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# The State of Liquidity on Korean Crypto Markets

Kaiko

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# Overview

This report presents a comprehensive framework for measuring liquidity, defined as the ability to quickly execute large orders at a price close to the market, with limited impact. Liquidity must be assessed over time and across market regimes, incorporating the effects of seasonality and macroeconomic events. A rigorous evaluation of liquidity requires a multidimensional approach, as no single indicator can capture all its factors.

The report details the indicators used and their contribution, including metrics such as volume, spreads, market depth, and slippage, and applies this framework to Korean cryptocurrency exchange platforms. It offers a cross-exchange comparison to document the concentration of trading activity and liquidity, and then examines specific dynamics to explain liquidity variations across assets and market regimes.

Researched by: Kaiko Research

In partnership with: UPbit

# Defining Liquidity in Crypto Markets

Liquidity is the ability to buy or sell an asset quickly, in large quantities, and at a price close to the last traded price, without causing excessive market movement.

In practice, liquidity is measured by the speed of execution and immediate availability in the order book. Liquidity also refers to market depth and the ability to absorb orders of a given size without exceeding a slippage threshold. Finally, liquidity is analyzed through seasonality, taking into account intraday, weekly, and event-driven variations (e.g., macro announcements).

## Why are multiple metrics necessary?

No single metric can capture liquidity in all its complexity. Liquidity is multidimensional and must take into account price, size, time, and context. It is part of a macro environment that is specific to an asset or sector. As a result it's necessary to combine metrics of price accessibility (quoted and effective spreads), capacity (market depth) or stability (slippage) in order to obtain the most accurate observation of liquidity possible.

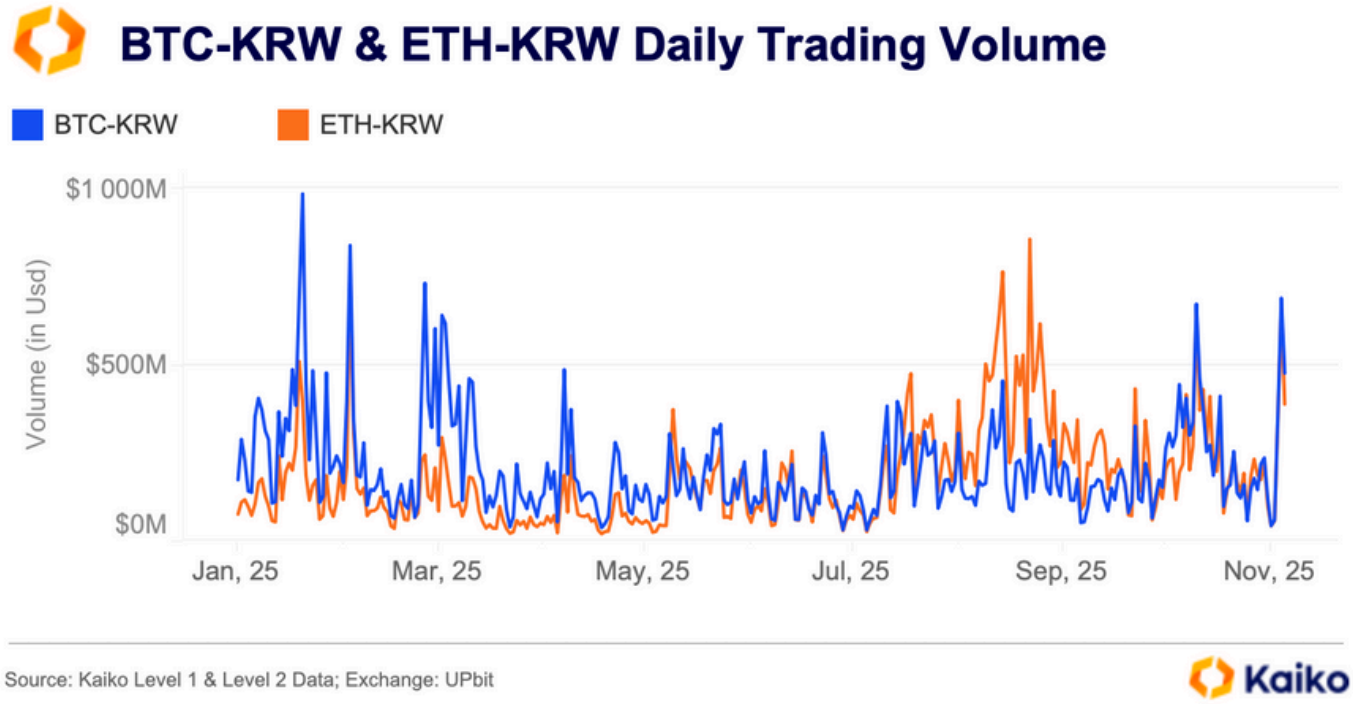
A robust liquidity assessment balances pre-trade and post-trade perspectives. Pre-trade metrics, from the order book, reflect the immediacy and capacity of liquidity available before execution. In this scenario quoted and effective spreads capture price accessibility, depth measures the ability to absorb large orders, and resilience is determined by how quickly the order book recovers after a shock.

Post-trades metrics, computed from executed prints, reveal realized trading conditions and market impact. Trades data is the only post-trade dataset.

These metrics are all complementary, where pre-trade describes the available liquidity on display, while post-trade tests how that liquidity actually performs under flow and time. Combining both is essential to capture not only the visible capacity and pricing of liquidity, but also its reliability and stability once orders are executed on the market.

### a. Trading Volume

Trade volume is a key post-trade metric for assessing liquidity. Higher volume indicates more frequent trading, which facilitates price discovery and reduces information asymmetry between market participants, making observed prices more reliable. Analyzing volume over time, by pair and by venue, helps distinguish structural liquidity from transitory liquidity. Coupled with other indicators, volume helps quantify the ability to enter and exit a position.

