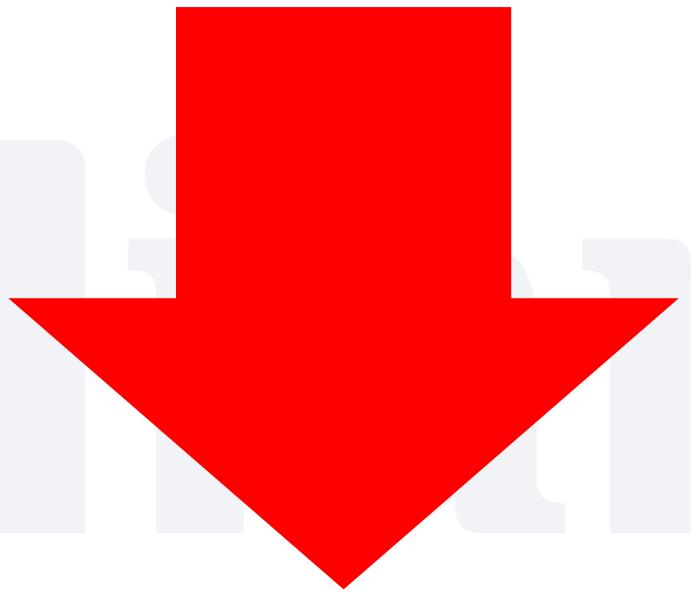
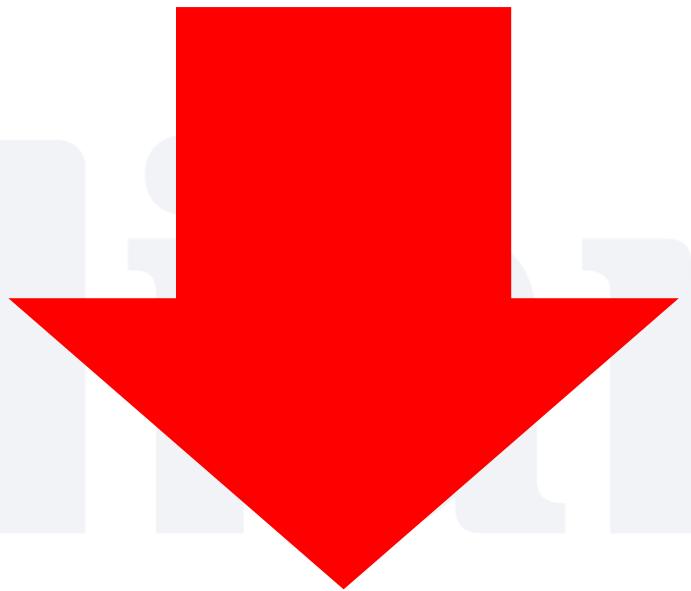




