Homework1

October 3, 2019

1 Derivatives Homework1 - Bolun Zhang

1.1 Question 1

Estimate the forward price of Intel Stock (INTC) one year from now, assuming 1. Trade Date: September 18 2019, end-of-day 2. Settlement Date: September 18, 2020 end-of-day 3. Dividend stream over the last 11 distribution dates:

Assume a flat discount rate of 2.25%. State your assumptions on future dividend rates clearly. Also, calculate the equivalent continuously compounded implied dividend yield.

Date	Dividend($)
6-Aug-19	0.315
6-May-19	0.315
6-Feb-19	0.315
6-Nov-18	0.3
6-Aug-18	0.3
4-May-18	0.3
6-Feb-18	0.3
6-Nov-17	0.273
3-Aug-17	0.273
3-May-17	0.273
3-Feb-17	0.26
3-Nov-16	0.26

```
[1]: interest_rate = 2.25 / 100
```

Since the trade date is 9/18/2019, based on Yahoo Finance we know the spot price at that end of day was 51.74.

```
[2]: spot_price = 51.74
```

Based on no-arbitrage law, we know that the one year forward price F0 must satisfy:

$$F_0 = S_0 e^{(r-q)T}$$

where r is the interest rate, T is the compounding period, S_0 is the spot price, and q is the continuously compounding dividend yield rate.

Therefore, let's compute q first.

Based on Nasdaq, we can see that the annual compounding yield rate is 2.45%

```
[3]: annual_yield_rate = 2.45 / 100
```

```
[4]: import math
     continuous_yield_rate = math.log(1 + annual_yield_rate)
     print(f"continuous_yield_rate={continuous_yield_rate*100}%")
```

```
continuous_yield_rate=2.420468869681736%
```

As shown above, the equivalent continuously compounded implied dividend yield is 2.42%.

Now that we have all the variables, we can calculate one year forward price:

```
[5]: years = 1
     forward_price = spot_price * math.exp(interest_rate - continuous_yield_rate) *␣
      ↪years
     print(f"One year forward price is estimated to be ${forward_price}.")
```

```
One year forward price is estimated to be $51.651874541404034.
```

1.2 Question 2

The S&P 500 index level was SPX= 2995.69 on September 17, 2019 at 12:38 EST. At the same time the term structure of ES futures was

Futures	Price
Sep-19	2997.25
Dec-19	2999.75
Mar-19	3002

1.2.1 Assuming an interest rate of 2.25%, compute the implied dividend yield for the period until the March 2020 settlement date.

```
[6]: interest_rate = 2.25 / 100
     spot_price_sep_17 = 2995.69
     future_price_dec_19 = 2999.75
```

Based on

$$F_{0,T} = I_0 e^{(r-q)T}$$

we have

$$q = r - \frac{1}{T} \ln(\frac{F_{0,T}}{I_0})$$

```
[7]: t = 93 / 365   # Sep 17th - Dec 19th
```

2

```
implied_dividend_yield = interest_rate - 1/t*math.log(future_price_dec_19/
 ↪spot_price_sep_17)
print(f"The implied dividend yield is {implied_dividend_yield*100}%")
```

The implied dividend yield is 1.7184489866346582%

1.2.2 The SPY price quoted at that time was $300.00. Compare with the SPY dividend yield from Yahoo!Finance. Is there an arbitrage by carrying SPY vs a mirror futures position? Explain.

Based on Yahoo Finance, SPY has a yield of 1.85%.

```
[8]: yield_delta = implied_dividend_yield - 1.85 /100
     print(f"yield_delta={yield_delta*100}%")
```

yield_delta=-0.13155101336534206%

Therefore, SPY generates a better yield than carrying a SPX future by 0.13% in terms of continuous compounding. An arbitrage trade could be possible but the margin is very little. In practice, we must take into acct also bid/ask and other transaction costs.

1.3 Question 3

According to the CME specifications for the WTI futures contract "Trading terminates 3 business day prior to the 25th calendar day of the month prior to the contract month. If the 25th calendar day is not a business day, trading terminates 4 business day prior 25th calendar day."

1.3.1 Make a table in which you calculate the termination dates for the front-month WTI contract since Jan1 2017. The first column should contain the actual date (from Jan 1 2017 to Sep 10 2019, the second column should contain the corresponding termination date for the first live contract (OCT 2019 for dates in the beginning of Sep 2019).

```
[9]: start, end = (2017,1,1), (2019,9,10)
```

```
[10]: import calendar, datetime, dateutil
      import pandas as pd
      from pandas.tseries.offsets import BDay

      def get_termination_date_for_year_month(year, month):
          this_day = pd.datetime(year, month, 25)
          if this_day in pd.bdate_range(pd.datetime(2017,1,1), pd.
      ↪datetime(2019,12,31)):
              # today is business day
              return this_day - BDay(3)
          else:
              # today is not business day
              return this_day - BDay(4)
```

```python
c = calendar.Calendar()

#print(f"{get_termination_date_for_year_month(2019,8)}")
day2termday = dict()

done = False
for year in range(2017, 2020):
    for month in range(1,13):
        for this_day in c.itermonthdates(year, month):
            if this_day >= datetime.date(*start) and this_day <= datetime.
 ↪date(*end):
                term_date = get_termination_date_for_year_month(year, month).
 ↪to_pydatetime().date()
                if this_day >= term_date:
                    next_month = 1 if month == 12 else ( month + 1 )
                    term_date = get_termination_date_for_year_month(year,␣
 ↪next_month).to_pydatetime().date()
                    # print(f"{this_day} {term_date}")
                day2termday[this_day] = term_date


# for d in c.itermonthdates(2017,9):
#     print(d)
```

```python
[11]: # print("|    Date    |   Term Date |")
      # print("|------------|------------|")

      # for k,v in day2termday.items():
      #     print(f"| {str(k)} | {str(v)} |")
```

Please refer to the Final Table at the very end for data.

1.3.2 Based on the data provided (myWTI.xlsx), add two more columns. The first column is the front month contract price. The second column is the second month contract price.

```python
[12]: import csv
      import os
      import collections
      import math


      MIWTI = "/Users/bolunz/Documents/NYU/derivatives/hw/futurePrices.csv"
      date2prices = collections.defaultdict(list)
```

```python
with open(MIWTI, mode='r', ) as new_csv:
        csv_reader = csv.DictReader(new_csv, delimiter='|')
        for row in csv_reader:
            new_header = row.keys()
            # print(row["DATE"][-4:])
            if row["DATE"][-4:] < "2017":
                continue
            for key, val in row.items():
                if key == "DATE":
                    continue
                if val != "":
                    date2prices[row["DATE"]] += [val]
```

```python
[13]: #date2prices
```

```python
[14]: MONTH = dict()
      MONTH[1]="Jan"
      MONTH[2]="Feb"
      MONTH[3]="Mar"
      MONTH[4]="Apr"
      MONTH[5]="May"
      MONTH[6]="Jun"
      MONTH[7]="Jul"
      MONTH[8]="Aug"
      MONTH[9]="Sep"
      MONTH[10]="Oct"
      MONTH[11]="Nov"
      MONTH[12]="Dec"


      def get_key(d):
          return MONTH[d.month] + " " + ("0" if d.day < 10 else "") + str(d.day) + ",␣
      ↪" + str(d.year)



      #print("|    Date    |  Term Date |  Front Cont|  2nd Cont |")
      #print("|------------|------------|------------|-----------|")


      for k,v in day2termday.items():
          dkey = get_key(k)
          month1 = date2prices[dkey][0] if len(date2prices[dkey]) >= 1 else ""
          month2 = date2prices[dkey][1] if len(date2prices[dkey]) >= 2 else ""

          #print(f"| {str(k)} | {str(v)} | {month1} | {month2} |")
```

Please refer to the Final Table at the very end for data.

1.3.3 Add an additional column to the table, which consists of daily returns from a strategy which invests in the front month contact if the date is less than the 15th of the delivery month and invests in the next-month contract if the date is greater than the 15th of the current calendar month. We call this a `rolling futures''` strategy. [Hint: use the `termination date to determine when the 2nd monthbecomes`" the front contract. This allows the accurate computation of the return around this date.]

```python
[15]: delta_pnl = []
      yest_month1, yest_month2 = None, None

      date2pnl = collections.defaultdict(int)

      for today,term_day in day2termday.items():
          dkey = get_key(today)
          prices = date2prices[dkey]

          # if no front month price at all, today is not a trading day
          if len(prices) == 0:
              continue

          month1 = date2prices[dkey][0] if len(date2prices[dkey]) >= 1 else ""
          month2 = date2prices[dkey][1] if len(date2prices[dkey]) >= 2 else ""

          if yest_month1 is None and yest_month2 is None:
              yest_month1 = month1
              yest_month2 = month2


          # 1st ~ 14th, invest in the front month contract
          if today.day >= 1 and today.day <= 15:
              date2pnl[today] = float(month1) - float(yest_month1)
              delta_pnl += [ float(month1) - float(yest_month1) ]

          # before term day, when 2nd month become front month, but investing in 2nd␣
      ↪month
          elif today.day > 15 and (today.month == term_day.month and today.day <␣
      ↪term_day.day):
              date2pnl[today] =  float(month2) - float(yest_month2)
              delta_pnl += [ float(month2) - float(yest_month2) ]

          # on the term day for this month, today's date is yesterday's term day
          elif today == day2termday[today-datetime.timedelta(1)]:
              date2pnl[today] = float(month1) - float(yest_month2)
              delta_pnl += [ float(month1) - float(yest_month2) ]

          # after term day, all the old 2nd month become front month
```

```
        else:
            date2pnl[today] = float(month1) - float(yest_month1)
            delta_pnl += [ float(month1) - float(yest_month1) ]

        yest_month1 = month1
        yest_month2 = month2
```

[16]: ```
sum(delta_pnl)
```

[16]: 1.1600000000000108

### 1.3.4 Compare the P/L of investing in this strategy to the chart of WTI for the same period. What do you find? Compare this strategy with an investment in USO for the same period. Analyze.

Based on Yahoo Finance, the USO closing price for 2017/01/03 and 2019/09/10 are \$11.44 and \$11.98

[17]: ```
uso_pnl = 11.98 - 11.44
uso_pnl
```

