Protocol Guard Rails

Oracle Validity

Drift Protocol's dependence on external oracle accounts requires thoughtful consideration of the data point in the streams received.

In the program[code](opens in a new tab) , this is encoded as a spectrum from Valid to Invalid, with a few different categories of questionability that depend on the action taken (ordered by severity):

- Invalid
- TooVolatile
- TooUncertain
- InsufficientDataPoints
- StaleForMargin
- StaleForAMM
- Valid

The processing of new data is as follows:

- retrieve new data point
- sanitize new data point
- updates state variables
- check the validity of unsanitized new data point v.s. updated state

Processing data this way is meant to prevent a single new data point from creating a shock to the state variables (i.e. TWAP). A complete list of block conditions for actions is described.

Notes:

- The on-chain oracle TWAP calculation will also be shrunk proportional to the duration of the invalid period to avoid erroneous funding payment magnitudes.
- Blocking on InsufficientDataPoints can help improve resiliency against oracle manipulation.

Oracle Divergence

For perpetuals markets, there are checks tovalidate_market_within_price_band for the following actions:

- fill_order
- settle_pnl
- resolve_perp_pnl_deficit

The check validates that the 5-minute oracle twap vs amm reserve price is within ~10% (seePriceDivergenceGuardRails for exact parameters).

Its important to note that:

1. amm reserve price always update with valid oracle data for amm and;
2. new data points for 5-minute oracle twap are sanitized to be within 10, 20, or 50% of the last twap value (depending on theContractTier
3.)

Thus, it may take multiple intervals to bypass these circuit breakers for sufficiently large price moves.

For spot markets, there are safety initial margin requirement checks for the following actions:

- place_order
- withdraw

A user's asset / liabilities when calculating total collateral for initial margin checks for withdraws and placing orders will be the lesser / greater (respectively) of the 5-minute oracle twap and current oracle price. This lowers leverage extended by the protocol to users with positions in volatile markets.

Exchange & Market Status

ExchangeStatus and MarketStatus can be updated to prevent certain actions when specific issues are identified (describedhere(opens in a new tab)). These actions can include:

- funding rate updates;

- liquidations;
- AMM fills;
- any fills; and
- withdraws

[Delisting Process](#) [Risk Parameters](#)