HKVAC

Crypto Reference Closing Price Methodology

March 2024

Version History

Date	Version	Change
5th March, 2024	1.0	Publication

Contents

1. INTRODUCTION

1.1. Description

The HKVAC closing price is designed to provide cryptocurrency traders and investors with a benchmark reference price for evaluating the value of their portfolios. It aggregates transaction data from major exchanges, utilizing the Logarithmized Volume-Weighted Average (log-VWAP) calculation.

The HKVAC closing price calculates the value of selected cryptocurrencies traded on major exchanges, example: ETH-USDT. The value of a cryptocurrency at any given time can be influenced by various factors, including its type, liquidity, trading volume, transaction fees, and other market dynamics. Consequently, cryptocurrencies can be subject to varying prices across different exchanges, which presents challenges when attempting to determine the precise value of a cryptocurrency at a specific moment.

1.2. Properties

Dissemination	16:15 HKT / 00:15 UTC
Day Close	16:00 HKT / 00:00 UTC
Methodology	Logarithmized Volume-Weighted Average (log-VWAP) with outlier adjustment
Currency of Closing Price	USD
Calculations Days	Every day of the week
Markets	Major exchanges

2. DATA COLLECTION

2.1. Data Source

Transactional data is collected from each exchange via API. All collected data will be standardized, stored and backed up in servers.

2.2. List of Major Exchanges

Exchange
Binance
Bitget
Bitmart
Bitstamp
Bybit
Huobi
Okx
Gate.io
Kraken

Exchanges are added on an ongoing basis based on research.

2.3. Failure of Data Retrieval

When data retrieval from an Exchange fails due to a service outage, the design of the HKVAC closing price takes this into account by expiring the last price of that particular exchange. However, as long as the currency is actively traded on other exchanges, the calculation of the HKVAC closing price remains uninterrupted.

This design ensures that the HKVAC closing price can still be calculated in the event of a failure at a single exchange, providing an overall reflection of the market. By leveraging data from other exchanges, the reliability and continuity of price calculations are ensured.

3. PRICE CALCULATION

Calculation formula:

$$p_i = \frac{\sum_{i=1}^{n} p_{i,j,median} \times \ln(vol_{i,j,USD})}{\sum_{i=1}^{n} \ln(vol_{i,j,USD})}$$

Where

$p_{i,j,median}$ = 5 minutes median price of a selected cryptocurrency (i) from an exchange (j)

$vol_{i,j,USD}$ = 15 minutes trade volume of a selected cryptocurrency (i) from an exchange (j)

4. ELIGIBLE CRYPTOCURRENCY CRITERIA

- Must be the constituent of HKVAC Indices
- Traded on a minimum of two major exchanges

5. OUTLIER DETECTION

If the median price of a selected cryptocurrency from an exchange deviates by more than 5% from the median price of all exchanges, it is considered an outlier and excluded from the calculation of the closing price.

6. CONTACT INFORMATION

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