[17]: 0.5400000000000009

[18]: ```
to_date_pnl = [sum(delta_pnl[:i+1]) for i in range(len(delta_pnl))]
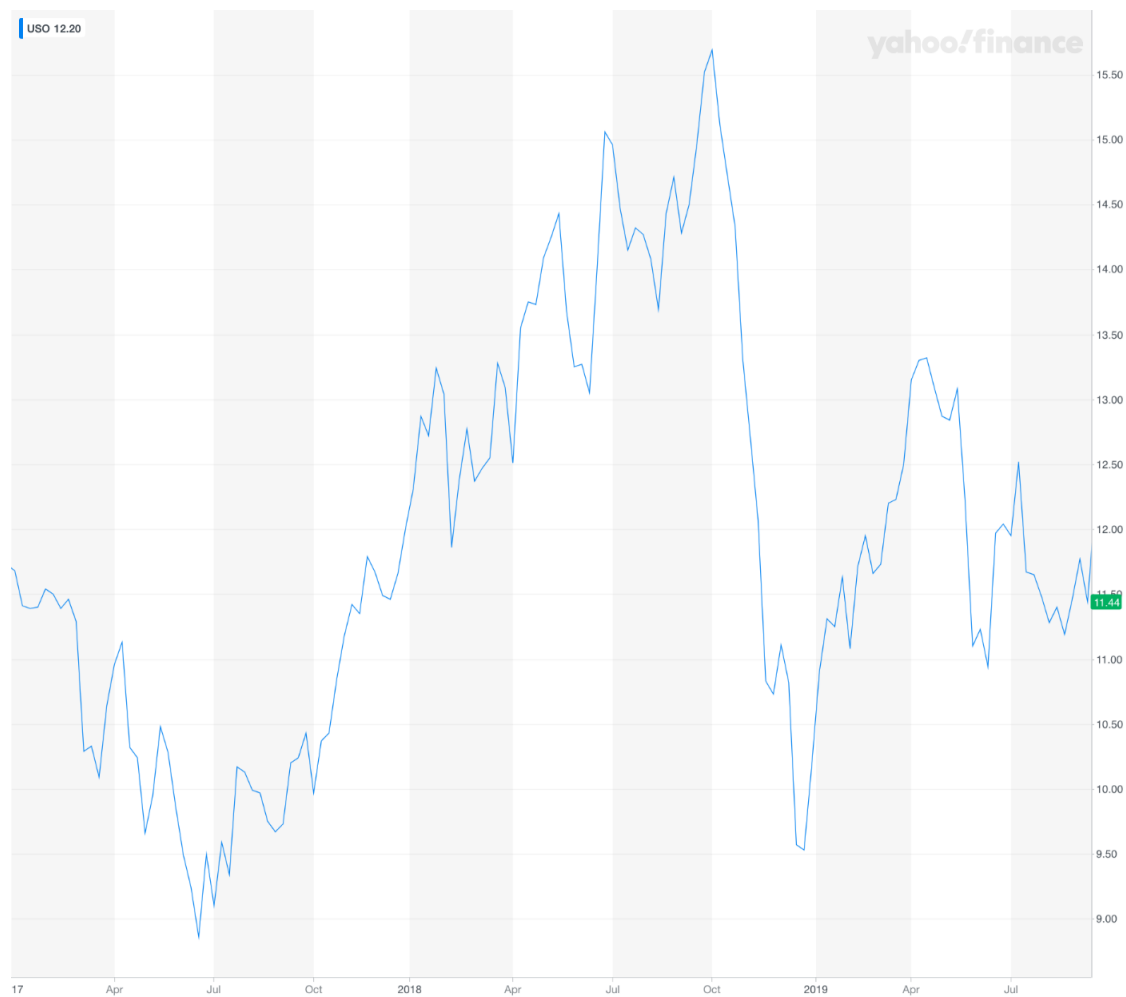```

[21]: ```
import matplotlib.pyplot as plt

#Plot the three lines
plt.plot(list(range(len(to_date_pnl))),to_date_pnl,label="delta_pnl")

Configure the graph
plt.title('')
plt.xlabel('ith day')
plt.ylabel('$ pnl delta')
plt.legend()
plt.grid(True)

plt.show;
```
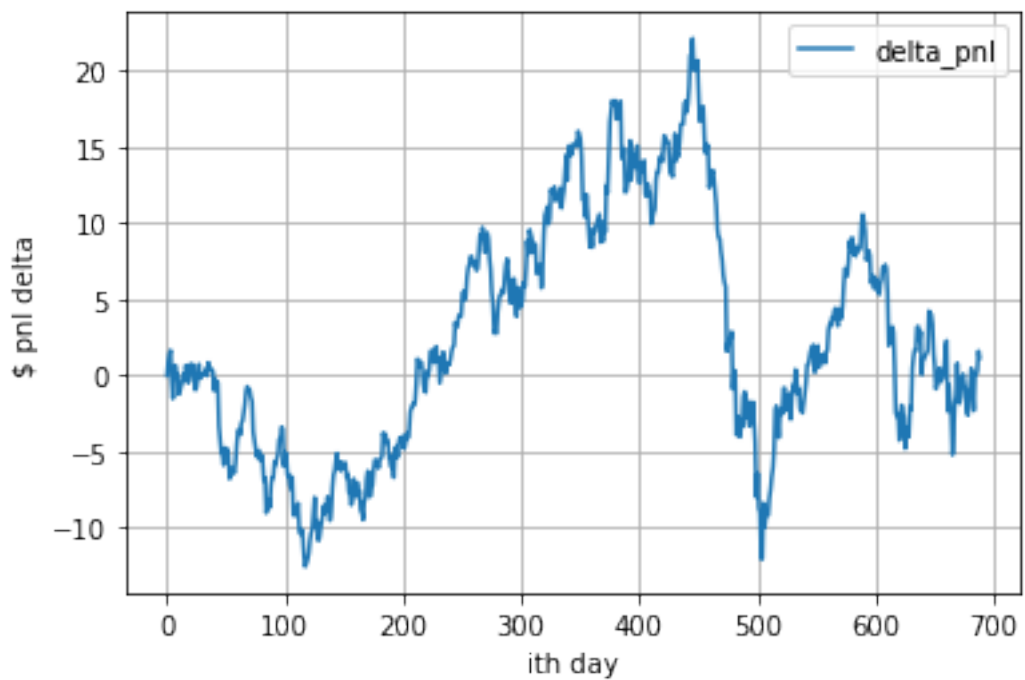
Compare this graph to Yahoo Finance chart for USO between 2017/01/01 and 2019/09/10:

As shown, our strategy very closely tracks the price of USO.

### 1.3.5 Compare the P/L of investing in this strategy to the chart of WTI for the same period. What do you find? Compare this strategy with an investment in USO for the same period. Analyze.

Compare this graph to Yahoo Finance chart for WTI between 2017/01/01 and 2019/09/10:
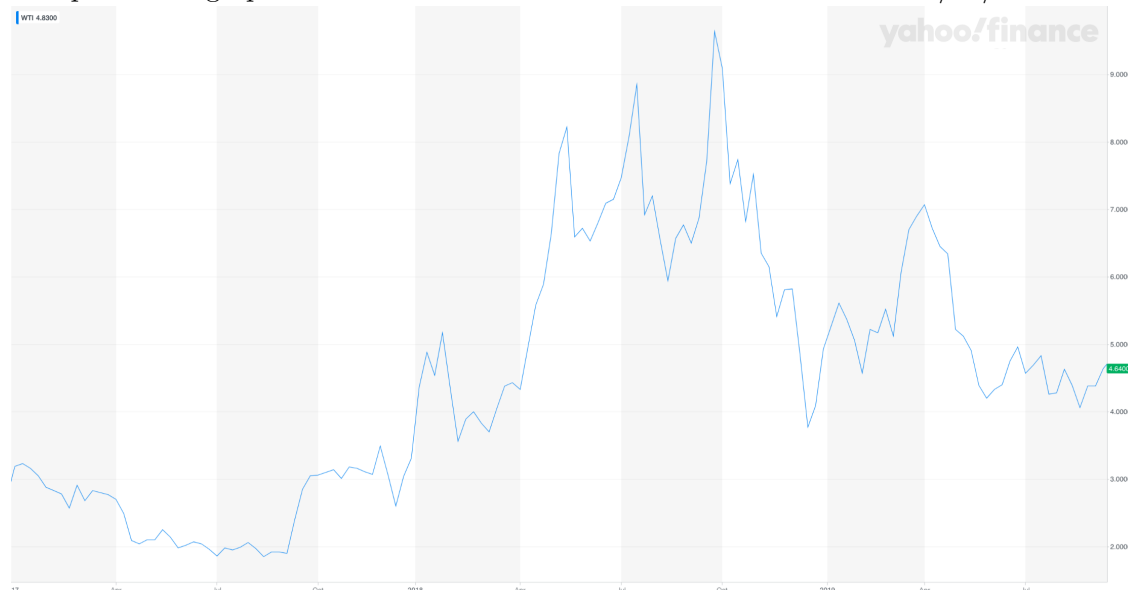


As a result, we know that rolled futures funds like USO should underperform the commodity in times when there is contango, or upward sloping futures curve.

### 1.3.6 Final Table

```python
# print("|    Date    |  Term Date |  Front Cont|  2nd Cont |Roll MtM P&L |")
# print("|------------|------------|------------|-----------|-------------|")

for k,v in day2termday.items():
    dkey = get_key(k)
    month1 = date2prices[dkey][0] if len(date2prices[dkey]) >= 1 else ""
    month2 = date2prices[dkey][1] if len(date2prices[dkey]) >= 2 else ""

