

Trading Futures

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Futures are similar to forwards, with the difference that they are standardized contracts traded at an exchange. Unlike forwards, which are used to minimize risk of international trading by removing the influence of currency price movements and are always delivered, futures provide speculative opportunity, as they are resettled daily (Leung, et al., 2016). “In fact, they are seldom traded with the intention of holding it to maturity as less than 1% of futures traded ever reach physical delivery” (Elton, et al., 2009).

The largest exchange being the CME Group, or its underlying Chicago Mercantile exchange. This report focuses on a short-timeframe analysis of five futures securities, explaining outcomes of temporarily held product and finally forming a recommendation on buying or selling given futures product.

Canadian Dollar September 2018

The first security, falling into the category of foreign exchange futures is a contract for 100,000 Canadian Dollars to be delivered in September 2017. Daily settlements are expressed in USD per CAD 1.

Firstly, the futures contract is settled at the closing price of day 0 of trading, (13/04/17), i.e. \$0.75895. At that point, margin account needs to be set up and initial margin equal to $1.1 \times \text{maintenance margin} = \1320 deposited. Table below then shows calculations of daily gain (negative gain to be interpreted as loss), which represents the change in total value of the contract. Contract value at the end of the day is calculated as settlement price per unit multiplied by number of units (100,000).

Margin account is then used to accumulate the gains and losses, without the contract owner having to execute transactions at the point of any loss. When the margin account balance however reaches below the set maintenance margin, a margin call is issued, requesting the investor to make a further deposit to restore the initial margin.

In the case of the timeframe and security analyzed in this section, a loss has been made on 8 of total 10 days of holding the futures contract and a total of 6 margin calls were issued, as the account remainder has reached below the maintenance margin. The total loss made on holding one contract from 17/04 through 28/04 is then \$2,060 plus \$3.20 in exchange fees. The recommendation over that period is therefore to buy short.

| Product | | Contract | | Margins | | | |
|------------|------------|-----------------|----------------|----------------|-------------|-------------|--------------|
| CAD SEP 18 | | Canadian Dollar | Size Unit | 100000 CAD | Initial | \$ 1,320.00 | |
| | | | | | Maintenance | \$ 1,200.00 | |
| Date | Settle | Daily gain | cml gain | Margin Account | | | |
| | | | | Before MC | Margin call | After MC | Ignoring MCs |
| 13/04/2017 | \$ 0.75895 | → \$ - | → \$ - | \$ 1,320.00 | \$ - | \$ 1,320.00 | \$ 1,320.00 |
| 17/04/2017 | \$ 0.75750 | ↓ \$ -145.00 | ↓ \$ -145.00 | \$ 1,175.00 | ↓ \$ 145.00 | \$ 1,320.00 | \$ 1,175.00 |
| 18/04/2017 | \$ 0.75355 | ↓ \$ -395.00 | ↓ \$ -540.00 | \$ 925.00 | ↓ \$ 395.00 | \$ 1,320.00 | \$ 780.00 |
| 19/04/2017 | \$ 0.74750 | ↓ \$ -605.00 | ↓ \$ -1,145.00 | \$ 715.00 | ↓ \$ 605.00 | \$ 1,320.00 | \$ 175.00 |
| 20/04/2017 | \$ 0.74860 | ↑ \$ 110.00 | ↓ \$ -1,035.00 | \$ 1,430.00 | \$ - | \$ 1,430.00 | \$ 285.00 |
| 21/04/2017 | \$ 0.74660 | ↓ \$ -200.00 | ↓ \$ -1,235.00 | \$ 1,230.00 | \$ - | \$ 1,230.00 | \$ 85.00 |
| 24/04/2017 | \$ 0.74670 | ↑ \$ 10.00 | ↓ \$ -1,225.00 | \$ 1,240.00 | \$ - | \$ 1,240.00 | \$ 95.00 |
| 25/04/2017 | \$ 0.74335 | ↓ \$ -335.00 | ↓ \$ -1,560.00 | \$ 905.00 | ↓ \$ 415.00 | \$ 1,320.00 | \$ -240.00 |
| 26/04/2017 | \$ 0.74110 | ↓ \$ -225.00 | ↓ \$ -1,785.00 | \$ 1,095.00 | ↓ \$ 225.00 | \$ 1,320.00 | \$ -465.00 |
| 27/04/2017 | \$ 0.74095 | ↓ \$ -15.00 | ↓ \$ -1,800.00 | \$ 1,305.00 | \$ - | \$ 1,305.00 | \$ -480.00 |
| 28/04/2017 | \$ 0.73835 | ↓ \$ -260.00 | ↓ \$ -2,060.00 | \$ 1,045.00 | ↓ \$ 275.00 | \$ 1,320.00 | \$ -740.00 |

Natural Gas September 2017

Second product chosen for this analysis is natural gas September 2017 futures contract of 10,000,000,000 British thermal units sold at \$33,990 at the end of 13/04. The initial margin of \$1,925 was required as well as \$1.5 purchase fee. Over day one of trading, a loss of \$470 was made and margin call of the same amount issued. The following days mostly resulted with further losses, however, significant gains on 19/04, 26/04, and 28/04 lead to the final total loss of only \$353 including non-member fees.