Allianz 
AYUDHYA



Portfolio Investment Loses



Equity Investment Proportion



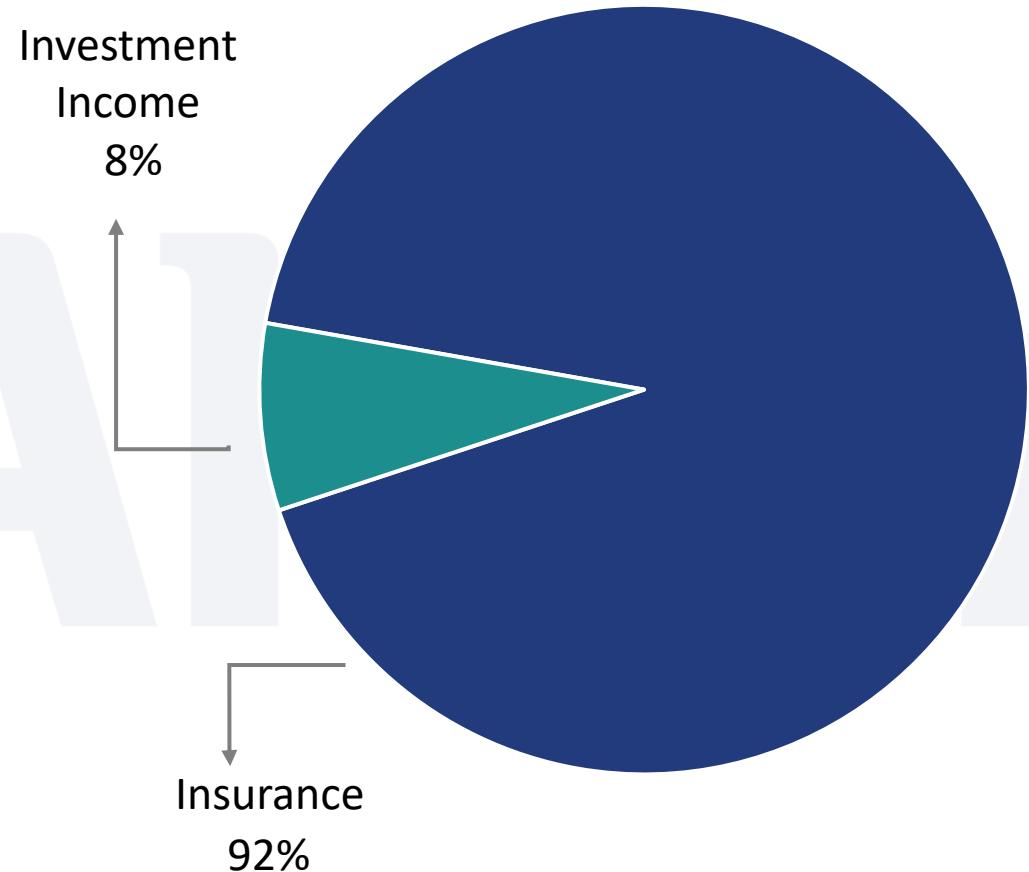
Allianz 
AYUDHYA



Equity Investment Proportion

Business Overview

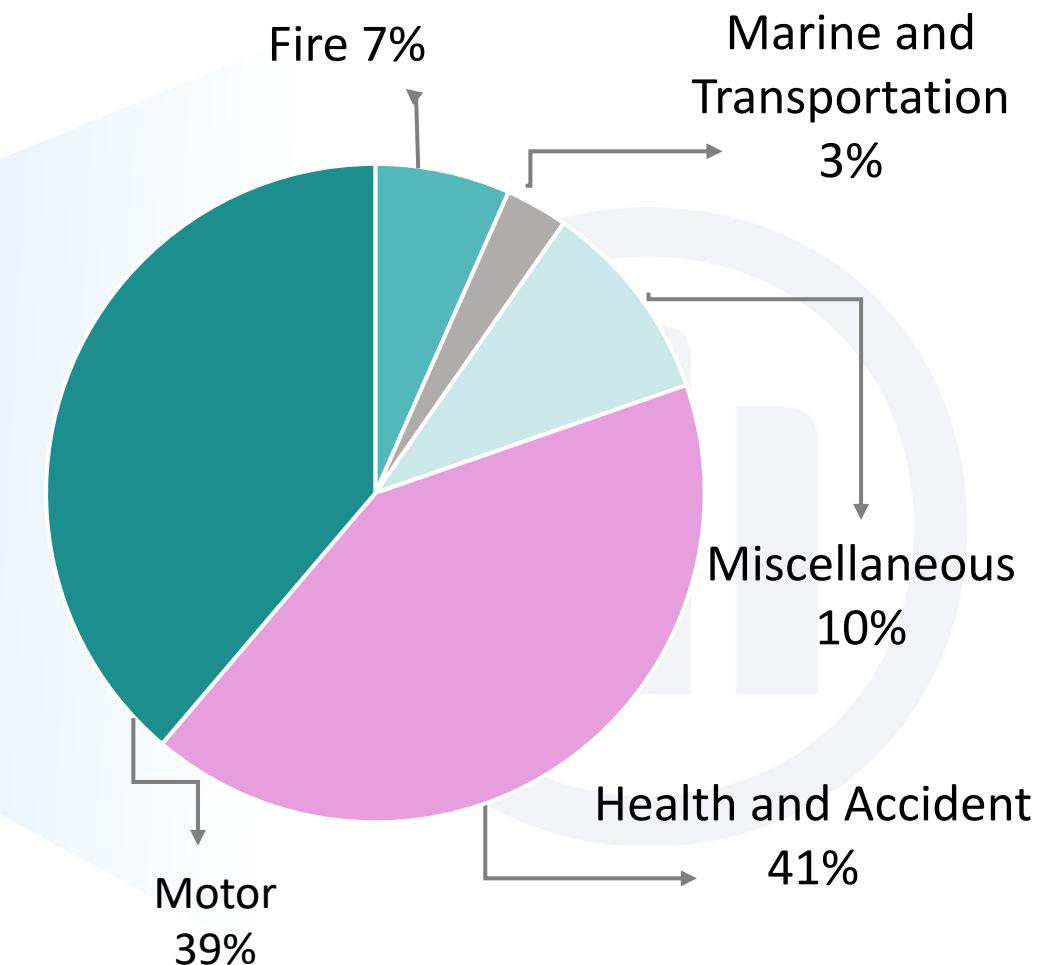
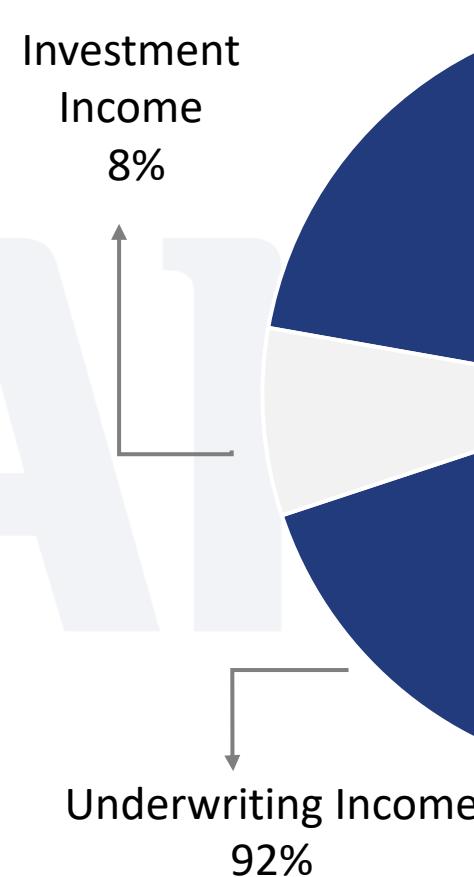
Revenue Breakdown and Products Offers



Source: Company data

Business Overview

Revenue Breakdown and Products Offers



Source: Company data

Business Overview

How the company manage the pool of funds?