    # print(f"| {str(k)} | {str(v)} | {month1} | {month2} | {date2pnl[k]} |")
```

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2017-01-01	2017-01-20			0
2017-01-02	2017-01-20			0
2017-01-03	2017-01-20	52.33	53.29	0.0
2017-01-04	2017-01-20	53.26	54.22	0.9299999999999997
2017-01-05	2017-01-20	53.76	54.68	0.5
2017-01-06	2017-01-20	53.99	54.87	0.23000000000000398
2017-01-07	2017-01-20			0
2017-01-08	2017-01-20			0
2017-01-09	2017-01-20	51.96	52.87	-2.030000000000001
2017-01-10	2017-01-20	50.82	51.7	-1.1400000000000006

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2017-01-11	2017-01-20	52.25	53.06	1.4299999999999997
2017-01-12	2017-01-20	53.01	53.84	0.759999999999998
2017-01-13	2017-01-20	52.37	53.15	-0.6400000000000006
2017-01-14	2017-01-20			0
2017-01-15	2017-01-20			0
2017-01-16	2017-01-20			0
2017-01-17	2017-01-20	52.48	53.26	0.10999999999999943
2017-01-18	2017-01-20	51.08	51.89	-1.3699999999999974
2017-01-19	2017-01-20	51.37	52.12	0.22999999999999687
2017-01-20	2017-02-21	52.42	53.22	0.30000000000000426
2017-01-21	2017-02-21			0
2017-01-22	2017-02-21			0
2017-01-23	2017-02-21	52.75	53.5	0.3299999999999983
2017-01-24	2017-02-21	53.18	53.86	0.4299999999999997
2017-01-25	2017-02-21	52.75	53.39	-0.4299999999999997
2017-01-26	2017-02-21	53.78	54.38	1.0300000000000011
2017-01-27	2017-02-21	53.17	53.75	-0.6099999999999994
2017-01-28	2017-02-21			0
2017-01-29	2017-02-21			0
2017-01-30	2017-02-21	52.63	53.24	-0.5399999999999991
2017-01-31	2017-02-21	52.81	53.42	0.17999999999999972
2017-02-01	2017-02-21	53.88	54.49	1.0700000000000003
2017-02-02	2017-02-21	53.54	54.17	-0.340000000000034
2017-02-03	2017-02-21	53.83	54.47	0.28999999999999915
2017-02-04	2017-02-21			0
2017-02-05	2017-02-21			0
2017-02-06	2017-02-21	53.01	53.63	-0.8200000000000003
2017-02-07	2017-02-21	52.17	52.78	-0.8399999999999963
2017-02-08	2017-02-21	52.34	52.91	0.1700000000000017
2017-02-09	2017-02-21	53	53.46	0.6599999999999966
2017-02-10	2017-02-21	53.86	54.33	0.8599999999999994
2017-02-11	2017-02-21			0
2017-02-12	2017-02-21			0
2017-02-13	2017-02-21	52.93	53.43	-0.9299999999999997
2017-02-14	2017-02-21	53.2	53.71	0.270000000000031
2017-02-15	2017-02-21	53.11	53.6	-0.0900000000000341
2017-02-16	2017-02-21	53.36	53.75	0.14999999999999858
2017-02-17	2017-02-21	53.4	53.78	0.030000000000001137
2017-02-18	2017-02-21			0
2017-02-19	2017-02-21			0
2017-02-20	2017-02-21			0
2017-02-21	2017-03-21	54.06	54.33	0.28000000000000114
2017-02-22	2017-03-21	53.59	53.93	-0.46999999999999886
2017-02-23	2017-03-21	54.45	54.76	0.8599999999999994
2017-02-24	2017-03-21	53.99	54.32	-0.4600000000000085
2017-02-25	2017-03-21			0

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2017-02-26	2017-03-21			0
2017-02-27	2017-03-21	54.05	54.42	0.05999999999999517
2017-02-28	2017-03-21	54.01	54.43	-0.03999999999999915
2017-03-01	2017-03-21	53.83	54.28	-0.17999999999999972
2017-03-02	2017-03-21	52.61	53.07	-1.2199999999999989
2017-03-03	2017-03-21	53.33	53.78	0.7199999999999989
2017-03-04	2017-03-21			0
2017-03-05	2017-03-21			0
2017-03-06	2017-03-21	53.2	53.71	-0.12999999999999545
2017-03-07	2017-03-21	53.14	53.64	-0.060000000000002274
2017-03-08	2017-03-21	50.28	50.83	-2.8599999999999994
2017-03-09	2017-03-21	49.28	49.83	-1.0
2017-03-10	2017-03-21	48.49	49.03	-0.7899999999999991
2017-03-11	2017-03-21			0
2017-03-12	2017-03-21			0
2017-03-13	2017-03-21	48.4	48.94	-0.09000000000000341
2017-03-14	2017-03-21	47.72	48.35	-0.6799999999999997
2017-03-15	2017-03-21	48.86	49.38	1.1400000000000006
2017-03-16	2017-03-21	48.75	49.24	-0.14000000000000057
2017-03-17	2017-03-21	48.78	49.31	0.07000000000000028
2017-03-18	2017-03-21			0
2017-03-19	2017-03-21			0
2017-03-20	2017-03-21	48.22	48.91	-0.4000000000000057
2017-03-21	2017-04-20	47.34	48.24	-1.5699999999999932
2017-03-22	2017-04-20	48.04	48.58	0.6999999999999957
2017-03-23	2017-04-20	47.7	48.26	-0.3399999999999963
2017-03-24	2017-04-20	47.97	48.51	0.269999999999996
2017-03-25	2017-04-20			0
2017-03-26	2017-04-20			0
2017-03-27	2017-04-20	47.73	48.3	-0.240000000000002
2017-03-28	2017-04-20	48.37	48.9	0.640000000000006
2017-03-29	2017-04-20	49.51	50	1.1400000000000006
2017-03-30	2017-04-20	50.35	50.78	0.8400000000000034
2017-03-31	2017-04-20	50.6	51.07	0.25
2017-04-01	2017-04-20			0
2017-04-02	2017-04-20			0
2017-04-03	2017-04-20	50.24	50.71	-0.35999999999999943
2017-04-04	2017-04-20	51.03	51.51	0.7899999999999991
2017-04-05	2017-04-20	51.15	51.6	0.11999999999999744
2017-04-06	2017-04-20	51.7	52.13	0.5500000000000043
2017-04-07	2017-04-20	52.24	52.64	0.5399999999999991
2017-04-08	2017-04-20			0
2017-04-09	2017-04-20			0
2017-04-10	2017-04-20	53.08	53.48	0.8399999999999963
2017-04-11	2017-04-20	53.4	53.79	0.3200000000000003
2017-04-12	2017-04-20	53.11	53.52	-0.28999999999999915

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2017-04-13	2017-04-20	53.18	53.6	0.07000000000000028
2017-04-14	2017-04-20			0
2017-04-15	2017-04-20			0
2017-04-16	2017-04-20			0
2017-04-17	2017-04-20	52.65	53.11	-0.490000000000002
2017-04-18	2017-04-20	52.41	52.85	-0.259999999999998
2017-04-19	2017-04-20	50.44	50.85	-2.0
2017-04-20	2017-05-22	50.27	50.71	-0.57999999999999983
2017-04-21	2017-05-22	49.62	49.97	-0.6500000000000057
2017-04-22	2017-05-22			0
2017-04-23	2017-05-22			0
2017-04-24	2017-05-22	49.23	49.58	-0.39000000000000057
2017-04-25	2017-05-22	49.56	49.9	0.3300000000000054
2017-04-26	2017-05-22	49.62	49.96	0.05999999999999517
2017-04-27	2017-05-22	48.97	49.31	-0.6499999999999986
2017-04-28	2017-05-22	49.33	49.62	0.35999999999999943
2017-04-29	2017-05-22			0
2017-04-30	2017-05-22			0
2017-05-01	2017-05-22	48.84	49.16	-0.4899999999999949
2017-05-02	2017-05-22	47.66	47.99	-1.1800000000000068
2017-05-03	2017-05-22	47.82	48.18	0.160000000000037
2017-05-04	2017-05-22	45.52	45.9	-2.299999999999997
2017-05-05	2017-05-22	46.22	46.6	0.6999999999999957
2017-05-06	2017-05-22			0
2017-05-07	2017-05-22			0
2017-05-08	2017-05-22	46.43	46.84	0.21000000000000085
2017-05-09	2017-05-22	45.88	46.27	-0.5499999999999972
2017-05-10	2017-05-22	47.33	47.7	1.4499999999999957
2017-05-11	2017-05-22	47.83	48.2	0.5
2017-05-12	2017-05-22	47.84	48.17	0.010000000000005116
2017-05-13	2017-05-22			0
2017-05-14	2017-05-22			0
2017-05-15	2017-05-22	48.85	49.16	1.009999999999998
2017-05-16	2017-05-22	48.66	49	-0.1599999999999966
2017-05-17	2017-05-22	49.07	49.41	0.4099999999999966
2017-05-18	2017-05-22	49.35	49.66	0.25
2017-05-19	2017-05-22	50.33	50.67	1.0100000000000051
2017-05-20	2017-05-22			0
2017-05-21	2017-05-22			0
2017-05-22	2017-06-20	50.73	51.13	0.05999999999999517
2017-05-23	2017-06-20	51.47	51.72	0.740000000000002
2017-05-24	2017-06-20	51.36	51.59	-0.10999999999999943
2017-05-25	2017-06-20	48.9	49.14	-2.460000000000001
2017-05-26	2017-06-20	49.8	50.05	0.8999999999999986
2017-05-27	2017-06-20			0
2017-05-28	2017-06-20			0

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2017-05-29	2017-06-20			0
2017-05-30	2017-06-20	49.66	49.91	-0.14000000000000057
2017-05-31	2017-06-20	48.32	48.56	-1.3399999999999963
2017-06-01	2017-06-20	48.36	48.6	0.03999999999999915
2017-06-02	2017-06-20	47.66	47.87	-0.7000000000000028
2017-06-03	2017-06-20			0
2017-06-04	2017-06-20			0
2017-06-05	2017-06-20	47.4	47.58	-0.259999999999998
2017-06-06	2017-06-20	48.19	48.34	0.7899999999999991
2017-06-07	2017-06-20	45.72	45.98	-2.469999999999999
2017-06-08	2017-06-20	45.64	45.89	-0.0799999999999983
2017-06-09	2017-06-20	45.83	46.07	0.18999999999999773
2017-06-10	2017-06-20			0
2017-06-11	2017-06-20			0
2017-06-12	2017-06-20	46.08	46.32	0.25