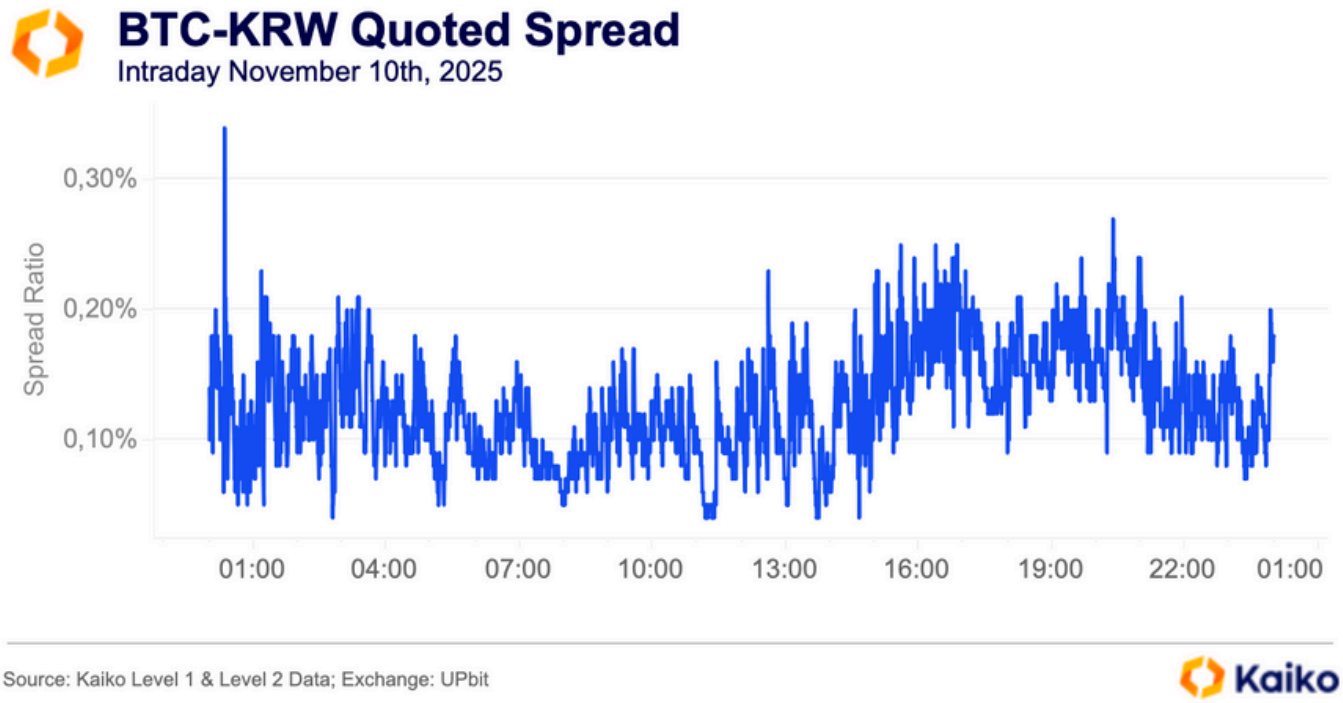



While informative, trading volume alone cannot fully quantify liquidity. Volume can spike during stress or news events precisely when it is hardest to buy or sell near fair value. For example, during the crash of October 10, 2025, we observed that high volumes coincided with very high spreads and therefore very low liquidity. This episode perfectly highlights that trading volume measures flows, not accessibility.

The interpretation of volume is therefore conditional and complementary. When integrated with order book based measures such as depth, quoted spreads and slippage, trade volume becomes a powerful contributor to a comprehensive understanding of a market's capacity to support entry and exit at scale.

## b. Spreads

Spread refers to the price difference between the highest price a buyer is willing to pay (best bid) and the lowest price a seller is willing to accept (best ask). It represents the implicit transaction cost, which is the purchase at the best ask or the sale at the best bid. The narrower the spread, the better the liquidity is considered to be.




The quoted spread is the spread observed directly in the order book, calculated as:

= (Best Ask - Best Bid) / Mid in order to obtain the relative value.

It is an instantaneous measurement, easy to aggregate over time and compare between venues and pairs.

The effective spread measures the transaction cost actually paid by the initiator of a trade relative to the mid price at the time the order arrived. It can be calculated as:

= 2 x size x (trade price - mid arrival) /mid

The effective spread provides a more accurate measure than the quoted spread, particularly in times of stress or for large trades, as it incorporates the actual availability of liquidity.

In crypto markets, the spread is influenced by volatility, available depth, and fragmentation between platforms. When volatility increases, market makers face greater risk and widen their spreads. Limited depth implies that even small transactions influence prices which can widen spreads. Furthermore, because liquidity is distributed across different platforms, the best prices are not always accessible to all investors, which can again lead to wider spreads.

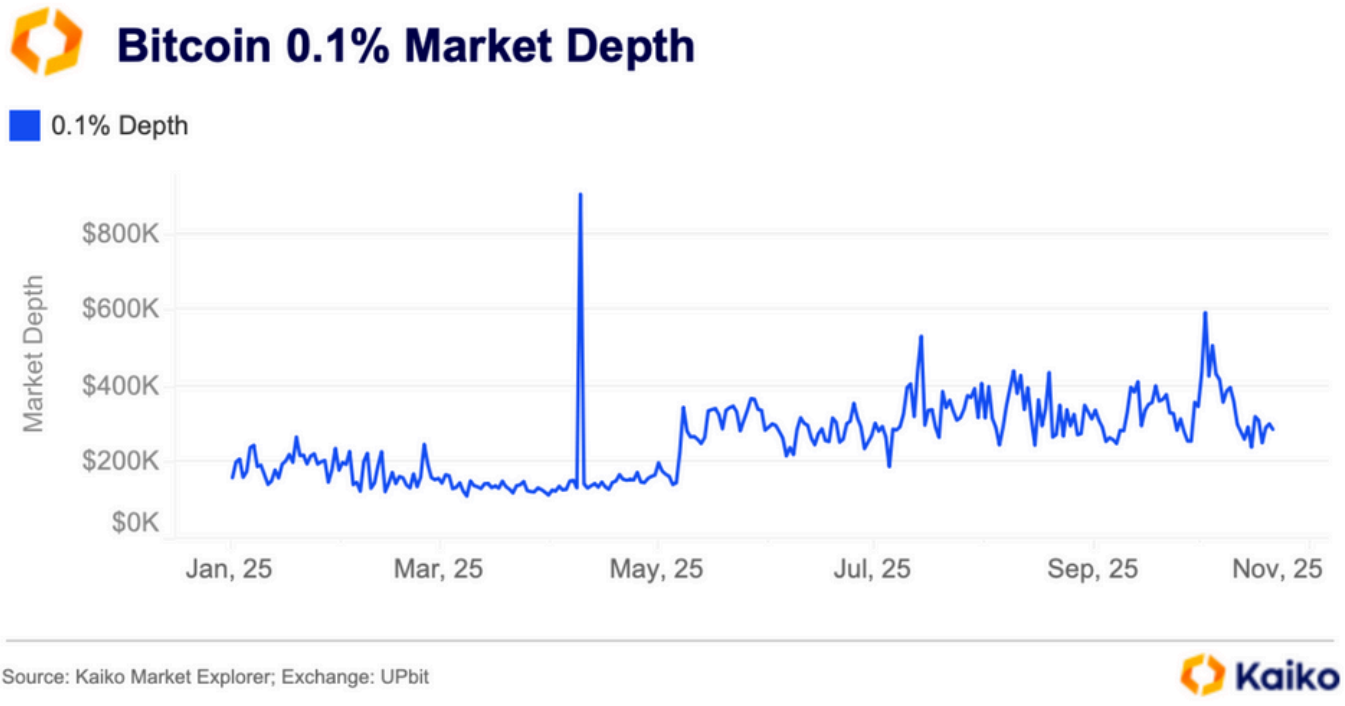
On the other hand, the spread metric has structural limitations. First, quote staleness, where the best bid and best ask may remain displayed even though they no longer reflect the tradable price. Volatility can exacerbate this, while staleness also arises from latency and delayed quote updates. The result is deceptive apparent liquidity, where quotes that look tight and deep on screen fail to execute at the shown levels, so measured liquidity can be overstated if staleness is not accounted for. A key implication is that stale quotes can present an illusion of liquidity despite not being reliably tradable.