For this reason, a recommendation is made that even losses high in magnitude can revert in the near trading gains, especially in case of such products that present with high volume of quotes, mostly typical for those that are to be delivered in closer future.

| Product | | Contract | | Margins | | | |
|------------|-------------|--------------|----------------|----------------|-------------|-------------|--------------|
| NG SEP 17 | Natural Gas | Size | 10000 | Initial | \$ | 1,925.00 | |
| | | Unit | mmBtu | Maintenance | \$ | 1,750.00 | |
| Date | Settle | Daily gain | cml gain | Margin Account | | | |
| | | | | Before MC | Margin call | After MC | Ignoring MCs |
| 13/04/2017 | \$ 3.399 | ⇒ \$ - | ⇒ \$ - | \$ 1,925.00 | \$ - | \$ 1,925.00 | \$ 1,925.00 |
| 17/04/2017 | \$ 3.352 | ↓ \$ -470.00 | ↓ \$ -470.00 | \$ 1,455.00 | ! \$ 470.00 | \$ 1,925.00 | \$ 1,455.00 |
| 18/04/2017 | \$ 3.339 | ↓ \$ -130.00 | ↓ \$ -600.00 | \$ 1,795.00 | \$ - | \$ 1,795.00 | \$ 1,325.00 |
| 19/04/2017 | \$ 3.369 | ↑ \$ 300.00 | ↓ \$ -300.00 | \$ 2,095.00 | \$ - | \$ 2,095.00 | \$ 1,625.00 |
| 20/04/2017 | \$ 3.347 | ↓ \$ -220.00 | ↓ \$ -520.00 | \$ 1,875.00 | \$ - | \$ 1,875.00 | \$ 1,405.00 |
| 21/04/2017 | \$ 3.289 | ↓ \$ -580.00 | ↓ \$ -1,100.00 | \$ 1,295.00 | ! \$ 630.00 | \$ 1,925.00 | \$ 825.00 |
| 24/04/2017 | \$ 3.265 | ↓ \$ -240.00 | ↓ \$ -1,340.00 | \$ 1,685.00 | ! \$ 240.00 | \$ 1,925.00 | \$ 585.00 |
| 25/04/2017 | \$ 3.274 | ↑ \$ 90.00 | ↓ \$ -1,250.00 | \$ 2,015.00 | \$ - | \$ 2,015.00 | \$ 675.00 |
| 26/04/2017 | \$ 3.369 | ↑ \$ 950.00 | ↓ \$ -300.00 | \$ 2,965.00 | \$ - | \$ 2,965.00 | \$ 1,625.00 |
| 27/04/2017 | \$ 3.338 | ↓ \$ -310.00 | ↓ \$ -610.00 | \$ 2,655.00 | \$ - | \$ 2,655.00 | \$ 1,315.00 |
| 28/04/2017 | \$ 3.364 | ↑ \$ 260.00 | ↓ \$ -350.00 | \$ 2,915.00 | \$ - | \$ 2,915.00 | \$ 1,575.00 |

Livestock December 2017

On the other hand, holding a contract for 40,000lb of livestock to be delivered in December 2017 for the same 10 days as previous securities presents with a satisfying profit of \$3,210 a contract excluding fees. The initial margin deposited was \$1,705 and no margin calls needed to be issued as the margin account never reached below the maintenance margin of \$1,550. The buying price of the contract was \$111.23 per 100lb, while the settlement price of the last day of holding this contract was slightly over \$8 higher.

