

NVIDIA FORECASTING



ROBERTO VICENTINI, GIOVANNI PIVA

WHY NVIDIA

01

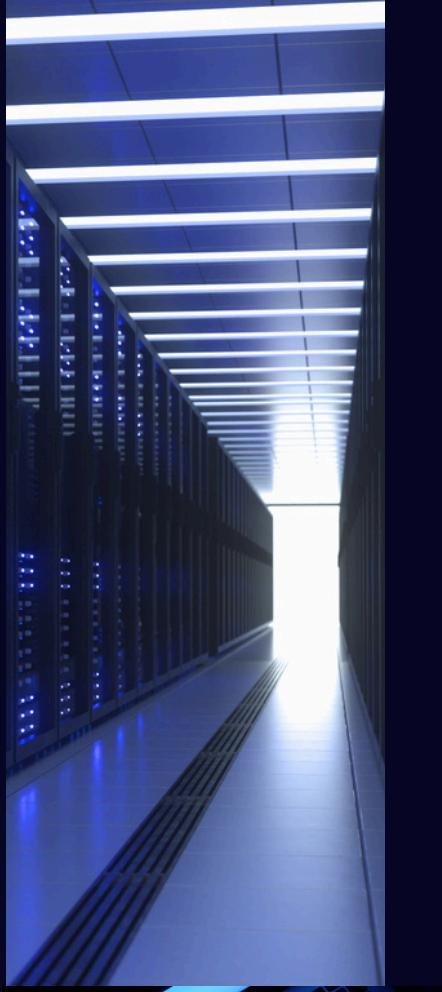
Gaming

02

Hardware

03

Artificial Intelligence



GOAL

01

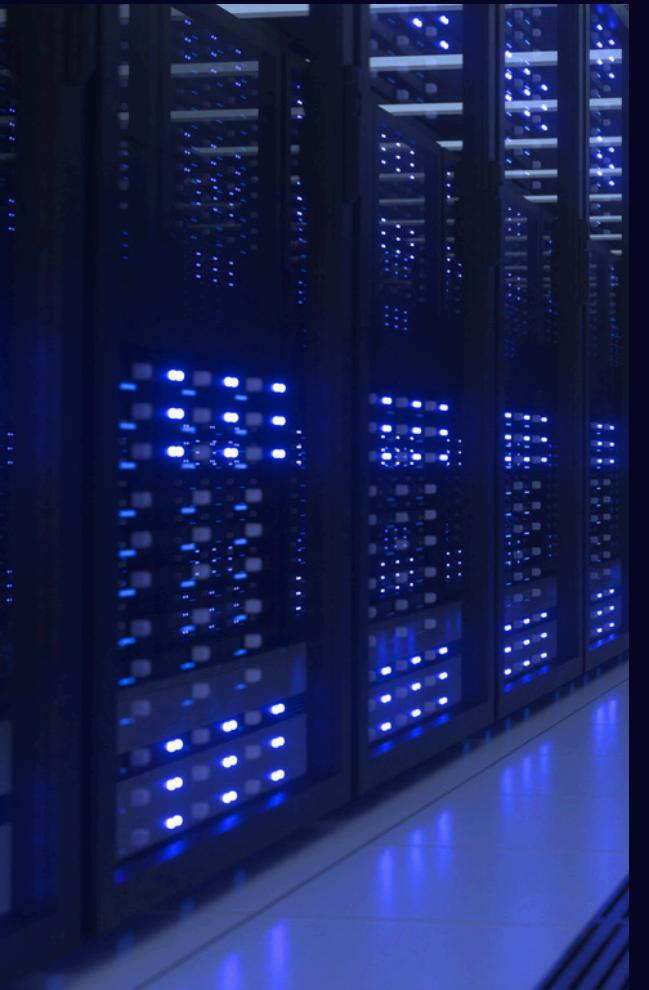
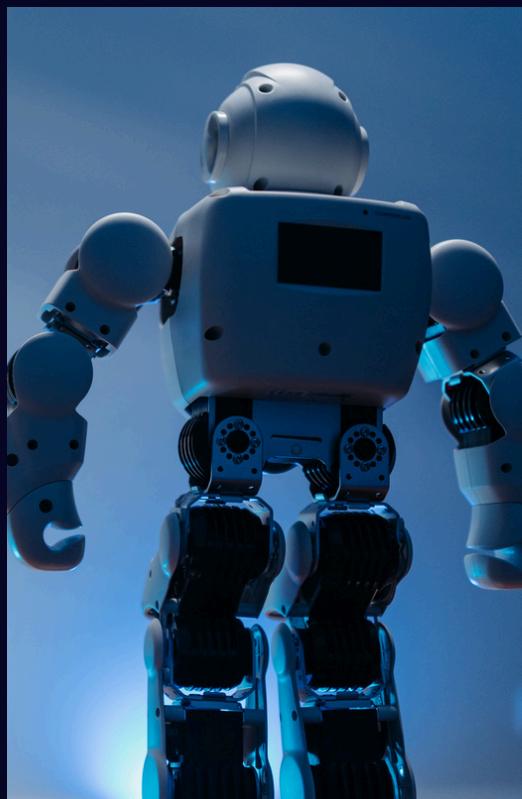
Forecast Revenue

