Logistic Regression with Stocks

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Introduction

1. Basics of Logistic Regression
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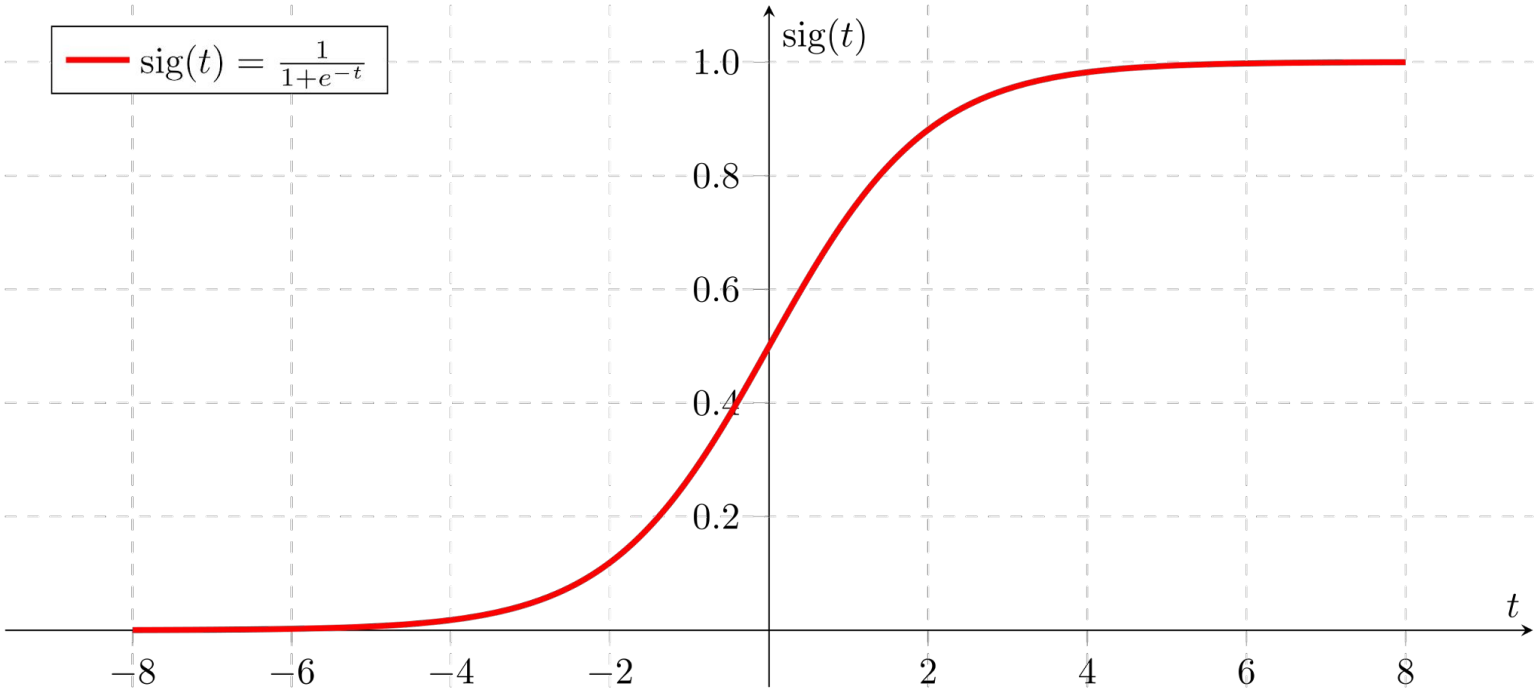
Logistic Regression: The Basics

- Similar to linear regression but the predictor variable is binary or categorical
- Output is a value between 0 and 1; a percentage
- Logistic regression calculates the odds of the outcome as a function of the input variables
- Odds = Probability of event occurring / Probability of event not occurring

Sigmoid Function/Curve



Logistic Regression in Finance

- Helps in making informed stock buying or selling decisions based on the probability of stock price increase or decrease
- Helps mitigate financial risks in volatile markets
- Other areas such as credit risk analysis and predicting loan default

Basic Example

Financial Model Example

Other Logistic Regression Techniques in R

- Glm - very versatile and can handle binary, multinomial, and ordinal logistic regression depending on the family and link function specified
- Multinom - response variable includes three or more categories
- Vgam - useful for more complex scenarios where you might want non-standard link functions or to include non-linear effects of predictors.
- Polr - useful when the categories have a natural ordering.
- StepAIC - stepwise selection to find best logistic regression model

Big Picture/Conclusion

- Find trends in data using logistic regression
- Basics of logistic regression
- Value in data-driven decision-making in finance
- Multiple techniques can be used

Questions