Collecting
premium
from clients



Insurance companies
INVEST
the money to earn profits

Helps pay claims
and increases
the company's
revenue

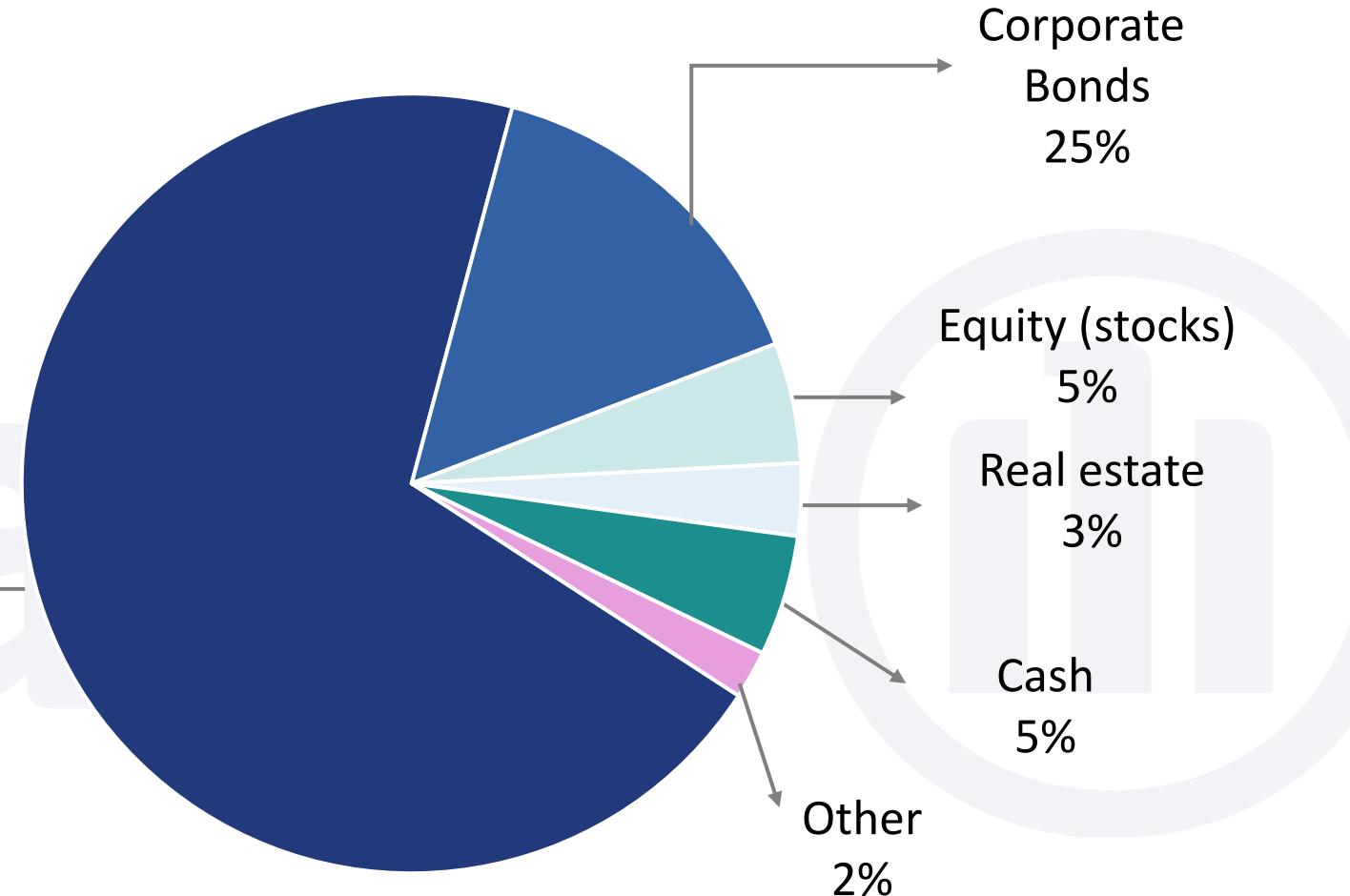


Business Overview

Investment proportion

Government Bonds

60%



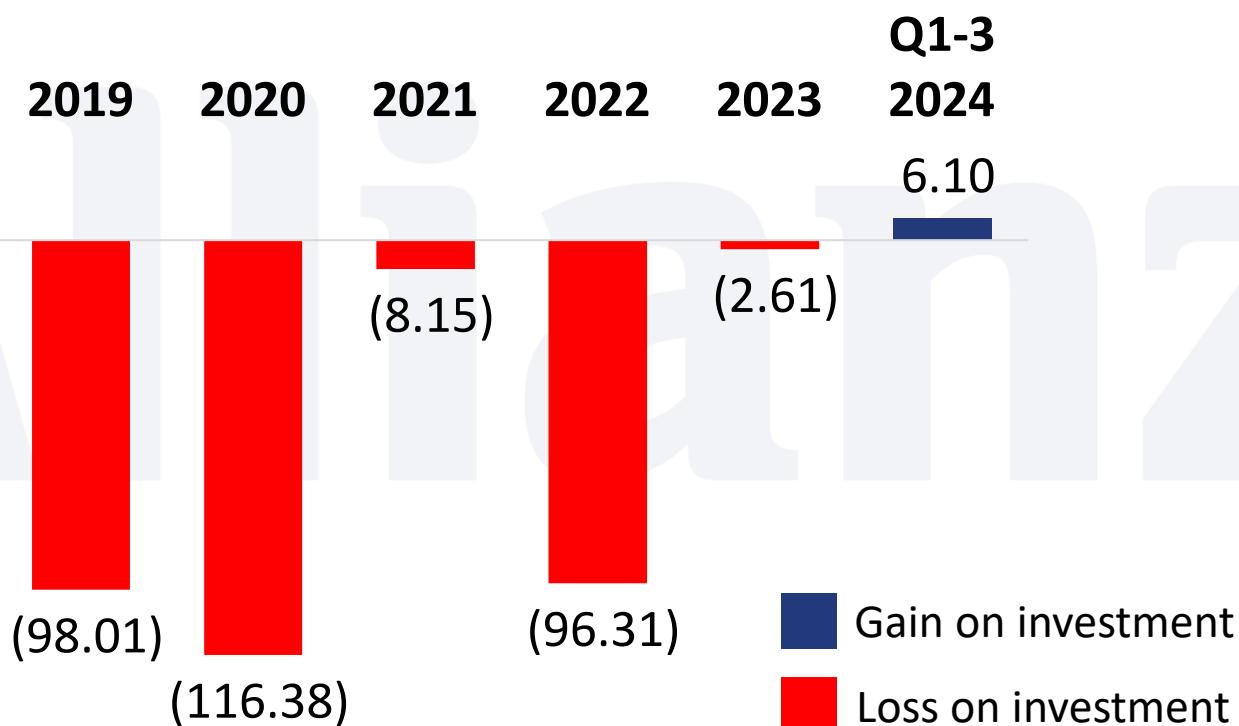
Source: <https://content.naic.org/sites/default/files/capital-markets-special-reports-asset-mix-ye2022.pdf>