Second, we could face a tick-size effect. Big ticks can mechanically widen spreads by forcing prices onto discrete levels, yet they may also support market makers by reducing quote fluctuations. Conversely, small ticks can tighten spreads by allowing more detailed pricing, but they often fragment liquidity across many price levels and reduce displayed depth, raising the likelihood that even relatively small orders must consume multiple levels of the book.

There is also hidden liquidity, where orders are not fully visible in the order book. The spread and visible size can therefore underestimate the actual executable volume. In practice, this means that a moderately sized order can move the price more than expected and encounter hidden liquidity (such as icebergs, for example). Thus, it is once again essential to use multiple liquidity metrics to assess it as accurately as possible.

## c. Market Depth

Market Depth measures the volume available to buy or sell at different price levels in the order book, indicating the market's capacity to absorb orders without causing significant price fluctuations. This Market Depth is calculated by adding up all bids and asks at a certain distance from the mid price (for example, 0.1% or 1%).



Market depth is an essential metric for measuring liquidity, revealing true supply and demand beyond the best bid and the best ask, indicating how resilient prices are to larger orders.

As we have already mentioned, market depth provides an instant view of the order book, but does not reflect liquidity behavior and actual execution quality. It depends on the choice of band (0.1%, 1%, 2%), the spread, and the granularity of the order book. In particular, it does not provide information on the probability that orders will remain in place until execution, nor on the speed at which the order book rebuilds after a stress event.

There are phenomena that explicitly show that this market depth is limited and does not necessarily reflect liquidity. For example, a book with high market depth but significant quote churn can evaporate as soon as a period of stress begins. Similarly, the presence of fleeting orders artificially inflates the observed depth, but these sizes disappear too quickly to be executed. Conversely, hidden volatility (or iceberg) causes the opposite bias, where market depth underestimates potential liquidity, as undisplayed sizes only become apparent at the time of execution.

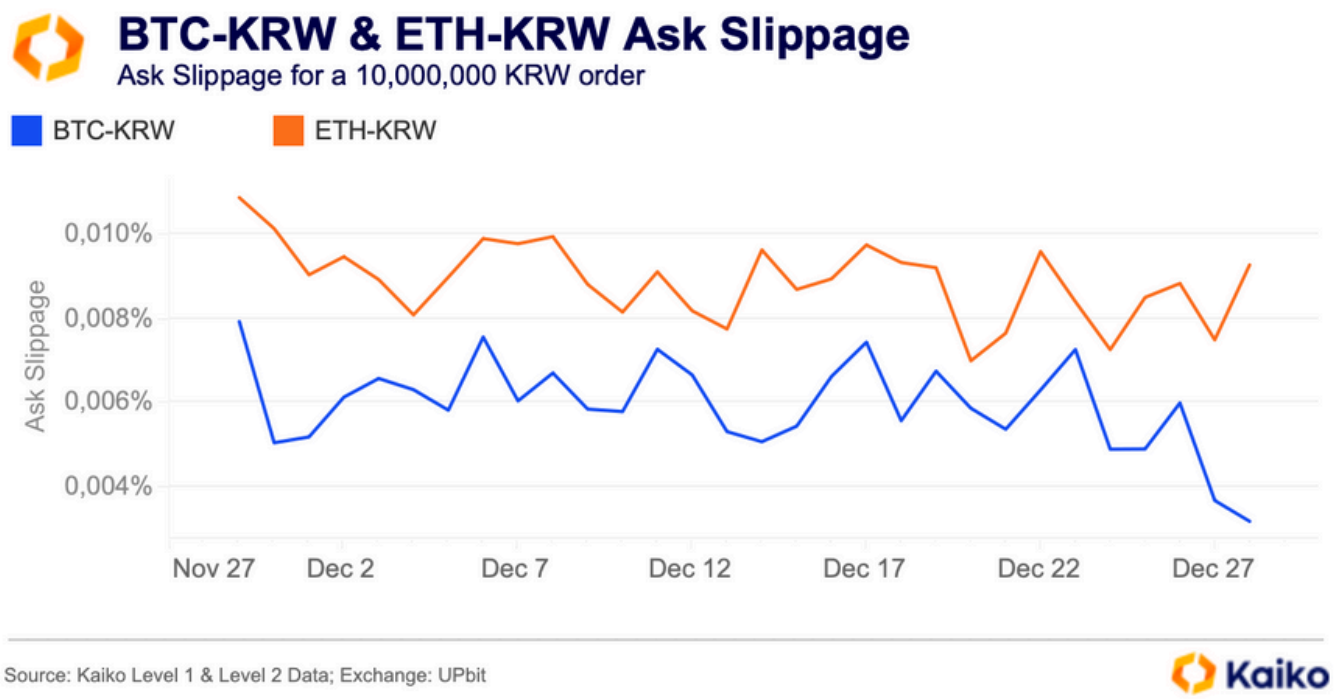
Market depth captures a snapshot of displayed liquidity but ignores the broader liquidity dynamics. Therefore using volume in tandem with depth is advisable. Depth indicates the available capacity at a given moment, while volume reflects the market's throughput over time, thus providing a more complete view of potential and actual liquidity.

## d. Slippage

Price slippage measures how liquid a market is by measuring the gap between the expected and actual price of a market order. When markets drop and there are large sell-offs, slippage often increases and it becomes harder to buy or sell at the desired price.

Concretely, Kaiko measures slippage based on the current state of the limit order book (real book depth at time t). It is calculated as the percentage difference between the reference price (mid-price or best bid/ask) and the simulated execution price required to fill the order size at that moment.

It captures the specific impact of the order, market dynamics, and price movements during execution. Slippage therefore provides a measure of the implicit cost of liquidity for a given size and timing. It incorporates the depth that can actually be mobilized and the market's absorption capacity.