02

Discover best predictors

03

Compare different models



SUMMARY



01

DATA ACQUISITION

02

DATA PREPROCESSING

03

EXPLORATORY DATA ANALYSIS

04

FORECASTING MODELS

05

CONCLUSIONS

DATA ACQUISITION

01

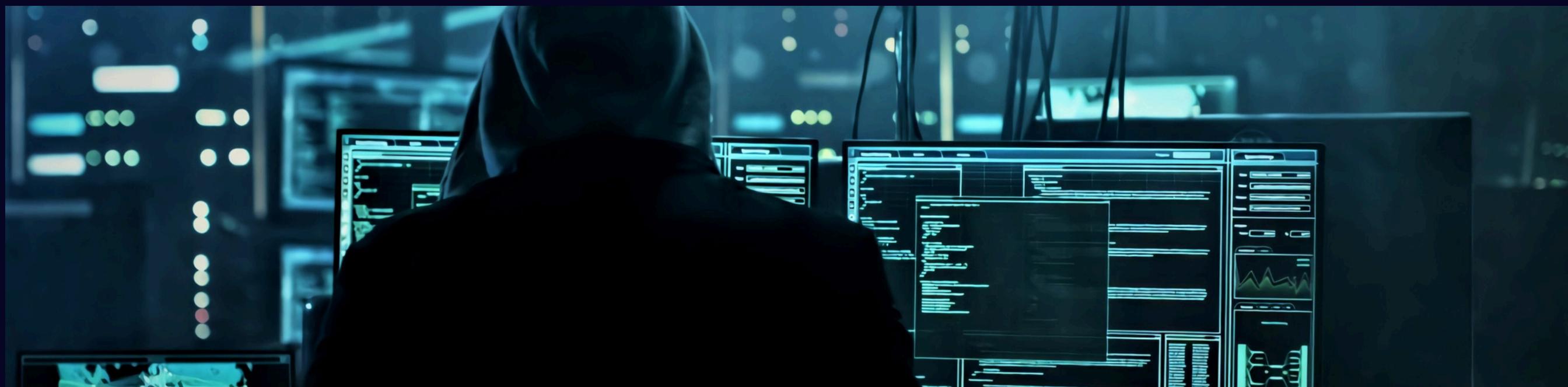
Statista

02

Yahoo Finance

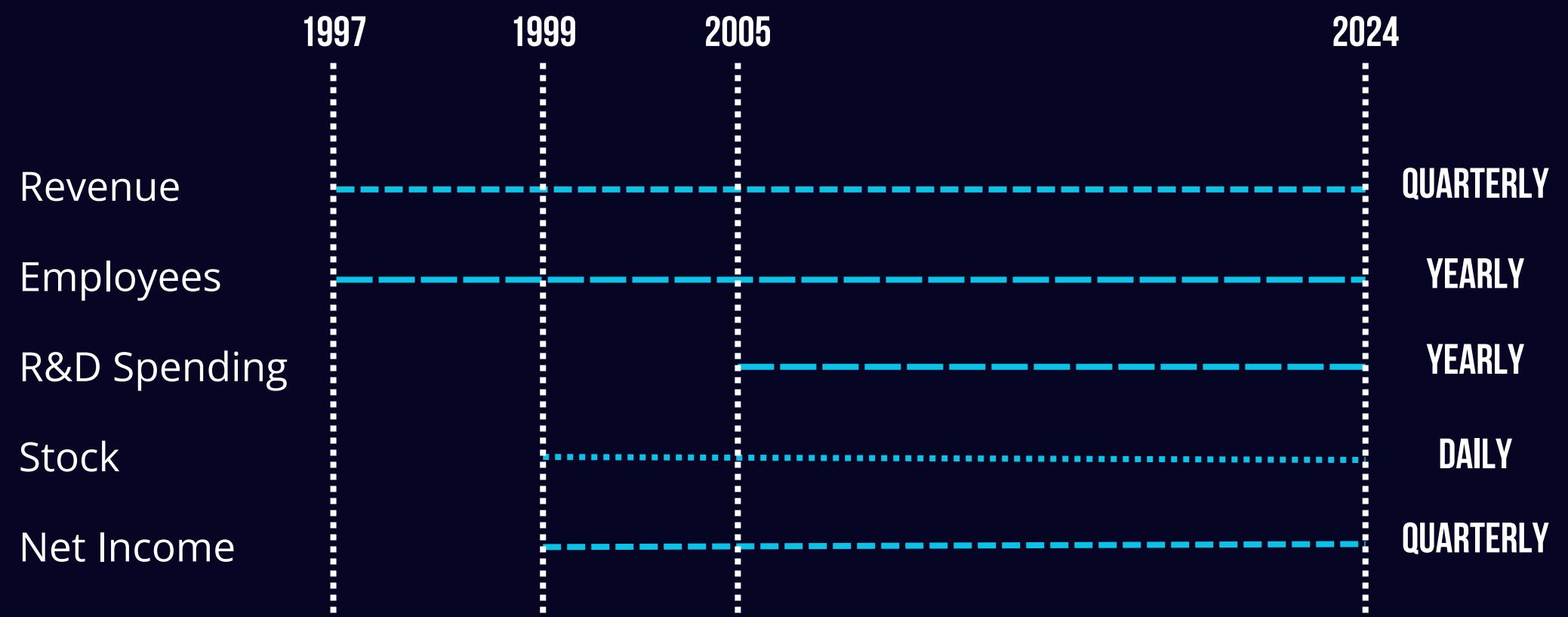
02

Scraping Y-Chart with gpt-4o



DATA PREPROCESSING

TIMELINE





PROBLEM

DATA PREPROCESSING

R&D Spending
Number of Employees

Stock

R&D Spending

YEARLY DATA

DAILY DATA

LESS DATA



DATA PREPROCESSING

YEARLY DATA

R&D Spending