Problem Statement

Playing It Safe Can Still Lead to Losses

Gain (loss) on investment securities

in Million Baht



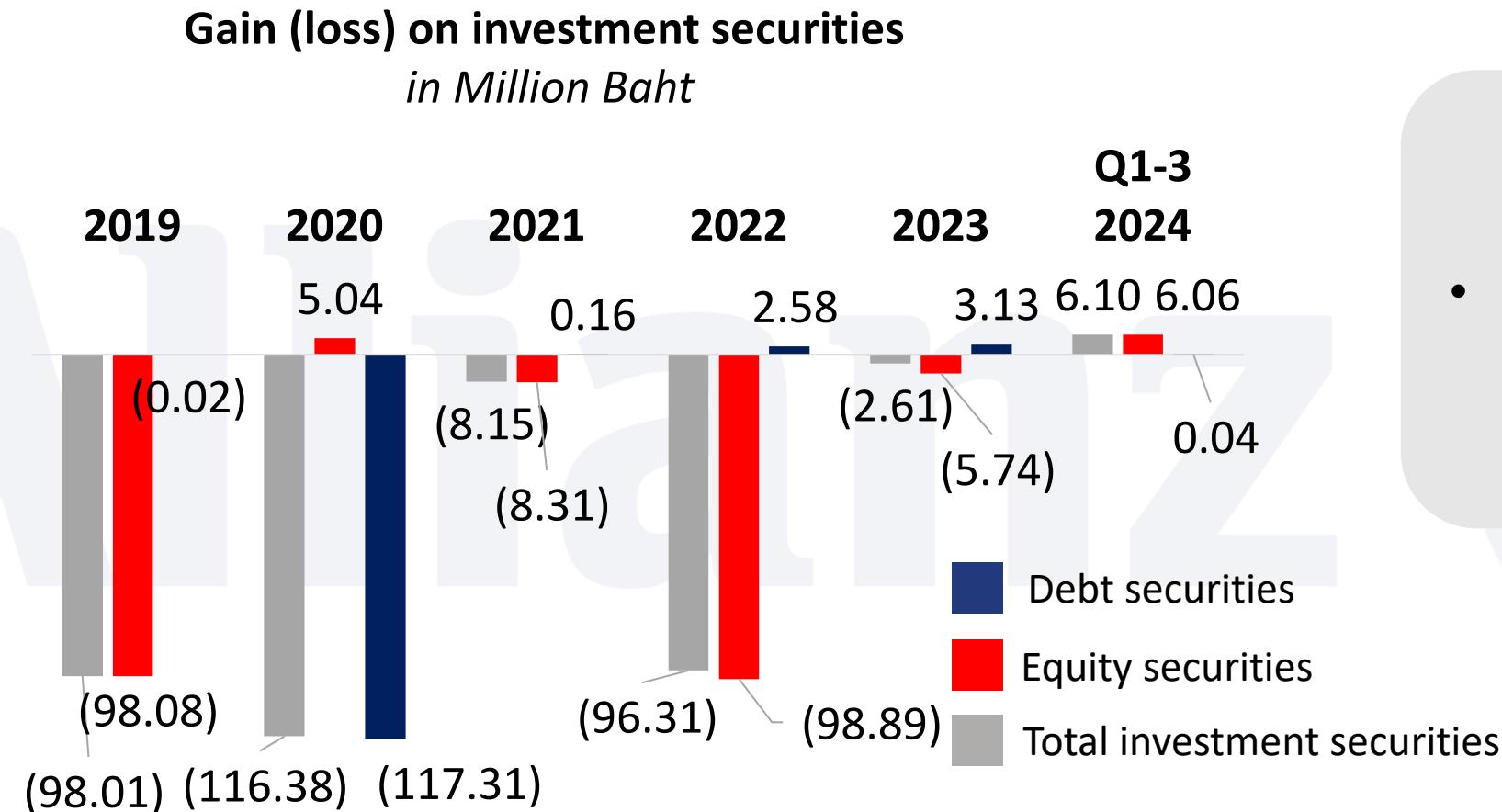
Key Take Away

- Losses from investment from 2019-2023
- Slightly recover in 2024

Source: Company data

Problem Statement

Equity return dominates the values of investment



Key Take Away

- The most of losses are from investment on equity

Source: Company data

How can we optimize equity investments portfolio to enhance its **PROFITABILITY**, while also in a **LOW-RISK** investment philosophy?

Recommendation

Introduction of Optimal Portfolio to the company

Markowitz model

Calculates the **covariance** between the returns of different stocks



low correlation
reduces overall risk

Approaches

Works done behind constructing the optimal portfolio

**Stock
Selection**

**Model Train &
Selection**

**Construct
Portfolio**

Approaches

Works done behind constructing the optimal portfolio

Stock Selection



Market Selection



STANDARD
& POOR'S 500

Stock Selection



Top 20 with the highest
Market Capitalization *

Over 10 years – from 2014-2024

* More stable market with few fluctuations in price and low volatility.

