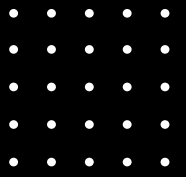




LSEG DATA &
ANALYTICS

Google Cloud



Five ways to master the market

Combining LSEG Tick History
with Google Cloud BigQuery





Rethink historical tick data management

Financial institutions rely on historical tick data for detailed trade information, including each transaction's time, price, and volume. However, before using the data, it needs to be cleaned and normalised to make it structured for analysis or for informing trading strategies.

Market data exchange is increasing, and this trend is expected to persist. LSEG exchange market data volumes surged 66% from 2021-2023, significantly outpacing prior years' 13% annual growth¹. The exponential growth of historical data volumes and increased market volatility in recent years have made in-house management increasingly burdensome and expensive.

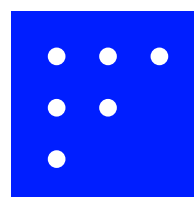
Preparing and downloading data has become slow, delaying analysis and market insights. At the same time, financial institutions bear the cost of purchasing expensive storage and managing infrastructure to keep up with data volume growth. Traditional processing is delaying time to market and missing opportunities. A more efficient approach is needed.

The future of market analysis and backtesting

Start analysing market history on demand to refine trading strategies more accurately and get to market faster. Our Google Cloud-based service uses zero-copy storage, a technique that eliminates data duplication during transfers, accelerating tasks such as moving large files or accessing data lakes.

Eliminate storage and infrastructure burdens and costs while gaining immediate insights from nearly 30 years of historical tick data across exchanges and 580+ venues, normalised and ready to go.

Tick History - Query provides customers with access to historical market data directly in their Google Cloud BigQuery environment. From there, customers can perform their queries and analyses, optimising their workflow and saving time, money, and resources



¹ According to LSEG exchange market data report (2023) on market data volume growth.

It's all about the data

Access historical market data

LSEG collects historical data from its real-time network and handles over 220 billion updates globally every day. This state-of-the-art network includes full tick, optimised, and historical data in Market Price, Market By Price, and Market By Order formats.

Explore a map of the markets

Tick History – Query provides access to historical financial data from as far back as 1996, covering over 580 global trading venues and other contributors. It includes detailed information about trades, such as the time, price, and volume of each nano-second recorded message and update.

Standardise data for seamless analysis across venues and asset classes

Our value lies in normalising the data across all venues and asset classes regardless of the exchange. LSEG cleans and normalises the data, making it ready for use in analysis or trading strategies. We structure the data using unique RIC symbology for accurate and efficient financial instrument identification, retrieval, and analysis.

Empower efficient and scalable data management

As market data volume soars, LSEG expects the rate of this growth to increase, resulting in message rates skyrocketing to 50 million per second by 2029. BigQuery can easily accommodate the increasing volume without impacting performance to ensure customers can quickly access the latest and most comprehensive data sets.

Facilitate effortless data sharing

LSEG Tick History – Query provides a powerful lens into market history and the tools to share and collaborate on your findings, translating into faster, data-driven decisions that give you a competitive edge.

Unparalleled market data

- 92 trillion rows of data
- 132 trillion market updates
- 30PB+ of on-demand Tick Data
- 500 global venues & 3rd party contributors
- Level 1 and 2 trading data as far back as 1996
- All asset classes
- LSEG clients have reduced tick history data storage and management costs by up to 90% by moving to the cloud²

Using LSEG Tick History – Query, customers can:



Share

- View all aspects of tick history data, from venues and fields to detailed descriptors
- Share the data with quantitative analysts, portfolio managers, or research teams



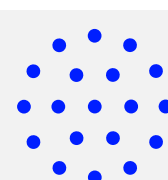
Query

- Perform a single query using LSEG data, which can be combined with your own data within Google Cloud
- Query, code, and transform tick history and their data in a consolidated view to analyse market history and refine trading strategies