Number of Employees



SPLINE

QUARTERLY DATA

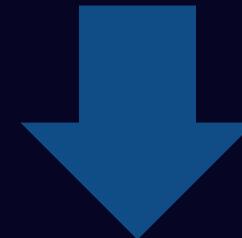
R&D Spending
Number of Employees



DATA PREPROCESSING

DAILY DATA

NVIDIA Stock



QUARTERLY AVERAGE
PRICE

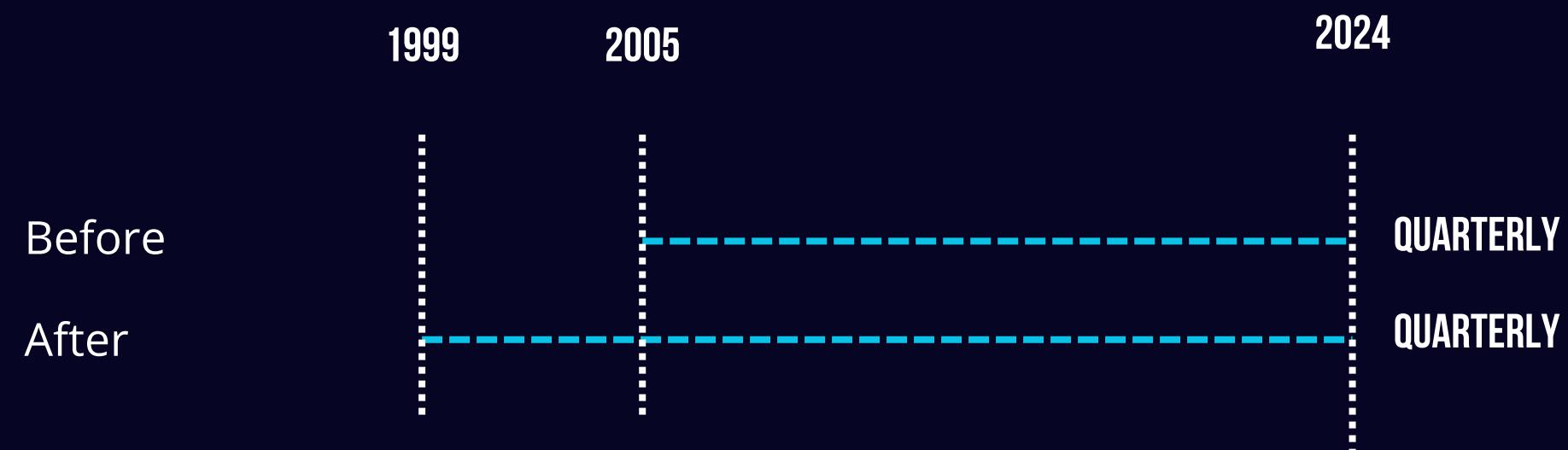
QUARTERLY DATA

NVIDIA Stock



DATA PREPROCESSING

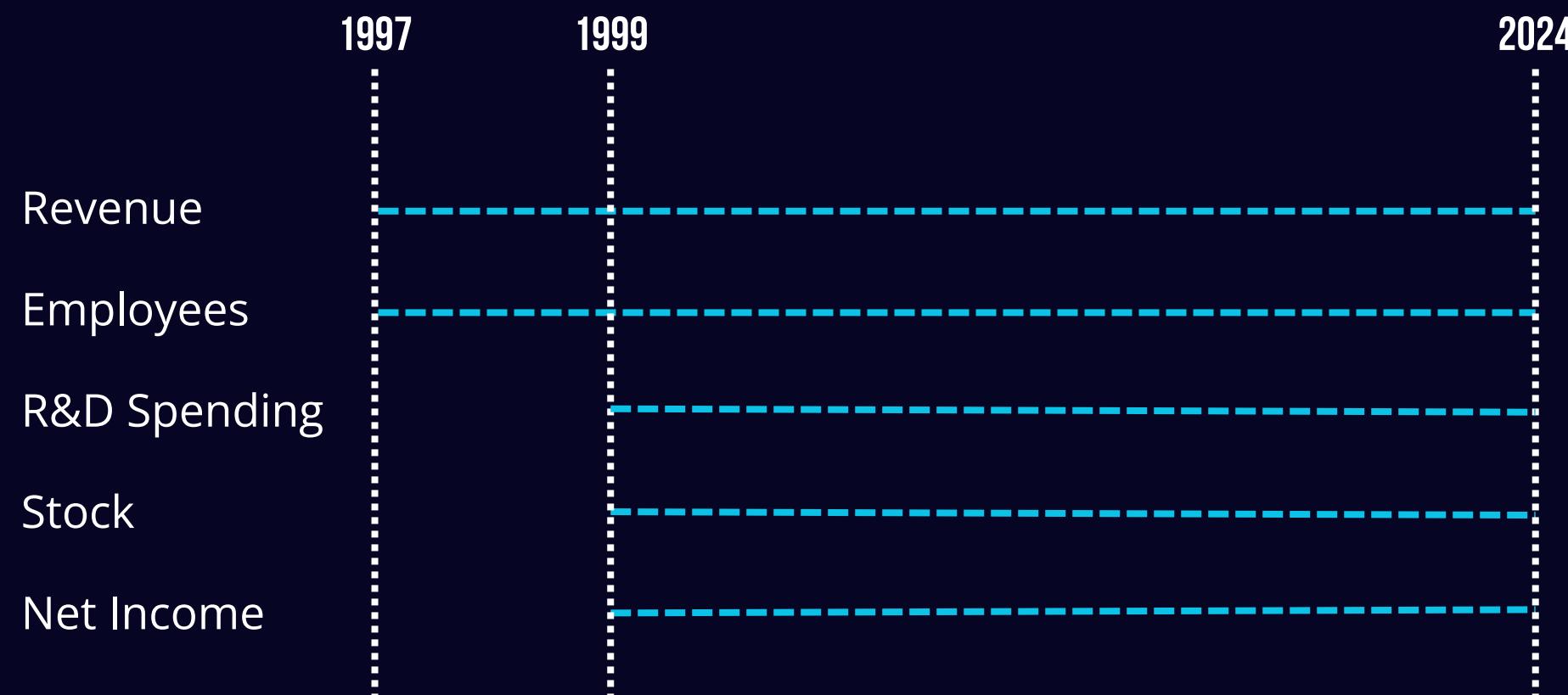
SPLINE LM R&D SPENDING





DATA PREPROCESSING

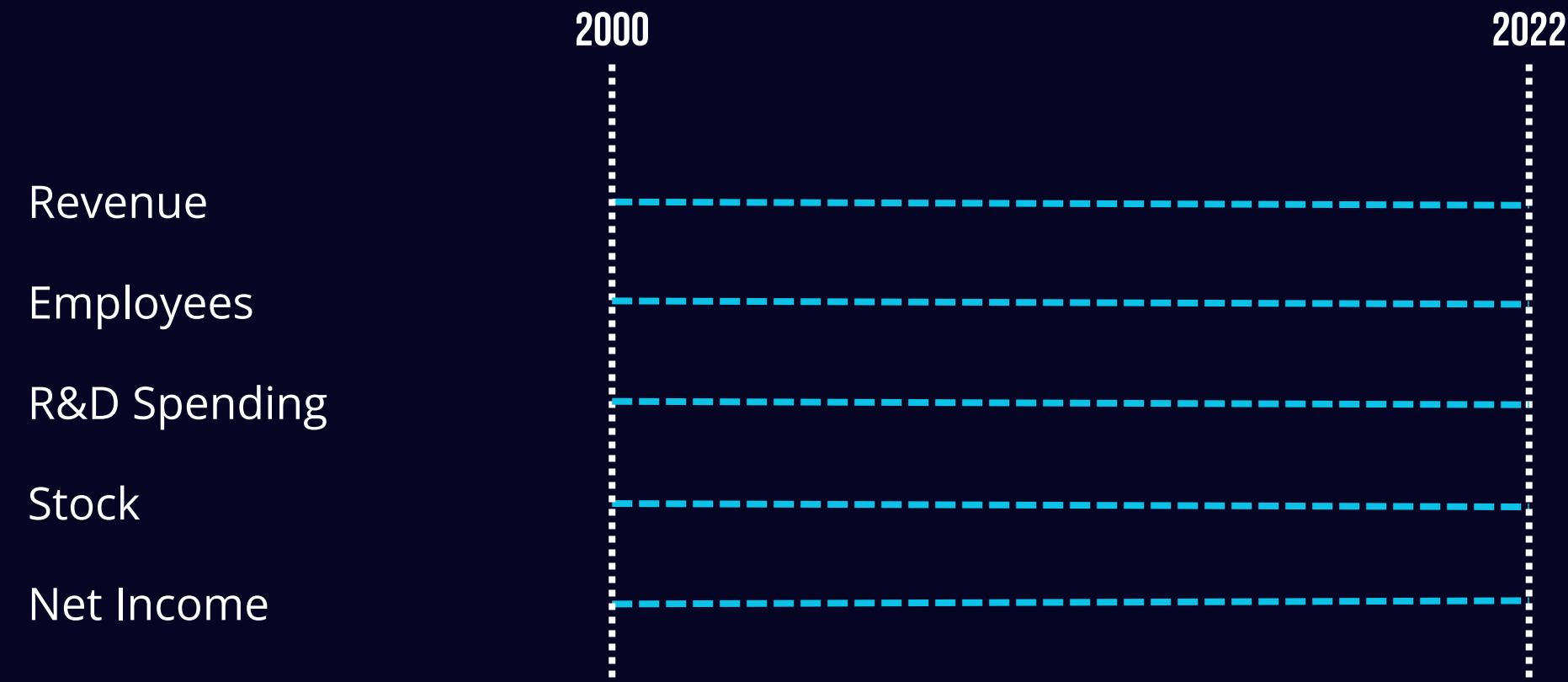
TIMELINE





DATA PREPROCESSING

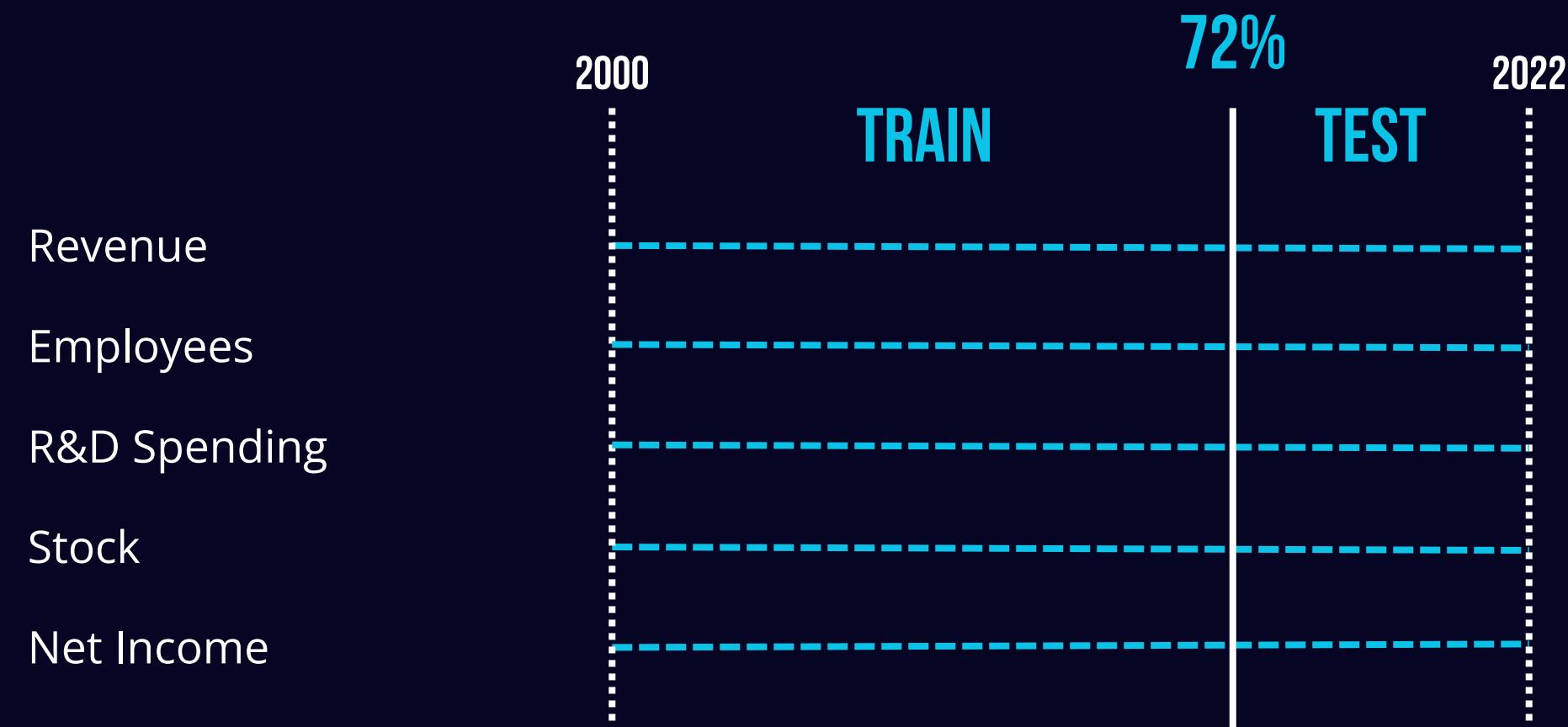
TIMELINE



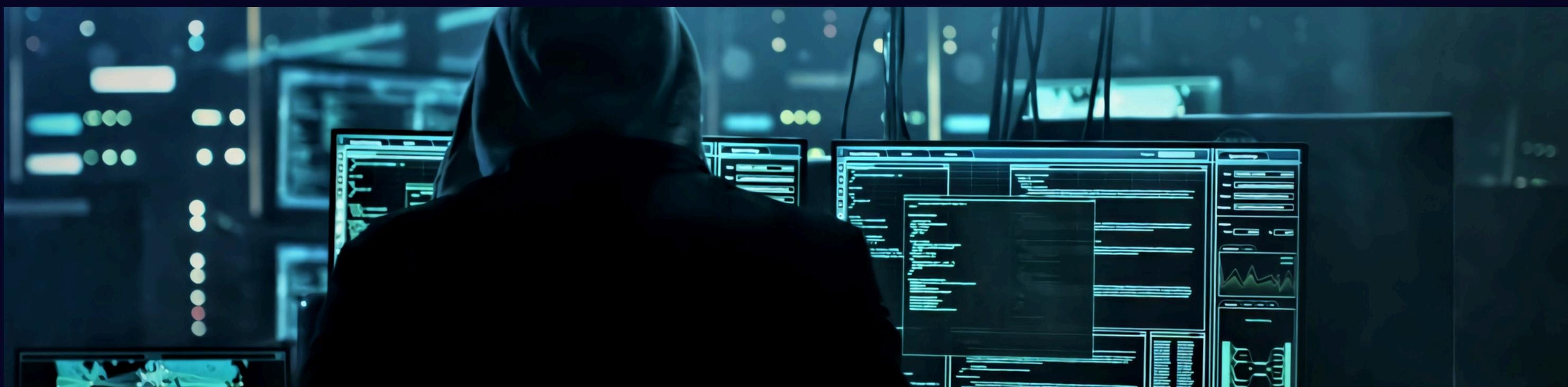


DATA PREPROCESSING