* Typically, highly liquid

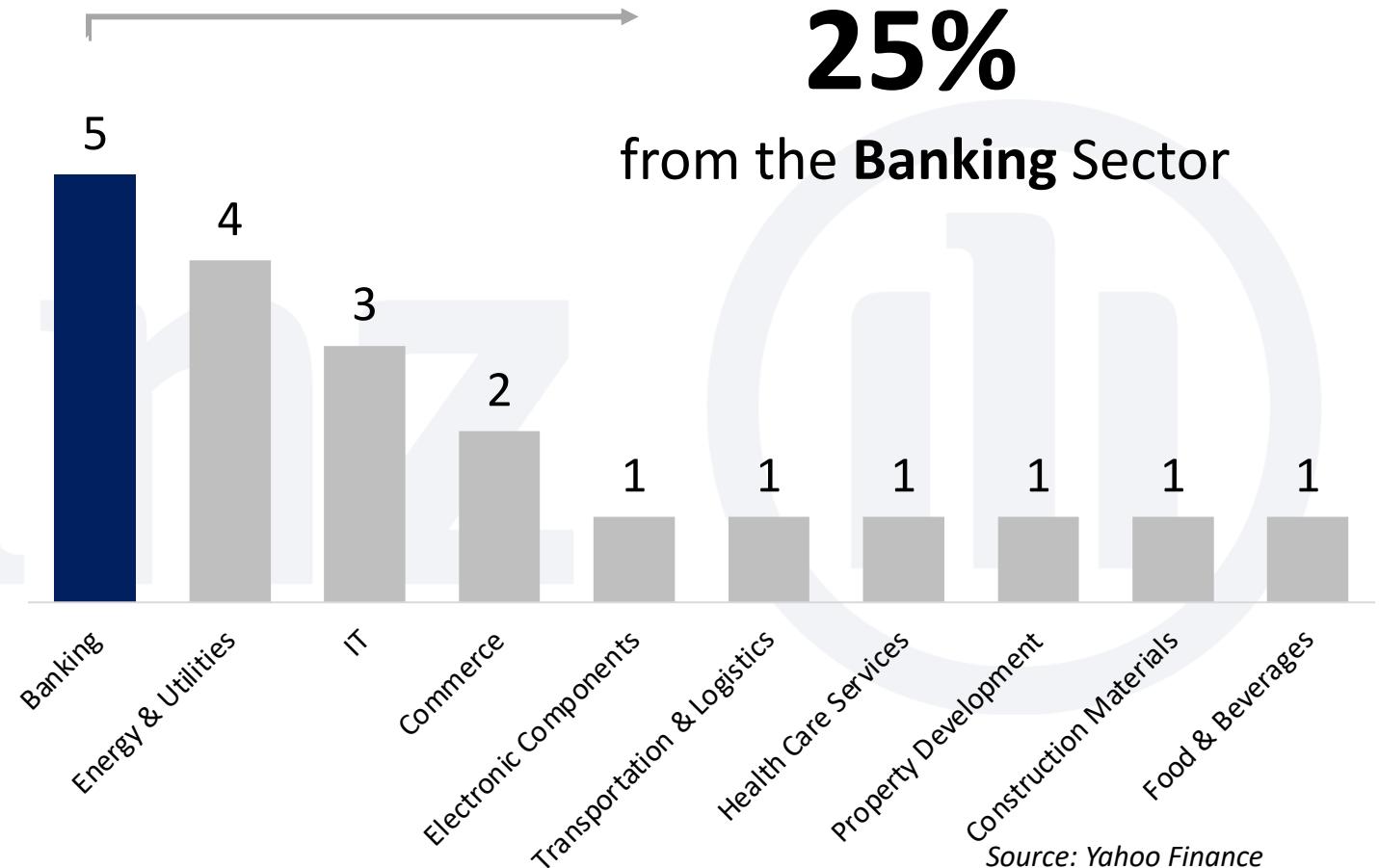
Source: Yahoo Finance

Approaches

Works done behind constructing the optimal portfolio

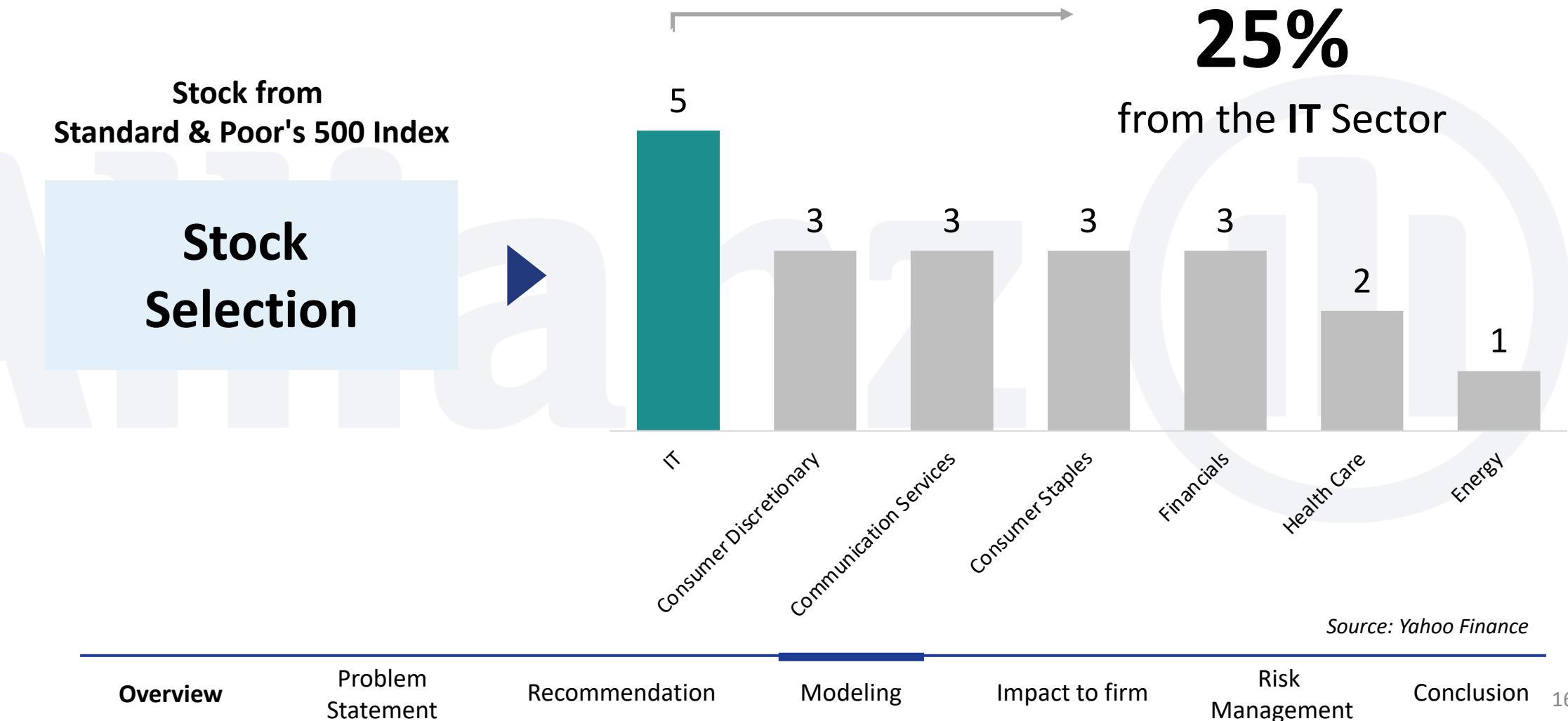
Stock from
Stock Exchange of Thailand

Stock Selection



Approaches

Works done behind constructing the optimal portfolio



Approaches

Works done behind constructing the optimal portfolio

Stock
Selection

Model Train &
Selection

Construct
Portfolio

Approaches

Works done behind constructing the optimal portfolio

Model Train & selection

Model Selection

Linear Regression Model

XGBoost Model

LSTM Model

Most fundamental

Handling non-linear relationships

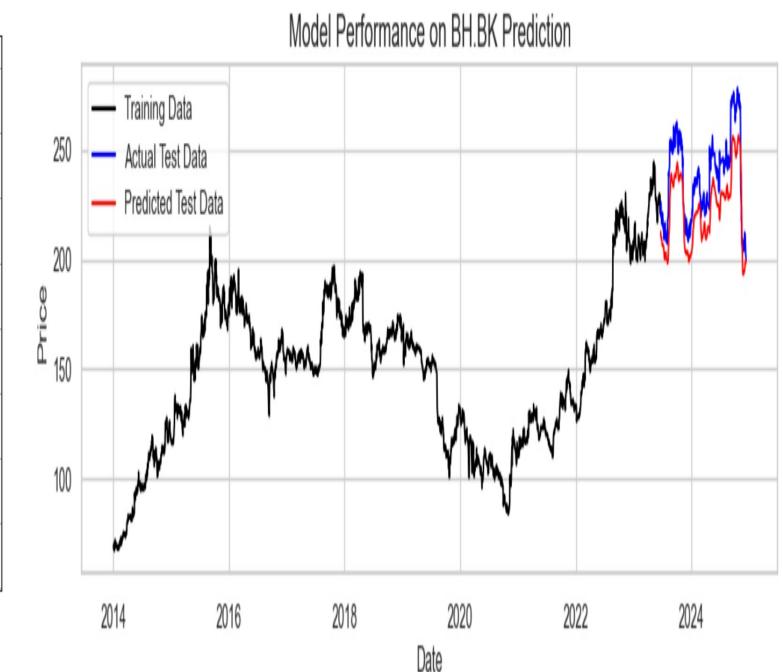
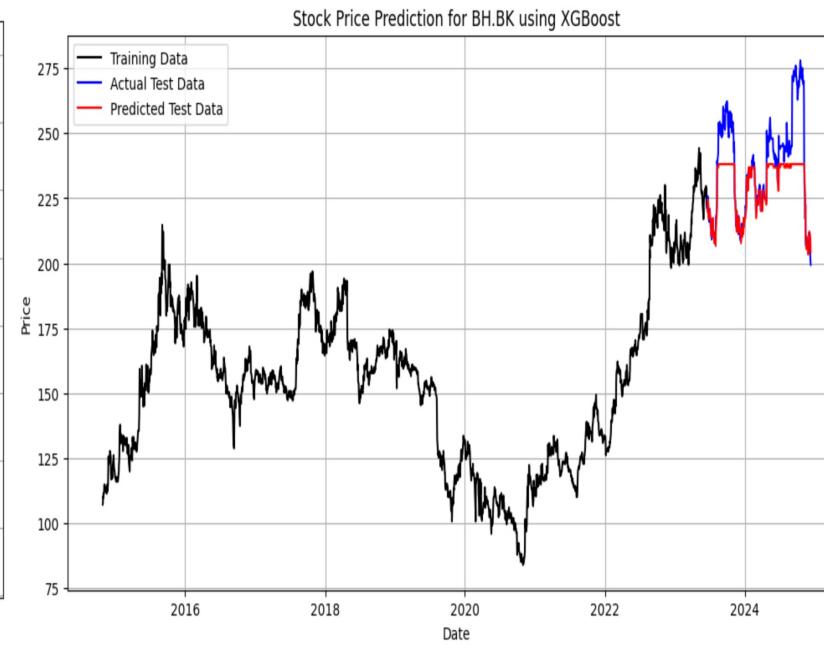
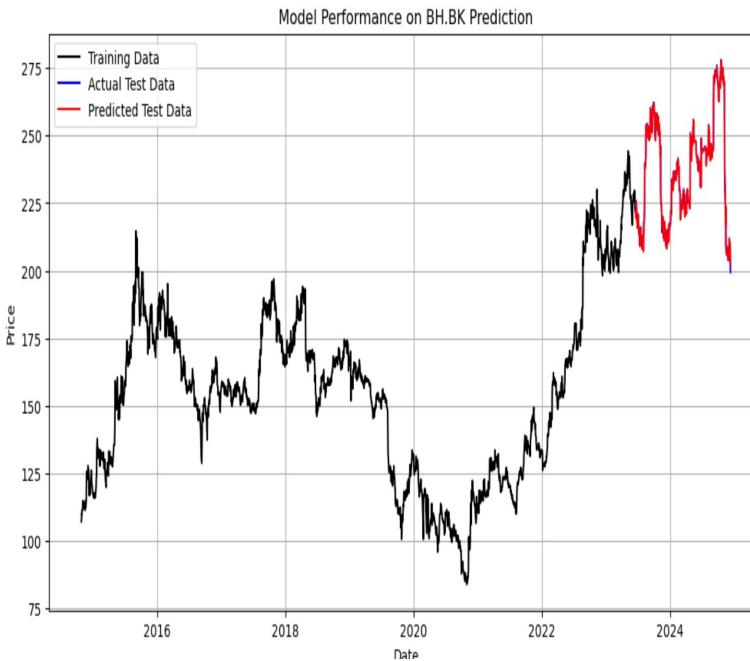
Designed to handle time-series data

