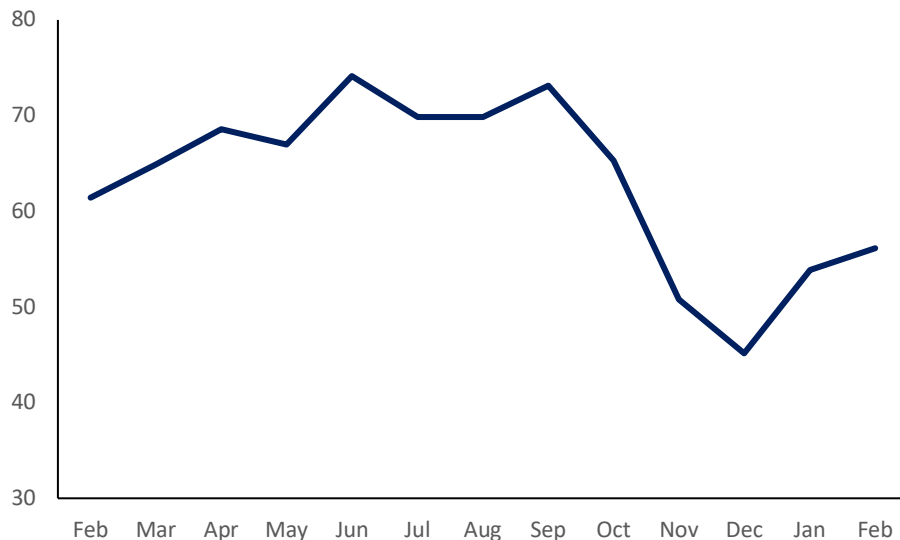


WTI Price



Futures / **Options** / Underlying

Underlying Price: \$57.07

Trade Name: Iron Condor on Crude Oil

Expiration Date(s): 3/15/19

Delta: 1467.18

Gamma: -3571.63

Theta: 1232.57

Vega: -1686.4

Rho: -78.72

Theoretical Edge: -234953.66

Oil Sector

Sector Size: \$250 million

of Holdings: 200,000

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- I. Macroeconomic Overview
- II. Trade / Hedge
- III. Product Analysis
- IV. Technical Analysis
- V. Risk Analysis
- VI. Capital Allocation

I. Macroeconomic Overview

Derivative Name, (CLJ9)

Macroeconomic Overview

Macroeconomic Drivers

Driver #1: OPEC Production Cuts

In late December 2018, the 15 member OPEC cartel as well as Russia and other allied producers agreed to cut oil production by 1.2 million barrels per day for the first six months of 2019. OPEC itself agreed to reduce output by 800,000 barrels per day while Russia and the allied Producers will contribute a 400,000 barrel per day reduction. Lately Saudi Arabia has had to take on the cuts of other members who have cut production by less than agreed upon but they will not sustain this long term.

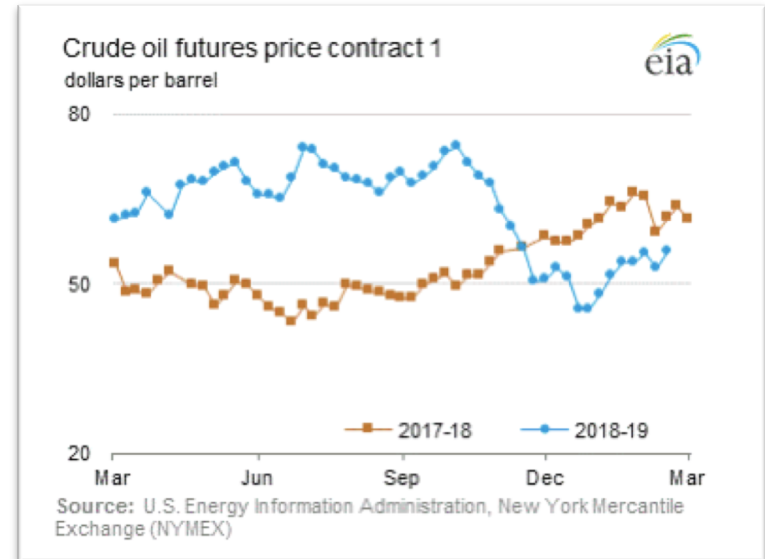
Driver #2: Trade Talks with China

For the past few months the trade negotiations between the United States and China have been a large subject of financial news and have had a significant impact on oil prices. China's slowing economic indicators had a negative effect on oil prices at the end of 2018 due to the worry of a loss of global demand since China is the world's second largest consumer of oil.