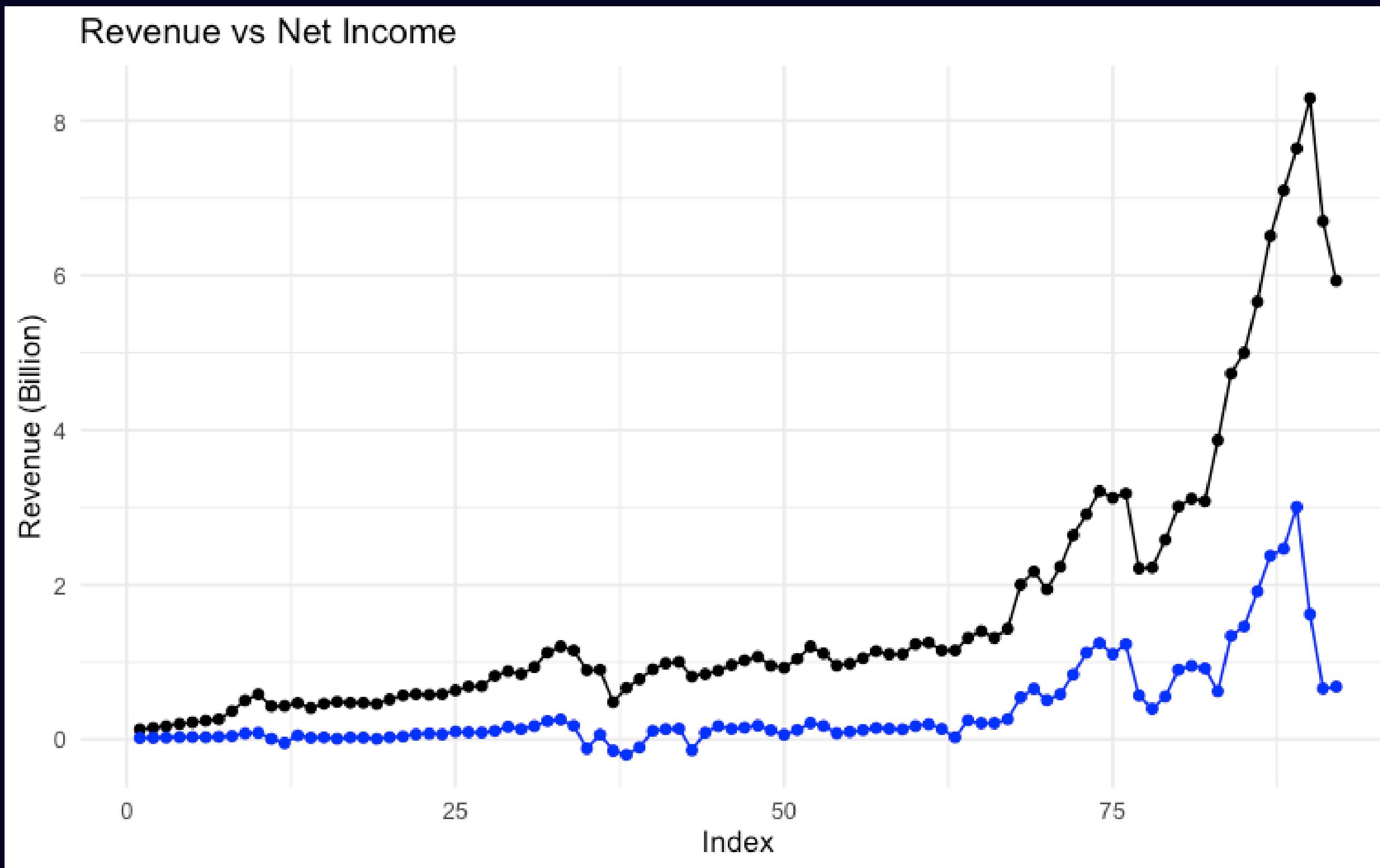
TIMELINE



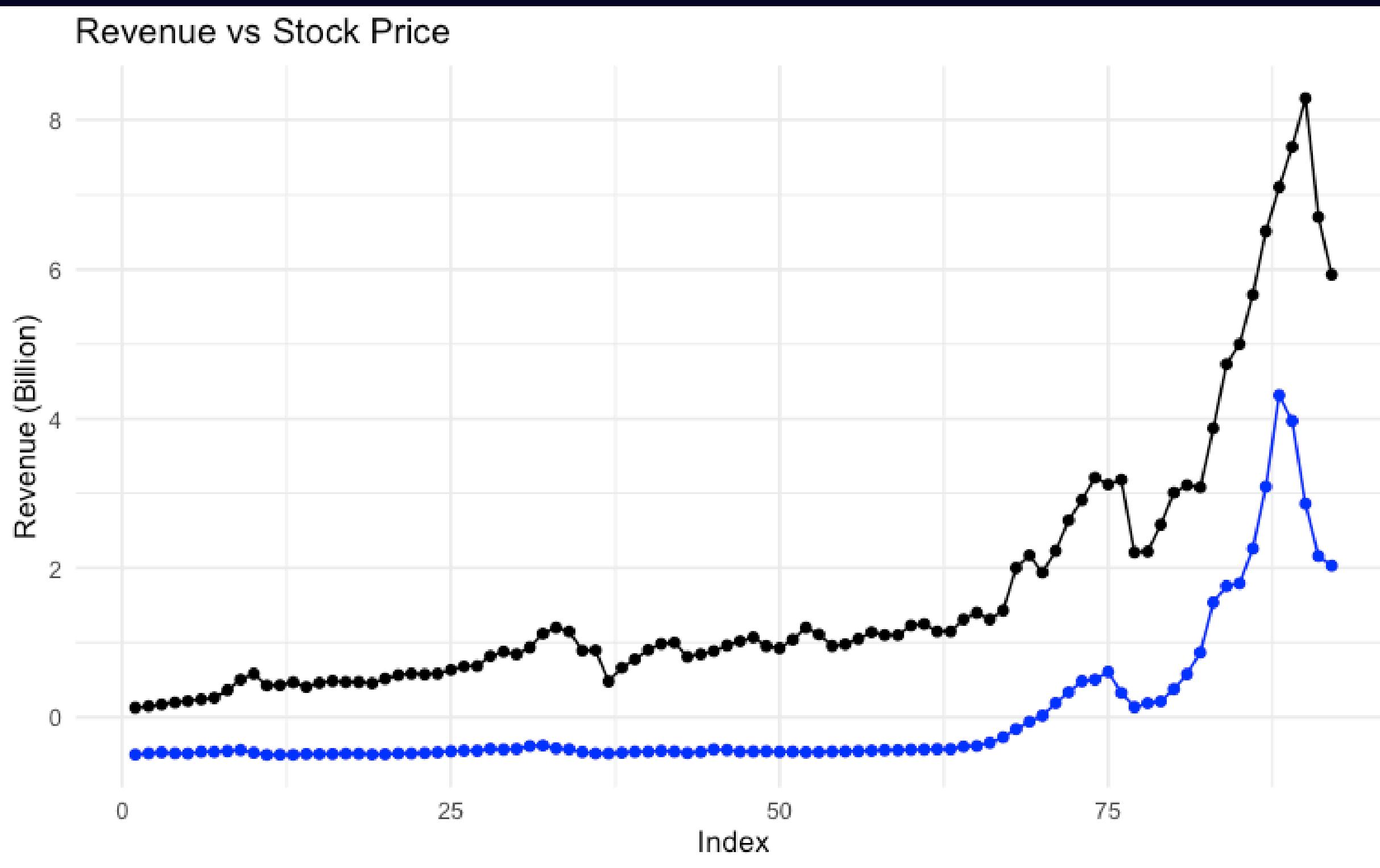
EDA - EXPLORATORY DATA ANALYSIS



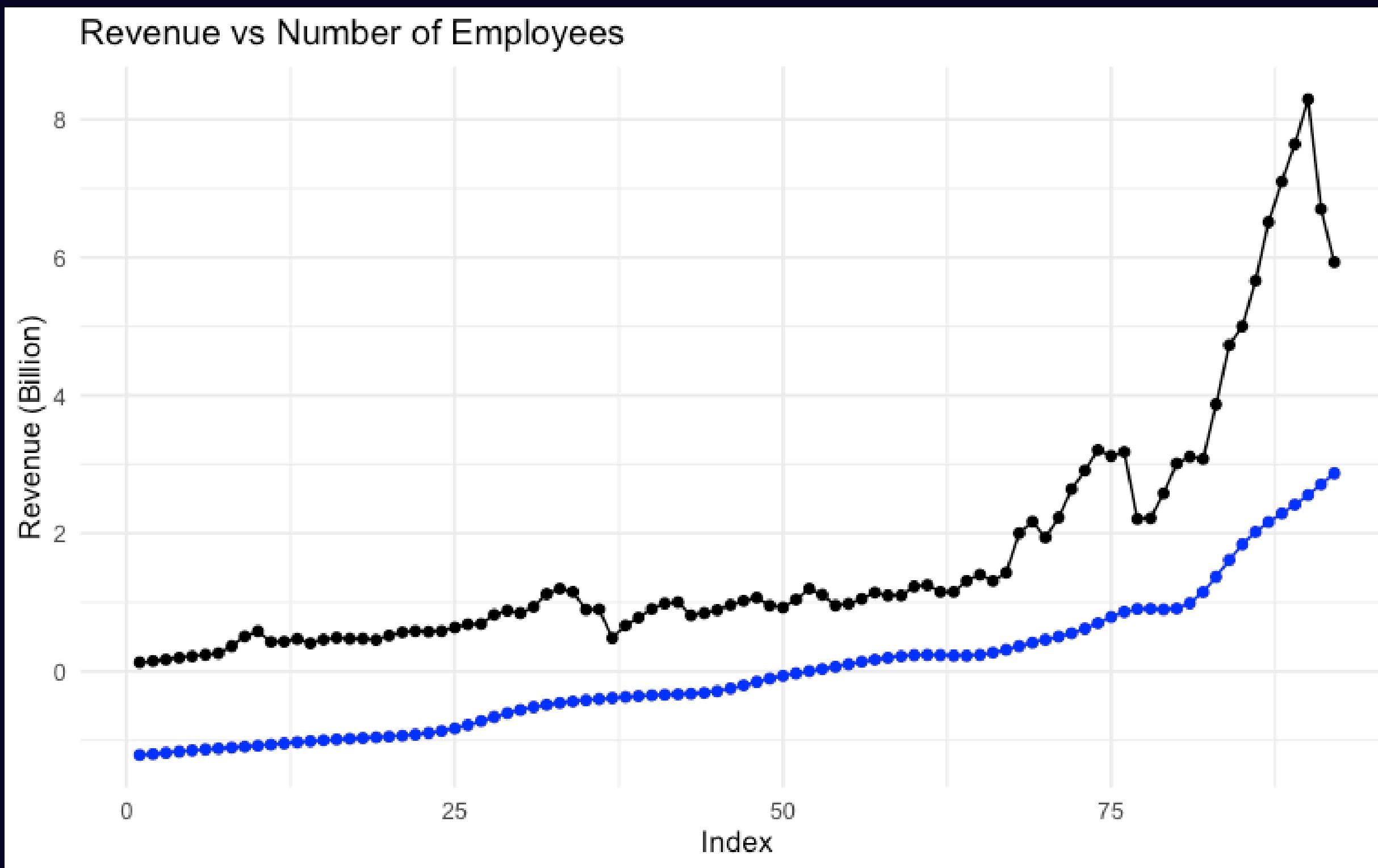
REVENUE VS NET INCOME



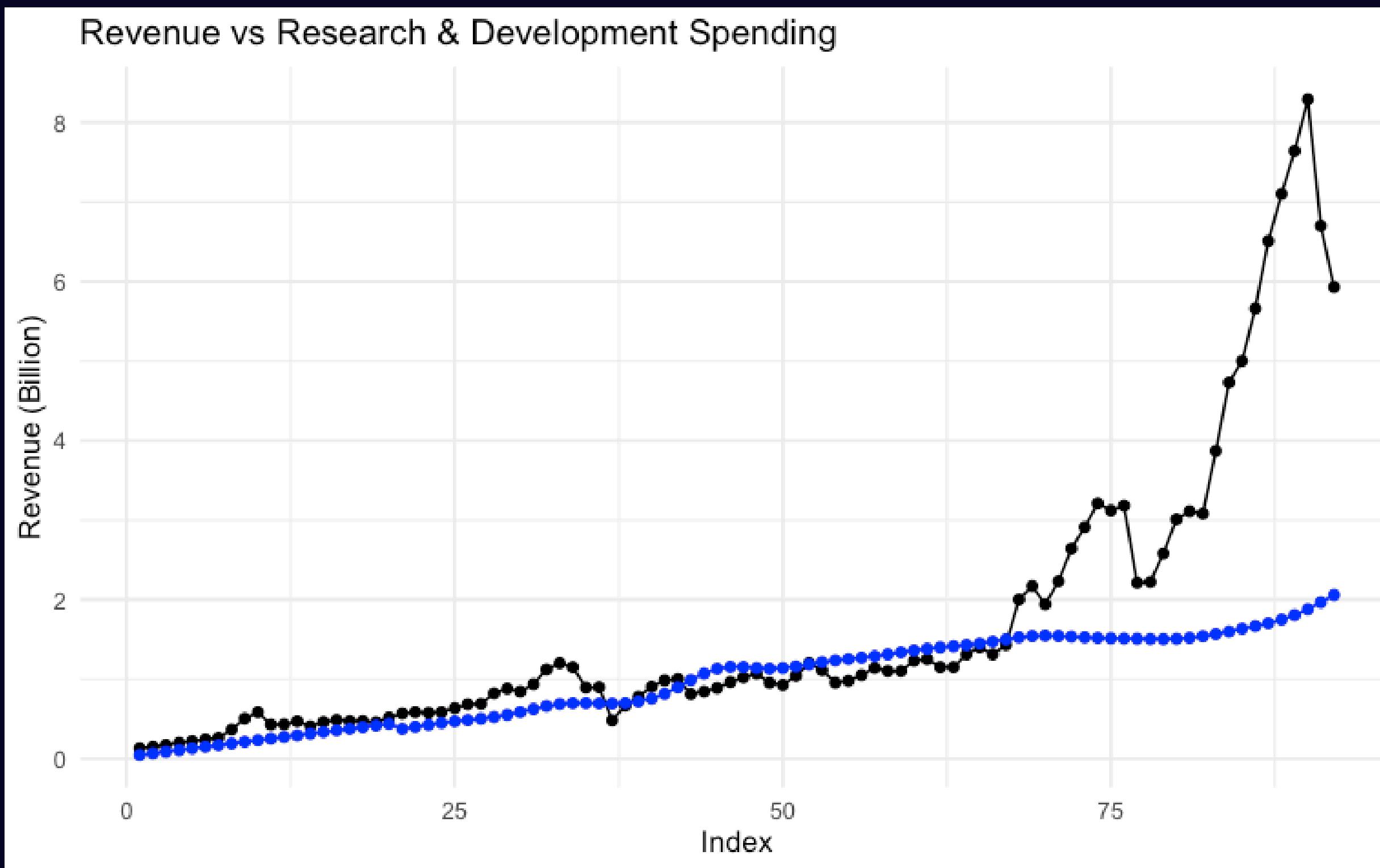
REVENUE VS STOCK PRICE



REVENUE VS EMPLOYEES



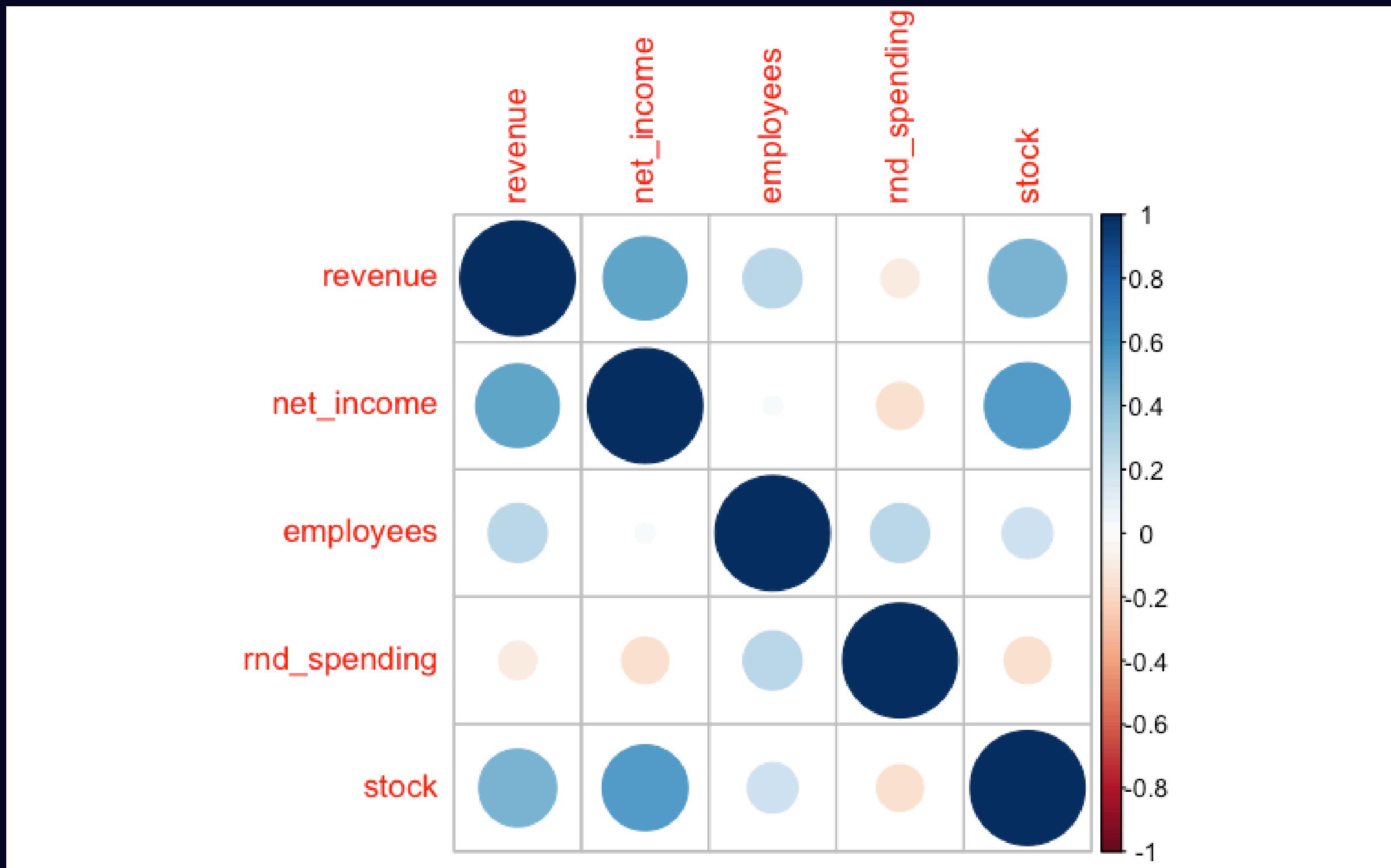
REVENUE VS R&D SPENDING



CORRELATION MATRIX



CORRELATION MATRIX DIFFERENTIATING



MODELS



01

TSLM

02

ARIMAX

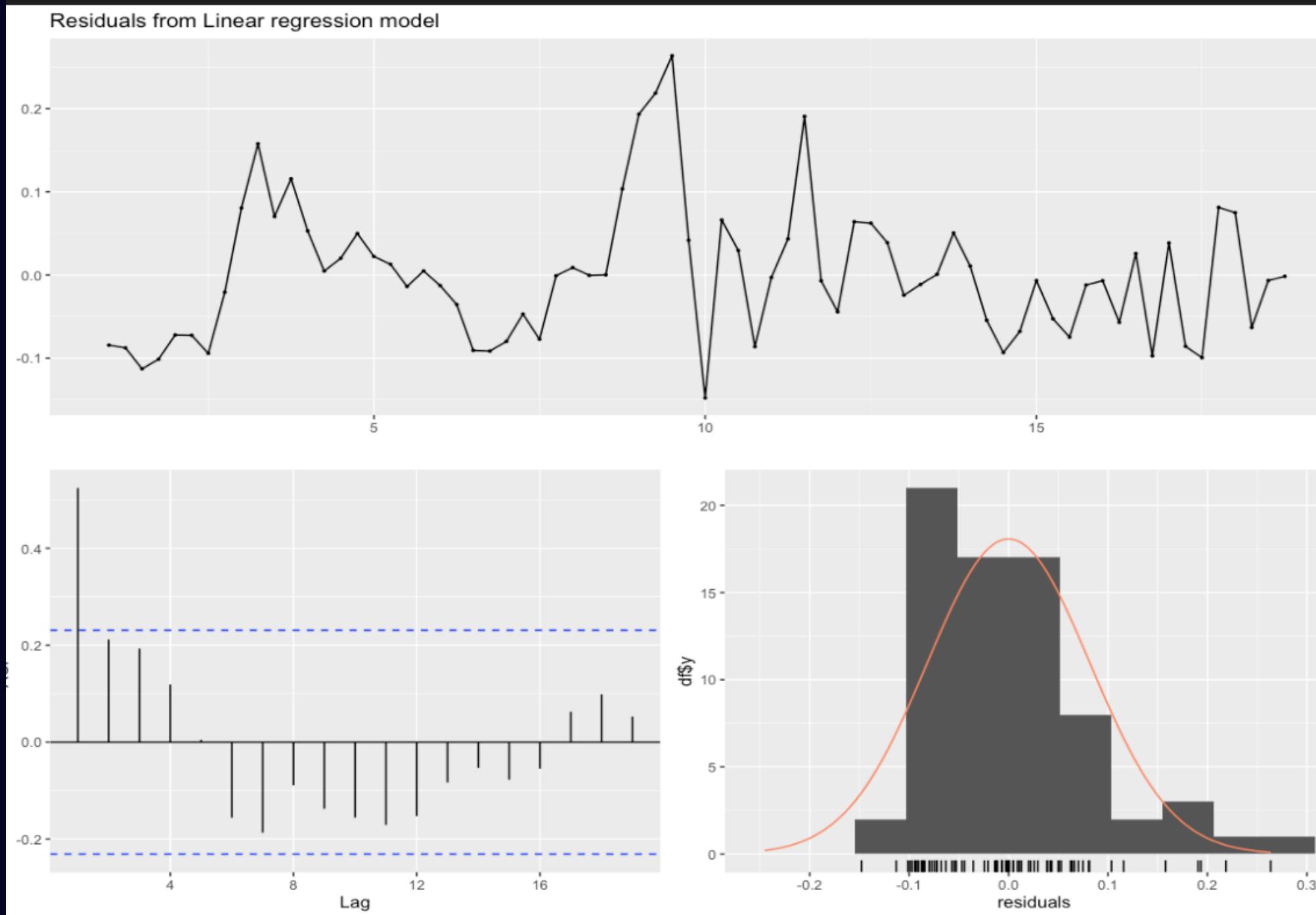
03

LASSO

04

GAM

TSLM - ALL PREDICTORS



01

VIF: 1462

02

R-square: 0.9691

03