Source: Data Assessment

Approaches

Works done behind constructing the optimal portfolio

Results of the model on Thai stocks – BH.BK



Linear Regression
Univariate

XGBoost
Univariate

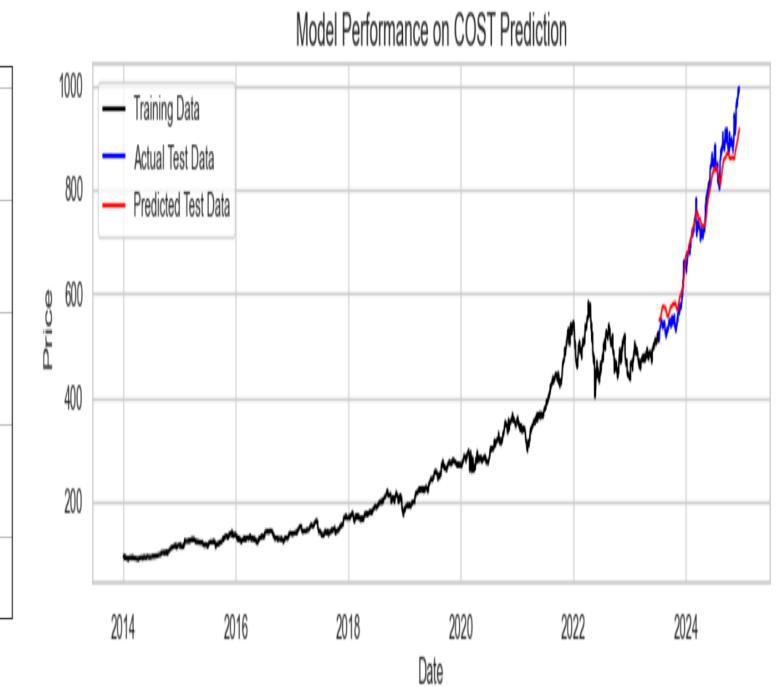
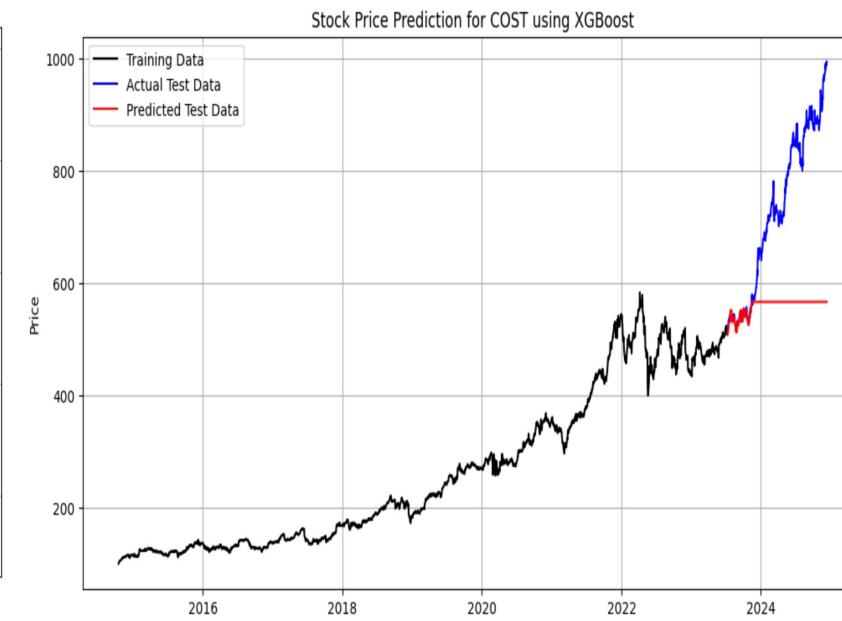
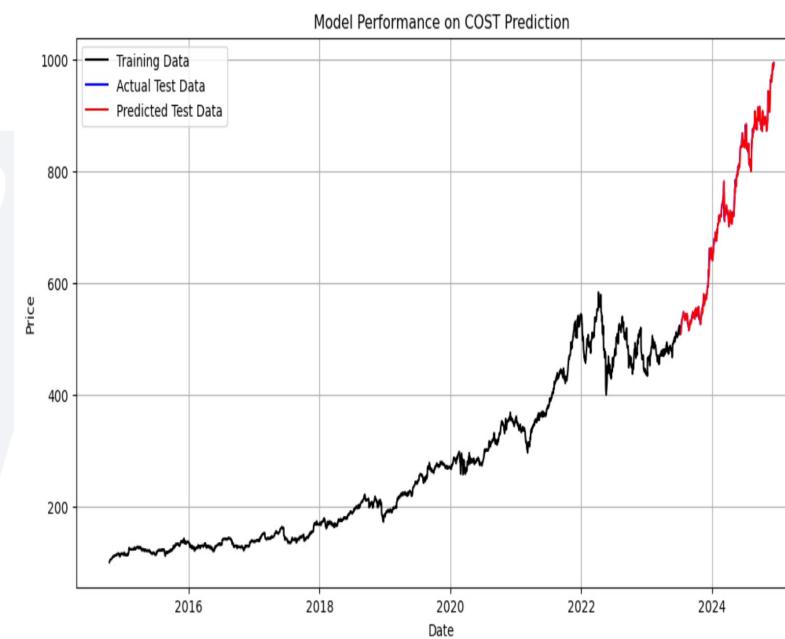
LSTM
Univariate

