not involve any physical delivery of oil, i.e. they are purely financial transactions. The two parties settle their obligations by means of a cash transfer (payment of the difference only), so at the beginning of the contract the value of the swap contract is zero:

$V_{swap}(t) = 0$ 5

Since no one has made a down payment and it is a fair zero-sum game between the parties, after that date the value of the swap contract will change as soon as news of actual oil prices arrives (Geman, 2005: 284). This means that the swap may or may not be profitable over time depending on the actual price of oil on the settlement date, i.e. the value of the swap contract can increase or decrease during the term of the swap contract.

The value of the swap contract can be written as follows:

$$V_{swap}(t) = \sum_{t=1}^{n} \frac{\bar{C} - \tilde{C}}{(1+r)^t} \quad \ldots\ldots 6$$

Through this equation, commodity swap pricing is obtained, where a fixed swap rate is obtained that makes the value of the swap contract at the beginning of the contract equal to zero (Kolb & Overdahl, 2010:419).

Whereas:

V_{swap} : Swap Contract Value

$\bar{C}$: Fixed Swap Price

$\tilde{C}$: Expected Future Price

r: Risk-free interest rate

r = 0.02 Risk-free interest rate (according to the annual statistical bulletin of the Central Bank of Iraq) and the fixed swap rate was calculated from equation (6).

The fixed price of the swap can be different for each settlement period or the same price for the duration of the contract, the variable rate varies from month to month during the contract term based on a published index chosen by the parties (Klett, 1989:367-368). The most important factor in determining the fixed price of a swap is predictive or projected oil prices. Here the fixed swap rate has calculated per 3 months for easy calculation.

In the swap contract, cash flows are exchanged throughout the settlement period based on the hypothetical or theoretical quantity that is determined at the beginning of the contract period, which is (1,000,000 barrels of oil), and this quantity is never exchanged between the two parties, as this quantity is used for the purpose of calculation.

Table (4) shows the main conditions of the swap contract between the South Refineries Company (Shuaiba Refinery) and the Basra Oil Company (BOC).

Table (4): Main Conditions of the Swap Contract

First Party	South Refineries Company (Shuaiba Refinery)
	Basra Oil Company (BOC)
Second Party	2021/11/27
Swap date	2022/1/20
Settlement start date	2022/6/30
Termination Date	Crude Oil
commodity	1000000 barrels of oil
Theoretical quantity per duration	Monthly periods, for 6 months
Calculation periods	days after the end of each calculation period 5
Settlement dates	Basra – Iraq
	Cash
Business settlement place	
Settlement method	(South Refineries Company (Shuaiba Refinery
Fixed Amount Details:	89$ for the first three months, $95 for the second three months
Fixed Price Payer	
	Basra Oil Company (BOC)
Fixed Price	Commodity reference price for each pricing date during the calculation term
Floating Amount Details:	Basra Light Crude Oil Price in OPEC
Floating Price Payer	Dollar
Floating Price	
Commodity Reference Price	
The currency in which payments or receipts are made	

Source: Prepared by the researcher.

The swap contract is actually settled by paying the difference between the fixed price and the variable price to the profitable party generally, by comparing the variable price of oil (as published by an index specified by the parties of the swap contract) with the fixed price agreed in the swap contract and on agreed periodic dates, and in the commodity swap: (Nossa et al,2016:3).

- If the variable price is higher than the fixed price, the producer is obliged to make a payment to the counterparty in the swap equal to the difference between the variable price and the fixed price multiplied by the hypothetical quantity of oil specified in the contract.

- If the variable price is less than the fixed price, the product receives a payment from the counterparty in the swap equal to the difference between the fixed price and the variable price multiplied by the default amount of oil specified in the contract.

The swap value can be expressed using the following formula: (Milvydiene, 2022: 400)

$V = B1 – B2$ 7

Whereas:

V: swap value

B1: Asset value at Fixed price

B2: Asset value at a floating price

Table 5 shows the payments of the commodity (oil) swap contract between the two companies.

Table 5: Swap Contract Payments (Dollar Amounts)

Settlement periods	Floating Oil Price	Fixed Price	Differences	Quantity	payments
2022/1/25	84.88	89	-4.12	1000000	-4120000
2022/2/25	94.17	89	5.17	1000000	5170000
2022/3/25	112.21	89	23.21	1000000	23210000
2022/4/25	104.63	95	9.63	1000000	9630000
2022/5/25	111.91	95	16.91	1000000	16910000
2022/6/25	115.56	95	20.56	1000000	20560000

Source: prepared by the researcher.

In Table (5) the settlement of cash flows for the benefit of the South Refineries Company (Al -Shuaiba) is reflected when they are positive and negative where the settlement of cash flows is for Basra Oil Company (BOC, and it is calculated as the difference between the variable price and the fixed price multiplied in the theoretical amount equals to (10,000,000) barrels of oil.