| Product | | Contract | | Margins | | | |
|------------|-----------|---------------|---------------|----------------|-------------|-------------|--------------|
| LE DEC 17 | Livestock | Size | 400 | Initial | \$ 1,705.00 | | |
| | | Unit | 100 lb | Maintenance | \$ 1,550.00 | | |
| Date | Settle | Daily gain | cml gain | Margin Account | | | |
| | | | | Before MC | Margin call | After MC | Ignoring MCs |
| 13/04/2017 | \$ 111.23 | ⇒ \$ - | ⇒ \$ - | \$ 1,705.00 | \$ - | \$ 1,705.00 | \$ 1,705.00 |
| 17/04/2017 | \$ 111.63 | ↑ \$ 160.00 | ↑ \$ 160.00 | \$ 1,865.00 | \$ - | \$ 1,865.00 | \$ 1,865.00 |
| 18/04/2017 | \$ 111.73 | ↑ \$ 40.00 | ↑ \$ 200.00 | \$ 1,905.00 | \$ - | \$ 1,905.00 | \$ 1,905.00 |
| 19/04/2017 | \$ 112.03 | ↑ \$ 120.00 | ↑ \$ 320.00 | \$ 2,025.00 | \$ - | \$ 2,025.00 | \$ 2,025.00 |
| 20/04/2017 | \$ 112.18 | ↑ \$ 60.00 | ↑ \$ 380.00 | \$ 2,085.00 | \$ - | \$ 2,085.00 | \$ 2,085.00 |
| 21/04/2017 | \$ 112.28 | ↑ \$ 40.00 | ↑ \$ 420.00 | \$ 2,125.00 | \$ - | \$ 2,125.00 | \$ 2,125.00 |
| 24/04/2017 | \$ 111.05 | ↓ \$ -490.00 | ↓ \$ -70.00 | \$ 1,635.00 | \$ - | \$ 1,635.00 | \$ 1,635.00 |
| 25/04/2017 | \$ 112.18 | ↑ \$ 450.00 | ↑ \$ 380.00 | \$ 2,085.00 | \$ - | \$ 2,085.00 | \$ 2,085.00 |
| 26/04/2017 | \$ 114.60 | ↑ \$ 970.00 | ↑ \$ 1,350.00 | \$ 3,055.00 | \$ - | \$ 3,055.00 | \$ 3,055.00 |
| 27/04/2017 | \$ 117.60 | ↑ \$ 1,200.00 | ↑ \$ 2,550.00 | \$ 4,255.00 | \$ - | \$ 4,255.00 | \$ 4,255.00 |
| 28/04/2017 | \$ 119.25 | ↑ \$ 660.00 | ↑ \$ 3,210.00 | \$ 4,915.00 | \$ - | \$ 4,915.00 | \$ 4,915.00 |

S&P 500 September 2018

Fourth product of the analyzed quintet is a futures contract on a financial security, the standard and poor's 500 index to be delivered in September 2018. The size of the contract is 250 shares, while the settlement price for each is \$2,322.10 at the end of 13/04. Transaction fee is 2.40 per side (buy or sell) and the initial margin is set to \$27,500.

Over the period observed, this security has made the highest gain per contract, a total of \$13,525. Even though the daily prices were highly volatile, no margin calls were issued. Furthermore, thanks to the gain from 17/04, the cumulative gains never dipped below 0, making it a profitable security all along.

The issue here is the fact that the size of the contract and margin account requirements are over ten times higher than in case of the commodity or energy futures, which might discourage smaller speculative investors. Also, the return on investment is lower in this case, compared to 10 contracts of December 2017 livestock future.

| Product | | Contract | | Margins | | | |
|------------|-------------|----------------|----------------|----------------|--------------|--------------|--------------|
| SP SEP 18 | S&P 500 | Size | 250 | Initial | \$ 27,500.00 | | |
| | | Unit | shares | Maintenance | \$ 25,000.00 | | |
| Date | Settle | Daily gain | cml gain | Margin Account | | | |
| | | | | Before MC | Margin call | After MC | Ignoring MCs |
| 13/04/2017 | \$ 2,322.10 | ⇒ \$ - | ⇒ \$ - | \$ 27,500.00 | \$ - | \$ 27,500.00 | \$ 27,500.00 |
| 17/04/2017 | \$ 2,339.60 | ↑ \$ 4,375.00 | ↑ \$ 4,375.00 | \$ 31,875.00 | \$ - | \$ 31,875.00 | \$ 31,875.00 |
| 18/04/2017 | \$ 2,331.80 | ↓ \$ -1,950.00 | ↑ \$ 2,425.00 | \$ 29,925.00 | \$ - | \$ 29,925.00 | \$ 29,925.00 |
| 19/04/2017 | \$ 2,328.20 | ↓ \$ -900.00 | ↑ \$ 1,525.00 | \$ 29,025.00 | \$ - | \$ 29,025.00 | \$ 29,025.00 |
| 20/04/2017 | \$ 2,346.80 | ↑ \$ 4,650.00 | ↑ \$ 6,175.00 | \$ 33,675.00 | \$ - | \$ 33,675.00 | \$ 33,675.00 |
| 21/04/2017 | \$ 2,342.10 | ↓ \$ -1,175.00 | ↑ \$ 5,000.00 | \$ 32,500.00 | \$ - | \$ 32,500.00 | \$ 32,500.00 |
| 24/04/2017 | \$ 2,365.00 | ↑ \$ 5,725.00 | ↑ \$ 10,725.00 | \$ 38,225.00 | \$ - | \$ 38,225.00 | \$ 38,225.00 |
| 25/04/2017 | \$ 2,380.60 | ↑ \$ 3,900.00 | ↑ \$ 14,625.00 | \$ 42,125.00 | \$ - | \$ 42,125.00 | \$ 42,125.00 |
| 26/04/2017 | \$ 2,377.90 | ↓ \$ -675.00 | ↑ \$ 13,950.00 | \$ 41,450.00 | \$ - | \$ 41,450.00 | \$ 41,450.00 |
| 27/04/2017 | \$ 2,381.80 | ↑ \$ 975.00 | ↑ \$ 14,925.00 | \$ 42,425.00 | \$ - | \$ 42,425.00 | \$ 42,425.00 |
| 28/04/2017 | \$ 2,376.20 | ↓ \$ -1,400.00 | ↑ \$ 13,525.00 | \$ 41,025.00 | \$ - | \$ 41,025.00 | \$ 41,025.00 |