2017-06-13	2017-06-20	46.46	46.67	0.38000000000000256
2017-06-14	2017-06-20	44.73	44.93	-1.730000000000004
2017-06-15	2017-06-20	44.46	44.68	-0.269999999999996
2017-06-16	2017-06-20	44.74	44.97	0.28999999999999915
2017-06-17	2017-06-20			0
2017-06-18	2017-06-20			0
2017-06-19	2017-06-20	44.2	44.43	-0.5399999999999991
2017-06-20	2017-07-20	43.23	43.51	-1.2000000000000028
2017-06-21	2017-07-20	42.53	42.75	-0.6999999999999957
2017-06-22	2017-07-20	42.74	42.97	0.21000000000000085
2017-06-23	2017-07-20	43.01	43.27	0.269999999999996
2017-06-24	2017-07-20			0
2017-06-25	2017-07-20			0
2017-06-26	2017-07-20	43.38	43.61	0.37000000000000455
2017-06-27	2017-07-20	44.24	44.49	0.8599999999999994
2017-06-28	2017-07-20	44.74	44.99	0.5
2017-06-29	2017-07-20	44.93	45.2	0.18999999999999773
2017-06-30	2017-07-20	46.04	46.29	1.1099999999999994
2017-07-01	2017-07-20			0
2017-07-02	2017-07-20			0
2017-07-03	2017-07-20	47.07	47.29	1.0300000000000011
2017-07-04	2017-07-20			0
2017-07-05	2017-07-20	45.13	45.34	-1.9399999999999977
2017-07-06	2017-07-20	45.52	45.7	0.39000000000000057
2017-07-07	2017-07-20	44.23	44.39	-1.2900000000000063
2017-07-08	2017-07-20			0
2017-07-09	2017-07-20			0
2017-07-10	2017-07-20	44.4	44.6	0.1700000000000017
2017-07-11	2017-07-20	45.04	45.23	0.6400000000000006
2017-07-12	2017-07-20	45.49	45.66	0.45000000000000284
2017-07-13	2017-07-20	46.08	46.25	0.5899999999999963

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2017-07-14	2017-07-20	46.54	46.75	0.46000000000000085
2017-07-15	2017-07-20			0
2017-07-16	2017-07-20			0
2017-07-17	2017-07-20	46.02	46.23	-0.5200000000000031
2017-07-18	2017-07-20	46.4	46.59	0.36000000000000654
2017-07-19	2017-07-20	47.12	47.32	0.7299999999999969
2017-07-20	2017-08-22	46.79	46.92	-0.5300000000000011
2017-07-21	2017-08-22	45.77	45.95	-1.019999999999996
2017-07-22	2017-08-22			0
2017-07-23	2017-08-22			0
2017-07-24	2017-08-22	46.34	46.51	0.5700000000000003
2017-07-25	2017-08-22	47.89	48.02	1.5499999999999972
2017-07-26	2017-08-22	48.75	48.85	0.8599999999999994
2017-07-27	2017-08-22	49.04	49.17	0.28999999999999915
2017-07-28	2017-08-22	49.71	49.81	0.6700000000000017
2017-07-29	2017-08-22			0
2017-07-30	2017-08-22			0
2017-07-31	2017-08-22	50.17	50.26	0.46000000000000085
2017-08-01	2017-08-22	49.16	49.29	-1.0100000000000051
2017-08-02	2017-08-22	49.59	49.73	0.430000000000068
2017-08-03	2017-08-22	49.03	49.19	-0.5600000000000023
2017-08-04	2017-08-22	49.58	49.73	0.5499999999999972
2017-08-05	2017-08-22			0
2017-08-06	2017-08-22			0
2017-08-07	2017-08-22	49.39	49.57	-0.18999999999999773
2017-08-08	2017-08-22	49.17	49.35	-0.21999999999999886
2017-08-09	2017-08-22	49.56	49.72	0.39000000000000057
2017-08-10	2017-08-22	48.59	48.75	-0.9699999999999989
2017-08-11	2017-08-22	48.82	48.97	0.22999999999999687
2017-08-12	2017-08-22			0
2017-08-13	2017-08-22			0
2017-08-14	2017-08-22	47.59	47.73	-1.2299999999999969
2017-08-15	2017-08-22	47.55	47.7	-0.04000000000000625
2017-08-16	2017-08-22	46.78	46.94	-0.760000000000051
2017-08-17	2017-08-22	47.09	47.24	0.30000000000000426
2017-08-18	2017-08-22	48.51	48.66	1.4199999999999946
2017-08-19	2017-08-22			0
2017-08-20	2017-08-22			0
2017-08-21	2017-08-22	47.37	47.53	-1.1299999999999955
2017-08-22	2017-09-20	47.64	47.83	0.10999999999999943
2017-08-23	2017-09-20	48.41	48.62	0.769999999999996
2017-08-24	2017-09-20	47.43	47.7	-0.9799999999999969
2017-08-25	2017-09-20	47.87	48.12	0.4399999999999977
2017-08-26	2017-09-20			0
2017-08-27	2017-09-20			0
2017-08-28	2017-09-20	46.57	46.96	-1.2999999999999972

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2017-08-29	2017-09-20	46.44	47	-0.13000000000000256
2017-08-30	2017-09-20	45.96	46.51	-0.47999999999999969
2017-08-31	2017-09-20	47.23	47.96	1.269999999999996
2017-09-01	2017-09-20	47.29	47.99	0.060000000000002274
2017-09-02	2017-09-20			0
2017-09-03	2017-09-20			0
2017-09-04	2017-09-20			0
2017-09-05	2017-09-20	48.66	49.14	1.3699999999999974
2017-09-06	2017-09-20	49.16	49.62	0.5
2017-09-07	2017-09-20	49.09	49.53	-0.06999999999999318
2017-09-08	2017-09-20	47.48	48.06	-1.6100000000000065
2017-09-09	2017-09-20			0
2017-09-10	2017-09-20			0
2017-09-11	2017-09-20	48.07	48.62	0.5900000000000034
2017-09-12	2017-09-20	48.23	48.75	0.1599999999999966
2017-09-13	2017-09-20	49.3	49.75	1.0700000000000003
2017-09-14	2017-09-20	49.89	50.35	0.5900000000000034
2017-09-15	2017-09-20	49.89	50.44	0.0
2017-09-16	2017-09-20			0
2017-09-17	2017-09-20			0
2017-09-18	2017-09-20	49.91	50.35	-0.08999999999999963
2017-09-19	2017-09-20	49.48	49.9	-0.45000000000000284
2017-09-20	2017-10-20	50.41	50.69	0.509999999999998
2017-09-21	2017-10-20	50.55	50.93	0.1400000000000057
2017-09-22	2017-10-20	50.66	51.03	0.10999999999999943
2017-09-23	2017-10-20			0
2017-09-24	2017-10-20			0
2017-09-25	2017-10-20	52.22	52.52	1.5600000000000023
2017-09-26	2017-10-20	51.88	52.19	-0.3399999999999963
2017-09-27	2017-10-20	52.14	52.43	0.259999999999998
2017-09-28	2017-10-20	51.56	51.87	-0.5799999999999983
2017-09-29	2017-10-20	51.67	51.95	0.10999999999999943
2017-09-30	2017-10-20			0
2017-10-01	2017-10-20			0
2017-10-02	2017-10-20	50.58	50.9	-1.0900000000000034
2017-10-03	2017-10-20	50.42	50.74	-0.1599999999999966
2017-10-04	2017-10-20	49.98	50.32	-0.44000000000000483
2017-10-05	2017-10-20	50.79	51.15	0.8100000000000023
2017-10-06	2017-10-20	49.29	49.65	-1.5
2017-10-07	2017-10-20			0
2017-10-08	2017-10-20			0
2017-10-09	2017-10-20			0
2017-10-10	2017-10-20	50.92	51.23	1.6300000000000026
2017-10-11	2017-10-20	51.3	51.6	0.37999999999999545
2017-10-12	2017-10-20	50.6	50.93	-0.6999999999999957
2017-10-13	2017-10-20	51.45	51.73	0.8500000000000014

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2017-10-14	2017-10-20			0
2017-10-15	2017-10-20			0
2017-10-16	2017-10-20	51.87	52.14	0.4100000000000037
2017-10-17	2017-10-20	51.88	52.11	-0.03000000000001137
2017-10-18	2017-10-20	52.04	52.26	0.14999999999999858
2017-10-19	2017-10-20	51.29	51.51	-0.75
2017-10-20	2017-11-21	51.47	51.84	-0.03999999999999915
2017-10-21	2017-11-21			0
2017-10-22	2017-11-21			0
2017-10-23	2017-11-21	51.9	52.08	0.4299999999999997
2017-10-24	2017-11-21	52.47	52.67	0.5700000000000003
2017-10-25	2017-11-21	52.18	52.43	-0.28999999999999915
2017-10-26	2017-11-21	52.64	52.86	0.46000000000000085
2017-10-27	2017-11-21	53.9	54.09	1.259999999999998
2017-10-28	2017-11-21			0
2017-10-29	2017-11-21			0
2017-10-30	2017-11-21	54.15	54.37	0.25
2017-10-31	2017-11-21	54.38	54.59	0.23000000000000398
2017-11-01	2017-11-21	54.3	54.51	-0.080000000000054
2017-11-02	2017-11-21	54.54	54.77	0.240000000000002
2017-11-03	2017-11-21	55.64	55.86	1.1000000000000014
2017-11-04	2017-11-21			0
2017-11-05	2017-11-21			0
2017-11-06	2017-11-21	57.35	57.57	1.7100000000000009
2017-11-07	2017-11-21	57.2	57.43	-0.14999999999999858
2017-11-08	2017-11-21	56.81	57.05	-0.39000000000000057
2017-11-09	2017-11-21	57.17	57.39	0.35999999999999943
2017-11-10	2017-11-21			0
2017-11-11	2017-11-21			0
2017-11-12	2017-11-21			0
2017-11-13	2017-11-21	56.76	56.97	-0.4100000000000037
2017-11-14	2017-11-21	55.7	55.89	-1.0599999999999952
2017-11-15	2017-11-21	55.33	55.52	-0.37000000000000455
2017-11-16	2017-11-21	55.14	55.35	-0.170000000000017
2017-11-17	2017-11-21	56.55	56.71	1.3599999999999994
2017-11-18	2017-11-21			0
2017-11-19	2017-11-21			0
2017-11-20	2017-11-21	56.09	56.42	-0.28999999999999915
2017-11-21	2017-12-20	56.83	56.92	0.4099999999999966
2017-11-22	2017-12-20	58.02	58.02	1.1900000000000048
2017-11-23	2017-12-20			0
2017-11-24	2017-12-20			0
2017-11-25	2017-12-20			0
2017-11-26	2017-12-20			0