Lately there has been some positive news regarding the progress that the countries have made during negotiations and it is predicted that when a deal is reached that there will be a substantial increase in oil prices but Trump is looking to extend the deadline to raise tariffs to next and wants to meet with Chinese leader Xi Jinping to complete a broad trade agreement.

Driver #3: Brexit Worries

There has been a lot of uncertainty about the UK's economy as well as other European economies because of the worry that the UK will not be able to secure a proper exit deal from the EU. The UK's economy has already experienced a slowdown partly due to a lack of consumer confidence and a no deal Brexit could result in the UK economy being 9% weaker than it already has been. This combined with weak a German economy and Italy in recession has a negative effect on oil prices.



Market Pros & Cons



- OPEC seems to be sticking to their promise of cutting crude oil output so far this year



- Trade negotiations with China pushed back another month



- Europe accounts for 22% of global crude imports so weak economic performance has a significant effect on global demand



- The increasing possibility of the UK exiting from the EU without a proper deal

II. Trade / Hedge

Derivative Name, (CLJ9)

Trade Breakdown

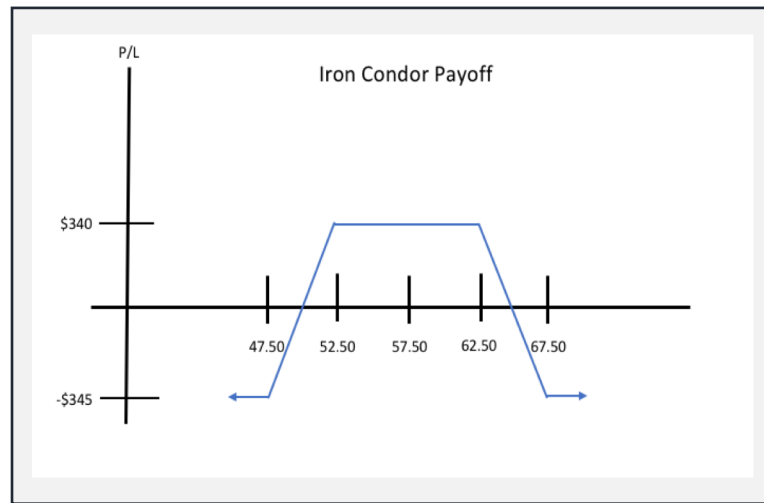
Trade Breakdown

Price Target (Underlying)
Between \$52.50 and \$62.50

Contract Month: Apr 19

Trade Name: Iron Condor

Parity Graph



Trade Breakdown

Setup

- Buy a Put at \$47.50 Strike, premium of \$40
- Sell a Put at \$52.50 Strike, premium of \$250
- Sell a Call at \$62.50 Strike, premium of \$160
- Buy a Call at \$67.50 Strike, premium of \$30

Profit Potential

- Max Profit = Net Premiums received from selling options
 - Max Profit = $160 + 250 - 40 - 30 = \$340$
 - Underlying = 57.07

Risk Potential

- Max Loss = \$-345
 - Max loss would occur if the underlying price of oil made a large swing above \$67.50 or below \$47.50

Breakeven Points

- **Upper Breakeven** = Strike Price of Short Call + Net Premium Received
- **Lower Breakeven** = Strike Price of Short Put - Net Premium Received

Time

- Time decay is my friend for this trade because I want the contracts to expire within the range of \$52.50 and \$62.50

Implied Volatility

- Volatility is not good for this trade because I do not want large price swings

III. Product Analysis

Greeks

Sell an OTM call at 62.50													
Call Option		Delta	Gamma	Theta	Vega	Rho	Position	Theoretical Edge	Delta	Gamma	Theta	Vega	Rho
0.12		0.08	0.04	-0.01	0.02	0.00	-50000	-118939.32	-3899.93	-2065.69	691.34	-949.48	-112.70