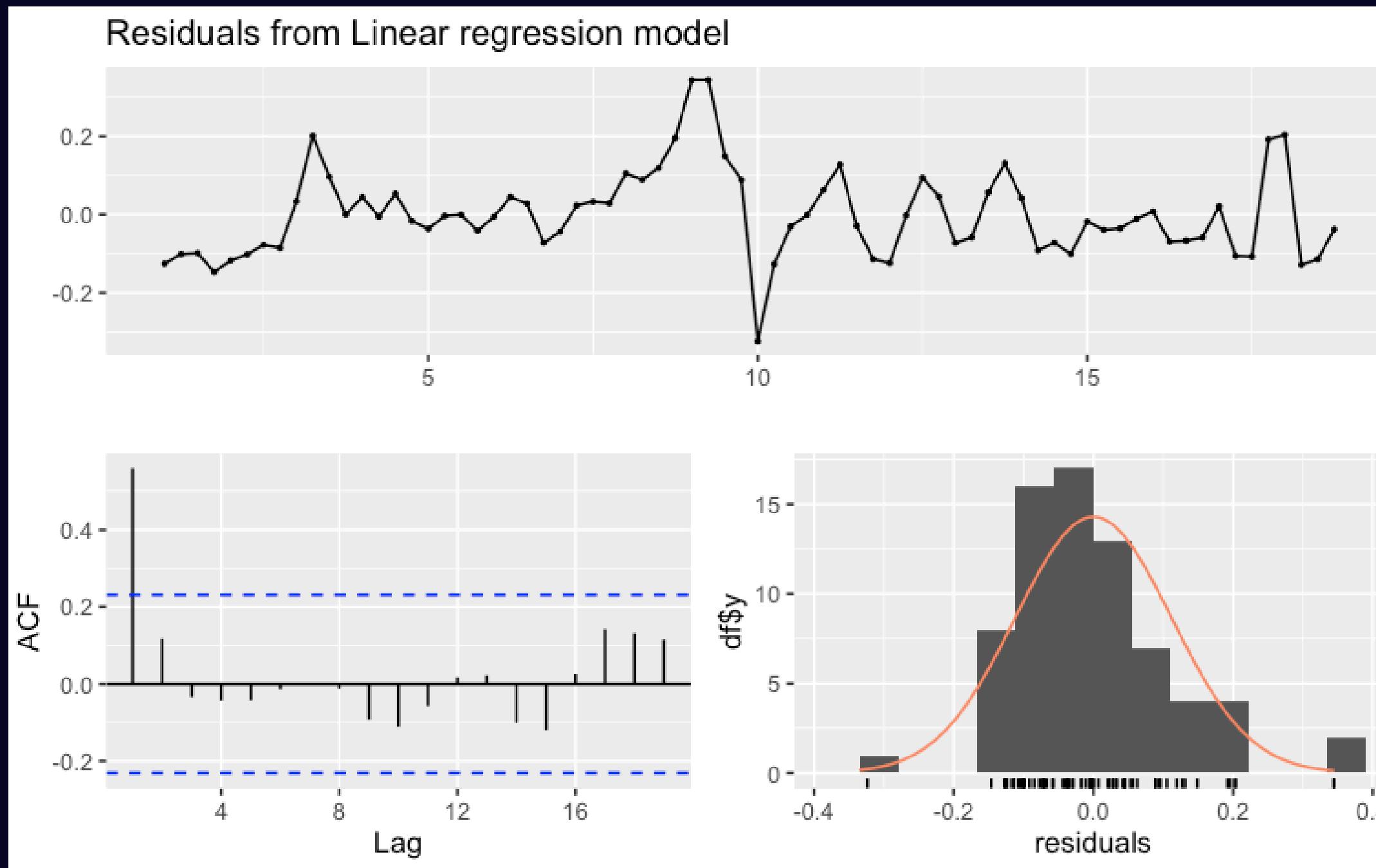
P-value < 0.05

TSLM - IMPROVEMENT

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)		
(Intercept)	0.2855812	0.2350768	1.215	0.228960	01	Trend
season2	-0.0007655	0.0296153	-0.026	0.979460		
season3	0.0203203	0.0311849	0.652	0.517026	02	Stock
season4	0.0225966	0.0290809	0.777	0.440051		
trend	0.0273239	0.0055107	4.958	5.67e-06 ***		
stock	0.0961265	0.0295601	3.252	0.001843 **		
employees	0.0811910	0.1739849	0.467	0.642356		
rnd_spending	-0.7093192	0.1839870	-3.855	0.000274 ***		
net_income	1.1143522	0.1539758	7.237	7.71e-10 ***		

