Weekly Factsheet

A comprehensive overview of cryptocurrency markets through weekly updated metrics and charts.

Monday, February 28th, 2022

Bitcoin Premium Emerges on Ukrainian Markets

- **Price Movements**: Bitcoin traded at a 6% premium vs. the Ukrainian hryvnia immediately following the invasion.
- **Trade Volume**: Bitcoin and stablecoin volume surged for both Russian and Ukrainian markets.
- **Order Book Liquidity**: Liquidity deteriorated for global Bitcoin markets amid high volatility.
- **Derivatives**: Open interest for perpetual futures is at 5-month lows.
- **Macro Trends**: Gold prices have benefitted strongly from growing geopolitical uncertainty.

Subscribe to our weekly research newsletter that accompanies this Factsheet [here](www.kaiko.com).
1. Price Dynamics

<table>
<thead>
<tr>
<th>Bitcoin</th>
<th>Ethereum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday Close</td>
<td>$37,719</td>
</tr>
<tr>
<td>YTD Returns</td>
<td>▲ 28.31%</td>
</tr>
<tr>
<td>All Time High</td>
<td>$68,630</td>
</tr>
</tbody>
</table>

Returns
Percentage price change since previous Sunday's close

**Bitcoin**
- Feb 21: $35K
- Feb 22: $36K
- Feb 23: $37K
- Feb 24: $38K
- Feb 25: $39K
- Feb 26: $40K

**Ethereum**
- Feb 21: $4,848
- Feb 22: $68,630

Hourly Returns
Percentage price change since previous Sunday's close

Bitcoin

Ethereum

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Data sources: Kaiko hourly reference rates
2. Volatility and Correlations

30D Historical Volatility

30D Rolling Correlation with Bitcoin Daily Returns

3. DeFi Tokens

DeFi Token Weekly Returns

DeFi Token YTD Returns

Data sources: Kaiko daily reference rates, FRED St. Louis, Quandl

Data source: Kaiko daily USD exchange rates
4. Stablecoins

Dollar-Pegged Stablecoin USD Exchange Rate

<table>
<thead>
<tr>
<th></th>
<th>USDT–USD</th>
<th>USDC–USD</th>
<th>BUSD–USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 23</td>
<td>$1.002</td>
<td>$1.002</td>
<td>$1.002</td>
</tr>
<tr>
<td>Feb 25</td>
<td>$1.004</td>
<td>$1.004</td>
<td>$1.004</td>
</tr>
<tr>
<td>Feb 27</td>
<td>$1.006</td>
<td>$1.006</td>
<td>$1.006</td>
</tr>
</tbody>
</table>

Tether vs. Bitcoin Price

<table>
<thead>
<tr>
<th></th>
<th>Bitcoin Price (Orange)</th>
<th>Tether Price (Blue)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 22</td>
<td>$36K</td>
<td>$1.000</td>
</tr>
<tr>
<td>Feb 23</td>
<td>$38K</td>
<td>$1.001</td>
</tr>
<tr>
<td>Feb 24</td>
<td>$40K</td>
<td>$1.002</td>
</tr>
<tr>
<td>Feb 25</td>
<td>$42K</td>
<td>$1.003</td>
</tr>
</tbody>
</table>

USDT–USD Trading Volume

Volume aggregated across all USDT–USD trading pairs

Data Source: Hourly direct USD exchange rate and aggregated volume
5. Aggregated Volume Dynamics

### Aggregated Trade Volume

![Graph showing trade volume over time]

### Percentage Share of Volume: BTC-USD vs. BTC-USDT

![Graph showing percentage share of volume]

### Percentage Share of Volume: BTC-USD vs. ETH-USD

![Graph showing percentage share of volume]

