



**Ededge Groups**

# **Stock Market Risk & Return Analysis (2018–2023)**

**Microsoft | Apple | Tesla | S&P 500**



# Objective:

Understand and compare the price behaviour, risk, and market sensitivity of major US stocks using statistical techniques.

## Scope:

- Microsoft, Apple, Tesla
- Market benchmark: S&P 500
- Daily data (2018–2023)



# Dataset & Methodology

## Data Source:

- Yahoo Finance (daily stock prices)

## Methodology:

- Price trend analysis
- Daily return (% change) calculation
- Descriptive statistics
- Histogram & scatter analysis
- CAPM Beta estimation



# Price Trend Analysis (2018–2023)



**Key Observation:**  
Apple & Microsoft show steady long-term growth  
Tesla shows sharp rises and falls  
S&P 500 reflects overall market trend



**Table:  
Mean · Std Dev · Min · Max (Daily Returns)**

Stock	Mean Return	Std Dev	Min Return	Max Return
Microsoft	0.0980%	1.8016%	-8.4075%	8.4640%
Apple	0.1175%	2.0698%	-8.6602%	9.7256%
Tesla	0.2625%	4.3617%	-21.0924%	31.0632%
SP500	0.0388%	1.1463%	-6.8920%	6.2200%

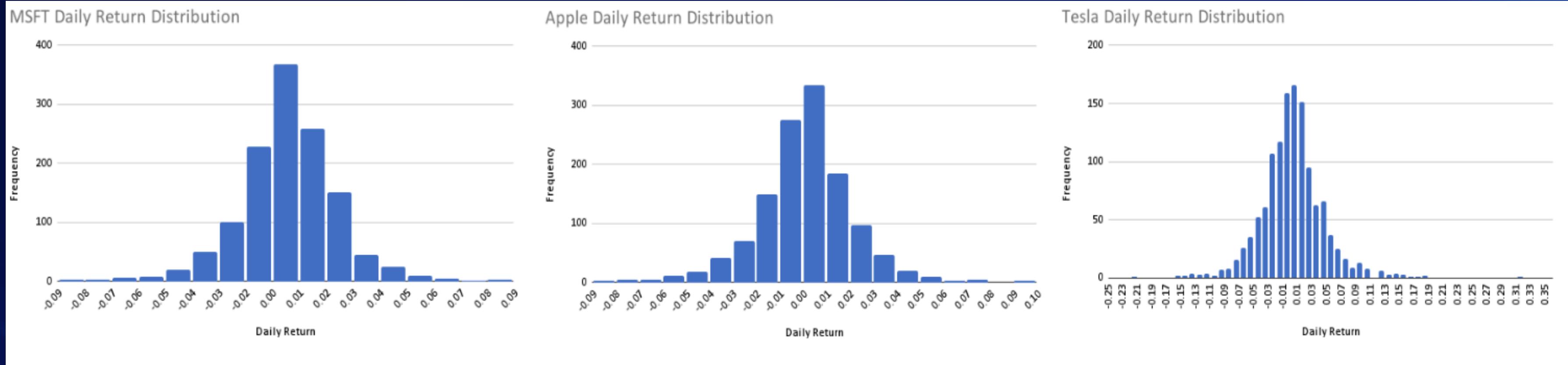
## Descriptive Statistics

### Insight:

- **Tesla has the highest volatility**
- **S&P 500 is the least volatile**
- **Higher risk is associated with higher return variability**