TSLM - SEASON TREND STOCK



01

VIF: 2.84

02

R-square: 0.944

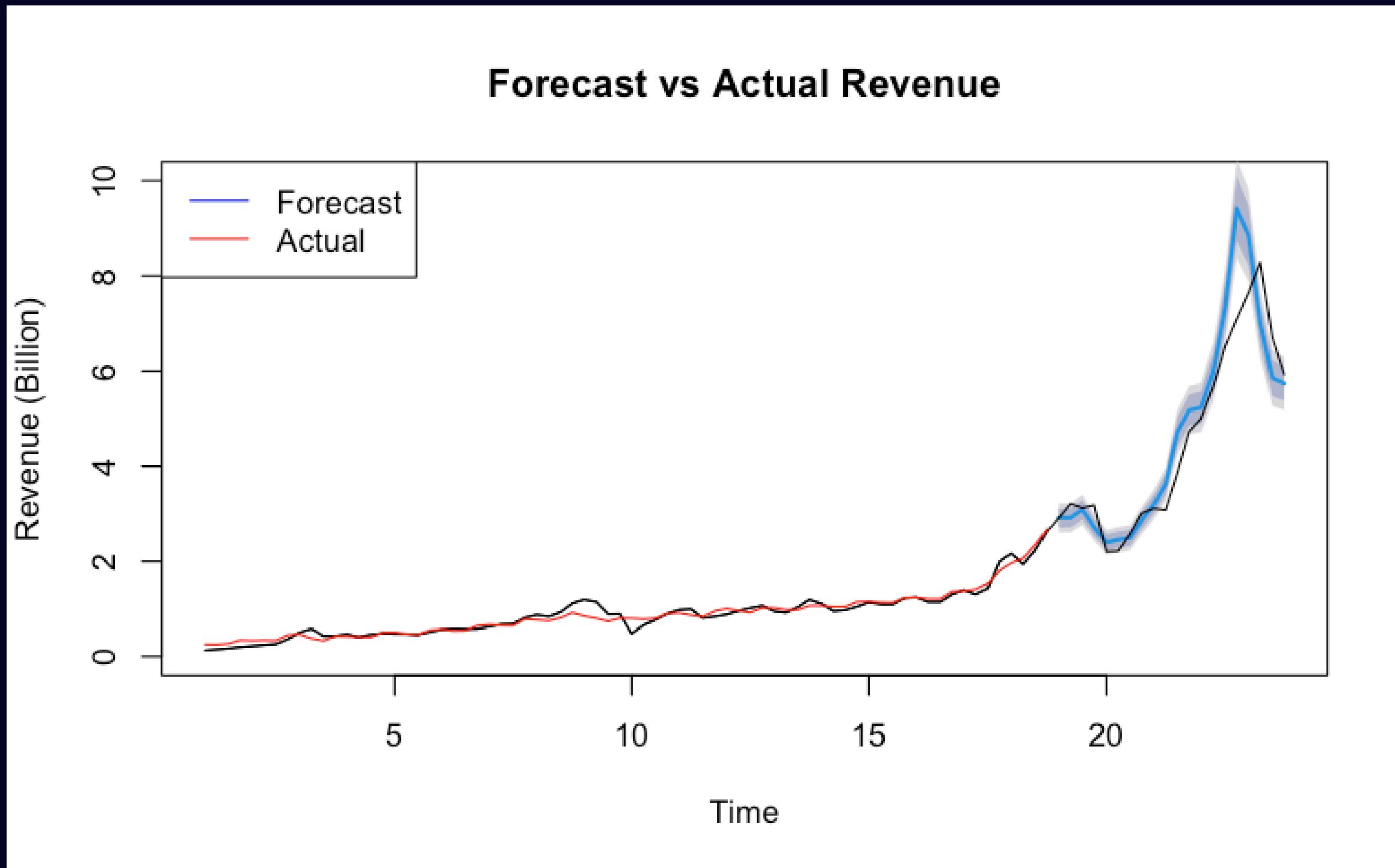
03

P-value < 0.05

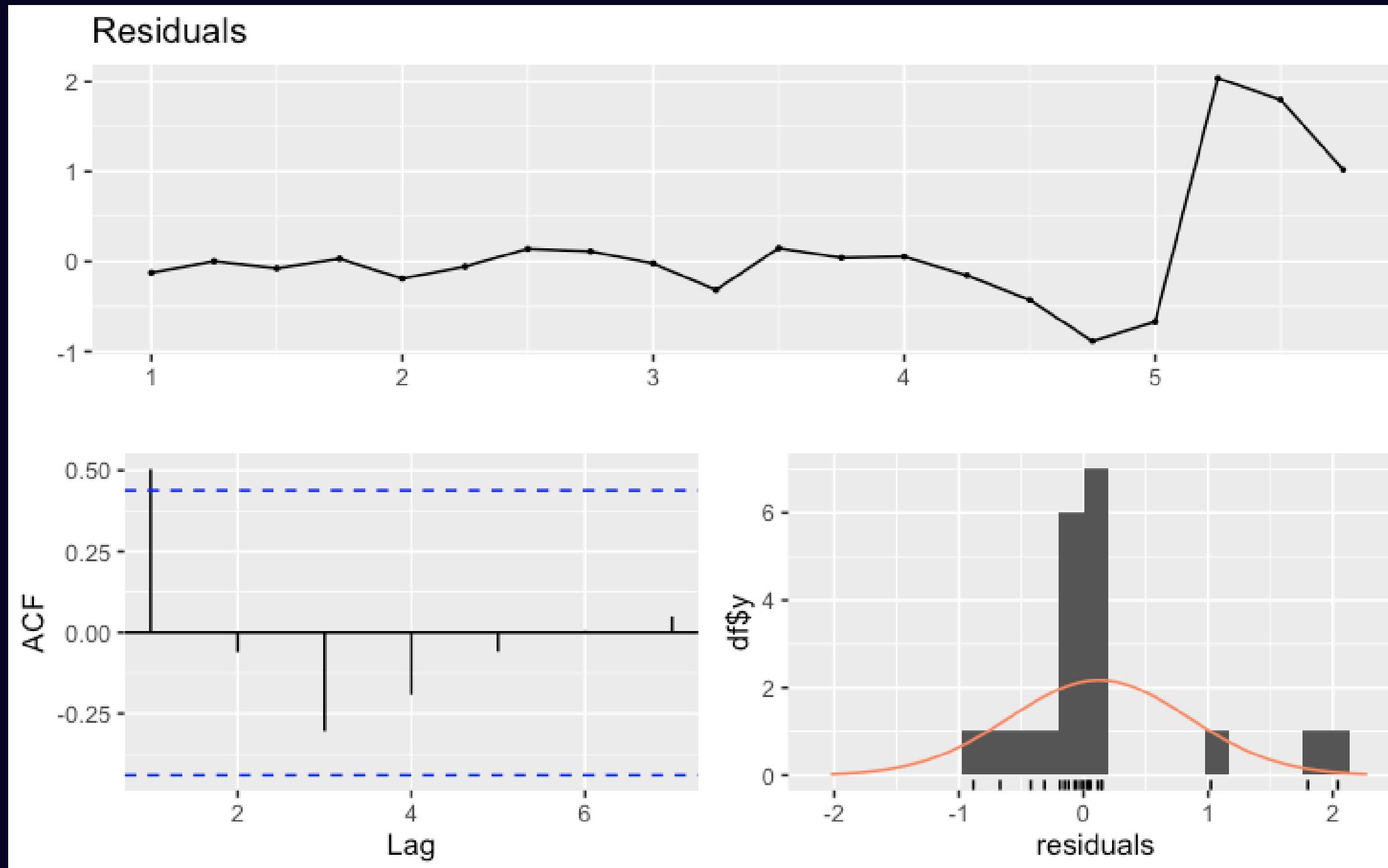
TSLM - SEASON TREND STOCK

01

RMSE Test: 0.764



LASSO



01

Log lambda: -5.86