Yet slippage offers only a partial view of liquidity, as low slippage does not guarantee good liquidity, while high slippage during market events does not necessarily mean poor liquidity. Slippage is path-dependent so results can vary depending on how the order is executed. Slippage is a metric that varies considerably depending on the exchange, the trading pair, and the time of day. It is therefore recommended to use slippage in conjunction with other metrics to assess actual liquidity.

# Trading Costs & Liquidity Structure on Korean Exchanges

## Tick Size Specifics

In Korea, KRW markets on exchanges such as UPbit and Bithumb have historically adopted large tick sizes. The primary objective is stability, based on the observation that larger tick sizes reduce noise, limit price movements, and improve order book readability for a very active retail clientele. This choice thus contributes to a more robust and less fragmented market, in line with the priority given to stability and investor protection on Korean platforms.

By way of definition, the tick size per exchange is the smallest price increment allowed by a platform for listing and trading an instrument. Each exchange defines this increment, which determines the granularity of the prices and the minimum possible spread.

A large tick size concentrates liquidity on fewer levels, which can improve perceived depth. By imposing a minimum price movement step, it prevents bidding at very low values that can erode market maker compensation, thus supporting perceived price stability. It also reduces order load, potentially lowering infrastructure costs for trading platforms.

Conversely, a large tick size also has disadvantages. First, it mechanically widens the minimum spread, thus increasing execution costs. Also, price discovery is less precise, since prices move in larger increments and reflects new information more slowly. Indeed, if the exact value lies between two levels, the market remains stuck until the next level. Finally, the data becomes less granular, where small movements are invisible, and price series are less precise, which can degrade the analysis. On the contrary, the smaller the tick size, the more precise the data and the more accurately it reflects small market changes.

The tick size directly shapes the displayed liquidity and impacts market depth. A large tick size allows orders to cluster at the same levels, increasing the visible depth per level, but also creating a wider spread floor and potentially slowing price discovery. Conversely, a small tick size intensifies price competition, generally tightens the spread, and improves the effective execution price, while dispersing liquidity across multiple levels.

UPbit distinguishes three markets with different reference currencies. The KRW market (pairs in Korean won, e.g. XRP/KRW), the BTC market (pairs quoted against Bitcoin, e.g. RESOLV/BTC) and the USDT market (pairs against Tether, e.g. BTC/USDT).

In the KRW market, UPbit has opted for a gradual price tick size based on a price range (KRW Market Order Price Unit). The following table illustrates this gradation.

## Tick Size by Price Range applied to KRW Market on UPbit, as of December 2025:

| Price Range | Price Tick Size |
|---|---|
| 2,000,000 KRW ≤ Price | 1,000 |
| 1,000,000 KRW ≤ Price < 2,000,000 KRW | 1,000 |
| 500,000 KRW ≤ Price < 1,000,000 KRW | 500 |
| 100,000 KRW ≤ Price < 500,000 KRW | 100 |
| 50,000 KRW ≤ Price < 100,000 KRW | 50 |
| 10,000 KRW ≤ Price < 50,000 KRW | 10 |
| 5,000 KRW ≤ Price < 10,000 KRW | 5 |
| 1,000 KRW ≤ Price < 5,000 KRW | 1 |
| 100 KRW ≤ Price < 1,000 KRW | 1 |
| 10 KRW ≤ Price < 100 KRW | 0.1 |
| 1 KRW ≤ Price < 10 KRW | 0.01 |
| 0.1 KRW ≤ Price < 1 KRW | 0.001 |
| 0.01 KRW ≤ Price < 0.1 KRW | 0.0001 |
| 0.001 KRW ≤ Price < 0.01 KRW | 0.00001 |
| 0.0001 KRW ≤ Price < 0.001 KRW | 0.000001 |
| 0.00001 KRW ≤ Price < 0.0001 KRW | 0.0000001 |
| Price < 0.00001 KRW | 0.00000001 |

The purpose of a graduated tick size is to adapt the price granularity to its level, maintaining consistent relative precision while preserving stability. For example, 1,000 KRW is used above 1,000,000 KRW, while at lower prices the tick size decreases to 0.00000001 KRW to maintain finesse. In terms of liquidity, this aggregates orders onto fewer levels when the price is high, and conversely, finer tick sizes improve price competition while dispersing the order depth across more levels. The sizes are therefore proportional to the price range, resulting in more predictable execution costs.

In regards to the BTC market for UPbit, a single tick size is applied regardless of the digital asset's price (BTC Market Order Price Unit).

**Tick Size applied to BTC Market on UPbit, as of December 2025:**

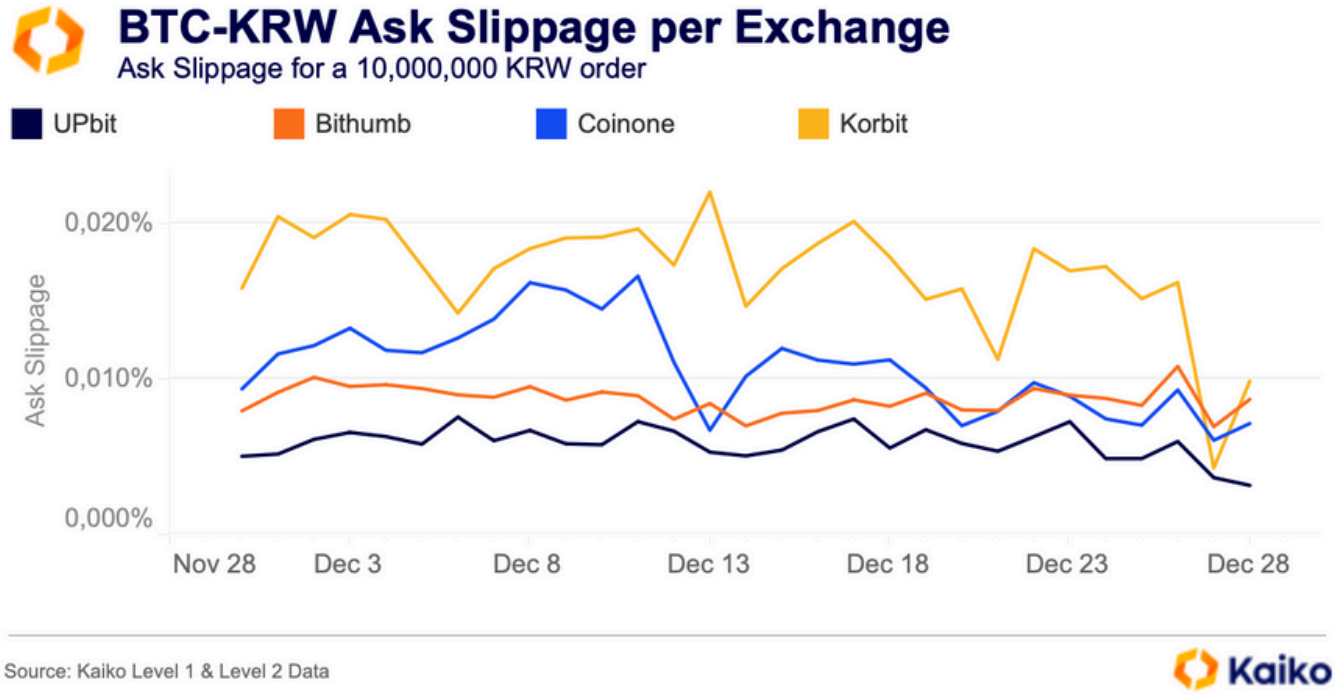
| Price per digital asset (BTC) | Price Tick Size (BTC) |
|---|---|
| Across all prices | 0.00000001 BTC |

Finally, in regards to the USDT market, the order price unit varies by price tick (USDT Market Order Price Unit).

