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Cybex Micro-Contract Design

Leveraged Trading with Clarity

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Introduction

This document lists the basic usage scenarios of the micro-contract trading. Hopefully the team can have a clear(er) picture after reading this document and come up with the detailed design of each component.

Several names have been proposed for this product and we may expect different teams to refer to this product:

- MicroFuture, 微期货
- BBB，bull-bear bond， 牛熊棒
- Crypto CBBC ， 加密牛熊证

Throughout the document, NX will be used as the acronym.

Cybex Micro-Contract Product Definition

Cybex Micro-Contract is a contract that provides high leverage trading in Cybex. It is designed to have a simple pricing formula that's easy to understand for retail customers. The product has its origin from CBBC (callable bull bear contract) and CFD (contract for difference).

Assuming we are defining such a product with 100X initial leverage, and expires every 2 hours.

There are several key aspects for this product:

- Conversion Ratio:
    - Each contract is entitled to 1/1000 of BTC.
- Pricing
    - NB100: (BTCPrice – StrikeLevelN) / 1000
    - XB100: (StrikeLevelX – BTCPrice) / 1000
    - BTCPrice is taken from bitmex xbtusd
    - Price is rounded to the nearest 0.5 to be consistent with BitMex XBTUSDT tick rule
- Knock-out
    - The contract is voided if the price becomes 0
- Issuance:
    - NB100 and XB100 are issued once

    - StrikeLevelN (SLN) and StrikeLevelX (SLX) is adjusted every 2 hour to achieve ~100X leverage ratio
        - E.g., at 2019-03-20 10:00am, xbtusd=3975,
        - SLN = 3975*0.99 = 3935.
            - NB100 contract price = (3975-3935)/1000 = 0.040 USD
        - SLX = 3974*1.01 = 4015
            - XB50 contract price = (4015 – 3975)/1000 = 0.040 USD
- Settlement: Every 2 hour
- Issuer
    - Only Cybex is allowed to issue for now, no shortsell is allowed by 3rd party.
    - Clients wishing to long BTC should buy NB100 product.
    - Clients wishing to short BTC should buy XB100 product.
- Issuer Obligation:
    - Issuer is obligated to buy-back at the fair price
- Commission
    - Xbps on the equivalent BTC contract. I.e., if commission is 0.001, each contract costs 0.001 BTC * 0.001 = 0.000001 BTC,
- Base currency
    - For simplicity, all deposit/payout are based on USD
    - Question: how do we convert the BitMex price to USDT price with USDT/USD FX rate?
    - Question: how do we manage USDT/BTC conversion? Do we have enough MM power to do it?

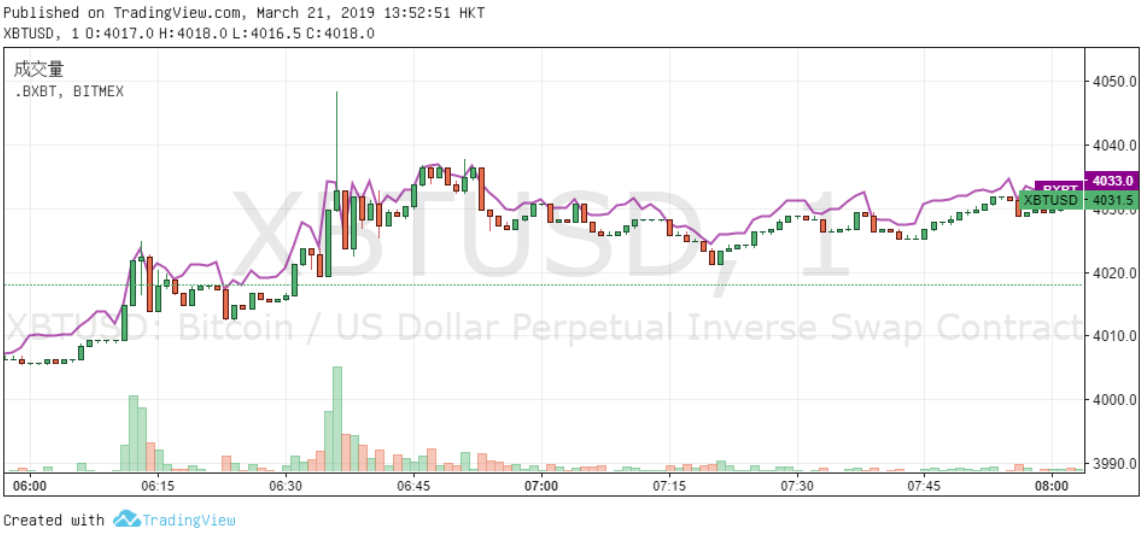
Business Scenarios

Sample Market Data

See below for a 2-hour window of the BitMex market data.

Note that for now we will be using the trade price (green-red candle stick) as the marked price.

In this period, BTCUSD price moved from 4008 to 4033. Note that it peaked at 4049 at around 06:35 – however, this spike only appeared in BitMex, not other exchanges.



Scenario 0: Asset Issuance and Funding

Super user NXMM is created.