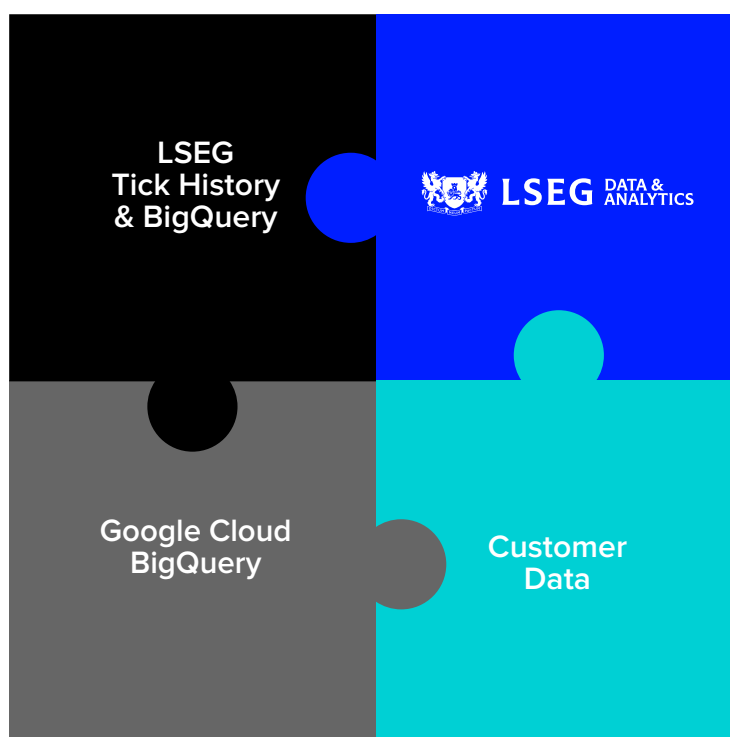
Gain insights

- Gain insights into historical market behaviour
- Gain valuable insights to inform better investment decisions, develop effective trading strategies, and achieve financial goals



Analyse your data directly in BigQuery

We offer comprehensive solutions for the hedge fund industry to succeed in the competitive financial markets. LSEG acts as a key puzzle piece, enabling customers to query our full market history data alongside first-party data in Google Cloud, analysing both in a single query. With all the market data in one location, customers can access a hedge fund in a box, unlocking deeper insights for data-driven investment decisions.



LSEG Tick History – Query

LSEG's entire tick database resides in BigQuery.

- Eradicate data downloads
- Auto-scale as market data grows
- Eliminate expensive storage and costly IT maintenance

Seamless Integration for Google Cloud

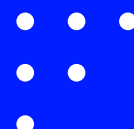
The full LSEG tick history is stored and shared into customers' BigQuery environments.

- Slash query times from days to seconds and deliver accurate results
- Enjoy zero storage charges
- Integrate with customers' data lake

Customer Data in BigQuery

Customers can query LSEG tick history and their own data using the same query.

- Benefit from full security
- Avoid egress charges
- Develop new products and services



Five ways to master the market

Gain a deeper understanding of market behaviour through our comprehensive 45+ petabyte database of historical tick data, spanning all asset classes and dating back to 1996. Analyse this directly in your Google Cloud BigQuery project to discover hidden patterns and make informed investment decisions.

1. Power new applications

Combine tick history data with reference data, news APIs, and sentiment analysis to create an innovative range of applications.

LSEG turns unstructured data into actionable insight with our comprehensive news feed solutions. From leading news analytics with ultra-low latency delivery to deep historical news archives and feeds that leverage AI and natural language processing (NLP) capabilities, our solutions can optimise your programmatic workflows.

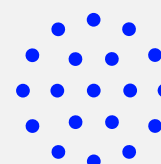
2. Unlock AI-driven insights

With BigQuery and Vertex AI as part of the same unified AI platform, data scientists and engineers can use real time market data in conjunction with AI and LLMs for trading pattern matching and other financial tasks.

Discover market secrets with our industry-leading models and real-time user-defined parameters for scenario-based analysis solutions powered by AI and hosted in Google Cloud.

3. NAV positions & common Algo's

- **Customer net asset value at a given point in time:** Firms use tick history to overlay their customers' positions at a given point in time—i.e., demonstrate a rise in customer portfolio as various trading strategies are implemented—Block 1: 15th July to 20th July Block 2: July 27th to August 3rd—NAV—"Net Asset Value."
- **Algo's Momentum:** Momentum trading has been a day-trading strategy for over 80 years. It was only a matter of time before traders decided to leverage this investing method by combining it with algorithmic trading. The fundamental idea behind momentum trading is to try to predict future values based on previously observed values.
- **Trend Following:** Trend following, also known as time-series momentum, is related to momentum trading. It seeks to generate profit by expecting future asset price returns to be in the same direction as that asset's historical returns.
- **Risk-On/ Risk-Off:** A risk-on/risk-off strategy closely monitors changes in investor risk tolerance in response to global economic patterns. This strategy dictates that during periods of low perceived risk, investors make higher-risk investments, with the reverse also being true.
- **Black Swan Catchers:** A black swan event is a financial term for an unpredictable event that lies beyond normal expectations but has potentially disastrous outcomes. A recent example is the COVID-19 pandemic.