2017-11-27	2017-12-20	58.11	58.16	0.0899999999999963
2017-11-28	2017-12-20	57.99	58.05	-0.11999999999999744

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2017-11-29	2017-12-20	57.3	57.36	-0.690000000000048
2017-11-30	2017-12-20	57.4	57.45	0.10000000000000142
2017-12-01	2017-12-20	58.36	58.38	0.9600000000000009
2017-12-02	2017-12-20			0
2017-12-03	2017-12-20			0
2017-12-04	2017-12-20	57.47	57.49	-0.8900000000000006
2017-12-05	2017-12-20	57.62	57.67	0.14999999999999858
2017-12-06	2017-12-20	55.96	56.03	-1.6599999999999966
2017-12-07	2017-12-20	56.69	56.75	0.7299999999999969
2017-12-08	2017-12-20	57.36	57.44	0.6700000000000017
2017-12-09	2017-12-20			0
2017-12-10	2017-12-20			0
2017-12-11	2017-12-20	57.99	58.05	0.6300000000000026
2017-12-12	2017-12-20	57.14	57.16	-0.8500000000000014
2017-12-13	2017-12-20	56.6	56.59	-0.5399999999999991
2017-12-14	2017-12-20	57.04	57.08	0.4399999999999977
2017-12-15	2017-12-20	57.3	57.33	0.259999999999998
2017-12-16	2017-12-20			0
2017-12-17	2017-12-20			0
2017-12-18	2017-12-20	57.16	57.22	-0.10999999999999943
2017-12-19	2017-12-20	57.46	57.56	0.340000000000034
2017-12-20	2017-01-20	58.09	58.13	0.5300000000000011
2017-12-21	2017-01-20	58.36	58.4	0.269999999999996
2017-12-22	2017-01-20	58.47	58.54	0.10999999999999943
2017-12-23	2017-01-20			0
2017-12-24	2017-01-20			0
2017-12-25	2017-01-20			0
2017-12-26	2017-01-20	59.97	60	1.5
2017-12-27	2017-01-20	59.64	59.69	-0.3299999999999983
2017-12-28	2017-01-20	59.84	59.87	0.20000000000000284
2017-12-29	2017-01-20	60.42	60.44	0.5799999999999983
2017-12-30	2017-01-20			0
2017-12-31	2017-01-20			0
2018-01-01	2018-01-22	60.42	60.44	0.0
2018-01-02	2018-01-22	60.37	60.38	-0.05000000000000426
2018-01-03	2018-01-22	61.63	61.55	1.2600000000000051
2018-01-04	2018-01-22	62.01	61.9	0.37999999999999545
2018-01-05	2018-01-22	61.44	61.41	-0.5700000000000003
2018-01-06	2018-01-22			0
2018-01-07	2018-01-22			0
2018-01-08	2018-01-22	61.73	61.72	0.28999999999999915
2018-01-09	2018-01-22	62.96	62.87	1.230000000000004
2018-01-10	2018-01-22	63.57	63.42	0.6099999999999994
2018-01-11	2018-01-22	63.8	63.68	0.22999999999999687
2018-01-12	2018-01-22	64.3	64.23	0.5
2018-01-13	2018-01-22			0

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2018-01-14	2018-01-22			0
2018-01-15	2018-01-22	64.3	64.23	0.0
2018-01-16	2018-01-22	63.73	63.67	-0.5600000000000023
2018-01-17	2018-01-22	63.97	63.92	0.25
2018-01-18	2018-01-22	63.95	63.89	-0.030000000000001137
2018-01-19	2018-01-22	63.37	63.31	-0.5799999999999983
2018-01-20	2018-01-22			0
2018-01-21	2018-01-22			0
2018-01-22	2018-02-20	63.49	63.57	0.17999999999999972
2018-01-23	2018-02-20	64.47	64.31	0.9799999999999969
2018-01-24	2018-02-20	65.61	65.36	1.1400000000000006
2018-01-25	2018-02-20	65.51	65.37	-0.09999999999999432
2018-01-26	2018-02-20	66.14	65.97	0.6299999999999955
2018-01-27	2018-02-20			0
2018-01-28	2018-02-20			0
2018-01-29	2018-02-20	65.56	65.39	-0.5799999999999983
2018-01-30	2018-02-20	64.5	64.35	-1.060000000000023
2018-01-31	2018-02-20	64.73	64.56	0.23000000000000398
2018-02-01	2018-02-20	65.8	65.55	1.0699999999999932
2018-02-02	2018-02-20	65.45	65.07	-0.3499999999999943
2018-02-03	2018-02-20			0
2018-02-04	2018-02-20			0
2018-02-05	2018-02-20	64.15	63.83	-1.2999999999999972
2018-02-06	2018-02-20	63.39	63.11	-0.760000000000051
2018-02-07	2018-02-20	61.79	61.55	-1.6000000000000014
2018-02-08	2018-02-20	61.15	60.94	-0.6400000000000006
2018-02-09	2018-02-20	59.2	58.99	-1.9499999999999957
2018-02-10	2018-02-20			0
2018-02-11	2018-02-20			0
2018-02-12	2018-02-20	59.29	59.08	0.0899999999999963
2018-02-13	2018-02-20	59.19	59.03	-0.1000000000000142
2018-02-14	2018-02-20	60.6	60.51	1.4100000000000037
2018-02-15	2018-02-20	61.34	61.17	0.740000000000002
2018-02-16	2018-02-20	61.68	61.55	0.37999999999999545
2018-02-17	2018-02-20			0
2018-02-18	2018-02-20			0
2018-02-19	2018-02-20	61.68	61.55	0.0
2018-02-20	2018-03-20	61.9	61.79	0.3500000000000014
2018-02-21	2018-03-20	61.68	61.52	-0.21999999999999886
2018-02-22	2018-03-20	62.77	62.6	1.0900000000000034
2018-02-23	2018-03-20	63.55	63.41	0.779999999999994
2018-02-24	2018-03-20			0
2018-02-25	2018-03-20			0
2018-02-26	2018-03-20	63.91	63.77	0.35999999999999943
2018-02-27	2018-03-20	63.01	62.9	-0.8999999999999986
2018-02-28	2018-03-20	61.64	61.47	-1.3699999999999974

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2018-03-01	2018-03-20	60.99	60.8	-0.6499999999999986
2018-03-02	2018-03-20	61.25	61.09	0.259999999999998
2018-03-03	2018-03-20			0
2018-03-04	2018-03-20			0
2018-03-05	2018-03-20	62.57	62.39	1.3200000000000003
2018-03-06	2018-03-20	62.6	62.45	0.030000000000001137
2018-03-07	2018-03-20	61.15	61.02	-1.450000000000028
2018-03-08	2018-03-20	60.12	60.06	-1.030000000000011
2018-03-09	2018-03-20	62.04	61.92	1.9200000000000017
2018-03-10	2018-03-20			0
2018-03-11	2018-03-20			0
2018-03-12	2018-03-20	61.36	61.33	-0.6799999999999997
2018-03-13	2018-03-20	60.71	60.75	-0.6499999999999986
2018-03-14	2018-03-20	60.96	61.02	0.25
2018-03-15	2018-03-20	61.19	61.25	0.22999999999999687
2018-03-16	2018-03-20	62.34	62.41	1.1599999999999966
2018-03-17	2018-03-20			0
2018-03-18	2018-03-20			0
2018-03-19	2018-03-20	62.06	62.13	-0.27999999999999403
2018-03-20	2018-04-20	63.4	63.54	1.269999999999996
2018-03-21	2018-04-20	65.17	64.95	1.7700000000000031
2018-03-22	2018-04-20	64.3	64.18	-0.870000000000045
2018-03-23	2018-04-20	65.88	65.71	1.5799999999999983
2018-03-24	2018-04-20			0
2018-03-25	2018-04-20			0
2018-03-26	2018-04-20	65.55	65.41	-0.3299999999999983
2018-03-27	2018-04-20	65.25	65.18	-0.29999999999999716
2018-03-28	2018-04-20	64.38	64.35	-0.870000000000045
2018-03-29	2018-04-20	64.94	64.87	0.5600000000000023
2018-03-30	2018-04-20	64.94	64.87	0.0
2018-03-31	2018-04-20			0
2018-04-01	2018-04-20			0
2018-04-02	2018-04-20	63.01	62.99	-1.9299999999999997
2018-04-03	2018-04-20	63.51	63.46	0.5
2018-04-04	2018-04-20	63.37	63.33	-0.14000000000000057
2018-04-05	2018-04-20	63.54	63.54	0.1700000000000017
2018-04-06	2018-04-20	62.06	62.1	-1.4799999999999969
2018-04-07	2018-04-20			0
2018-04-08	2018-04-20			0
2018-04-09	2018-04-20	63.42	63.43	1.3599999999999994
2018-04-10	2018-04-20	65.51	65.44	2.0900000000000034
2018-04-11	2018-04-20	66.82	66.74	1.309999999999988
2018-04-12	2018-04-20	67.07	66.95	0.25
2018-04-13	2018-04-20	67.39	67.33	0.3200000000000074
2018-04-14	2018-04-20			0
2018-04-15	2018-04-20			0

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2018-04-16	2018-04-20	66.22	66.2	-1.1299999999999955
2018-04-17	2018-04-20	66.52	66.51	0.3100000000000023
2018-04-18	2018-04-20	68.47	68.47	1.9599999999999937
2018-04-19	2018-04-20	68.29	68.33	-0.14000000000000057
2018-04-20	2018-05-22	68.38	68.4	0.04999999999999716
2018-04-21	2018-05-22			0
2018-04-22	2018-05-22			0
2018-04-23	2018-05-22	68.64	68.47	0.2600000000000051
2018-04-24	2018-05-22	67.7	67.57	-0.9399999999999977
2018-04-25	2018-05-22	68.05	67.92	0.3499999999999943
2018-04-26	2018-05-22	68.19	68.08	0.14000000000000057
2018-04-27	2018-05-22	68.1	67.98	-0.09000000000000341
2018-04-28	2018-05-22			0
2018-04-29	2018-05-22			0
2018-04-30	2018-05-22	68.57	68.48	0.46999999999999886
2018-05-01	2018-05-22	67.25	67.13	-1.3199999999999932
2018-05-02	2018-05-22	67.93	67.77	0.680000000000068
2018-05-03	2018-05-22	68.43	68.26	0.5
2018-05-04	2018-05-22	69.72	69.58	1.289999999999992
2018-05-05	2018-05-22			0
2018-05-06	2018-05-22			0
2018-05-07	2018-05-22	70.73	70.62	1.0100000000000051
2018-05-08	2018-05-22	69.06	68.97	-1.6700000000000017
2018-05-09	2018-05-22	71.14	71.05	2.0799999999999983
