FMDQ EXCHANGE FUTURES SETTLEMENT PRICE METHODOLOGY

FMDQ Securities Exchange Limited

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1. Introduction

In line with the strategic objective of FMDQ Securities Exchange Limited ("**FMDQ Exchange**" or the "**Exchange**") to improve the liquidity, depth, and breadth of the Nigerian financial markets, FMDQ Exchange as a market organiser, identified the need for the introduction of an active and viable exchange-traded derivatives ("**ETD**") market as pertinent to actualising this objective.

Therefore, in appreciation of the above, FMDQ Exchange initiated and completed the developmental process of introducing Futures products on various underlying assets/market risk factors/benchmarks including inter alia: Bonds, Short-term Interest Rates, Foreign Exchange, Equities, Commodities, and Indices, culminating in the launch of the FMDQ Exchange Derivatives Market.

The FMDQ Exchange Futures Settlement Price Methodology (the "**Methodology**") sets out the process of computing daily and final settlement prices for Futures contracts of the FMDQ Exchange Derivatives Market, to ensure consistency, standardisation and provide transparency, broadly in line with the tenets and best practices of ETD products and markets. This Methodology applies to all Futures products and associated contracts listed and traded/reported on FMDQ Exchange.

Articulated below in the ensuing sections are the computation and data input rules applicable in the computation of daily and final settlement prices for FMDQ Exchange Futures contracts.

2. Daily Settlement Price Computation Rules

The Exchange shall publish a single settlement price for each FMDQ Exchange Futures contract daily. The daily settlement price for Futures contracts shall be derived from either the available Executed Trades[1] and/or Firm Orders[2] of the Futures contracts obtained from the FMDQ Exchange-advised System[3] or a theoretical price of the Futures contract, as follows:

2.1 Settlement Price based on Executed Trades and Firm Orders of Futures contracts

The Exchange shall determine the daily settlement price of Futures contracts using a combination of Executed Trades and/or Firm Orders subject to the availability of market prices. The following hierarchy rules shall apply:

2.1.1 **First Level –** The Volume Weighted Average Price ("**VWAP**") of all Executed Trades on each Futures contract available on the FMDQ Exchange-advised System subject to a minimum of ten (10) Executed Trades, in line with the Data Input Rules in Section 4 of this Methodology, shall be computed as the daily settlement price for the Futures contract.

2.1.2 **Second Level –** In the event that the available Executed Trades are not up to ten (10) data inputs as detailed in the First Level of the Daily Settlement Price Computation Rules, the VWAP of available Executed Trades and/or available Firm Orders which sum up to ten (10) data inputs shall be obtained and calculated. The relevant Executed Trades and Firm Orders shall be selected as follows:

2.1.2.1 *Executed Trade(s):* All available Executed Trade(s) on each Futures contract recorded at close of the market.

2.1.2.2 *Firm Order(s):*

[1] This includes all trades executed and recorded on the FMDQ Exchange-advised System
[2] This includes all unmatched orders at close of market
[3] This means the FMDQ Exchange designated trading system for the purpose of executing and/or reporting all exchange-traded derivatives transactions

a. Where the number of available Executed Trade(s) is equal to an even number, the number of available Firm Order(s) to be combined with the data determined under Section 2.1.2.1, to sum up to ten (10) data inputs, shall be an equal combination of the best bid(s) and the best offer(s) ranked by order size[4].

For example, if the number of available Executed Trades are six (6), warranting the inclusion of four (4) available Firm Orders; then the two (2) best bids and two (2) best offers ranked by order size shall be selected and added to the six (6) Executed Trades, for the computation of the daily settlement price.

b. Where the number of available Executed Trade(s) is an odd number, the number of available Firm Order(s) to be combined with the data determined under Section 2.1.2.1, to sum up to ten (10) data inputs, shall be the best bid(s) and the best offer(s) ranked by order size, with more offers than bid(s).

For example, if the number of available Executed Trades are seven (7), warranting the inclusion of three (3) available Firm Orders; then the best bid and two (2) best offers ranked by order size shall be selected and added to the seven (7) available Executed Trades, for the computation of the daily settlement price.

FMDQ Exchange will have sole discretion to exclude any outliers at the time of such computation.