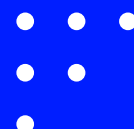


4. Perform robust backtesting

- **Transaction Cost Analysis (TCA) / Trade Efficiency:** Firms can use tick data to evaluate the quality of their trade executions. For example, they can compare the prices they received on their trades to the prevailing market prices at the time of each trade to see if they are paying too much for their trades.
- **Strategy Development and Validation “Markets within a market”:** Tick data provides a granular level of historical market data, including every change in the best bid and offer prices, every trade executed, and order book depth. This allows quants to simulate their strategies with high precision. For instance, they might use this data to evaluate a high-frequency trading strategy that exploits tiny, short-lived price discrepancies. The tick data enables them to determine if these discrepancies existed in the past and if their strategy could have profited from them – e.g., Black Swan Catchers.
- **Risk Management:** Tick data can be used to create detailed models of market behaviour during stressful periods. For example, a firm might use tick data from the 2008 financial crisis to analyse how their current portfolio would have performed during that period. This helps them understand their exposure to extreme market events and manage their risk accordingly – e.g., high inflation periods (present day vs. 1990s).
- **Market Impact Analysis:** Tick data can show how the market responds to large trades. For instance, a firm might examine tick data from past cases when they traded large volumes of a particular security to gauge how these trades affected the market price. This analysis can assist in estimating the impact of future trades and devising trading strategies to reduce this impact.
- **Price Modelling and Fair Value Calculation:** Use tick data to construct detailed price models, which are especially useful for complex financial instruments like derivatives. For example, an option pricing model might need to account for the volatility of the underlying security, which can be estimated from tick data – e.g., the CBOE VIX index.
- **Compliance:** Regulators often require firms to demonstrate that their trading algorithms don’t violate rules against market manipulation, for example. By backtesting their algorithms on tick data, firms can show that their algorithms behave appropriately even in unusual market conditions.
- **Trade Surveillance:** Market surveillance using tick history data involves analysing this detailed trade-by-trade data to identify patterns or anomalies that could suggest fraudulent or manipulative behaviour. For example, a sudden, unexplained increase in trading volume or rapid changes in price could indicate market manipulation.
- **Algo Testing and Tuning:** When developing or fine-tuning a trading algorithm, firms can use tick data to test how the algorithm would have performed in the past. This can help them identify any problems with the algorithm and adjust its parameters for optimal performance – e.g., moving target and tolerance.
- **Liquidity Analysis:** Tick data can reveal how a security’s liquidity varies over time. For example, a firm might find that a certain security tends to have low liquidity at the end of the trading day. They could use this information to avoid trading this security at these times when their trades might have a large market impact.
- **Arbitrage Opportunities:** Tick data can reveal short-lived arbitrage opportunities, where security is briefly priced differently on different exchanges. Firms can use this data to develop high-frequency trading strategies that exploit these opportunities before disappearing.
- **Parameter Calibration:** Many financial models have parameters that need to be calibrated using historical market data. For example, a model might have a parameter that represents the average frequency of large price jumps. This parameter could be calibrated using tick data, which provides a detailed record of all price movements.

5. Propel your research

- **Market Trends Analysis:** Tick history data provides a detailed record of market activity. By analysing this data, researchers can identify trends, such as increasing or decreasing volatility, shifts in trading volume, and changes in bid-ask spreads. These insights can be helpful for customers making trading or investment decisions.
- **Event Studies:** If a specific event, such as a product announcement, regulatory change, or earnings release, has a significant impact on the market, tick history data can help quantify that impact. Researchers can analyse the data before and after the event to see how it affected prices and trading volume. This can help customers understand the potential impact of similar events in the future.
- **Algorithmic Strategy Performance:** Banks can use tick history data to backtest algorithmic trading strategies provided to their customers. By simulating the strategies on historical data, banks can estimate how the strategies might have performed in the past. This can help customers understand the potential risks and returns of the strategies.
- **Trade Execution Analysis:** Tick history data can be used to analyse the quality of trade execution. For example, researchers can examine whether trades were executed at favourable prices and whether large trades moved the market. This information can help customers improve their trading strategies and execution.
- **Sector and Security-Specific Insights:** Researchers can use tick history data to provide deep dives into specific sectors or securities. This might include an analysis of trading patterns, liquidity, or volatility, which can help customers make investment decisions in these areas.



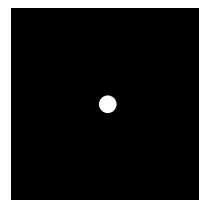
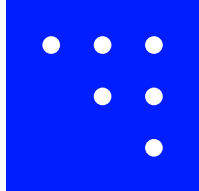
The power of historical market data

In today's fast-paced financial landscape, utilising real-time historical market data for success is essential. LSEG's Tick History – Query offers a comprehensive solution, allowing you to analyse almost 30 years of normalised tick data directly in BigQuery. This eliminates the need for traditional data management, streamlines workflows, and provides immediate insights for informed decision-making.



Market's most comprehensive and trusted data	Market-leading distribution and management	Open access and scalability
Multi-asset class coverage across all global geographies	Secure and resilient connectivity	Ease of integration with external and customer systems
Market-leader in real-time	Trusted data used by global financial services, fintech and regtech firms	Access anytime and anywhere with zero-footprint delivery
Almost 30 years of historic data – more than any other provider	Power and inform your analytics	Cloud usage reduces the cost of on-premises data management and storage infrastructure





Thrive in today's dynamic markets

Leverage LSEG solutions and BigQuery's powerful analytics to gain a competitive edge and confidently navigate the market. Start exploring the power of real-time historical data from venues across the globe.

[Learn more](#)

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