Sell an OTM put at 52.50													
Put Option		Delta	Gamma	Theta	Vega	Rho	Position	Theoretical Edge	Delta	Gamma	Theta	Vega	Rho
0.22		-0.11	0.05	-0.02	0.02	0.00	-50000	117887.32	-44480.79	-2318.45	1156.15	-1227.25	-1194.99

Buying an OTM call at 67.50													
Call Option		Delta	Gamma	Theta	Vega	Rho	Position	Theoretical Edge	Delta	Gamma	Theta	Vega	Rho
0.02		0.01	0.01	0.00	0.00	0.00	50000	124033.00	669.75	406.69	-193.30	223.65	19.39

Buy a OTM put at 47.50													
Put Option		Delta	Gamma	Theta	Vega	Rho	Position	Theoretical Edge	Delta	Gamma	Theta	Vega	Rho
0.03		-0.02	0.01	-0.01	0.01	0.00	50000	-357934.66	49178.15	405.82	-421.62	266.68	1209.58

Derivative Name, (CLJ9)

Greeks and Theoretical Edge

Breakdown of Greeks

Delta:

The position of this trade is relatively delta neutral but there is definitely an increase/decrease in the price of the options depending on if it is a call or put with a change in the underlying price.

Gamma:

For this trade there is a large negative gamma indicating that it is better for me if the market stays still which is the case for this trade. Also gamma is usually the opposite sign of theta and since gamma is negative, theta is positive.

Theta:

This trade has a very large positive theta. This means that the trade position is helped by the passage of time. This is exactly what I wanted for this trade because I want the contracts to expire with the underlying between \$52.50 and \$62.50 in order to maximize profit.

Vega:

This trade has a very large negative Vega which indicates a desire for declining volatility. I would want declining volatility for this trade so that there would be a higher chance of the underlying price of oil not moving out of the profit range for this trade but oil is a naturally volatile product and I am betting against its volatility with this trade strategy.

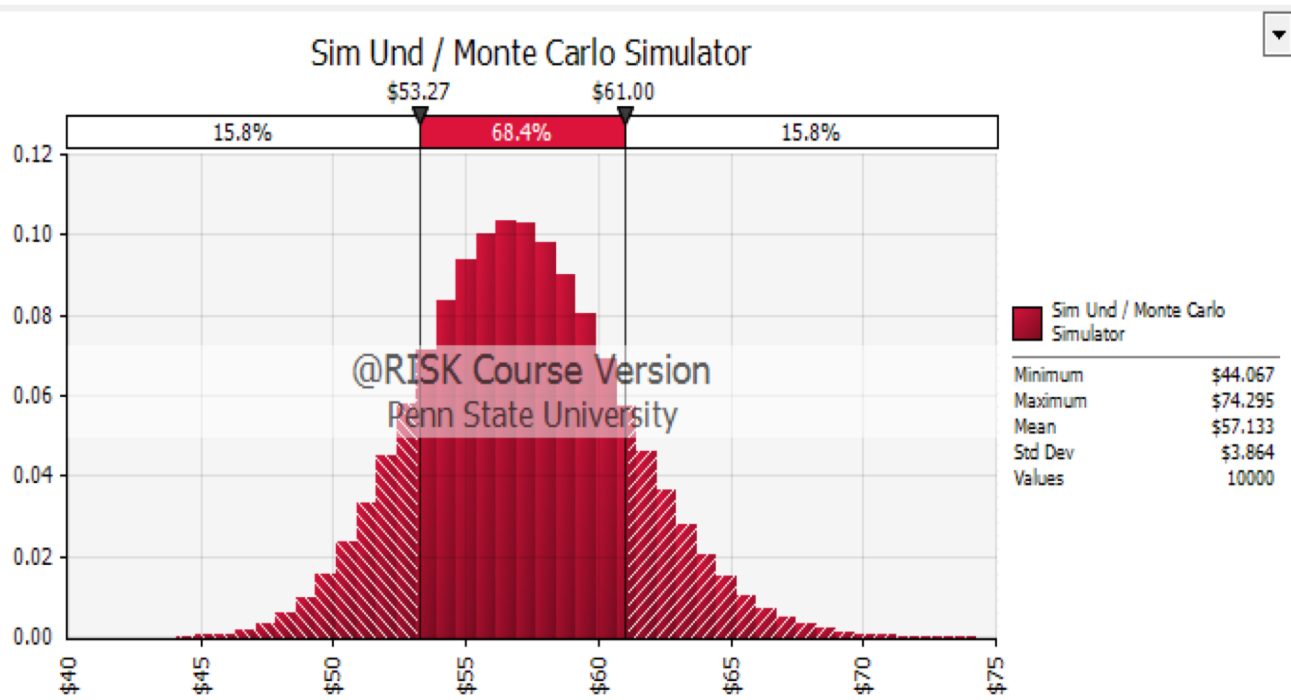
Rho:

An increase in interest rates would theoretically cause oil prices to decrease because it would increase the value of dollars compared to other currencies and this decreases foreign buying power which decreases demand. Since this trade is very short term, interest rate changes will not have a large impact on the trade.

Breakdown Theoretical Edge

The theoretical edge for the put I am selling is positive which means I am selling the option for more than it is worth in the market according to the Black Scholes Model. Although buying out of the money put options and selling out of the money calls have a negative theoretical edge, they will allow me to hedge and minimize my losses. The theoretical edge that I am obtaining from selling the puts is giving me a higher premium as profit and this makes up for a lot of the theoretical edge from the other contracts.

Price Movement Probability



Price Movement Probability

For this trade I want the underlying price of oil to be between \$52.50 and \$62.50 when the contracts expire in order to maximize profit from the trade.

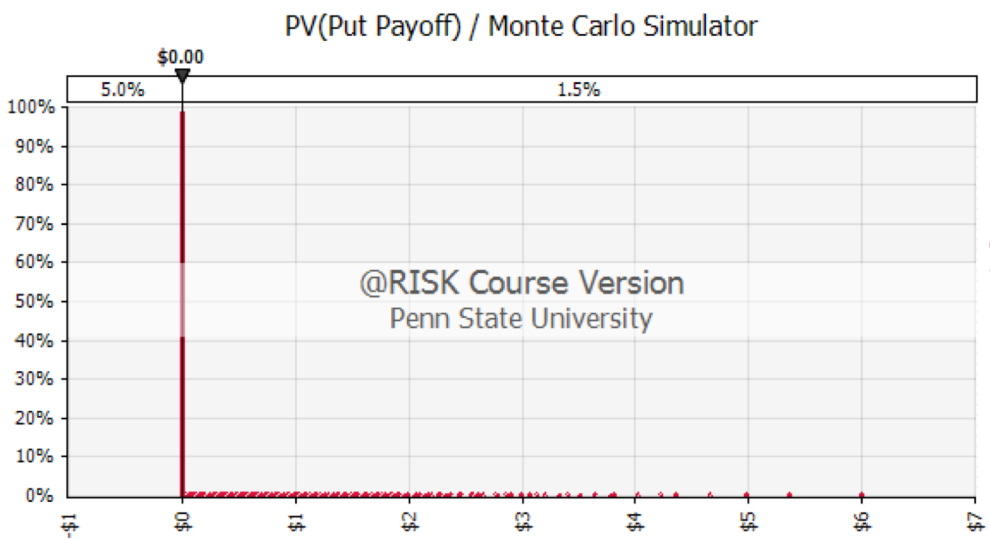
When looking at one standard deviation from the mean after 10000 simulations it shows that there is a 68.4% chance that the underlying price of oil ends up between \$53.27 and \$61.00. This is great for my trade because my profitable price range is between \$52.50 and \$62.50, so a whole standard deviation of price movement is in a profitable range for me.

The minimum value of this simulation is \$44.067 so if oil prices were to drastically drop to this level my losses would be capped by the put that I bought at \$47.50.