1 month Eurodollar Future September 2017

The last contract falls into the category of interest rate futures, where the settlement price is determined by public expectations of the LIBOR (London interbank offering rate). The contract is sold for a bond of \$3 Million face value with a 1 month time to maturity in September 2017. The price is expressed in International Monetary Market Index, from which the contract value is determined as $CP = (100 - IMMI) \times Face\ value \times \left(\frac{days}{360}\right)$. On day one, one such contract was therefore valued at $CV = (100 - 98.6) \times \$3,000,000 \times \left(\frac{30}{360}\right) = \$350,000$ (Labuszewski, 2014). Its initial margin was \$374 and the transaction fee \$1.25.

Over the period of holding the contract, two margin calls were issued on the first two days, as the IMM index has increased, suggesting a drop in the yield. In the next days, the value fluctuated mildly and on the April 24, it returned to the initial value of 98.6.

This means that despite two margin calls, there has been no loss incurred from holding this future, apart from the \$2.50 in transaction fees.

| Product | | Contract | | Margins | | | |
|--------------|-------------------|--------------|---------------|----------------|-------------|-----------|--------------|
| 1M EM SEP 17 | EURODOLLAR Future | Size Unit | 250000 USD | Initial | \$ 374.00 | | |
| | | | | Maintenance | \$ 340.00 | | |
| Date | Settle | Daily gain | cml gain | Margin Account | | | |
| | | | | Before MC | Margin call | After MC | Ignoring MCs |
| 13/04/2017 | 98.60 → \$ | \$ - | → \$ - | \$ 374.00 | \$ - | \$ 374.00 | \$ 374.00 |
| 17/04/2017 | 98.62 ↓ \$ | \$ -50.00 | ↓ \$ -50.00 | \$ 324.00 | ! \$ 50.00 | \$ 374.00 | \$ 324.00 |
| 18/04/2017 | 98.66 ↓ \$ | \$ -87.50 | ↓ \$ -137.50 | \$ 286.50 | ! \$ 87.50 | \$ 374.00 | \$ 236.50 |
| 19/04/2017 | 98.66 → \$ | \$ - | ↓ \$ -137.50 | \$ 374.00 | \$ - | \$ 374.00 | \$ 236.50 |
| 20/04/2017 | 98.63 ↑ \$ | \$ 75.00 | ↓ \$ -62.50 | \$ 449.00 | \$ - | \$ 449.00 | \$ 311.50 |
| 21/04/2017 | 98.64 ↓ \$ | \$ -25.00 | ↓ \$ -87.50 | \$ 424.00 | \$ - | \$ 424.00 | \$ 286.50 |
| 24/04/2017 | 98.60 ↑ \$ | \$ 100.00 | ↑ \$ 12.50 | \$ 524.00 | \$ - | \$ 524.00 | \$ 386.50 |
| 25/04/2017 | 98.57 ↑ \$ | \$ 62.50 | ↑ \$ 75.00 | \$ 586.50 | \$ - | \$ 586.50 | \$ 449.00 |
| 26/04/2017 | 98.58 ↓ \$ | \$ -12.50 | ↑ \$ 62.50 | \$ 574.00 | \$ - | \$ 574.00 | \$ 436.50 |
| 27/04/2017 | 98.60 ↓ \$ | \$ -62.50 | → \$ - | \$ 511.50 | \$ - | \$ 511.50 | \$ 374.00 |
| 28/04/2017 | 98.60 → \$ | \$ - | → \$ - | \$ 511.50 | \$ - | \$ 511.50 | \$ 374.00 |

References

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