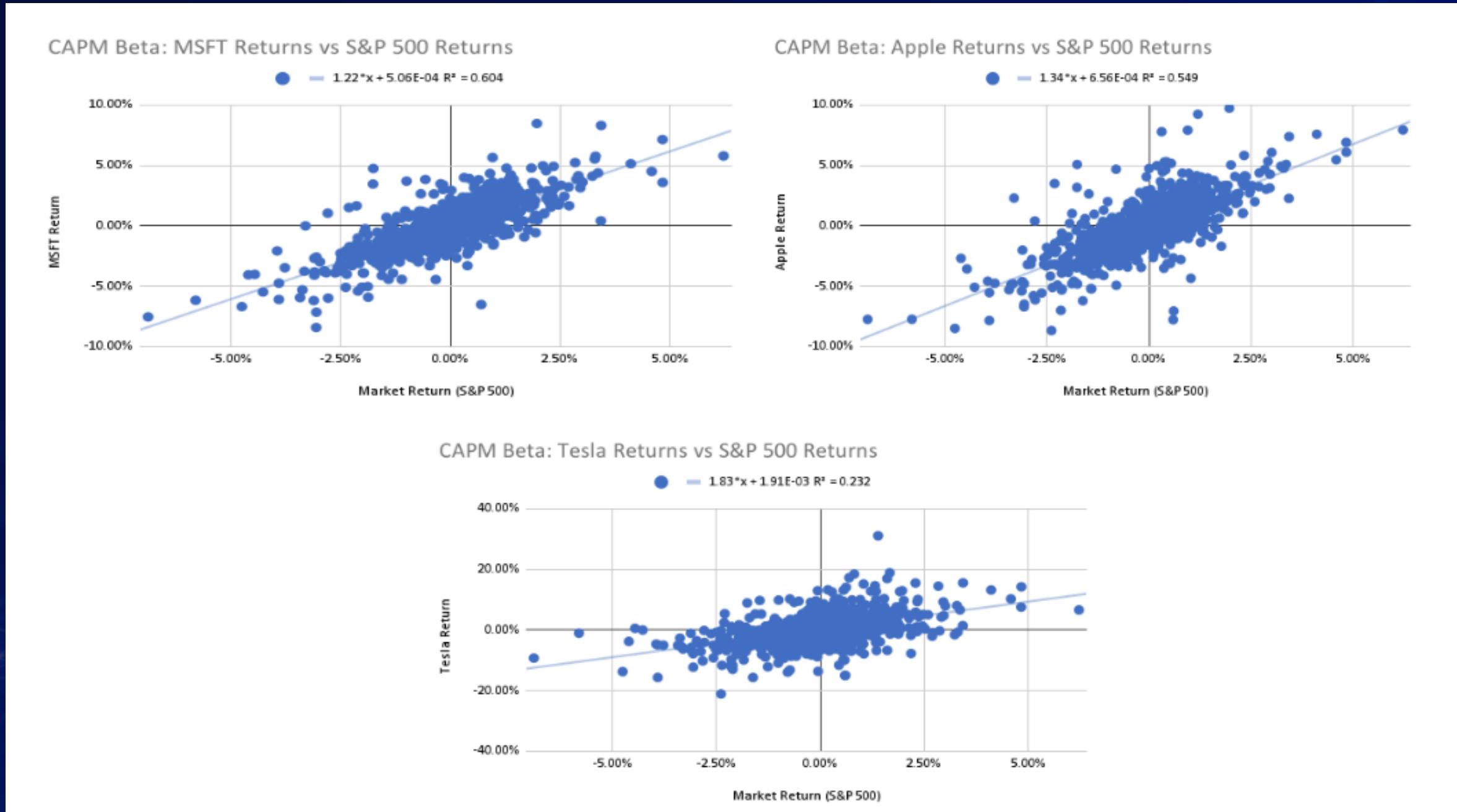
# Return Distribution (Histograms)



**Insight:**  
Tesla's distribution is widest → highest risk  
Apple & Microsoft are more tightly clustered  
Market returns are relatively stable



# Market Relationship (Scatter Plots)



## Insight:

- **Strong positive relationship for Apple & Microsoft**
- **Weaker relationship for Tesla (company-specific risk)**



**Table:  
Beta & R<sup>2</sup> values**

Stock	Beta	R <sup>2</sup>
Microsoft	1.221495021	0.6040026328
Apple	1.33818958	0.5492346784
Tesla	1.831554187	0.2316997728

## Descriptive Statistics

### Key Findings:

- Tesla has the highest beta → most market-sensitive
- Apple & Microsoft have betas > 1
- Lower R<sup>2</sup> for Tesla → higher firm-specific risk