2.1.3 **Third Level –** In the absence of the availability of a minimum of ten (10) Executed Trades and/or Firm Orders in the market as required in the Second Level of the Daily Settlement Price Computation Rules, the daily settlement price will be computed as the mid-point of the previous day's settlement price, and the VWAP of the available Executed Trades and/or Firm Orders for the current day.

2.1.4 **Fourth Level –** Where there are no available Executed Trades and/or Firm Orders in the market, either due to a *Force Majeure Event*[5] in the FMDQ Exchange Derivatives Market or under any market condition, the previous day's settlement price shall be maintained as the current day's daily settlement price, up to a maximum period of five (5) consecutive business days following which settlement price shall be determined as provided under Section 2.2.

The computation of the daily settlement price based on available Executed Trade(s) and/or Firm Order(s) as detailed in Section 2.1 shall be subject to the Exchange's expert judgment and reasonableness assessment under the prevailing market conditions.

2.2 Settlement Price based on Theoretical Futures Contracts Prices

The Exchange shall determine the daily settlement price of Futures contracts by computing the theoretical fair value of the Futures contract at the launch of the product or where the previous day's settlement price has been published as the daily settlement price of a Futures contract for five (5) consecutive business days, using the following formula:

$$\mathbf{FP = SP + (CC - CR)^{t/T}}$$

Where:

FP = Theoretical Futures price (i.e., the daily settlement price of the Futures contract)

[4] Order size refers to the number of contract(s) in the Firm Order

[5] This includes any act of God, war (whether war be declared or not), emergency, strike, industrial dispute, accident, fire, earthquake, flood, storm, pandemic epidemic, tempest, terrorism, or other cause beyond the control of FMDQ Exchange

SP = Current price/level of the underlying asset/market risk factor/benchmark[6]
CC = Cost of Carry[7]
CR = Carry Return[8]
t = Time to maturity (i.e., the period between current day and expiry day)
T = Actual numbers of days in a year

However, in the event that the Exchange is unable to reasonably determine the current price/level of the underlying asset/market risk factor/benchmark as required in Section 2.2 due to a *Force Majeure Event* or any market condition, the relevant committee of the Exchange responsible for methodologies shall consider and propose an appropriate methodology for determining the daily settlement price of the Futures contract.

3. Final Settlement Price Computation Rule

The final settlement price shall be the closing price of the underlying asset/market risk factor/benchmark or the VWAP of all underlying assets/market risk factors/benchmarks (where the underlying is a basket of assets/market risk factors/benchmarks) of the Futures contract as published on the FMDQ Exchange Daily Quotations List ("**DQL**"), the relevant securities exchange/price redistribution vendor, or the benchmark administrator on the contract's expiry date.

4. Data Input Rules

The order of selection of data input for derivatives contracts obtained from the FMDQ Exchange-advised System is determined by the level of market liquidity and data sufficiency as follows:

Rule 1	*The available Executed Trades on each contract during a thirty (30) minute interval up to 3:00 PM (i.e., 2:30 PM – 3:00 PM) shall be obtained and calculated as the daily settlement price. However, if there are less than ten (10) available Executed Trades by the end of the interval, then Rule 2 shall apply*
Rule 2	*The available* Executed Trades *on each contract during a sixty (60) minute interval up to 3:00 PM (i.e., 2:00 PM – 3:00 PM) shall be obtained and calculated as the daily settlement price. However, if there are less than ten (10) available* Executed Trades *by the end of the interval, then Rule 3 shall apply*
Rule 3	*The last ten (10) available* Executed Trades *on each contract up to 3:00 PM, regardless of the transaction time shall be obtained and calculated as the daily settlement price. In the event that all available Executed Trades up to 3:00 PM are less than ten (10), FMDQ Exchange shall revert to the second level as captured in* ***Section 2.1.2*** *of the Methodology*

[6] Based on the closing price of the underlying asset/market risk factor/benchmark as published by FMDQ Exchange in its Daily Quotations List or where applicable, as available from the relevant data sources.
[7] This refers to the cost of financing the purchase and holding a position in the underlying asset/market risk factor/benchmark, estimated using the benchmark inter-bank lending rate or any other relevant reference rate published by the Exchange, and associated storage cost (where applicable).
[8] This refers to any income derived from holding a position in the underlying asset/market risk factor/benchmark, estimated using the coupon rate, discount/benchmark interest rate, foreign benchmark interest rate and historical dividend yield for Bond, Short-term Interest Rate, Currency and Equity Futures respectively.