The maximum value of this Monte Carlo simulation is \$74.295. If oil prices made a large jump to this price my losses would be contained by the call I bought at \$67.50.

Derivative Name, (CLJ9)

Probability Distributions

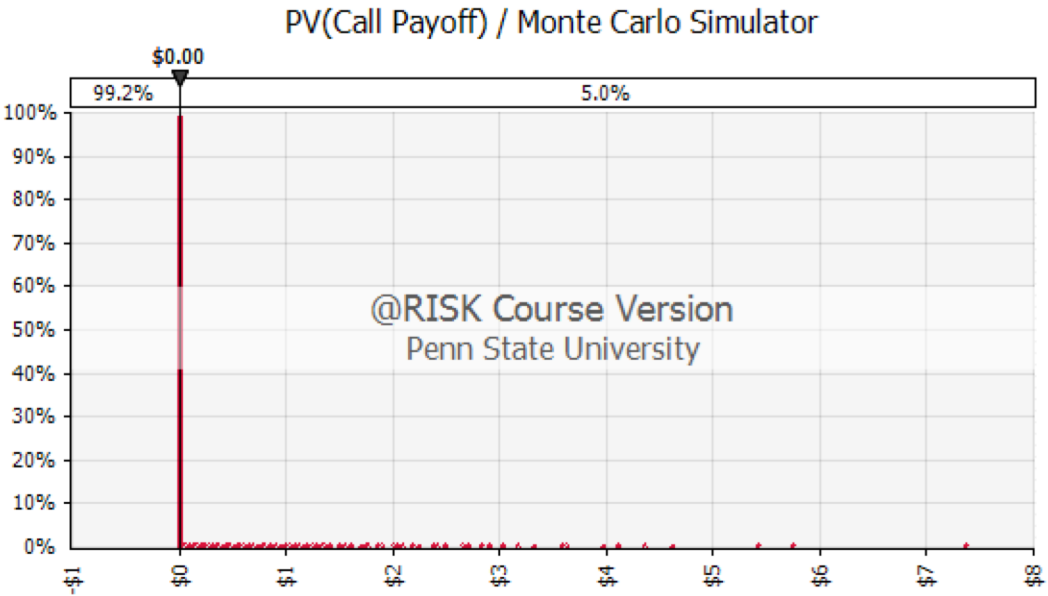


Put PV Payoff Diagram

(Buy)

	PV Payoff	MV Valuation	MV Min	MV Max	MV STD	Iterations
Call	\$ -	\$ 0.01	\$ -	\$ 6.82	\$ 0.19	10,000
Put	\$ 10.50	\$ 10.37	\$ -	\$ 24.25	\$ 3.97	10,000

PV(Put Payoff) / Monte Carlo Simulator	
Minimum	\$0.0000
Maximum	\$6.0045
Mean	\$0.0210
Std Dev	\$0.2253
Values	10000