We note that in the first period of settlement for January, the hedge results in a loss for the South Refineries Company (Al -Shuaiba), because the price of oil in this month is less than the price of fixed swap, so the South Refineries Company (Al -Shuaiba) must pay for Basra Oil Company (BOC) ($ 4120000) .We note that the prices have risen and the actual price has became more than the price of fixed swap from the second month to the sixth month, so it begins with the emergence of gains for the benefit of the Southern Refineries Company (Al -Shuaiba Refinery), as the total profits on the hedge gained by the Southern Refineries

Company (Al -Shuaiba Refinery) from the second month to the sixth month, have amounted to (71360000 dollars).

After that, any profits achieved by the swap user are used to compensate for any losses that arise due to changes in the price of oil or the purchase costs. We note that the southern refineries company (Al -Shuaiba) has achieved profits in the swap contract and then can reduce the costs of buying oil, as shown in the following table:

Table (6): Oil purchase costs with without hedging for the Southern Refineries Company (Shuaiba Refinery) (Amounts are in Iraqi dinars) (assuming the exchange rate is fixed at 1450 dinars per dollar)

Month	The savings are achieved	Costs of buying oil with hedging	Costs of buying oil without hedging
2022/1/25	-5974000000	52017866800	46043866800
2022/2/25	7496500000	43547237600	51043737600
2022/3/25	33654500000	25507975600	59162475600
2022/4/25	13963500000	41979225600	55942725600
2022/5/25	24519500000	33532184800	58051684800
2022/6/25	29812000000	17642012000	47454012000
Total	103472000000	214226502400	317698502400

Source: prepared by the researcher.

We note from Table (6) that 5 months of the most famous study sample have achieved positive savings due to the profit in the commodity swap contract (oil), and only in January there were negative savings, because it lost in the commodity swap contract (oil) in this month. It is clear that the highest achieved savings were in June which were(2981200,000 Iraqi dinars) due to the high oil prices in this month. When payments were settled for the benefit of the South Refineries Company (Al -Shuaiba Refinery), it led to a profit in the contract of commodity swap (oil). Also, the lowest achieved savings were in January (-5974000000 Iraqi dinars), due to the low oil prices in this month because when payments were settled, cash flows were in favor of Basra Oil Company (BOC), which led to the loss for the Southern Refineries Company (Al-Shuaiba) In the swap contract.

Through table (6) , the researchers have found that hedging by using commodity swap contracts (oil) leads to a decrease in the total cost of purchasing oil compared to not hedging , where the net result from hedging is (103472000000 Iraqi dinars) which helps in decreasing the cost of buying oil . Accordingly it is better for the South Refineries Company (Al-Shuaiba Refinery) to hedge by using the commodities swap (oil) compared to not hedging, because this leads to a reduction in the cost of purchasing oil by making profits from entering into a commodity swap contract.

According to the preceding discussion , the main hypothesis of the research , which states (swaps contracts cannot be used to hedge the risks of rising oil prices for the consumer), i.e.

swap contracts can be used to hedge the risks of rising oil prices for the consumer (South Refineries Company (Shuaiba Refinery)) is rejected .

5- Conclusions:

Swap contracts are one of the most important financial derivatives tools, as they are used to manage and hedge various financial risks, especially those related to currency risk, commodity price risk, interest rate risk and credit risk. Swap contracts do not include any financial payments in the form of an initial payment, and this feature entails lower transaction costs, which leads to ease of use of this tool. Oil price fluctuations are one of the distinctive features of the oil sector, where these fluctuations are caused by many factors such as demand and supply, environmental, financial, political, productivity, economic and other factors that affect the direction of oil price movements, as oil companies are exposed to the risks of oil price fluctuations. These companies seek to hedge against unexpected oil price fluctuations through the use of financial derivatives tools such as swap contracts. In the case of an oil-consuming company such as refineries, hedging through the use of swaps reduces exposure to high oil prices which increases the cost of buying oil for the company, as hedging reduces costs and increases profits. As we have noted, the use of swap contracts to hedge against the risk of high oil prices for the South Refineries Company (Shuaiba Refinery) (oil consumer) is better than the case of non-hedging, as hedging reduces the cost of buying oil compared to not hedging.

6- Recommendations:

The need to spread awareness about swap contracts for employees in companies and investors who wish to trade swap contracts to understand how to use this tool by organizing educational seminars or conferences on the concepts, characteristics, methods and models related to swap contracts by institutions so that they can use them correctly. It is also necessary to train investors, owners of institutions and companies wishing to hedge the risks of oil price fluctuations, by informing them of studies and field visits to institutions that use commodity swap contracts and benefiting from the experiences of others in using this tool, in a way that prepares them to establish a financial institution or market that allows trading swap contracts and responds to the desire of investors in the oil sector to hedge the risks of oil price fluctuations. It is recommended to take advantage of the current study and its conclusions on the possibility of hedging financial risks and meeting the conditions and terms necessary for their effective employment in the Iraqi environment.

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