NXMM issues and holds the following assets, initial quantity 1000000

- NX.USD
- NX.NB100
- NX.XB100

Initial funding is required too. Let's assume NXMM has the following:

- 40000 JADE.USDT (~10.0 BTC)
- 10.0 BTC deposit into BitMex for hedging

Scenario 1: Client Deposit

- Client1 transfers 20 JADE.USDT to NXMM
- NXMM transfers 20 NX.USD to Client1

Scenario 2: Trading Start, 6:00, XBTUSD price = 4008

- SNL=4008*0.99=3968
- SNX=4008*1.01=4048,

NX.NB100 price is (4008-3968) * 0.001= 0.0400 USD

NX.XB100 price is (4048 – 4008) * 0.001 = 0.0400 USD

- NXMM places bid/ask (symbol, quantity, bid, ask)
    - NX.NB100 1000@0.0400/0.0405,
    - NX.XB100 1000@0.0400/0.0405

Scenario 3: client buys NB100 at 6:00, BTC price = 4008

- Client1 buys 200 NX.NB100 @0.0405
    - Order notional = 200*0.0405 = 8.10 USD
    - Commission = NumberOfContract * BTCPrice * ConversionRatio * CommisionRate = 200 * 4008 * 0.001 * 0.001 = 0.80 NX.USD
    - LimitOrder is created as the following:
        - Buy 100 shares of NX.NB100
        - LimitPrice = 0.0405 USD
        - Commission = 0.80 NX.USD
        - Note: To accommodate possible latency and reuse the existing cybex LimitOrder structure, the price may be set to 1 tick higher, e.g., 0.0410
- RTE matches order and performs the balance updates
    - Match price is 0.0405 USD
    - Client1: paid 8.90 USD, received 200 NX.NB100
    - NXMM: paid 200 NX.NB100, received 8.90 NX.USD
- Rule of thumb of calculation:
    - Each contract is 1/1000 of a BTC
    - Each contract commission is ~0.004 USD
    - 200 contract = 0.2 BTC ~= 800 USD. With 100x leverage, requires ~8 USD.

Scenario 3.1: 6:30 PM, client cash out at 4023

- NXMM quote NB100, price = (4023-3968)*0.001 = 0.055, bid/ask = 0.0550/0.0555
- Client submits LimitOrder
    - Sell 200 shares of NX.NB100
    - LimitPrice = 0.0555 USD
    - Order Notional = 200*0.0555 = 11.10 USD
    - Commission = 200*0.0004 = 0.8 NX.USD
- RTE matches orders and performs the balance updates:
    - Match price = NXMM ask price = 0.0555 USD
    - For 200 contracts, Client receives 11.10 USD
    - After commission, client finally receives 10.20 USD
    - Total profit: (10.2 – 8.9)/8.9 = 14.6%

- Rule of thumb on calculation:
    - Initial investment 8 USD
    - Buy-sell Commission x 2 = 1.6 USD = 20%
    - BTC moved 15/4008 ~= 0.37% on right direction, after 100X leverage ~=37%
    - Total profit = 37% - 20% = 17%

Scenario 3.2: Client holds on to expiry at 8:00 am, BTC=4031.5

- NXMM calculates settlement price
    - XBTUSD = 4031.5 USD
    - NB100 = (4031.5 -3968)/1000 = 0.0635 USD
- NXMM recalls 200 NB100 from Client and transfers 12.7 NX.USD to client
- Client Profit:
    - (12.7 – 8.9)/8.9 = 43%
- Rule of thumb on calculation:
    - Price moved in right direction for (4031-4008) = 23 points, ~=0.5%
    - 100X leverage, PNL is 50%
    - Commission is paid once, ~=10%
    - Total return 50%-10% ~= 40%

Scenario 4: Client buys XB100 at 6:00 AM, BTC=4008

- Client1 buys 200 NX.XB100 @0.0405
    - Order notional = 200*0.0405 = 8.1 USD
    - Commission = NumberOfContract * BTCPrice * ConversionRatio * CommisionRate = 200 * 4008 * 0.001 * 0.001 = 0.8 NX.USD
- RTE matches order and performs the balance updates
    - Match price is 0.0405 USD
    - Client1: paid 8.9 NX.USD, received 200 NX.XB100
    - NXMM: paid 200 NX.XB100, received 8.9 NX.USD

Scenario 4.1: 6:30 AM, client close position, BTC=4023

- NXMM quote XB100, price = (4048 - 4023)*0.001 = 0.0250, bid/ask = 0.0250/0.0255
- Client submits LimitOrder
    - Sell 200 shares of NX.XB100
    - LimitPrice = 0.0250 USD
    - Commission = 0.0004 NX.USD per contract x 200 = 0.8 USD

- RTE matches orders and performs the balance updates:
    - Match price = NXMM bid price = 0.0250 USD
    - For 200 contracts, Client receives 5 NX.USD
    - After commission, client finally receives 4.2 NX.USD
    - Total loss: (8.9 – 4.2) = 4.7 USD
    - Loss ratio = 53%
- Rule of thumb on calculation:
    - Buy-sell Commission x 2 = 1.6 USD (20%)
    - BTC moved 15 points ~= 0.37%, 100X leverage ~=37%
    - Total return: -57%

Scenario 4.2: Client does nothing, wait for settlement at 8:00AM

- 6:35AM, BTC price spiked at 4049, which crosses the Strike Level of XB100 (4048)
- XB100 becomes 0, all XB100 prices becomes 0 after 6:35AM
- At 8:00 AM, the user gets nothing
- The client is sure to be pissed off – as this price looks very fake.