### Weekly Percentage Difference in Trade Volume

<table>
<thead>
<tr>
<th>Exchange</th>
<th>BTC-USD</th>
<th>ETH-USD</th>
<th>BTC-USDT</th>
<th>ETH-USDT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binance</td>
<td>30.19%</td>
<td>53.90%</td>
<td>38.50%</td>
<td>68.09%</td>
</tr>
<tr>
<td>Binance US</td>
<td>55.26%</td>
<td>48.87%</td>
<td>54.99%</td>
<td>25.41%</td>
</tr>
<tr>
<td>Bitfinex</td>
<td>32.59%</td>
<td>43.65%</td>
<td>48.80%</td>
<td>119.31%</td>
</tr>
<tr>
<td>Bitstamp</td>
<td>20.04%</td>
<td>17.24%</td>
<td>85.32%</td>
<td>218.06%</td>
</tr>
<tr>
<td>Bittrex</td>
<td>31.60%</td>
<td>13.64%</td>
<td>29.63%</td>
<td>5.49%</td>
</tr>
<tr>
<td>Coinbase</td>
<td>13.64%</td>
<td>36.88%</td>
<td>40.71%</td>
<td>4.92%</td>
</tr>
<tr>
<td>FTX</td>
<td>53.76%</td>
<td>8.07%</td>
<td>18.22%</td>
<td>21.32%</td>
</tr>
<tr>
<td>Gemini</td>
<td>59.61%</td>
<td>65.95%</td>
<td>54.25%</td>
<td>69.18%</td>
</tr>
<tr>
<td>Huobi</td>
<td>26.21%</td>
<td>124.29%</td>
<td>31.82%</td>
<td>7.40%</td>
</tr>
<tr>
<td>Itbit</td>
<td>120.90%</td>
<td>50.07%</td>
<td>-55.90%</td>
<td>-39.79%</td>
</tr>
<tr>
<td>Kraken</td>
<td>95.71%</td>
<td>-7.48%</td>
<td>-8.29%</td>
<td>-69.25%</td>
</tr>
<tr>
<td>KuCoin</td>
<td>33.78%</td>
<td>35.11%</td>
<td>38.50%</td>
<td>54.99%</td>
</tr>
<tr>
<td>Liquid</td>
<td>-56.90%</td>
<td>-69.25%</td>
<td>25.41%</td>
<td>119.31%</td>
</tr>
<tr>
<td>OkCoin</td>
<td>35.11%</td>
<td>35.11%</td>
<td>38.50%</td>
<td>54.99%</td>
</tr>
<tr>
<td>Poloniex</td>
<td>33.78%</td>
<td>35.11%</td>
<td>38.50%</td>
<td>54.99%</td>
</tr>
</tbody>
</table>

Data Source: Daily aggregated volume per trading pair and per instrument

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**Daily Trade Volume**

BTC–USD

- Feb 2
- Feb 7
- Feb 12
- Feb 17
- Feb 22
- Feb 27

ETH–USD

- Feb 2
- Feb 7
- Feb 12
- Feb 17
- Feb 22
- Feb 27

**Percentage Share of Volume**

BTC–USD

- Dec 6, 21
- Dec 16, 21
- Dec 26, 21
- Jan 5, 22
- Jan 15, 22
- Jan 25, 22
- Feb 4, 22
- Feb 14, 22
- Feb 24, 22

ETH–USD

- Dec 6, 21
- Dec 16, 21
- Dec 26, 21
- Jan 5, 22
- Jan 15, 22
- Jan 25, 22
- Feb 4, 22
- Feb 14, 22
- Feb 24, 22

**Average Trade Size**

7D Moving Average

BTC–USD

- Dec 1, 21
- Jan 1, 22
- Feb 1, 22
- Mar 1, 22

ETH–USD

- Dec 1, 21
- Jan 1, 22
- Feb 1, 22
- Mar 1, 22

Data Source: Daily aggregated trade volume and count
7. Exchange Volume – Tether Pairs

**Trade Volume**

**Percentage Share of Volume**

**Average Trade Size**

7D Moving Average

Data Source: Daily aggregated trade volume and count
8. Order Book Liquidity – Fiat Pairs

**Bid–Ask Spread**
The difference between the best ask and the best bid on an asset’s order book.

**2% Market Depth**
The sum of all bids and asks placed within 2% of the midprice on a trading pair’s order book.

**Price Slippage**
The difference between the expected price of a $50k sell order and the price at which the simulated trade is executed.