2018-05-10	2018-05-22	71.36	71.31	0.21999999999999886
2018-05-11	2018-05-22	70.7	70.68	-0.6599999999999966
2018-05-12	2018-05-22			0
2018-05-13	2018-05-22			0
2018-05-14	2018-05-22	70.96	70.99	0.2599999999999909
2018-05-15	2018-05-22	71.31	71.37	0.3500000000000085
2018-05-16	2018-05-22	71.49	71.56	0.18999999999999773
2018-05-17	2018-05-22	71.49	71.57	0.009999999999990905
2018-05-18	2018-05-22	71.28	71.37	-0.19999999999998863
2018-05-19	2018-05-22			0
2018-05-20	2018-05-22			0
2018-05-21	2018-05-22	72.24	72.35	0.9799999999999898
2018-05-22	2018-06-20	72.13	72.2	-0.21999999999999886
2018-05-23	2018-06-20	71.84	71.71	-0.28999999999999204
2018-05-24	2018-06-20	70.71	70.58	-1.1300000000000097
2018-05-25	2018-06-20	67.88	67.78	-2.8299999999999983
2018-05-26	2018-06-20			0
2018-05-27	2018-06-20			0
2018-05-28	2018-06-20	67.88	67.78	0.0
2018-05-29	2018-06-20	66.73	66.62	-1.1499999999999915
2018-05-30	2018-06-20	68.21	68.08	1.4799999999999898
2018-05-31	2018-06-20	67.04	66.91	-1.1699999999999875

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2018-06-01	2018-06-20	65.81	65.77	-1.230000000000004
2018-06-02	2018-06-20			0
2018-06-03	2018-06-20			0
2018-06-04	2018-06-20	64.75	64.68	-1.0600000000000023
2018-06-05	2018-06-20	65.52	65.46	0.769999999999996
2018-06-06	2018-06-20	64.73	64.7	-0.789999999999992
2018-06-07	2018-06-20	65.95	65.89	1.2199999999999989
2018-06-08	2018-06-20	65.74	65.67	-0.21000000000000796
2018-06-09	2018-06-20			0
2018-06-10	2018-06-20			0
2018-06-11	2018-06-20	66.1	66.03	0.35999999999999943
2018-06-12	2018-06-20	66.36	66.28	0.2600000000000051
2018-06-13	2018-06-20	66.64	66.52	0.2800000000000114
2018-06-14	2018-06-20	66.89	66.69	0.25
2018-06-15	2018-06-20	65.06	64.85	-1.8299999999999983
2018-06-16	2018-06-20			0
2018-06-17	2018-06-20			0
2018-06-18	2018-06-20	65.85	65.69	0.8400000000000034
2018-06-19	2018-06-20	65.07	64.9	-0.789999999999992
2018-06-20	2018-07-20	66.22	65.71	1.3199999999999932
2018-06-21	2018-07-20	65.54	64.86	-0.6799999999999926
2018-06-22	2018-07-20	68.58	67.63	3.039999999999992
2018-06-23	2018-07-20			0
2018-06-24	2018-07-20			0
2018-06-25	2018-07-20	68.08	67.04	-0.5
2018-06-26	2018-07-20	70.53	69.28	2.450000000000003
2018-06-27	2018-07-20	72.76	71.26	2.230000000000004
2018-06-28	2018-07-20	73.45	71.81	0.6899999999999977
2018-06-29	2018-07-20	74.15	72.46	0.7000000000000028
2018-06-30	2018-07-20			0
2018-07-01	2018-07-20			0
2018-07-02	2018-07-20	73.94	71.62	-0.21000000000000796
2018-07-03	2018-07-20	74.14	71.59	0.20000000000000284
2018-07-04	2018-07-20	74.14	71.59	0.0
2018-07-05	2018-07-20	72.94	70.63	-1.2000000000000028
2018-07-06	2018-07-20	73.8	71.57	0.8599999999999994
2018-07-07	2018-07-20			0
2018-07-08	2018-07-20			0
2018-07-09	2018-07-20	73.85	71.98	0.04999999999999716
2018-07-10	2018-07-20	74.11	72.56	0.2600000000000051
2018-07-11	2018-07-20	70.38	68.86	-3.730000000000004
2018-07-12	2018-07-20	70.33	69.35	-0.04999999999999716
2018-07-13	2018-07-20	71.01	69.95	0.6800000000000068
2018-07-14	2018-07-20			0
2018-07-15	2018-07-20			0
2018-07-16	2018-07-20	68.06	67.07	-2.8800000000000097

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2018-07-17	2018-07-20	68.08	67.16	0.09000000000000341
2018-07-18	2018-07-20	68.76	67.75	0.590000000000034
2018-07-19	2018-07-20	69.46	68.24	0.4899999999999949
2018-07-20	2018-08-21	70.46	68.26	2.219999999999999
2018-07-21	2018-08-21			0
2018-07-22	2018-08-21			0
2018-07-23	2018-08-21	67.89	66.75	-2.569999999999993
2018-07-24	2018-08-21	68.52	67.19	0.6299999999999955
2018-07-25	2018-08-21	69.3	68.01	0.7800000000000011
2018-07-26	2018-08-21	69.61	68.43	0.3100000000000023
2018-07-27	2018-08-21	68.69	67.73	-0.9200000000000017
2018-07-28	2018-08-21			0
2018-07-29	2018-08-21			0
2018-07-30	2018-08-21	70.13	68.95	1.4399999999999977
2018-07-31	2018-08-21	68.76	67.63	-1.3699999999999903
2018-08-01	2018-08-21	67.66	66.5	-1.1000000000000085
2018-08-02	2018-08-21	68.96	67.66	1.2999999999999972
2018-08-03	2018-08-21	68.49	67.35	-0.46999999999999886
2018-08-04	2018-08-21			0
2018-08-05	2018-08-21			0
2018-08-06	2018-08-21	69.01	67.94	0.5200000000000102
2018-08-07	2018-08-21	69.17	68.33	0.1599999999999966
2018-08-08	2018-08-21	66.94	66.25	-2.230000000000004
2018-08-09	2018-08-21	66.81	66.14	-0.12999999999999545
2018-08-10	2018-08-21	67.63	66.94	0.8199999999999932
2018-08-11	2018-08-21			0
2018-08-12	2018-08-21			0
2018-08-13	2018-08-21	67.2	66.57	-0.4299999999999926
2018-08-14	2018-08-21	67.04	66.33	-0.1599999999999966
2018-08-15	2018-08-21	65.01	64.46	-2.030000000000001
2018-08-16	2018-08-21	65.46	64.88	0.420000000000017
2018-08-17	2018-08-21	65.91	65.21	0.3299999999999983
2018-08-18	2018-08-21			0
2018-08-19	2018-08-21			0
2018-08-20	2018-08-21	66.43	65.42	0.2100000000000796
2018-08-21	2018-09-20	67.35	65.84	1.9299999999999926
2018-08-22	2018-09-20	67.86	67.51	0.5100000000000051
2018-08-23	2018-09-20	67.83	67.53	-0.030000000000001137
2018-08-24	2018-09-20	68.72	68.36	0.8900000000000006
2018-08-25	2018-09-20			0
2018-08-26	2018-09-20			0
2018-08-27	2018-09-20	68.87	68.54	0.1500000000000568
2018-08-28	2018-09-20	68.53	68.22	-0.3400000000000034
2018-08-29	2018-09-20	69.51	69.17	0.980000000000004
2018-08-30	2018-09-20	70.25	69.81	0.7399999999999949
2018-08-31	2018-09-20	69.8	69.37	-0.4500000000000284

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2018-09-01	2018-09-20			0
2018-09-02	2018-09-20			0
2018-09-03	2018-09-20	69.8	69.37	0.0
2018-09-04	2018-09-20	69.87	69.56	0.07000000000000739
2018-09-05	2018-09-20	68.72	68.42	-1.1500000000000057
2018-09-06	2018-09-20	67.77	67.52	-0.9500000000000028
2018-09-07	2018-09-20	67.75	67.55	-0.01999999999999602
2018-09-08	2018-09-20			0
2018-09-09	2018-09-20			0
2018-09-10	2018-09-20	67.54	67.41	-0.20999999999999375
2018-09-11	2018-09-20	69.25	69.04	1.7099999999999937
2018-09-12	2018-09-20	70.37	70.16	1.1200000000000045
2018-09-13	2018-09-20	68.59	68.41	-1.7800000000000011
2018-09-14	2018-09-20	68.99	68.77	0.3999999999999915
2018-09-15	2018-09-20			0
2018-09-16	2018-09-20			0
2018-09-17	2018-09-20	68.91	68.68	-0.0899999999999892
2018-09-18	2018-09-20	69.85	69.59	0.9099999999999966
2018-09-19	2018-09-20	71.12	70.77	1.1799999999999926
2018-09-20	2018-10-22	70.8	70.32	0.030000000000001137
2018-09-21	2018-10-22	70.78	70.37	-0.01999999999999602
2018-09-22	2018-10-22			0
2018-09-23	2018-10-22			0
2018-09-24	2018-10-22	72.08	71.76	1.2999999999999972
2018-09-25	2018-10-22	72.28	72.1	0.20000000000000284
2018-09-26	2018-10-22	71.57	71.41	-0.710000000000008
2018-09-27	2018-10-22	72.12	71.96	0.5500000000000114
2018-09-28	2018-10-22	73.25	73.06	1.1299999999999955
2018-09-29	2018-10-22			0
2018-09-30	2018-10-22			0
2018-10-01	2018-10-22	75.3	75.14	2.049999999999997
2018-10-02	2018-10-22	75.23	75.04	-0.06999999999999318
2018-10-03	2018-10-22	76.41	76.24	1.1799999999999926
2018-10-04	2018-10-22	74.33	74.25	-2.0799999999999983
2018-10-05	2018-10-22	74.34	74.26	0.010000000000005116
2018-10-06	2018-10-22			0
2018-10-07	2018-10-22			0
2018-10-08	2018-10-22	74.29	74.17	-0.04999999999999716
2018-10-09	2018-10-22	74.96	74.81	0.6699999999999875
2018-10-10	2018-10-22	73.17	73.03	-1.789999999999992
2018-10-11	2018-10-22	70.97	70.81	-2.200000000000003
2018-10-12	2018-10-22	71.34	71.18	0.37000000000000455
2018-10-13	2018-10-22			0
2018-10-14	2018-10-22			0
2018-10-15	2018-10-22	71.78	71.61	0.4399999999999977
2018-10-16	2018-10-22	71.92	71.76	0.15000000000000568

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2018-10-17	2018-10-22	69.75	69.7	-2.0600000000000023
2018-10-18	2018-10-22	68.65	68.71	-0.9900000000000091