**Tick Size by Price Range applied to USDT Market on UPbit, as of December 2025:**

| Price per digital asset (USDT) | Price Tick Size (USDT) |
|---|---|
| 10 ≤ Price | 0.01 |
| 1 ≤ Price < 10 | 0.001 |
| 0.1 ≤ Price < 1 | 0.0001 |
| 0.01 ≤ Price < 0.1 | 0.00001 |
| 0.001 ≤ Price < 0.01 | 0.000001 |
| 0.0001 ≤ Price < 0.001 | 0.0000001 |
| Price < 0.0001 | 0.00000001 |

Considering the tick size, we find that strong liquidity can coexist with large tick sizes. The chart below examines slippage across Korean exchanges. Despite applying relatively large tick sizes, UPbit remains the most liquid exchange, based on ask-side slippage in the BTC-KRW market in late 2025 for a 10,000,000 KRW ask order.




## How Fee Structures Shape Liquidity

It should be noted that exchange fees also have an impact on liquidity. We have compiled the fees associated with the main Korean exchanges in the following table. For each exchange, we have linked the market and distinguished between maker fees and taker fees. That consolidation enables us to see that the fee structure is unique to each exchange.

A maker is someone who adds liquidity to the order book by placing an order that isn't executed immediately. This order contributes to increasing market depth and thus improving liquidity. Specifically, if you place an order that remains in the order book before being executed later, you pay a maker fee at the time of execution. A taker is someone who removes liquidity by immediately executing an order already in the order book. If you send an order that is executed immediately, taking the available quantity at the best price, you pay the taker fee at the time of execution.

### Maker and Taker Trading Fees per Exchange:

| Exchange | Markets | Maker | Taker |
|---|---|---|---|
| UPbit | KRW Market | 0.05% | 0.05% |
| | BTC, USDT Markets | 0.25% | 0.25% |
| Bithumb | KRW Market | 0.04%-0.25% | 0.04%-0.25% |
| | BTC Market | 0% (Free*) | 0% (Free*) |
| Coinone | - | 0%-0.1% | 0.02%-0.1% |
| Korbit | - | 0%-0.08% | 0.01%-0.20% |

*As of December 2025

However, zero-fee exchange policies don't eliminate trading costs, they move them into the spread. As market makers widen bid-ask spreads to offset lost fee revenue, spreads cease to reflect underlying liquidity and instead capture trading costs passed on to consumers.

Thus, eliminating fees does not eliminate costs. If market makers lose a source of revenue, they often widen spreads to compensate themselves, which can lead to reduced order depth and increased order impact. However, this effect can be offset if zero fee attracts significantly more orders. The outcome for liquidity will therefore depend on finding the right balance. Indeed, if the influx of orders compensates for the loss of revenue for market makers, liquidity improves, otherwise, it deteriorates.

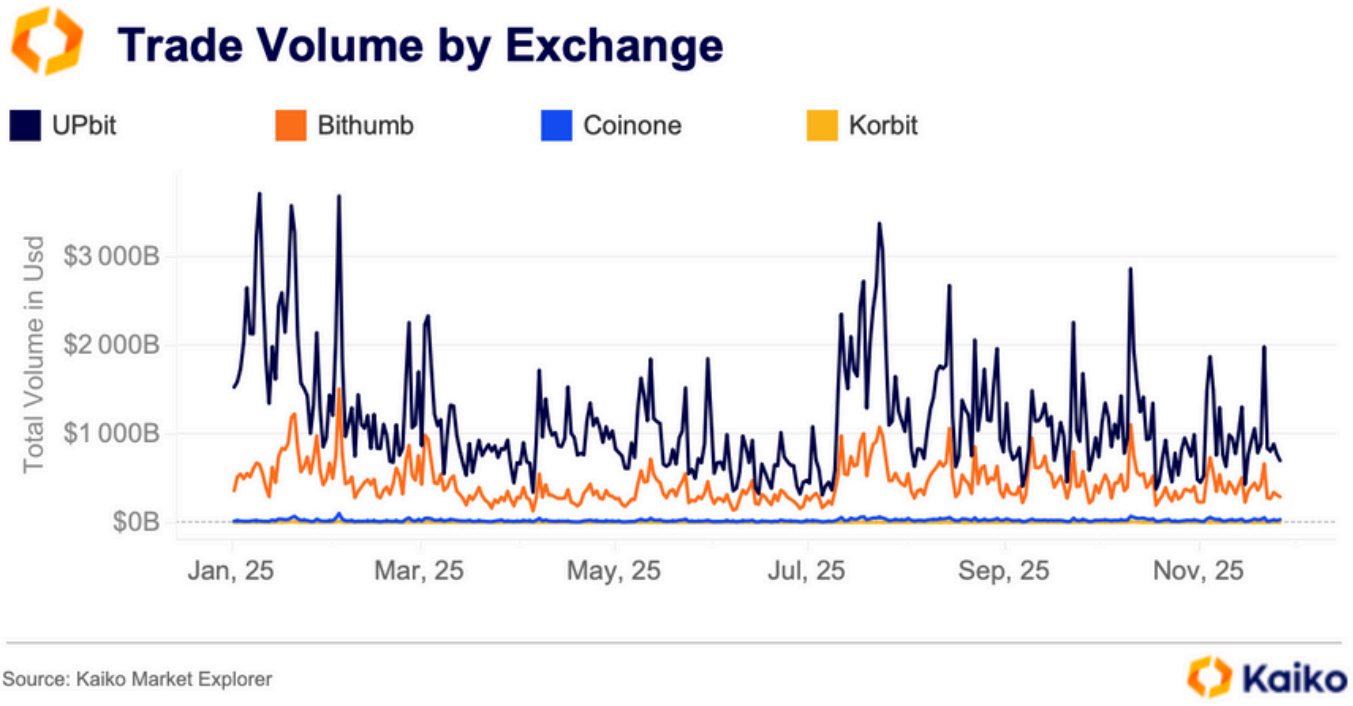
# Liquidity Data Insights on Korean Exchanges