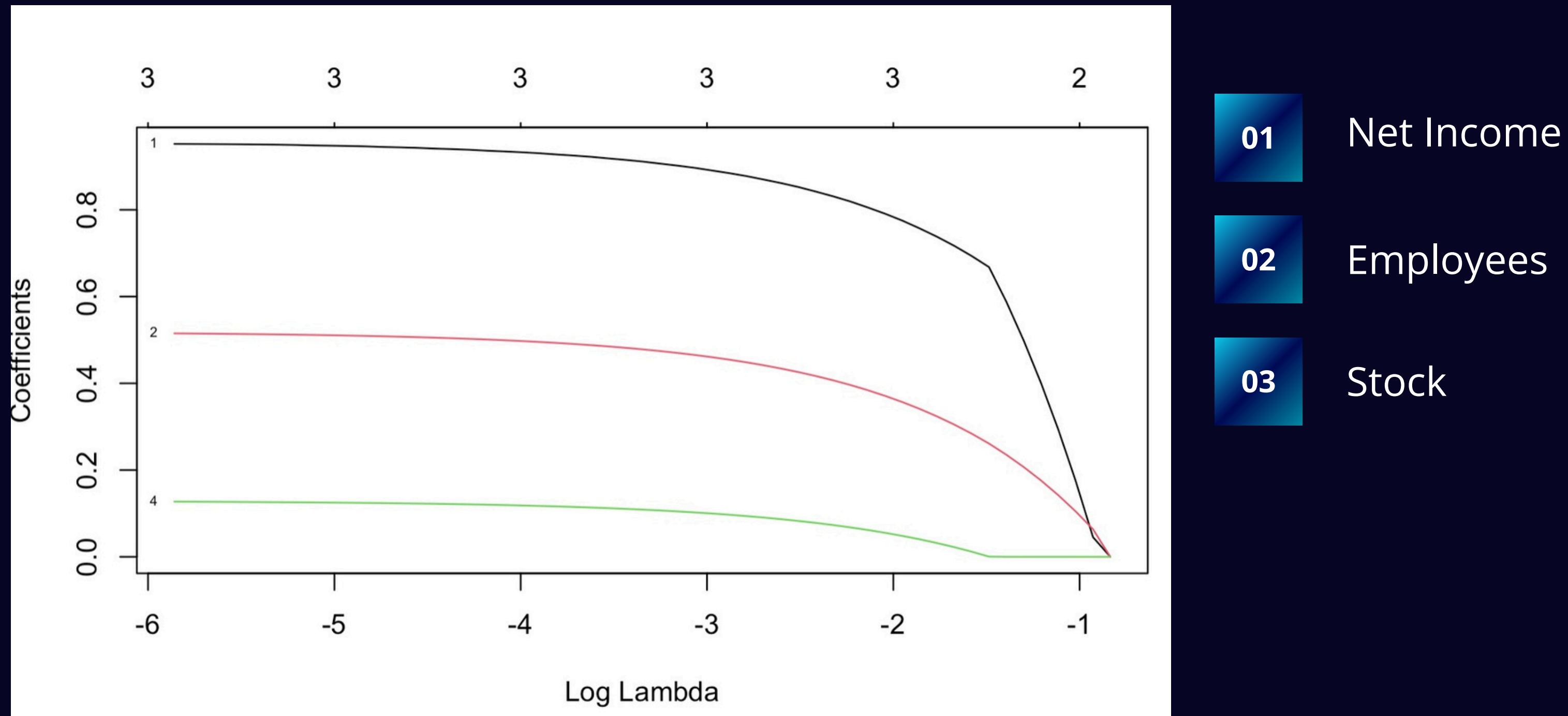
02

Lambda: 0.00285

03

P-value > 0.05

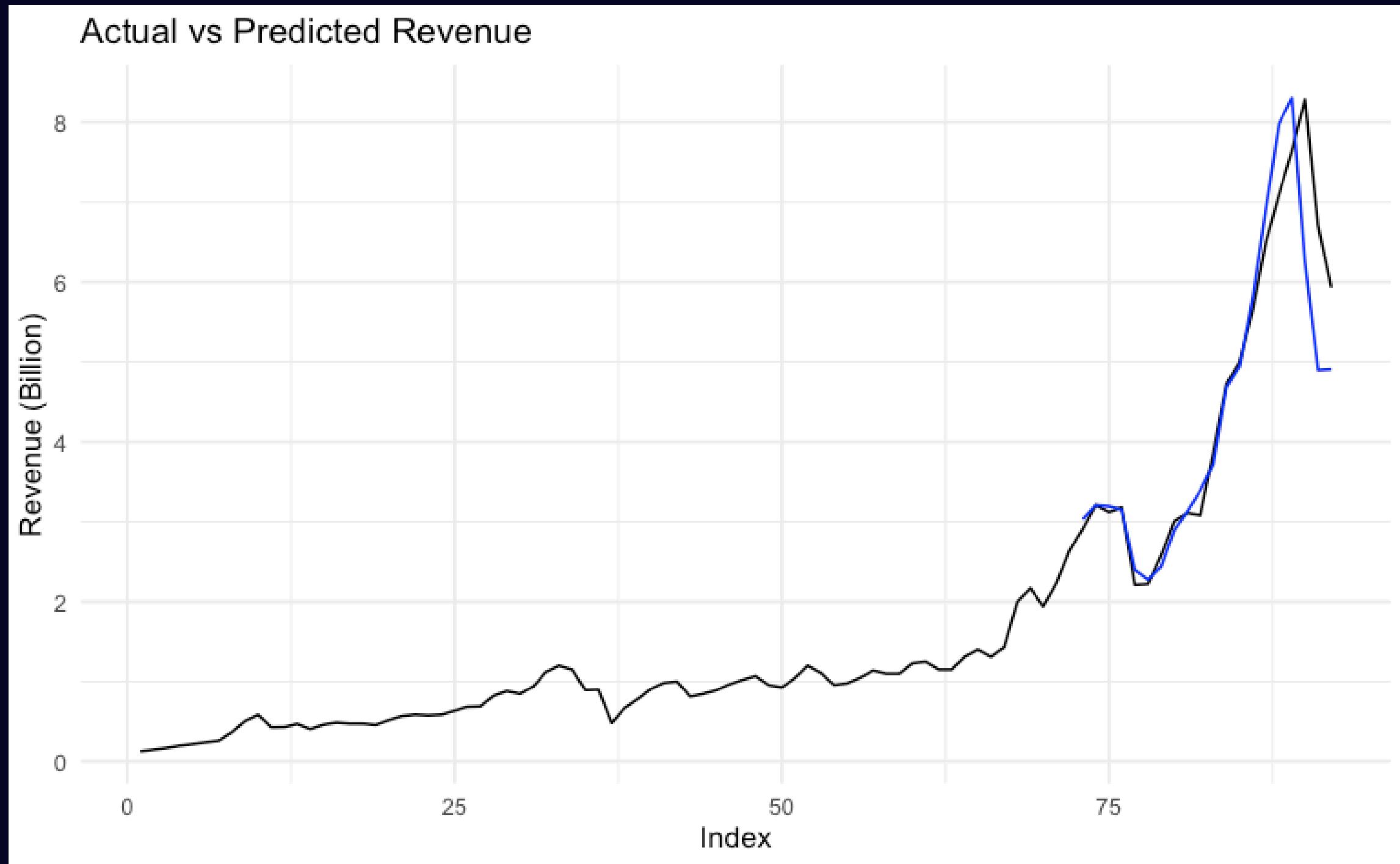
LASSO



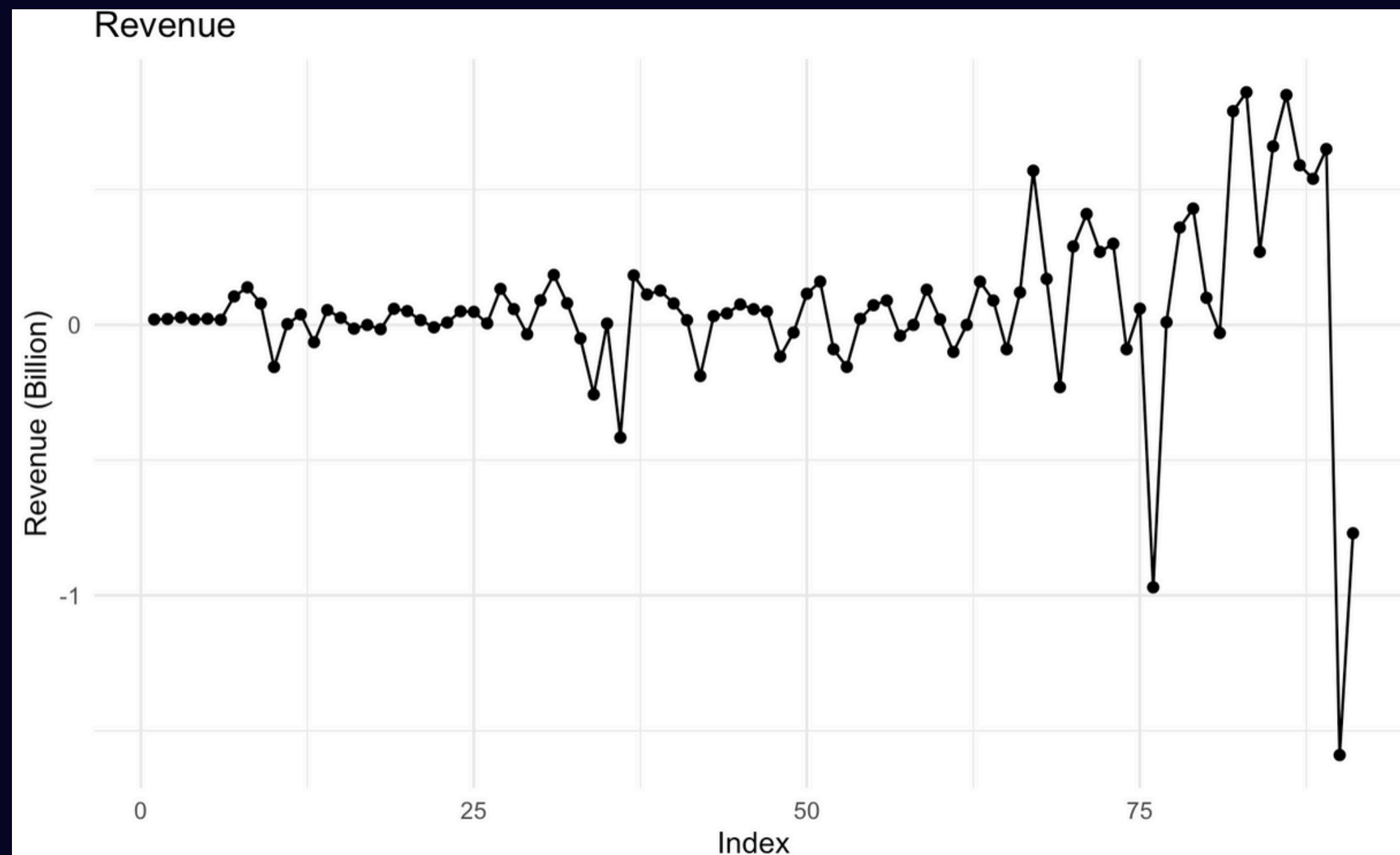
LASSO

01

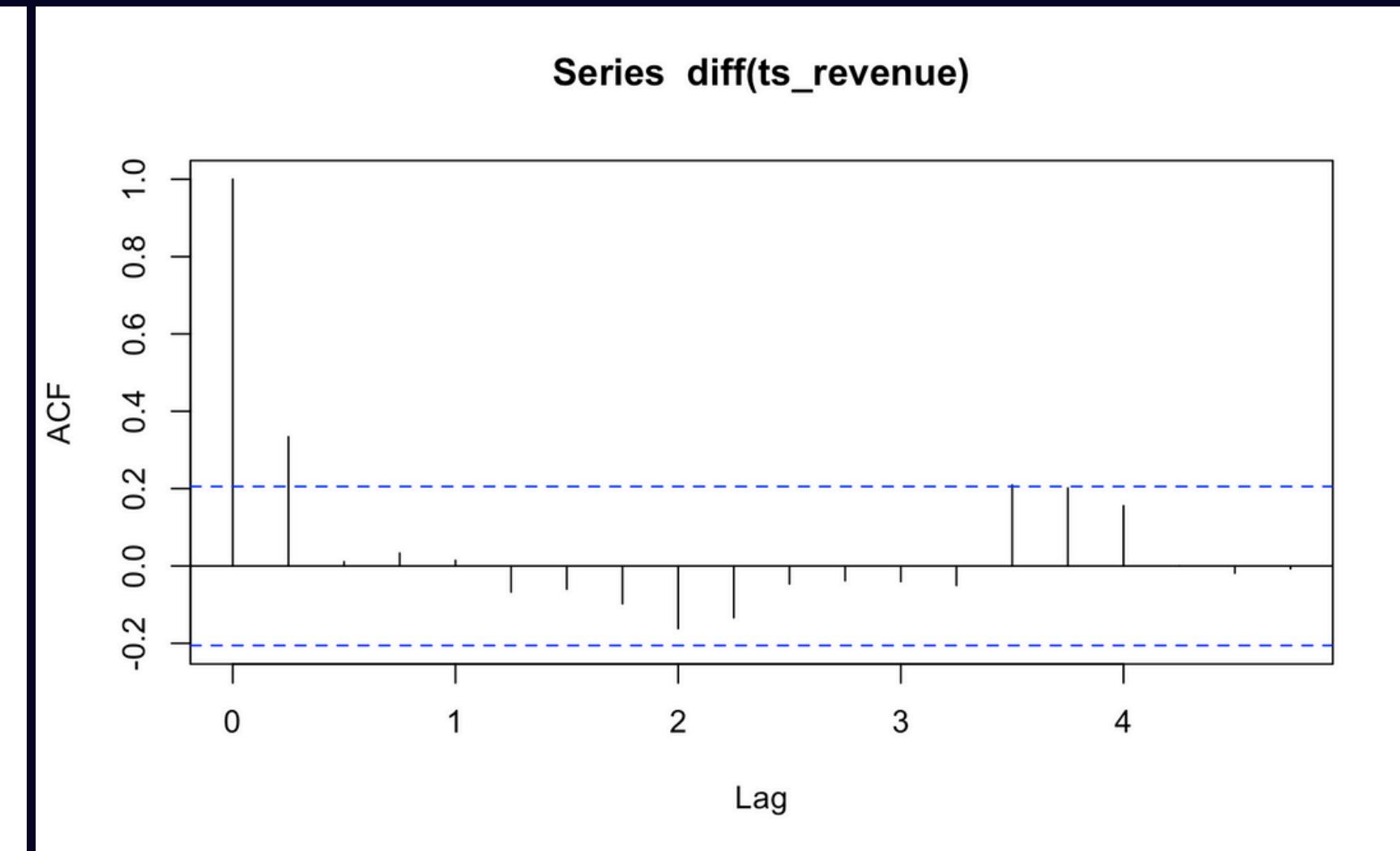
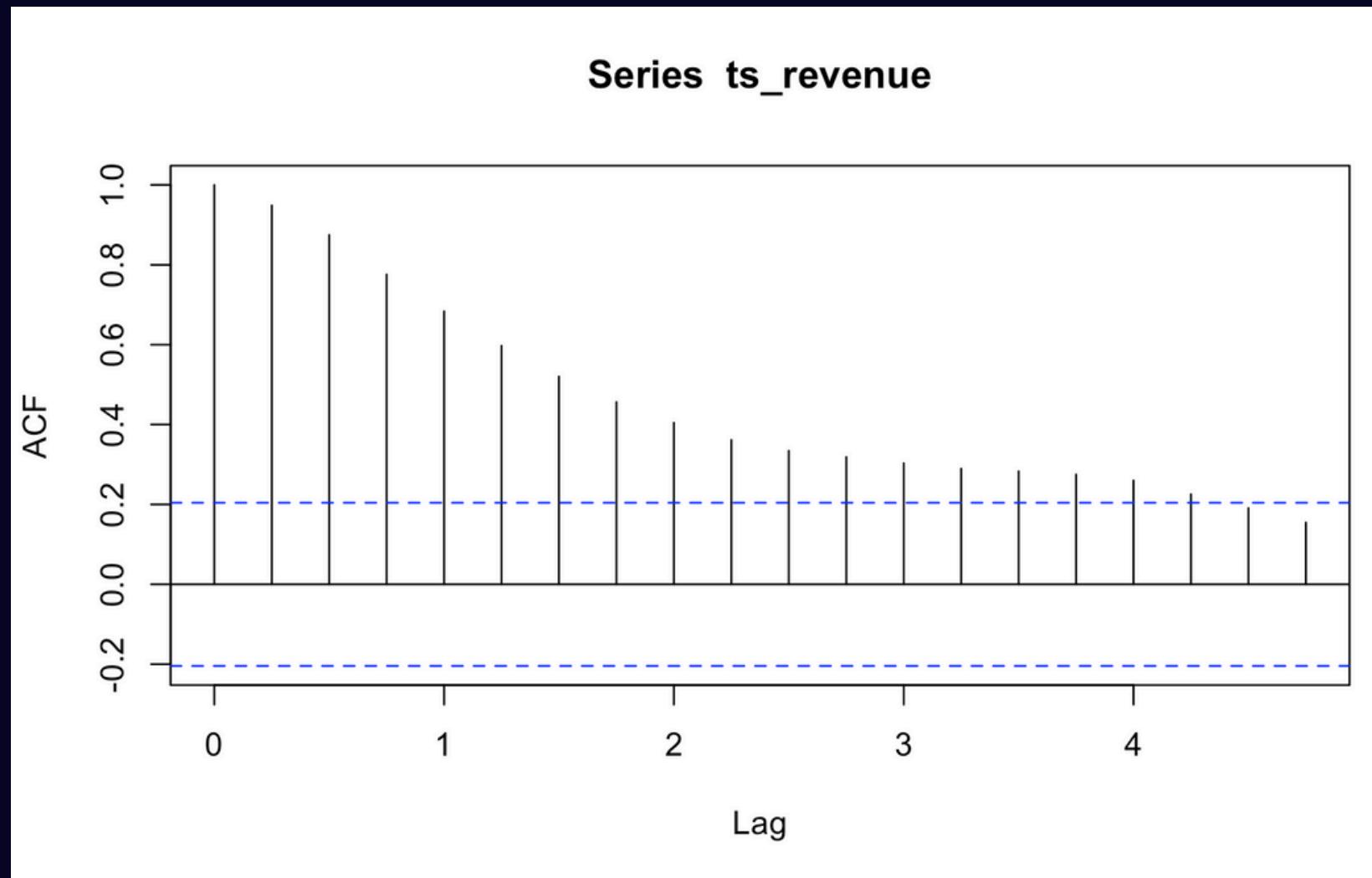
RMSE Test: 0.71