**Bid–Ask Spread**
The difference between the best ask and the best bid on an asset's order book.

**2% Market Depth**
The sum of all bids and asks placed within 2% of the midprice on a trading pair's order book.

**Price Slippage**
The difference between the expected price of a $50k sell order and the price at which the trade is executed.

Data Source: Hourly average market depth, bid–ask spread, price slippage
10. Aggregated Order Books

Bid Depth and Ask Depth
The quantity of all bids and asks within 2% of the midprice on USD order books aggregated across Coinbase, Bitstamp, Kraken, Bitfinex, Itbit, Bittrex, Binance US, and Gemini.

Ratio of Bid Depth to Total Market Depth
The quantity of aggregated bids divided by the total market depth. When the ratio is above .5, bid depth is greater than ask depth.

Data source: Average hourly aggregated market depth

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This Factsheet was created by Anastasia Melachrinos, Clara Medalie, Jean Mouvilliat, with help from the Kaiko team.

**Detailed Methodology**

Contact us at hello@kaiko.com or visit www.kaiko.com if you are interested in our enterprise data services.

1. **Price Dynamics**

   Data sources: Kaiko hourly reference rates

   **Returns**
   Computed as the percentage difference in price since the previous Sunday's close.

   **Bitcoin/Ethereum Price**
   The USD price aggregated across the following exchanges: Bitfinex, Kraken, Bitstamp, Coinbase, BitFlyer, Gemini, itBit, Bittrex. The price is derived from our direct exchange rate calculation, which is the volume-weighted average price (VWAP) of all exchange-pair VWAPs at hourly time intervals.

   **Hourly Returns**
   The hourly percentage difference in price.

2. **Volatility and Correlations**

   Data sources: Kaiko hourly reference rates, FRED St. Louis, Quandl

   **30D Historical Volatility**
   The volatility of each asset is calculated by taking the annualized 30 day rolling standard deviation of daily log returns. Data for Nasdaq and S&P 500 comes from FRED St. Louis and Gold from Quandl.

   **30D Rolling Correlation with Bitcoin Daily Returns**
   Calculated using the daily log returns over the past 30 days, for selected crypto-pairs and traditional indexes including Nasdaq, S&P 500 and gold. Data for Nasdaq and S&P 500 comes from FRED St. Louis and Gold from Quandl. The correlation coefficient takes a value of 1 when two assets are perfectly correlated, 0 when there is no linear interdependence, and -1 when perfectly anticolrelated.

3. **DeFi Data**

   Data sources: Kaiko daily USD cross exchange rates

   **DeFi Token Weekly Returns**
   The percentage price difference since the previous Sunday's daily USD volume-weighted average price. Aggregated USD price data is calculated using Kaiko's USD exchange rate methodology which finds the path of highest liquidity between each DeFi asset and the closest USD trading pair. Not every DeFi asset trades against USD, which requires us to use cross rates to determine a USD price.

   **DeFi Token YTD Returns**
   The percentage price difference since January 1st, 2021.

4. **Stablecoins**

   Data sources: Kaiko hourly direct USD exchange rate and aggregated volume

   **Dollar-Pegged Stablecoin USD Exchange Rate**
   The hourly USD exchange rate for all stablecoin-USD pairs in Kaiko's data collection (view every instrument used in this calculation here). This is calculated by taking the hourly VWAP for each stablecoin-USD pair (ex. USDT-USD on Bitfinex), and then taking the VWAP for USDT-USD pairs across all exchanges.

   **Tether vs. Bitcoin Price**
   The hourly Tether and Bitcoin price averaged across all exchanges that offer a USDT-USD and BTC-USD trading pair.

   **USDT-USD Trading Volume**
Aggregated daily volume across all exchanges that offer a USDT-USD trading pair (full list of instruments used in this calculation here).

5. Aggregated Volume

Data sources: Daily aggregated volume per trading pair and per instrument

Aggregated Trade Volume
Daily aggregated volume across a selection of exchanges for the listed trading pair. Full list of instruments included in the calculation can be viewed here.