## Korean Cross-Exchange Comparison

In this section, we compare the main Korean exchanges in terms of trading volume and market share. For this analysis, we focus on the following exchanges:

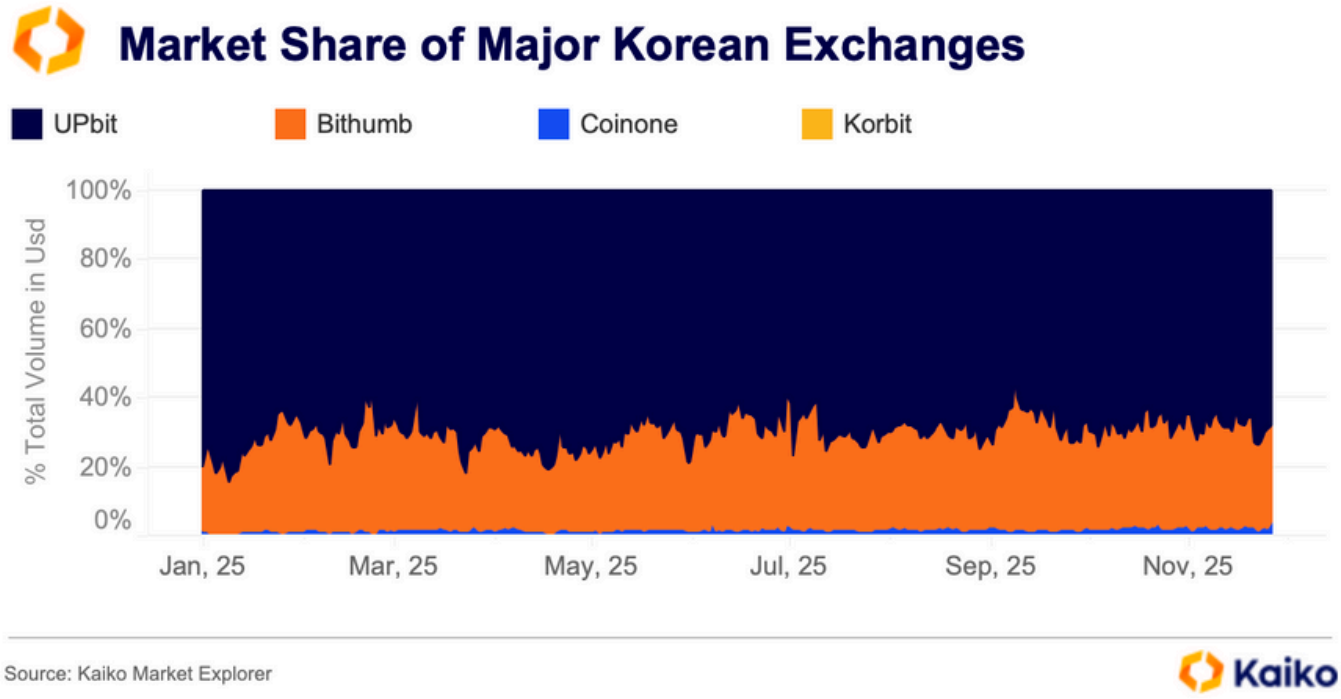
- UPbit
- Bithumb
- Coinone
- Korbit

First, we examine trading volume by exchange, using the total daily volume across all listed pairs. The chart below shows that the vast majority of trade volume in Korea is concentrated on UPbit, with recurring spikes far exceeding Bithumb, particularly during periods of macroeconomic shock (Trump's inauguration, the October 10th stock market crash). Coinone and Korbit lag far behind, with their volumes being almost negligible, compared to UPbit and Bithumb.