2018-10-19	2018-10-22	69.12	69.28	0.5700000000000074
2018-10-20	2018-10-22			0
2018-10-21	2018-10-22			0
2018-10-22	2018-11-20	69.17	69.36	-0.10999999999999943
2018-10-23	2018-11-20	66.43	66.62	-2.739999999999995
2018-10-24	2018-11-20	66.82	66.96	0.38999999999998636
2018-10-25	2018-11-20	67.33	67.44	0.5100000000000051
2018-10-26	2018-11-20	67.59	67.75	0.2600000000000051
2018-10-27	2018-11-20			0
2018-10-28	2018-11-20			0
2018-10-29	2018-11-20	67.04	67.21	-0.5499999999999972
2018-10-30	2018-11-20	66.18	66.31	-0.8599999999999994
2018-10-31	2018-11-20	65.31	65.44	-0.8700000000000045
2018-11-01	2018-11-20	63.69	63.81	-1.6200000000000045
2018-11-02	2018-11-20	63.14	63.28	-0.5499999999999972
2018-11-03	2018-11-20			0
2018-11-04	2018-11-20			0
2018-11-05	2018-11-20	63.1	63.21	-0.03999999999999915
2018-11-06	2018-11-20	62.21	62.34	-0.890000000000006
2018-11-07	2018-11-20	61.67	61.82	-0.5399999999999991
2018-11-08	2018-11-20	60.67	60.86	-1.0
2018-11-09	2018-11-20	60.19	60.36	-0.480000000000004
2018-11-10	2018-11-20			0
2018-11-11	2018-11-20			0
2018-11-12	2018-11-20	59.93	60.08	-0.259999999999998
2018-11-13	2018-11-20	55.69	55.84	-4.24000000000002
2018-11-14	2018-11-20	56.25	56.44	0.5600000000000023
2018-11-15	2018-11-20	56.46	56.68	0.21000000000000085
2018-11-16	2018-11-20	56.46	56.68	0.0
2018-11-17	2018-11-20			0
2018-11-18	2018-11-20			0
2018-11-19	2018-11-20	56.76	57.2	0.5200000000000031
2018-11-20	2018-12-20	53.43	53.57	-3.77000000000003
2018-11-21	2018-12-20	54.63	54.8	1.2000000000000028
2018-11-22	2018-12-20	54.63	54.8	0.0
2018-11-23	2018-12-20	50.42	50.59	-4.210000000000001
2018-11-24	2018-12-20			0
2018-11-25	2018-12-20			0
2018-11-26	2018-12-20	51.63	51.8	1.2100000000000009
2018-11-27	2018-12-20	51.56	51.73	-0.07000000000000028
2018-11-28	2018-12-20	50.29	50.49	-1.2700000000000031
2018-11-29	2018-12-20	51.45	51.62	1.1600000000000037
2018-11-30	2018-12-20	50.93	51.09	-0.5200000000000031
2018-12-01	2018-12-20			0

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2018-12-02	2018-12-20			0
2018-12-03	2018-12-20	52.95	53.14	2.020000000000003
2018-12-04	2018-12-20	53.25	53.46	0.29999999999999716
2018-12-05	2018-12-20	52.89	53.12	-0.35999999999999943
2018-12-06	2018-12-20	51.49	51.7	-1.3999999999999986
2018-12-07	2018-12-20	52.61	52.81	1.1199999999999974
2018-12-08	2018-12-20			0
2018-12-09	2018-12-20			0
2018-12-10	2018-12-20	51	51.2	-1.6099999999999994
2018-12-11	2018-12-20	51.65	51.84	0.6499999999999986
2018-12-12	2018-12-20	51.15	51.36	-0.5
2018-12-13	2018-12-20	52.58	52.83	1.4299999999999997
2018-12-14	2018-12-20	51.2	51.47	-1.3799999999999955
2018-12-15	2018-12-20			0
2018-12-16	2018-12-20			0
2018-12-17	2018-12-20	49.88	50.2	-1.269999999999996
2018-12-18	2018-12-20	46.24	46.6	-3.600000000000014
2018-12-19	2018-12-20	47.2	48.17	1.5700000000000003
2018-12-20	2018-01-22	45.88	46.19	-2.289999999999999
2018-12-21	2018-01-22	45.59	45.89	-0.28999999999999915
2018-12-22	2018-01-22			0
2018-12-23	2018-01-22			0
2018-12-24	2018-01-22	42.53	42.82	-3.0600000000000023
2018-12-25	2018-01-22	42.53	42.82	0.0
2018-12-26	2018-01-22	46.22	46.54	3.6899999999999977
2018-12-27	2018-01-22	44.61	44.9	-1.6099999999999994
2018-12-28	2018-01-22	45.33	45.6	0.7199999999999989
2018-12-29	2018-01-22			0
2018-12-30	2018-01-22			0
2018-12-31	2019-01-22	45.41	45.72	0.0799999999999983
2019-01-01	2019-01-22	45.41	45.72	0.0
2019-01-02	2019-01-22	46.54	46.86	1.1300000000000026
2019-01-03	2019-01-22	47.09	47.4	0.5500000000000043
2019-01-04	2019-01-22	47.96	48.28	0.8699999999999974
2019-01-05	2019-01-22			0
2019-01-06	2019-01-22			0
2019-01-07	2019-01-22	48.52	48.82	0.5600000000000023
2019-01-08	2019-01-22	49.78	50.11	1.259999999999998
2019-01-09	2019-01-22	52.36	52.69	2.5799999999999983
2019-01-10	2019-01-22	52.59	52.91	0.23000000000000398
2019-01-11	2019-01-22	51.59	51.91	-1.0
2019-01-12	2019-01-22			0
2019-01-13	2019-01-22			0
2019-01-14	2019-01-22	50.51	50.8	-1.0800000000000054
2019-01-15	2019-01-22	52.11	52.39	1.6000000000000014
2019-01-16	2019-01-22	52.31	52.61	0.21999999999999886

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2019-01-17	2019-01-22	52.07	52.36	-0.25
2019-01-18	2019-01-22	53.8	54.04	1.6799999999999997
2019-01-19	2019-01-22			0
2019-01-20	2019-01-22			0
2019-01-21	2019-01-22	53.8	54.04	0.0
2019-01-22	2019-02-20	52.57	53.01	-1.4699999999999989
2019-01-23	2019-02-20	52.62	52.92	0.04999999999999716
2019-01-24	2019-02-20	53.13	53.42	0.5100000000000051
2019-01-25	2019-02-20	53.69	53.98	0.5599999999999952
2019-01-26	2019-02-20			0
2019-01-27	2019-02-20			0
2019-01-28	2019-02-20	51.99	52.29	-1.6999999999999957
2019-01-29	2019-02-20	53.31	53.6	1.3200000000000003
2019-01-30	2019-02-20	54.23	54.47	0.9199999999999946
2019-01-31	2019-02-20	53.79	54.04	-0.4399999999999977
2019-02-01	2019-02-20	55.26	55.55	1.4699999999999989
2019-02-02	2019-02-20			0
2019-02-03	2019-02-20			0
2019-02-04	2019-02-20	54.56	54.89	-0.6999999999999957
2019-02-05	2019-02-20	53.66	54	-0.9000000000000057
2019-02-06	2019-02-20	54.01	54.34	0.3500000000000014
2019-02-07	2019-02-20	52.64	53	-1.3699999999999974
2019-02-08	2019-02-20	52.72	53.09	0.0799999999999983
2019-02-09	2019-02-20			0
2019-02-10	2019-02-20			0
2019-02-11	2019-02-20	52.41	52.78	-0.3100000000000023
2019-02-12	2019-02-20	53.1	53.47	0.6900000000000048
2019-02-13	2019-02-20	53.9	54.31	0.7999999999999972
2019-02-14	2019-02-20	54.41	54.79	0.509999999999998
2019-02-15	2019-02-20	55.59	55.98	1.1800000000000068
2019-02-16	2019-02-20			0
2019-02-17	2019-02-20			0
2019-02-18	2019-02-20	55.59	55.98	0.0
2019-02-19	2019-02-20	56.09	56.45	0.47000000000000597
2019-02-20	2019-03-20	56.92	57.16	0.46999999999999886
2019-02-21	2019-03-20	56.96	57.46	0.03999999999999915
2019-02-22	2019-03-20	57.26	57.75	0.29999999999999716
2019-02-23	2019-03-20			0
2019-02-24	2019-03-20			0
2019-02-25	2019-03-20	55.48	55.92	-1.7800000000000011
2019-02-26	2019-03-20	55.5	55.97	0.020000000000003126
2019-02-27	2019-03-20	56.94	57.37	1.4399999999999977
2019-02-28	2019-03-20	57.22	57.61	0.2800000000000114
2019-03-01	2019-03-20	55.8	56.19	-1.4200000000000017
2019-03-02	2019-03-20			0
2019-03-03	2019-03-20			0

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2019-03-04	2019-03-20	56.59	56.97	0.7900000000000063
2019-03-05	2019-03-20	56.56	56.94	-0.030000000000001137
2019-03-06	2019-03-20	56.22	56.62	-0.340000000000034
2019-03-07	2019-03-20	56.66	57.03	0.4399999999999977
2019-03-08	2019-03-20	56.07	56.43	-0.5899999999999963
2019-03-09	2019-03-20			0
2019-03-10	2019-03-20			0
2019-03-11	2019-03-20	56.79	57.12	0.7199999999999989
2019-03-12	2019-03-20	56.87	57.2	0.0799999999999983
2019-03-13	2019-03-20	58.26	58.59	1.3900000000000006
2019-03-14	2019-03-20	58.61	58.91	0.3500000000000014
2019-03-15	2019-03-20	58.52	58.82	-0.0899999999999963
2019-03-16	2019-03-20			0
2019-03-17	2019-03-20			0
2019-03-18	2019-03-20	59.09	59.38	0.5600000000000023
2019-03-19	2019-03-20	59.03	59.29	-0.0900000000000341
2019-03-20	2019-04-22	59.83	60.23	0.5399999999999991
2019-03-21	2019-04-22	59.98	60.2	0.14999999999999858
2019-03-22	2019-04-22	59.04	59.29	-0.9399999999999977
2019-03-23	2019-04-22			0
2019-03-24	2019-04-22			0
2019-03-25	2019-04-22	58.82	59.08	-0.21999999999999886
2019-03-26	2019-04-22	59.94	60.1	1.1199999999999974
2019-03-27	2019-04-22	59.41	59.61	-0.530000000000011
2019-03-28	2019-04-22	59.3	59.48	-0.10999999999999943
2019-03-29	2019-04-22	60.14	60.28	0.8400000000000034
2019-03-30	2019-04-22			0
2019-03-31	2019-04-22			0
2019-04-01	2019-04-22	61.59	61.71	1.4500000000000028