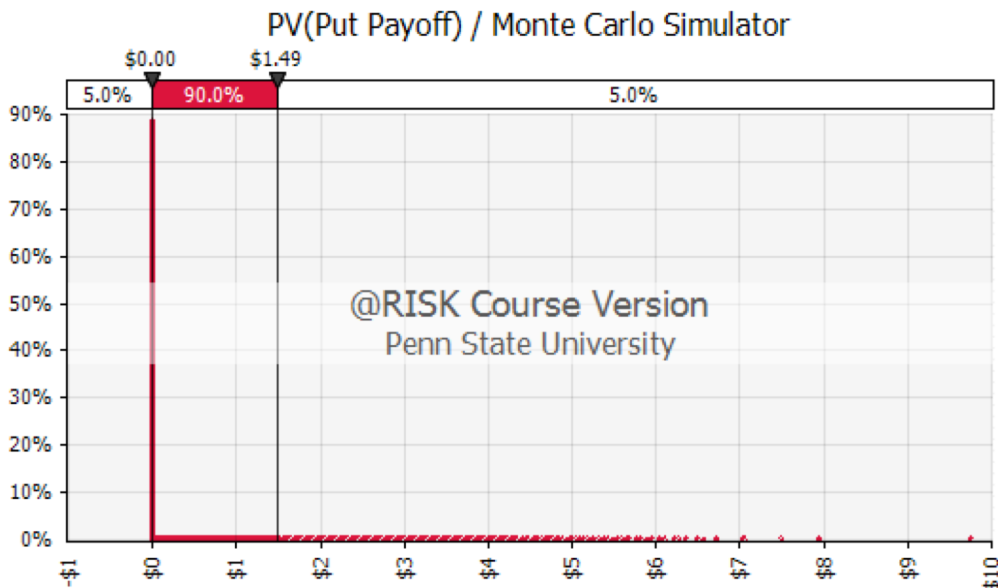
Call PV Payoff Diagram

(Buy)

	PV Payoff	MV Valuation	MV Min	MV Max	MV STD	Iterations
Call	\$ 9.49	\$ 9.63	\$ -	\$ 25.88	\$ 3.85	10,000
Put	\$ -	\$ 0.00	\$ -	\$ 3.39	\$ 0.07	10,000

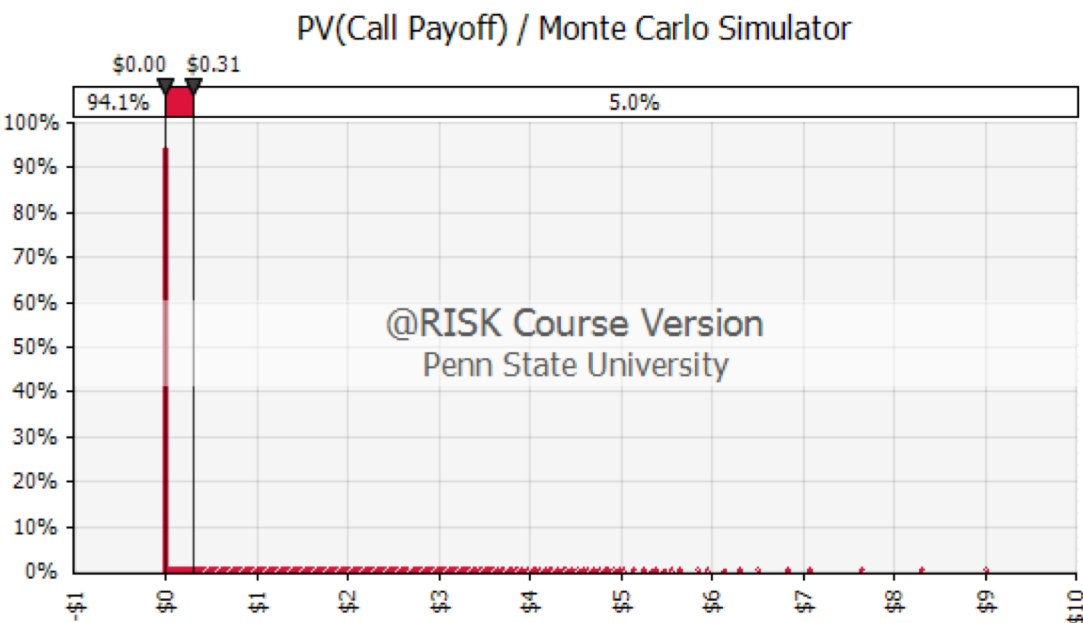
Put PV Payoff Diagram

(Sell)



	PV Payoff	MV Valuation	MV Min	MV Max	MV STD	Iterations
Call	\$ 4.50	\$ 4.81	\$ -	\$ 22.85	\$ 3.55	10,000
Put	\$ -	\$ 0.19	\$ -	\$ 9.15	\$ 0.70	10,000

PV(Put Payoff) / Monte Carlo Simulator	
Minimum	\$0.0000
Maximum	\$9.7459
Mean	\$0.1861
Std Dev	\$0.7061
Values	10000



Call PV Payoff Diagram

(Sell)

	PV Payoff	MV Valuation	MV Min	MV Max	MV STD	Iterations
Call	\$ -	\$ 0.10	\$ -	\$ 9.25	\$ 0.52	10,000
Put	\$ 5.46	\$ 5.46	\$ -	\$ 16.92	\$ 3.15	10,000

Derivative Name, (CLJ9)

Product Drivers

Product Drivers

Driver #1: US Inventory and consumption
 The US is the world's largest consumer of oil so positive economic performance within the US implies a higher demand for oil which can drive the price. The US can also influence oil prices with supply. In the beginning of 2018 the US became the world's largest crude oil producer so the data in the weekly EIA inventory reports can have a significant effect on oil prices if the supply numbers are far off from what is expected.