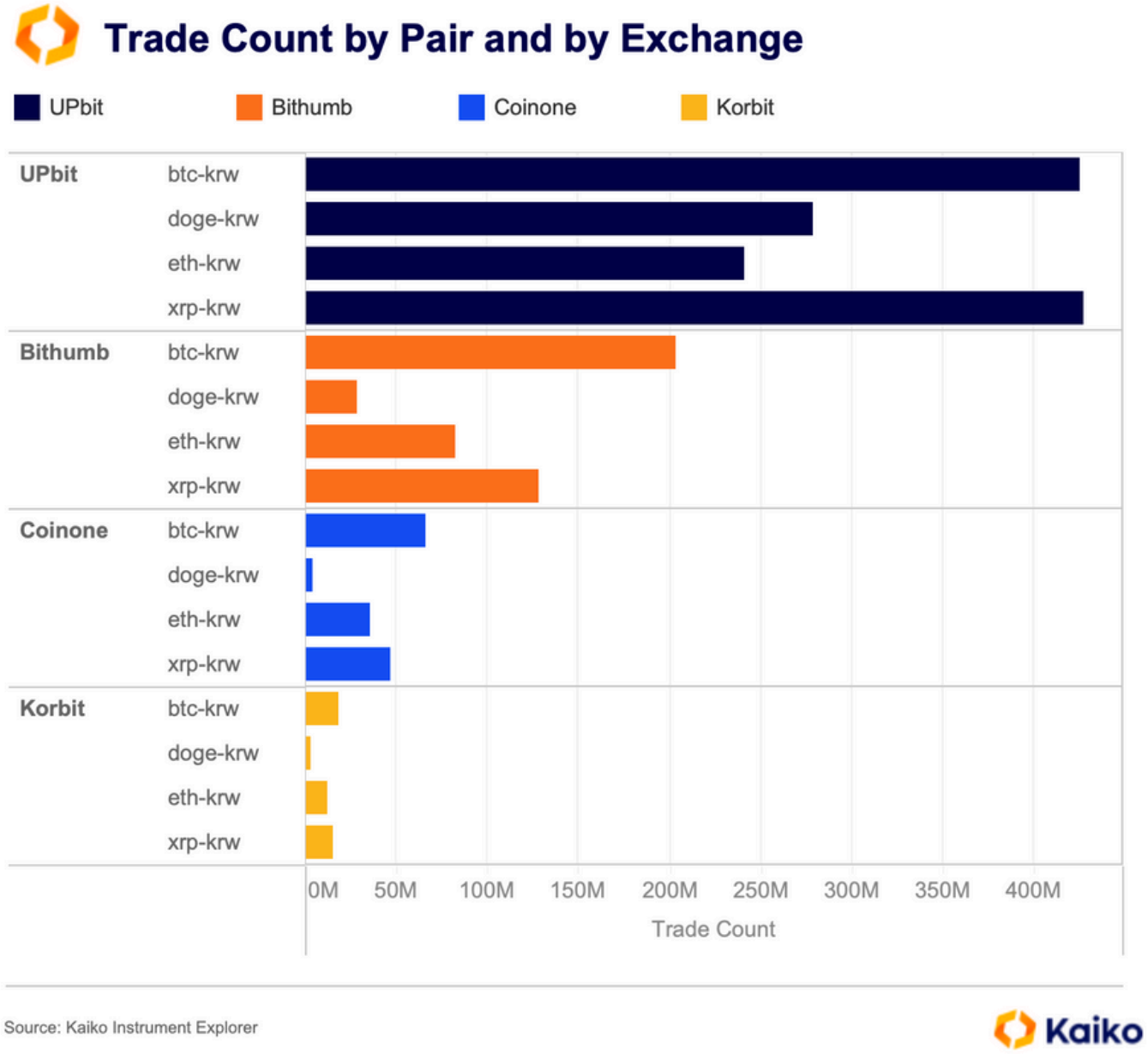


As we mentioned, volume is a key indicator of liquidity. Higher trading volume requires deeper liquidity to support execution. This dominance of UPbit implies significantly deeper liquidity compared to the other exchanges. Conversely, especially on Coinone and Korbit, liquidity is thinner due to considerably lower trading volumes.

We then focused on analyzing the market shares of different exchanges in terms of Volume during the year 2025. The results show UPbit's dominance throughout the year, accounting for around 70% of total trading volume on Korean crypto markets, with Bithumb in second place. This market share split among Korean crypto exchanges is also reflected in market depth liquidity. Market depth shows that UPbit's higher liquidity supports the greater trading volume on its platform.



The chart below shows the total number of trades executed on a given pair per exchange. UPbit clearly dominates trade counts for major KRW pairs, with BTC-KRW and XRP-KRW standing out by a wide margin.

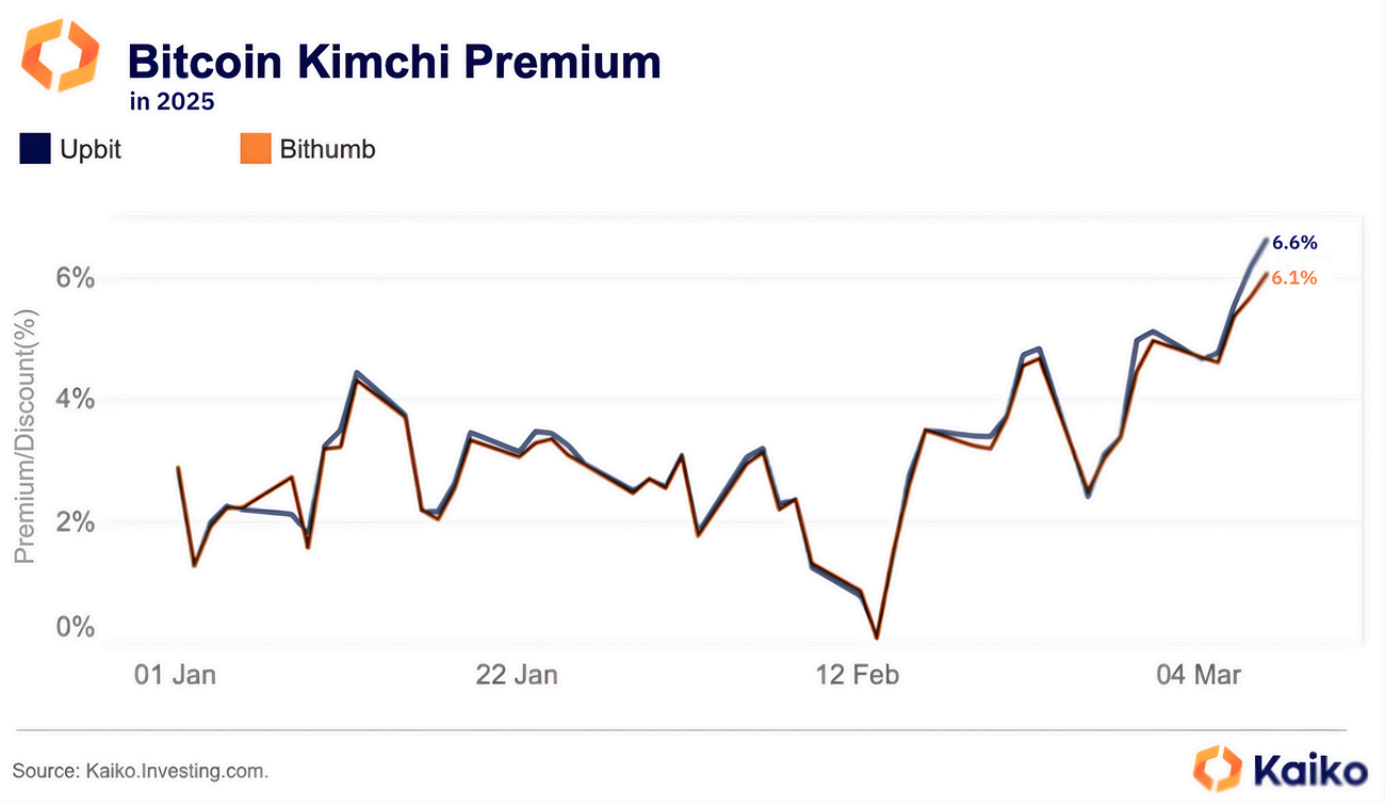



By 2025, the Korean ecosystem has consolidated around major players, with UPbit serving as the primary trading hub. The exchange facilitates significant volumes and maintains a leader position on the market, driven by higher activity on key KRW pairs, backed by deeper liquidity and smooth execution. Bithumb remains the second-largest exchange, while Coinone and Korbit maintain their presence in the market.