Source: Data Assessment

Approaches

Works done behind constructing the optimal portfolio

Results of the model on S&P500 - COST



Linear Regression
Univariate

Overview

Problem Statement

XGBoost
Univariate

Recommendation

Modeling

Impact to firm

Risk Management

Conclusion

LSTM
Univariate
Source: Data Assessment

Approaches

Works done behind constructing the optimal portfolio

Adding Other Variables

Macro Economic Indicators

- Interest_Rate
- GDP
- Unemployment
- Inflation

Market indicator

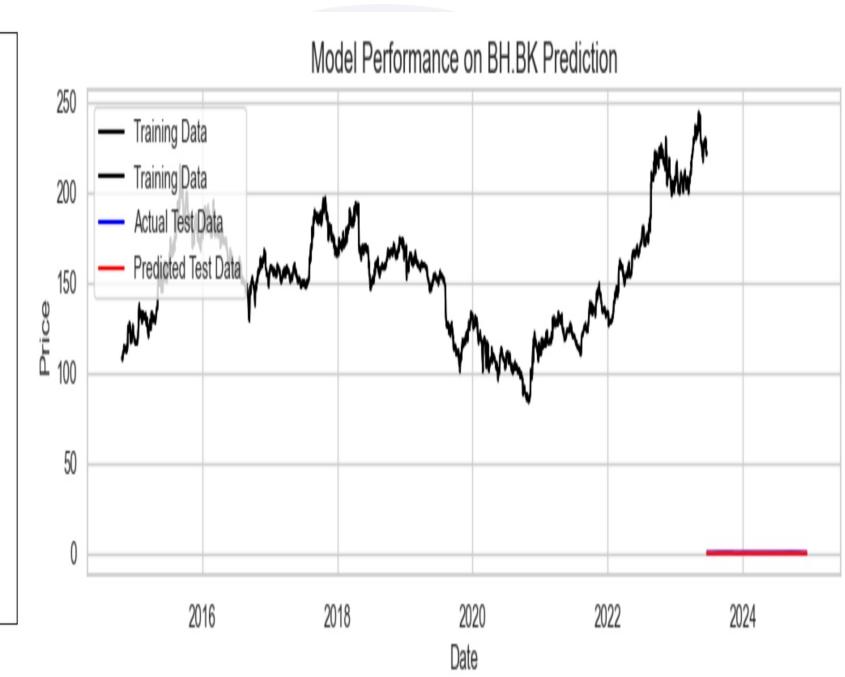
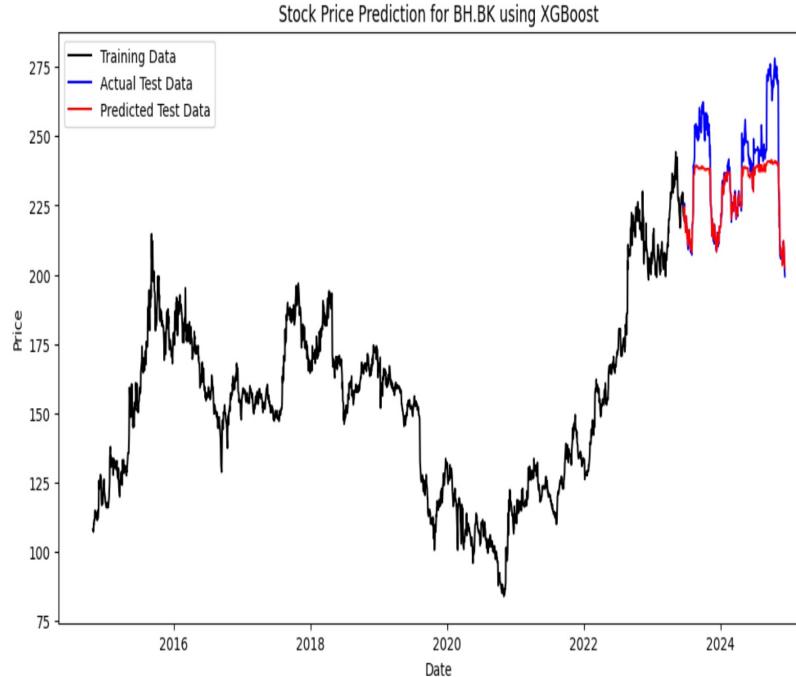
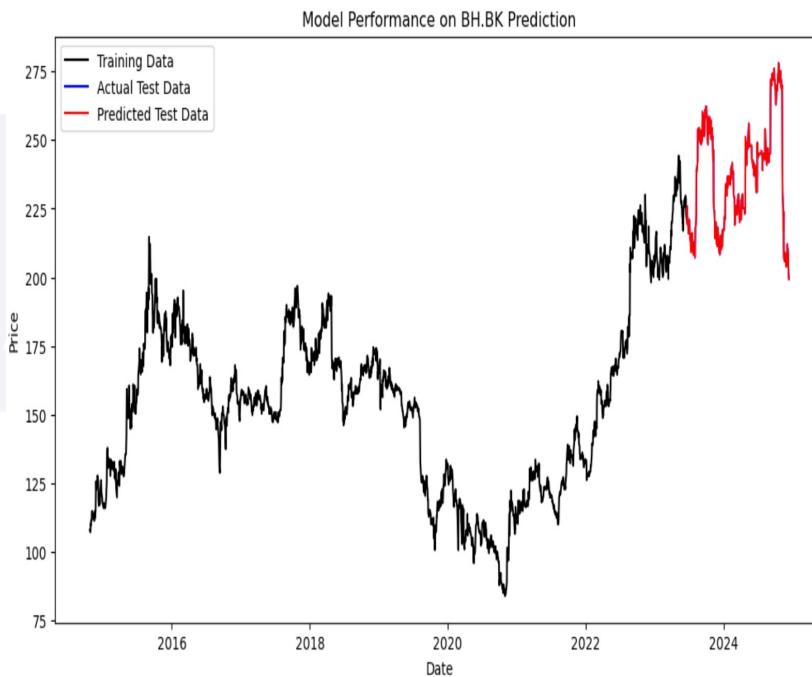
- [stock]_SMA3
- [stock]_SMA20
- [stock]_SMA50
- [stock]_SMA100
- [stock]_SMA200
- [stock]_EMA3
- [stock]_EMA12
- [stock]_EMA26
- [stock]_MACD
- [stock]_signal