Driver #2: International Demand
 The demand for oil from foreign countries is a large driver of oil prices. Some countries have a larger effect on prices than others. China is the world's largest energy consumer and 2nd largest oil consumer, so economic performance in China will have a larger impact on oil prices than most other countries. Economic performance in the more major European economies can also have a significant impact on oil prices since Europe accounts for 22% of global oil imports.

Driver #3: OPEC
 The organization of petroleum exporting countries (OPEC) is a cartel consisting of 15 nations that work together to control oil prices. OPEC controls about 40% of the world's oil supply so when OPEC makes a decision to increase or decrease production this will usually have an immediate effect on oil prices.

IEA Global Supply and Demand
 (million barrels per day)



Product Pros & Cons



- Overview of Strength #1



- Overview of Strength #2



- Extremely Volatile. The price can fluctuate very widely which can impact trades negatively



- Is affected significantly by only a relatively small amount of countries

IV. Technical Analysis

Oil Futures, (CLJ9)

Technical Analysis



Weighted moving average showing upward trend

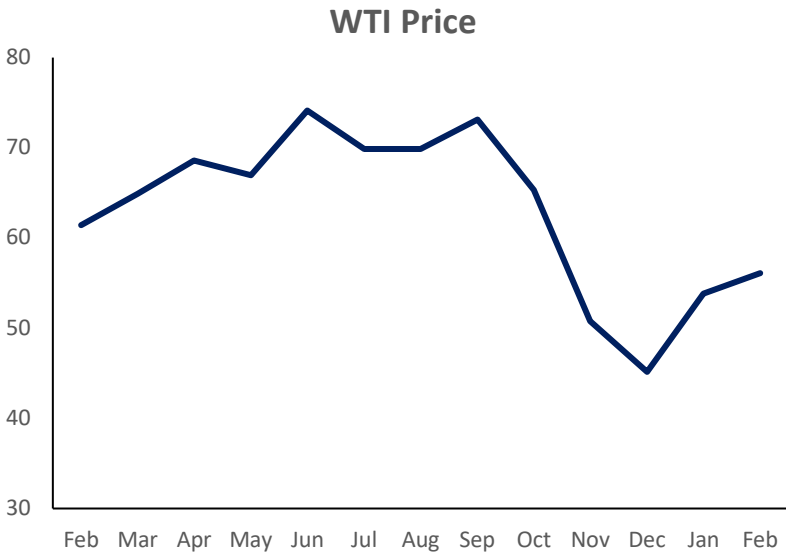
RSI almost at 70 – Showing Overbought, should sell off soon

V. Risk Analysis

Major Risks

- Potential Risks Here
- There is a lot of uncertainty surrounding the UK’s exit from the European union. Recently there seems to be a strong possibility that there could be a no deal Brexit on March 29th, where the UK would exit from the European Union without negotiations that would ease negative economic effects that come from such a move. This is a major risk because if this happens, there will be a significant negative effect on the economy of the UK. This in combination with an already weak European economic situation could cause a significant swing in oil prices which could negatively effect my trade.
 - The current trade negotiations between the US and China are a major risk for my trade because China is the 2nd largest consumer of oil in the world and if a trade deal is settled on, this would lead to an increased demand outlook for China which would cause a price swing upwards. Since the profit from my trade comes from oil prices staying stable, a large move in price is a major risk.

Historical Movements Data



Physical Data

US Change in oil Production Thousand barrels/day		
February 2019	March 2019	Change
8314	8398	+84

Rig Count		
Count	Change from Prior count	Change from last year
1047	-4	+69

VI. Capital Allocation