# Token-Specific Trends

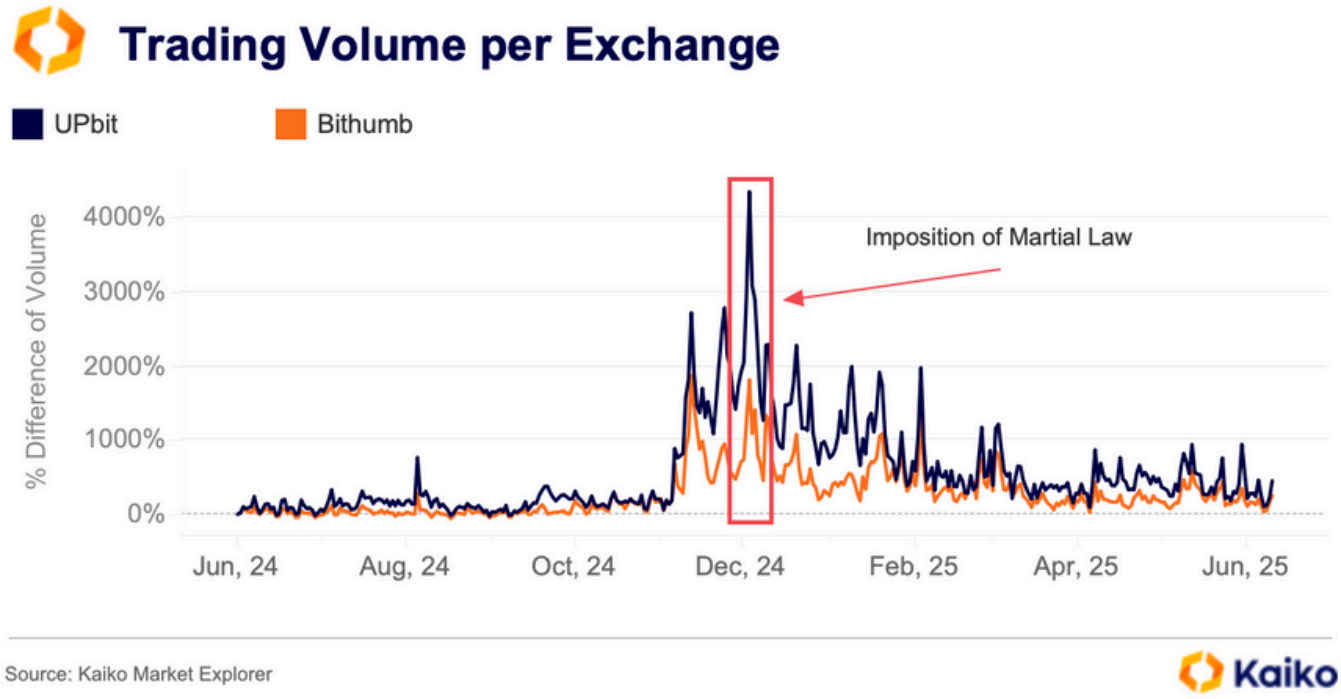
In recent years, token-specific dynamics have significantly influenced market liquidity. These factors have not only altered the distribution of available supply and order book depth but have also affected participant behavior. Understanding these mechanisms is therefore essential for assessing the current state of liquidity and anticipating future fluctuations. To illustrate this, we have drawn on dynamics impacting South Korean markets as well as macroeconomic shocks.

First, we discuss the specificity of the Kimchi premium. It refers to the phenomenon where cryptocurrency prices, particularly Bitcoin, occasionally trade at a temporary premium on South Korean exchanges compared to global exchanges. This short-lived price discrepancy is generally driven by transient supply-demand fluctuations. During periods when the premium widens, traders who can access both Korean and international markets may attempt arbitrage strategies, facilitating this convergence and helping align prices in South Korea.



As a macroeconomic shock, we analyze the impact of the imposition of martial law in South Korea. On December 3, 2024, President Yoon Suk Yeol abruptly declared emergency martial law amid an escalating political standoff, triggering a brief constitutional crisis before the move was quickly lifted under intense domestic and institutional pushback. The episode rattled South Korea's institutions and markets, prompting authorities to pledge all possible measures, including unlimited liquidity support and FX stabilization to calm volatility. The Bank of Korea convened emergency measures, and officials emphasized market backstops as equities fell and the won weakened.

The spike in trading volume reflects a shock-liquidity dynamic. The martial law declaration, that is here the headline risk, triggered a sudden surge in opportunistic flows, pulling in both panic sellers and bargain-hunting buyers.




In this situation, taker aggression jumped while many market makers widened spreads or momentarily reduced inventory. As a result, executions shifted to worse prices but in much larger sizes. High volume here means elevated turnover and faster price discovery, not necessarily better liquidity. In fact, simultaneous decrease in depth and wider bid-ask spreads often coexist with record volumes during stress.

Liquidity can also be analyzed when BTC reaches new all-time highs, as has been observed several times in 2025. Rising prices attract new capital, which tends to fill the order book and tighten spreads on the most liquid pairs. The effect of these all-time highs is a virtuous circle. Indeed, rising prices attract more volume and supply, which tightens the order book and increases execution capacity.


In sum, liquidity in crypto markets is highly path-dependent and sensitive to token. The Kimchi premium exemplifies how regulatory constraints and localized demand can fragment price discovery and segment liquidity across jurisdictions, while the martial law episode shows that headline risk can simultaneously elevate volumes and impair immediacy via thinner depth and wider spreads. By contrast, cyclical bull phases and new all-time highs tend to compress spreads and replenish depth as fresh capital crowds in, reinforcing a positive loop.

# Conclusion

Liquidity on Korean exchanges emerges as a multidimensional construct that cannot be captured by a single indicator. A rigorous assessment requires reconciling metrics such as volume, spreads, market depth and slippage. Volume alone reflects flow rather than accessibility, and periods of market stress can feature record turnover alongside wider spreads and thinner depth, underscoring the need to triangulate liquidity through complementary lenses. Spreads offer an immediate view of price accessibility but are vulnerable to quote staleness, tick-size constraints, and hidden liquidity, while depth quantifies displayed capacity without guaranteeing persistence or resiliency. Slippage integrates these effects into an execution centric measure of cost, yet remains path-dependent and exchange, pair, and time sensitive.

Within Korea's market structure, tick-size design plays a central role. UPbit's graduated grid aligns price granularity with level, enabling stability and readability for a retail-heavy ecosystem. This framework can coexist with good liquidity and we observed that for BTC-KRW and ETH-KRW, slippage remained low over the period. Fee policies further shape outcomes where zero-fee regimes shift costs into the spread unless increased participation compensates.

Cross-exchange analysis confirms UPbit's central role in Korea's crypto ecosystem: it is the primary trading venue for major KRW pairs and concentrates the highest liquidity. Specific token and regime factors modulate these dynamics. The Kimchi premium reflects temporary supply and demand fluctuations, which generally converge toward global prices through active arbitrage. Significant market events, like the December 2024 martial law episode, show how headline risk can amplify volume while affecting liquidity conditions. In contrast, bull markets and price peaks typically enhance execution quality by narrowing spreads and replenishing market depth.

# About the Data

Kaiko is the global independent leader in digital asset market data, analytics, indices, and pricing for institutional investors, financial services firms, and regulators.

This report is based on instrument-level market data, including Level 1 and Level 2 data such as executed trades and order book liquidity metrics. It also incorporates aggregated token- and exchange-level data to illustrate broader trends in liquidity and trading volumes across the selected exchanges.

Trading fee data was collected specifically for this report from exchange websites and other reliable public sources.

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