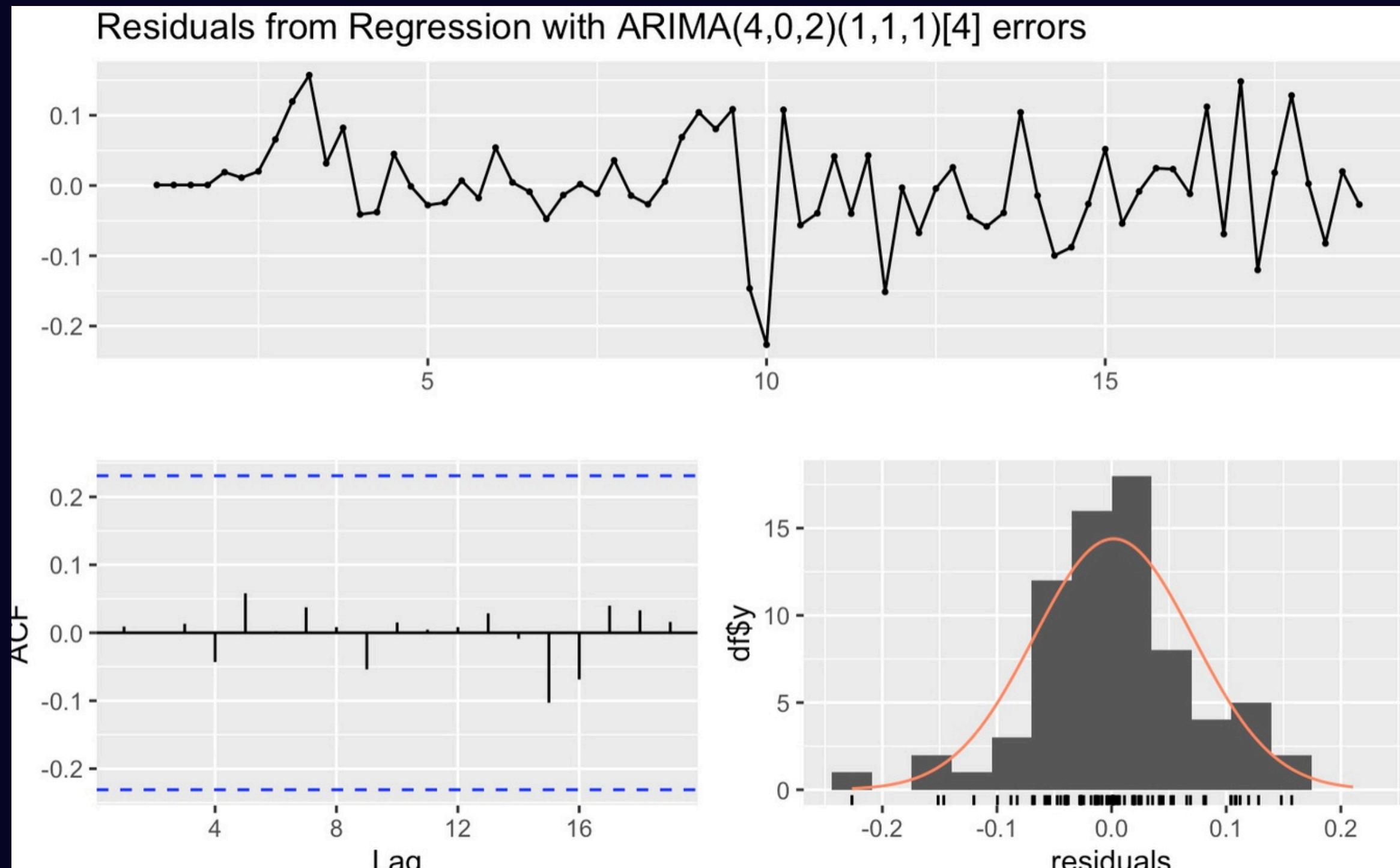
DIFFERENTIATING



DIFFERENCIATING



ARIMAX - TRAIN X



01

AIC: -137

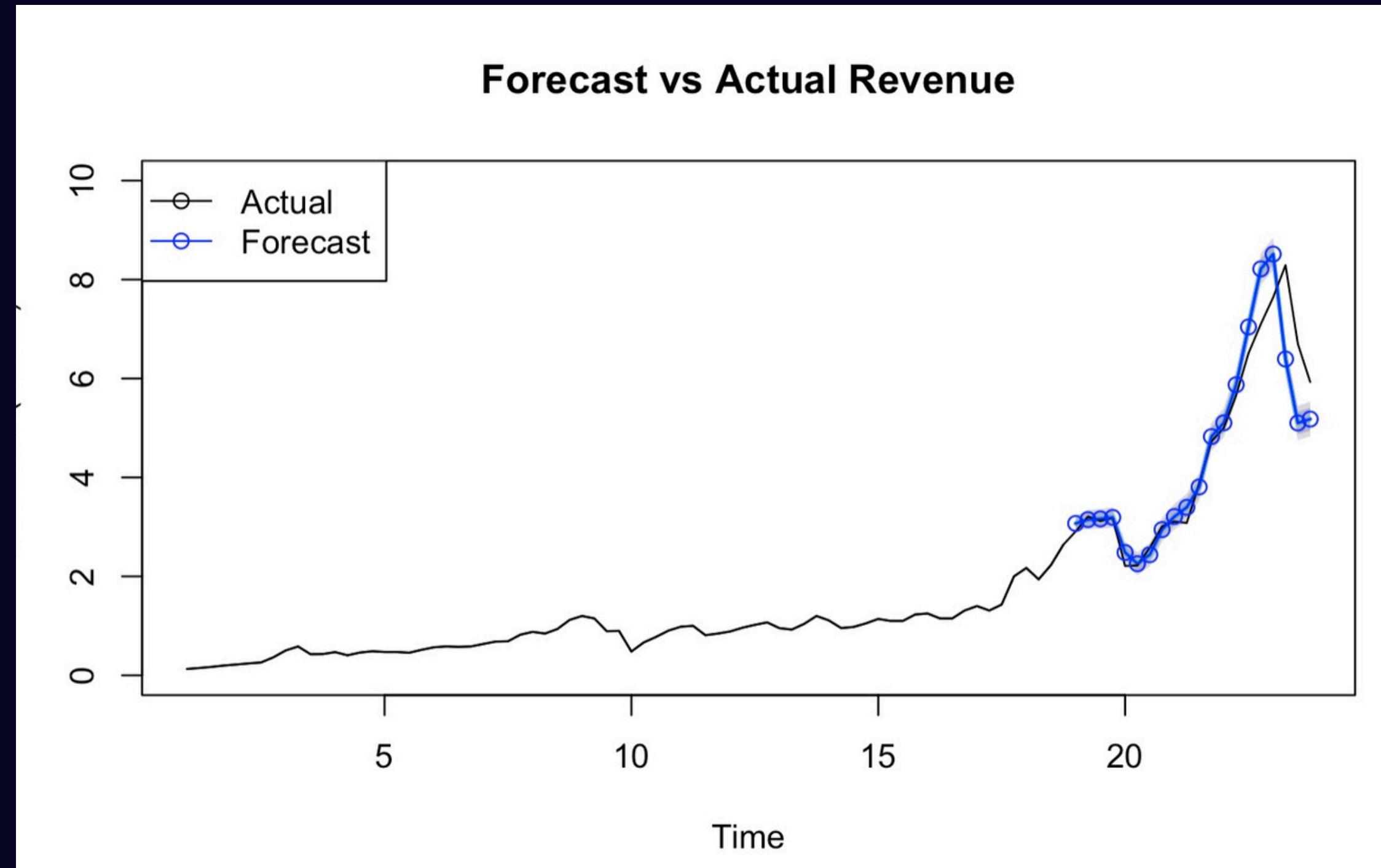
02

P-value > 0.05

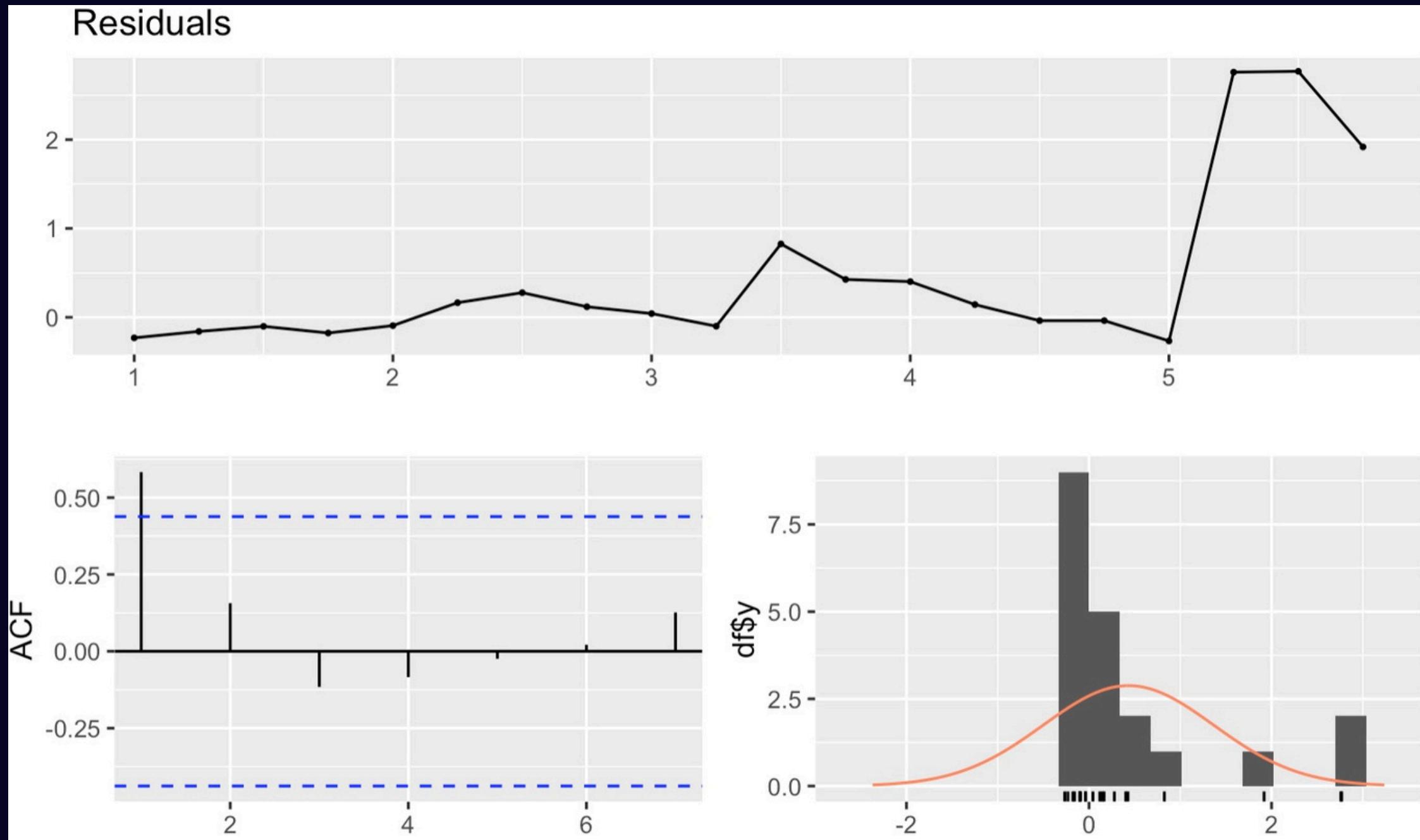
ARIMAX - TRAIN X

01

RMSE Test: 0.682



GAM



01

R-square: 0.98

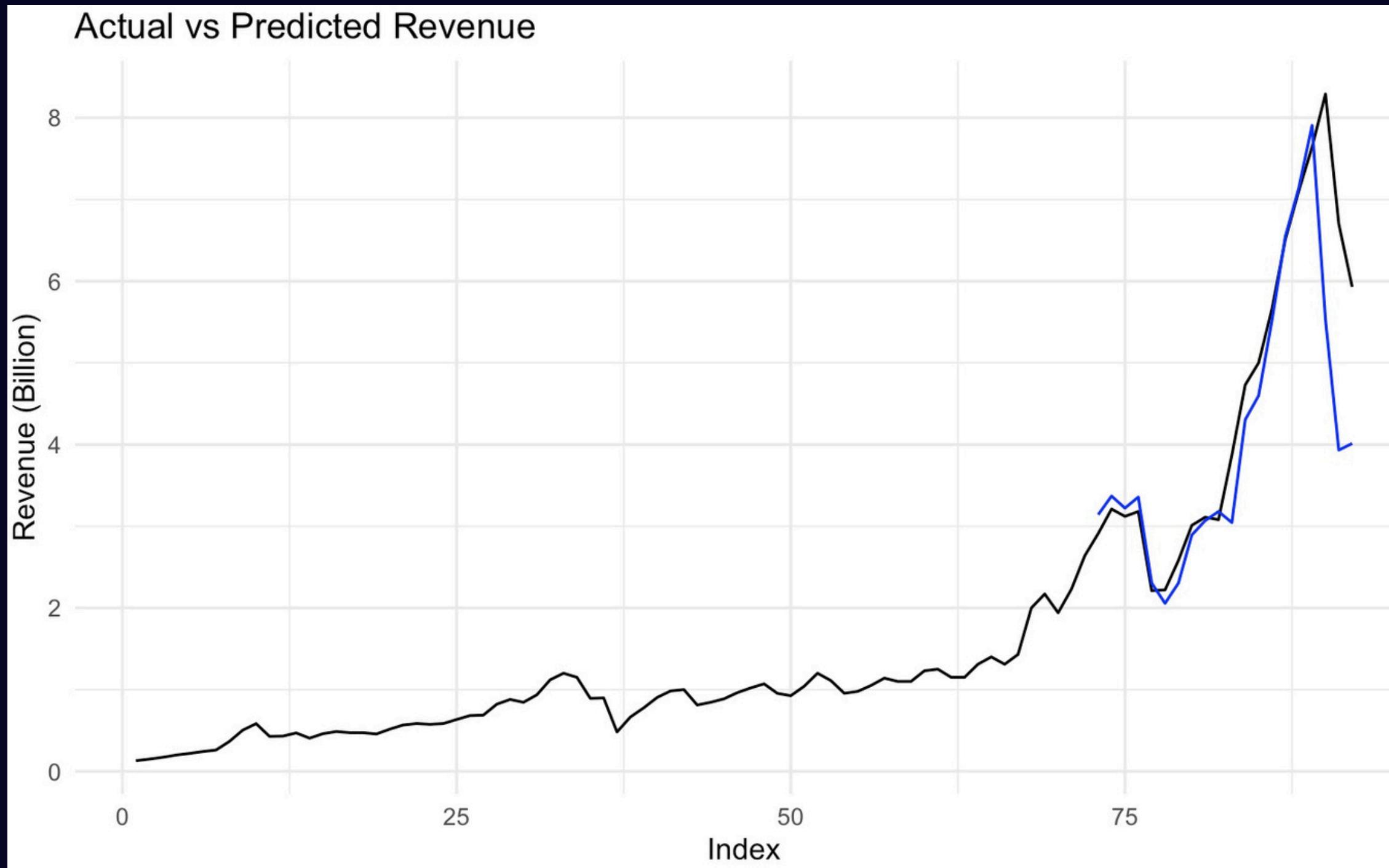
02

P-value > 0.05

GAM

01

RMSE Test: 1.008



COMPARISON

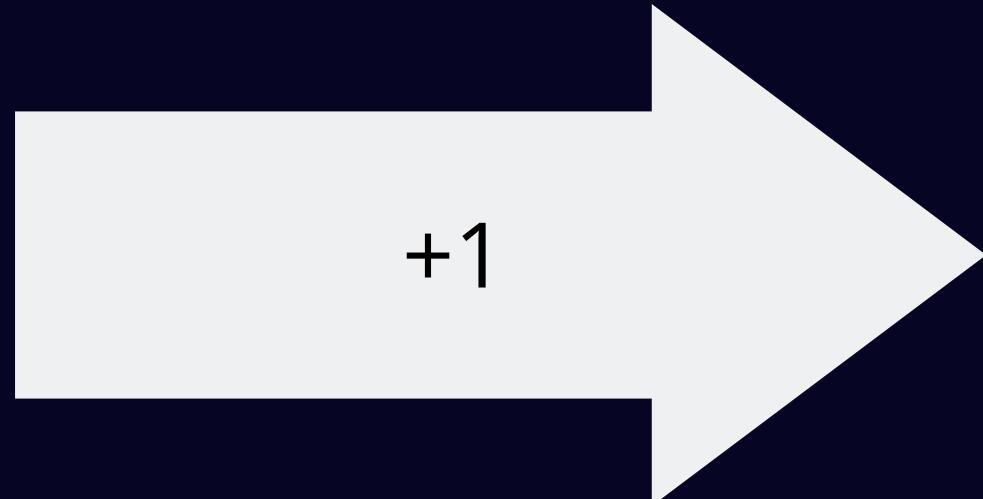
TABLE RMSE

Method	Best	RMSE
TSLM	✗	0.76
Arimax	✓	0.68
Lasso	✓	0.71
Gam	✓	1.00

CONCLUSIONS

BEST PREDICTORS

Stock
Net Income
Employees
R&D Spending



RELATIONS

+0,1397 B
+0,90008 B
+0,5436 B
+0,0284 B

**THANK
YOU**