

MIS4321

**Computational Finance and
Algorithmic Trading**

Fall 2025

Lecture #5

Financial Data Storage

Financial Data

Financial data refers to **quantitative information** that is used by organizations **to make financial decisions**.

It is essentially data concerning a company's financial health and performance.

This data includes information about an **organization's income, expenses, assets, liabilities, and cash flow**.

This vital information is **gathered from traditional sources**, such as public documents and external data sources.

It can be **historical or current and collected** on an ongoing, periodic (e.g., quarterly, annually), or as-needed basis (e.g., related to a transaction).

Financial Data

The fidelity of financial data is of the utmost importance.

Financial data quality is based on its:

- Accuracy — to be relied upon for confidently making decisions.
- Completeness — to provide a comprehensive view of an organization's financial well-being.
- Timeliness — to support fast decision-making

Financial Data **Types**

Financial data is categorized into **two main types**: traditional financial data and alternative data.

Traditional financial data: Traditional financial data refers to information from long-established sources, **such as financial statements, press releases, and SEC (Securities and Exchange Commission) filings**. Financial information about assets consists of the organization's real, personal, tangible, and intangible property.

Alternative financial data: It is external data that an organization does not directly report. It is usually gathered in three ways:

1. Acquiring it from raw data sources (e.g., sensors, Satellite images)
2. Licensing third-party data
3. **Web scraping** (the use of a program or algorithm to extract and process large amounts of data from the web.)

Financial Data **Types**

Examples of alternative financial data include:

- Credit card transactions
- Email receipts
- Financial transactions
- Geolocation data
- Mobile app usage
- Point-of-sale transactions
- Price trackers
- Product reviews
- Satellite images
- Shipping container receipts
- Shipping trackers
- Social media posts
- Web browsing activity
- Website usage

Fidelity of Financial Data

Financial data is an invaluable resource for most stakeholders in an organization—internal and external.

While the information included in financial data sets can be interpreted differently by various audiences, **the raw information must be protected to ensure the integrity of downstream decisions.**

For this reason, **regulations** abound around **creating, handling, and safeguarding financial data.**

Stock Tickers

A stock ticker is a **report** of the price of **certain securities**, updated continuously throughout the **trading session** by the various stock market exchanges.

- It reports transaction and price data for a security, updated continuously throughout the day.
- It shows the **ticker symbol**, the **price change** and **percentage change** from the previous session's close, and often **the volume of the shares** being traded.
- Some **tickers color code information** to reflect the direction of the price, with **green for higher**, **red for lower**, and a neutral color like **gray for no change**.

Stock Tickers

INTRADAY		Price Change	
STOXX 600 TRAVEL	224.12	▼ 2.32	1.02%
AIR FRANCE-KLM	5.88	▼ 0.12	2.05%
EASYJET	1,134.00	▼ 37.00	3.16%
RYANAIR	11.72	▼ 0.15	1.22%

Bloomberg

Current Price Direction Change PercentageChange

Ticker Symbol: It is a unique symbol to identify the company when their securities are traded publicly. It is a code around one to four letters long.
(Apple Inc. (AAPL))

Price Traded: Price per share for the specific company.

Direction: It indicates whether a particular stock is trading at a higher or lower price compared to the previous closing day.

Change Amount: Reflects the difference in price compared to the previous closing day.

Percentage Change: The difference in price in percentage compared to the previous closing day.

Stock Tickers

Shares traded is the total **volume of trade** being realized.
(B= 1 billion, M= 1 million, K=1.000)

A trading session is the primary trading hours and locale for a given asset. Regular trading in U.S. stocks has a clearly defined trading session from 9:30 a.m. to 4:00 p.m. Eastern Time (ET).

Different markets may each have their own working hours, with forex markets encompassing many overlapping sessions across different world time zones.

A tick is the minimum incremental amount at which you can trade a security. The minimum **tick size** for stocks trading above \$1 is one cent.

Larger tick sizes decrease trading activity and raise trading costs.

Download and install

- XAMMP:
- <https://www.apachefriends.org/tr/download.html>
- Anaconda:
- <https://www.anaconda.com/download>
- MATLAB from marmara university:
- <https://bidb.marmara.edu.tr/hizmetler/yazilimlar-ogrenci>

Next week

- **Processing Financial Data**

Thank you for your participation 😊