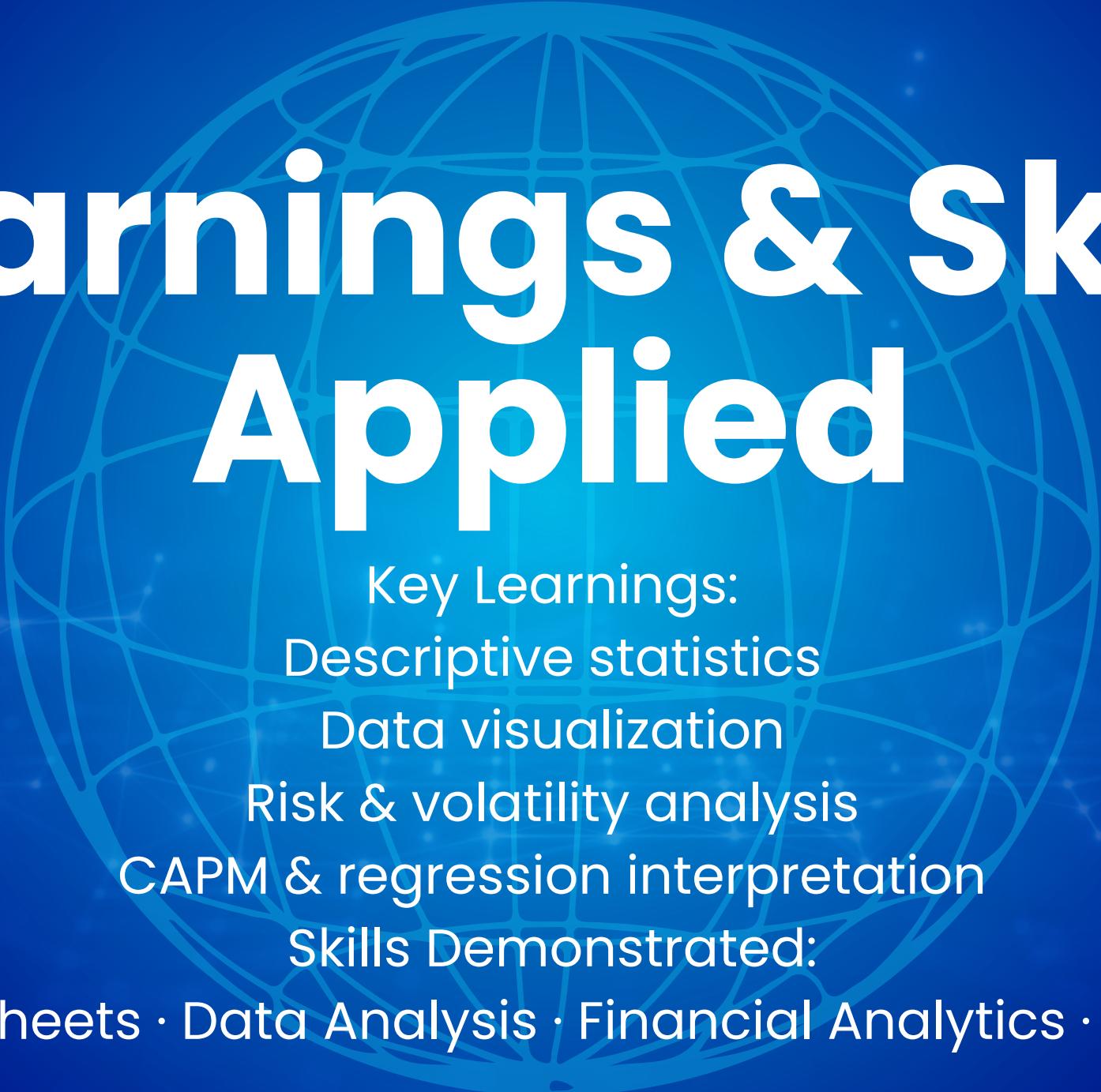
# Key Insights & Business Takeaways

- Risk-return trade-off clearly visible
- Tesla = high risk, high volatility
- Apple & Microsoft = relatively stable growth
- S&P 500 offers diversification benefits
- CAPM helps quantify systematic risk





# Learnings & Skills Applied



Key Learnings:  
Descriptive statistics  
Data visualization  
Risk & volatility analysis  
CAPM & regression interpretation  
Skills Demonstrated:

Google Sheets · Data Analysis · Financial Analytics · Statistics