2019-04-02	2019-04-22	62.58	62.61	0.9899999999999949
2019-04-03	2019-04-22	62.46	62.52	-0.11999999999999744
2019-04-04	2019-04-22	62.1	62.19	-0.35999999999999943
2019-04-05	2019-04-22	63.08	63.15	0.9799999999999969
2019-04-06	2019-04-22			0
2019-04-07	2019-04-22			0
2019-04-08	2019-04-22	64.4	64.33	1.3200000000000074
2019-04-09	2019-04-22	63.98	63.96	-0.420000000000088
2019-04-10	2019-04-22	64.61	64.65	0.630000000000026
2019-04-11	2019-04-22	63.58	63.67	-1.030000000000011
2019-04-12	2019-04-22	63.89	64.02	0.310000000000023
2019-04-13	2019-04-22			0
2019-04-14	2019-04-22			0
2019-04-15	2019-04-22	63.4	63.56	-0.490000000000002
2019-04-16	2019-04-22	64.05	64.19	0.6299999999999955
2019-04-17	2019-04-22	63.76	63.87	-0.320000000000003
2019-04-18	2019-04-22	64	64.07	0.19999999999999574

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2019-04-19	2019-04-22	64	64.07	0.0
2019-04-20	2019-04-22			0
2019-04-21	2019-04-22			0
2019-04-22	2019-05-21	65.7	65.55	1.6300000000000097
2019-04-23	2019-05-21	66.3	66.24	0.5999999999999943
2019-04-24	2019-05-21	65.89	65.89	-0.4099999999999966
2019-04-25	2019-05-21	65.21	65.28	-0.6800000000000068
2019-04-26	2019-05-21	63.3	63.38	-1.9099999999999966
2019-04-27	2019-05-21			0
2019-04-28	2019-05-21			0
2019-04-29	2019-05-21	63.5	63.57	0.20000000000000284
2019-04-30	2019-05-21	63.91	63.98	0.4099999999999966
2019-05-01	2019-05-21	63.6	63.69	-0.30999999999999517
2019-05-02	2019-05-21	61.81	61.9	-1.7899999999999991
2019-05-03	2019-05-21	61.94	62.04	0.12999999999999545
2019-05-04	2019-05-21			0
2019-05-05	2019-05-21			0
2019-05-06	2019-05-21	62.25	62.37	0.3100000000000023
2019-05-07	2019-05-21	61.4	61.51	-0.8500000000000014
2019-05-08	2019-05-21	62.12	62.22	0.7199999999999989
2019-05-09	2019-05-21	61.7	61.81	-0.4199999999999946
2019-05-10	2019-05-21	61.66	61.8	-0.0400000000000625
2019-05-11	2019-05-21			0
2019-05-12	2019-05-21			0
2019-05-13	2019-05-21	61.04	61.21	-0.6199999999999974
2019-05-14	2019-05-21	61.78	61.96	0.740000000000002
2019-05-15	2019-05-21	62.02	62.24	0.240000000000002
2019-05-16	2019-05-21	62.87	63.06	0.8200000000000003
2019-05-17	2019-05-21	62.76	62.92	-0.14000000000000057
2019-05-18	2019-05-21			0
2019-05-19	2019-05-21			0
2019-05-20	2019-05-21	63.1	63.21	0.28999999999999915
2019-05-21	2019-06-20	62.99	63.13	-0.21999999999999886
2019-05-22	2019-06-20	61.42	61.5	-1.5700000000000003
2019-05-23	2019-06-20	57.91	57.99	-3.510000000000005
2019-05-24	2019-06-20	58.63	58.71	0.720000000000006
2019-05-25	2019-06-20			0
2019-05-26	2019-06-20			0
2019-05-27	2019-06-20	58.63	58.71	0.0
2019-05-28	2019-06-20	59.14	59.35	0.509999999999998
2019-05-29	2019-06-20	58.81	58.95	-0.3299999999999983
2019-05-30	2019-06-20	56.59	56.74	-2.219999999999999
2019-05-31	2019-06-20	53.5	53.64	-3.0900000000000034
2019-06-01	2019-06-20			0
2019-06-02	2019-06-20			0
2019-06-03	2019-06-20	53.25	53.38	-0.25

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2019-06-04	2019-06-20	53.48	53.63	0.22999999999999687
2019-06-05	2019-06-20	51.68	51.83	-1.7999999999999972
2019-06-06	2019-06-20	52.59	52.73	0.910000000000037
2019-06-07	2019-06-20	53.99	54.16	1.3999999999999986
2019-06-08	2019-06-20			0
2019-06-09	2019-06-20			0
2019-06-10	2019-06-20	53.26	53.48	-0.730000000000004
2019-06-11	2019-06-20	53.27	53.52	0.010000000000005116
2019-06-12	2019-06-20	51.14	51.37	-2.1300000000000026
2019-06-13	2019-06-20	52.28	52.54	1.1400000000000006
2019-06-14	2019-06-20	52.51	52.77	0.22999999999999687
2019-06-15	2019-06-20			0
2019-06-16	2019-06-20			0
2019-06-17	2019-06-20	51.93	52.17	-0.6000000000000014
2019-06-18	2019-06-20	53.9	54.11	1.9399999999999977
2019-06-19	2019-06-20	53.76	53.97	-0.14000000000000057
2019-06-20	2019-07-22	56.65	57.07	2.6799999999999997
2019-06-21	2019-07-22	57.43	57.5	0.7800000000000011
2019-06-22	2019-07-22			0
2019-06-23	2019-07-22			0
2019-06-24	2019-07-22	57.9	57.93	0.46999999999999886
2019-06-25	2019-07-22	57.83	57.89	-0.07000000000000028
2019-06-26	2019-07-22	59.38	59.43	1.5500000000000043
2019-06-27	2019-07-22	59.43	59.49	0.04999999999999716
2019-06-28	2019-07-22	58.47	58.52	-0.9600000000000009
2019-06-29	2019-07-22			0
2019-06-30	2019-07-22			0
2019-07-01	2019-07-22	59.09	59.14	0.6200000000000045
2019-07-02	2019-07-22	56.25	56.34	-2.8400000000000034
2019-07-03	2019-07-22	57.34	57.44	1.0900000000000034
2019-07-04	2019-07-22	57.34	57.44	0.0
2019-07-05	2019-07-22	57.51	57.59	0.1699999999999946
2019-07-06	2019-07-22			0
2019-07-07	2019-07-22			0
2019-07-08	2019-07-22	57.66	57.76	0.14999999999999858
2019-07-09	2019-07-22	57.83	57.94	0.1700000000000017
2019-07-10	2019-07-22	60.43	60.52	2.6000000000000014
2019-07-11	2019-07-22	60.2	60.28	-0.22999999999999687
2019-07-12	2019-07-22	60.21	60.3	0.009999999999999801
2019-07-13	2019-07-22			0
2019-07-14	2019-07-22			0
2019-07-15	2019-07-22	59.58	59.68	-0.6300000000000026
2019-07-16	2019-07-22	57.62	57.74	-1.9399999999999977
2019-07-17	2019-07-22	56.78	56.92	-0.8200000000000003
2019-07-18	2019-07-22	55.3	55.42	-1.5
2019-07-19	2019-07-22	55.63	55.76	0.3399999999999963

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2019-07-20	2019-07-22			0
2019-07-21	2019-07-22			0
2019-07-22	2019-08-20	56.22	56.22	0.46000000000000085
2019-07-23	2019-08-20	56.77	56.85	0.550000000000043
2019-07-24	2019-08-20	55.88	56	-0.8900000000000006
2019-07-25	2019-08-20	56.02	56.16	0.14000000000000057
2019-07-26	2019-08-20	56.2	56.33	0.17999999999999972
2019-07-27	2019-08-20			0
2019-07-28	2019-08-20			0
2019-07-29	2019-08-20	56.87	56.96	0.6699999999999946
2019-07-30	2019-08-20	58.05	58.11	1.1799999999999997
2019-07-31	2019-08-20	58.58	58.63	0.5300000000000011
2019-08-01	2019-08-20	53.95	54.01	-4.629999999999955
2019-08-02	2019-08-20	55.66	55.67	1.7099999999999937
2019-08-03	2019-08-20			0
2019-08-04	2019-08-20			0
2019-08-05	2019-08-20	54.69	54.58	-0.9699999999999989
2019-08-06	2019-08-20	53.63	53.59	-1.0599999999999952
2019-08-07	2019-08-20	51.09	51.03	-2.539999999999999
2019-08-08	2019-08-20	52.54	52.46	1.4499999999999957
2019-08-09	2019-08-20	54.5	54.37	1.9600000000000009
2019-08-10	2019-08-20			0
2019-08-11	2019-08-20			0
2019-08-12	2019-08-20	54.93	54.85	0.4299999999999997
2019-08-13	2019-08-20	57.1	57.1	2.1700000000000017
2019-08-14	2019-08-20	55.23	55.25	-1.8700000000000045
2019-08-15	2019-08-20	54.47	54.42	-0.759999999999998
2019-08-16	2019-08-20	54.87	54.81	0.39000000000000057
2019-08-17	2019-08-20			0
2019-08-18	2019-08-20			0
2019-08-19	2019-08-20	56.21	56.14	1.3299999999999983
2019-08-20	2019-09-20	56.34	56.13	0.20000000000000284
2019-08-21	2019-09-20	55.68	55.49	-0.6600000000000037
2019-08-22	2019-09-20	55.35	55.16	-0.3299999999999983
2019-08-23	2019-09-20	54.17	54.02	-1.1799999999999997
2019-08-24	2019-09-20			0
2019-08-25	2019-09-20			0
2019-08-26	2019-09-20	53.64	53.5	-0.5300000000000011
2019-08-27	2019-09-20	54.93	54.77	1.2899999999999991
2019-08-28	2019-09-20	55.78	55.6	0.8500000000000014
2019-08-29	2019-09-20	56.71	56.45	0.9299999999999997
2019-08-30	2019-09-20	55.1	54.89	-1.6099999999999994
2019-08-31	2019-09-20			0
2019-09-01	2019-09-20			0
2019-09-02	2019-09-20			0
2019-09-03	2019-09-20	53.94	53.76	-1.1600000000000037

Date	Term Date	Front Cont	2nd Cont	Roll MtM P&L
2019-09-04	2019-09-20	56.26	56.1	2.3200000000000003
2019-09-05	2019-09-20	56.3	56.16	0.03999999999999915
2019-09-06	2019-09-20	56.52	56.43	0.22000000000000597
2019-09-07	2019-09-20			0
2019-09-08	2019-09-20			0
2019-09-09	2019-09-20	57.85	57.73	1.3299999999999983
2019-09-10	2019-09-20	57.4	57.29	-0.45000000000000284

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