Percentage Share of Volume: BTC-USD vs. BTC-USDT
Daily aggregated volume for BTC-USD and BTC-USDT trading pairs (full list of instruments included in this calculation here). Assuming that most institutional traders prefer transacting with USD, when there is a spike in BTC-USD volume this suggests USD inflows or a sell-off.

Percentage Share of Volume: BTC-USD vs. ETH-USD
Daily aggregated volume for BTC-USD and ETH-USD trading pairs (full list of instruments used in this calculation here). Assuming Ethereum is a proxy for altcoin markets, when volume for ETH-USD spikes this suggests that traders are rotating funds out of Bitcoin and into Ethereum and altcoin markets.

Weekly Percentage Difference in Trade Volume
Percentage difference between most recent week of volume and previous week of volume for each listed instrument.

Trade Volume
Daily aggregated volume per trading pair per exchange.

Percentage Share of Volume
Percentage volume of trades for each trading pair per exchange.

Average Trade Size
The total volume of trades (volume of base asset * price) / trade count. For Tether pairs, the average trade size is denominated in USDT. A higher average trade size suggests that more institutional traders are using the exchange.

8/9. Order Book Liquidity - Fiat/Tether Pairs

Data sources: Average hourly bid-ask spread, market depth, price slippage

Bid-Ask Spread
The wider the bid-ask spread, the less liquid the traded instrument. We calculate spread from Kaiko's raw order book snapshots which are taken twice per minute. We take the difference between the best ask and the best bid for each snapshot, and then take the average for all values for spread over the course of 1 hour. To normalize the spread, we divide by the mid price and then multiple by 10,000 to get the spread in basis points. One basis point is equal to 1/100th of 1%, or 0.01%, or 0.0001, and is used to denote the percentage change in a financial instrument. A 24-hour moving average is applied.

2% Market Depth
Market depth is an indicator of liquidity: the higher the market depth, the deeper the order books, and the less likely a large market order will move the price of an asset. Market depth is derived from Kaiko's raw order book snapshots which are taken twice per minute. Each of our order book snapshots includes all bids and asks within 10% of the midprice. For this chart, we cut each snapshot down to all bids and asks within 2% of the midprice, which better reflects changes in market dynamics. We then take the average of 2% market depth over the course of 1 hour. Finally, we take the sum of both 2% Bid Depth and 2% Ask Depth for each instrument. A 24-hour moving average is applied.

Price Slippage
We calculate slippage using raw order book snapshots taken twice per minute. Slippage is calculated by running a $50k sell order through the bid side of an order book. The steps below run through an example calculation for placing a $50k sell market order which would give a value for Bid Slippage. The same steps can be
followed for buy orders and orders of different values:
Step 1: Run through sorted Bids by price level until $50k sell order is filled, starting from the Best Bid.
Step 2: Compute the Average Sell Price using all Bids needed to fill the $50k order. For example, in an imaginary order book where there are Bids at $10,000 for 3 Bitcoin and Bids at $10,100 for 4 Bitcoin, the Average Sell Price would be ($30,000 + $40,400)/7 = ~ $10,057.
Step 3: Calculate the percentage of variation between the Best Bid and Average Sell Price using the formula: |Average Sell Price — Best Bid| / Best Bid.
A 24-hour moving average is applied.

10. Aggregated Order Books
Data sources: Average hourly aggregated market depth

Bid Depth and Ask Depth
Instead of adding Bid Depth and Ask Depth, we separate depth per side of the order book, and aggregate across multiple exchanges that offer a BTC-USD and ETH-USD trading pair. This is calculated by taking the quantity of all bids and asks within 2% of the midprice on USD order books aggregated across Coinbase, Bitstamp, Kraken, Bitfinex, Binance US, Itbit, Bittrex, and Gemini. The data is an hourly average with a 24 hour moving average applied. The average mid price is also charted with a 24 hour moving average.

Ratio of Bid Depth to Ask Depth
The quantity of aggregated bids divided by the sum of total market depth (sum of both bids and asks). When the ratio is above .5, this means that the quantity of bids is higher than the quantity of asks.

DATA SOURCES
All crypto data is provided by Kaiko.