Source: <https://fred.stlouisfed.org/>

Approaches

Works done behind constructing the optimal portfolio

Results of the model on Thai stocks – BH.BK



Linear Regression
Multivariate

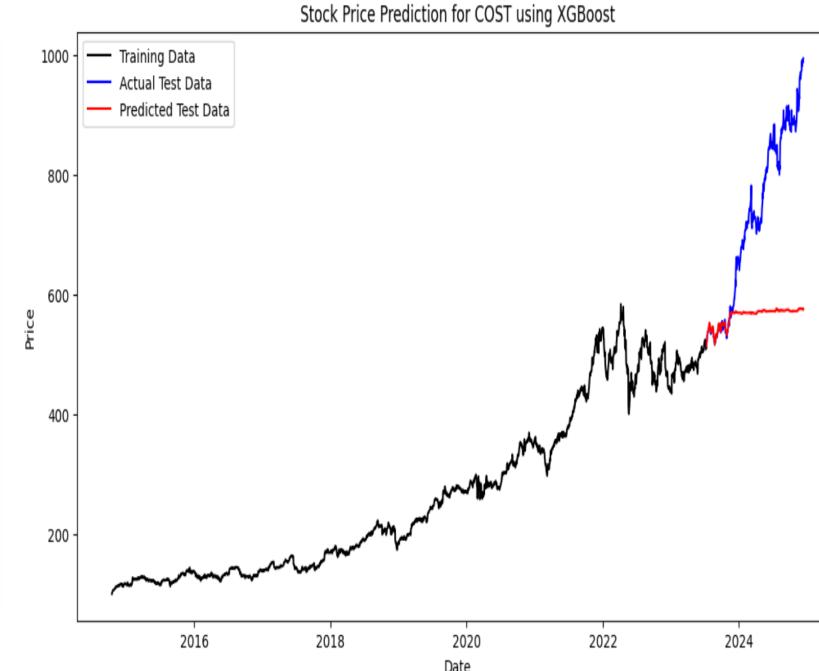
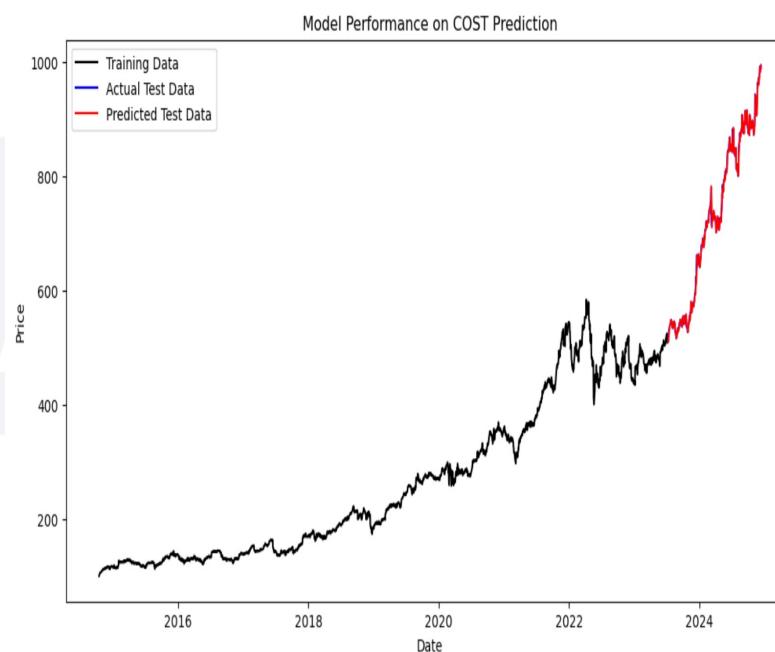
XGBoost
Multivariate

LSTM
Multivariate
Source: Data Assessment

Approaches

Works done behind constructing the optimal portfolio

Results of the model on S&P500 - COST



Linear Regression
Multivariate

Overview

XGBoost
Multivariate

Recommendation

LSTM
Multivariate
Source: Data Assessment

Risk Management

Problem Statement

Conclusion

Approaches

Works done behind constructing the optimal portfolio

Model's Result Comparison

Type of Model	Univariant RMSE	Multivariant RMSE
Linear Regression	3.78	2.69
XGBoost	14.58	27.96
LSTM	17.39	-

Source: Data Assessment

Approaches

Works done behind constructing the optimal portfolio

Model's Result Comparison

Type of Model	Univariant RMSE	Multivariant RMSE
Linear Regression	3.78	2.69
XGBoost	14.58	27.96
LSTM	17.39	-

Source: Data Assessment

Approaches

Works done behind constructing the optimal portfolio

Stock
Selection

Model Train &
Selection

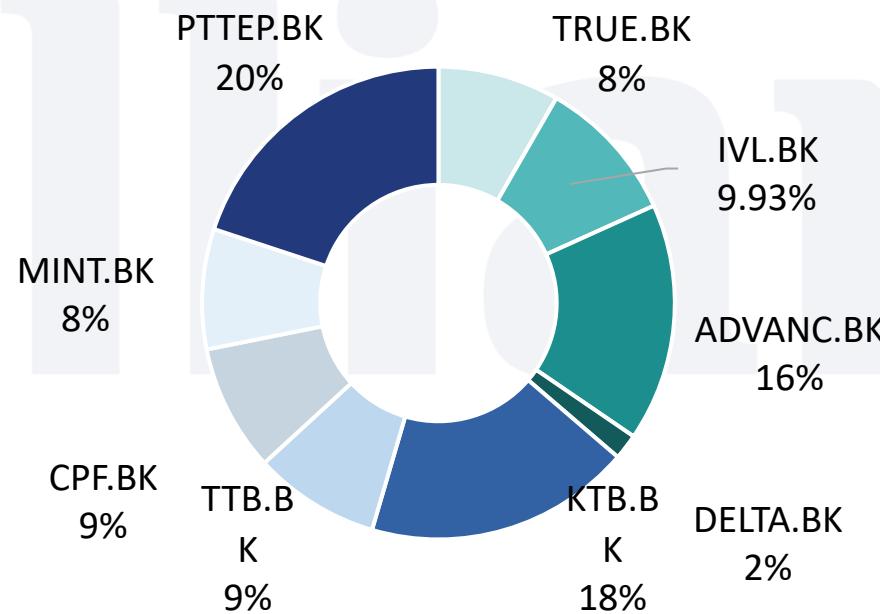
Construct
Portfolio

Approaches

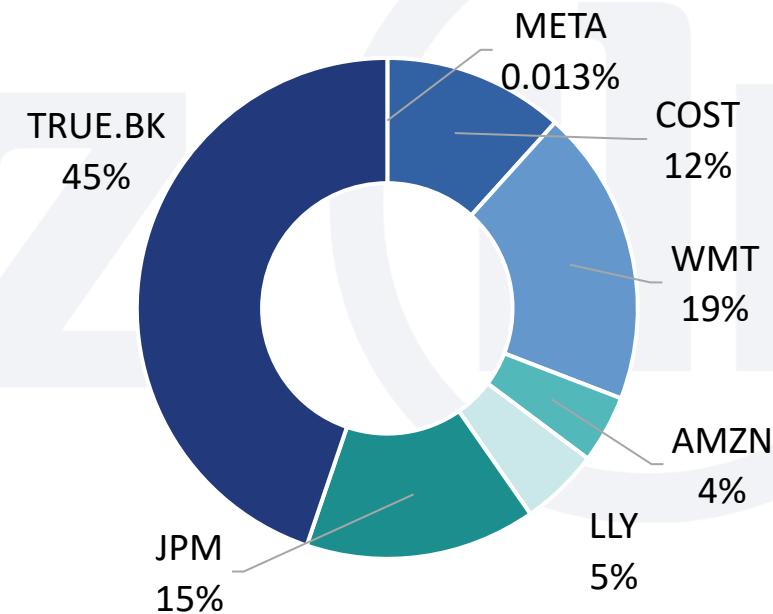
Works done behind constructing the optimal portfolio

Portfolio Recommendation

Thai Portfolio



International Portfolio



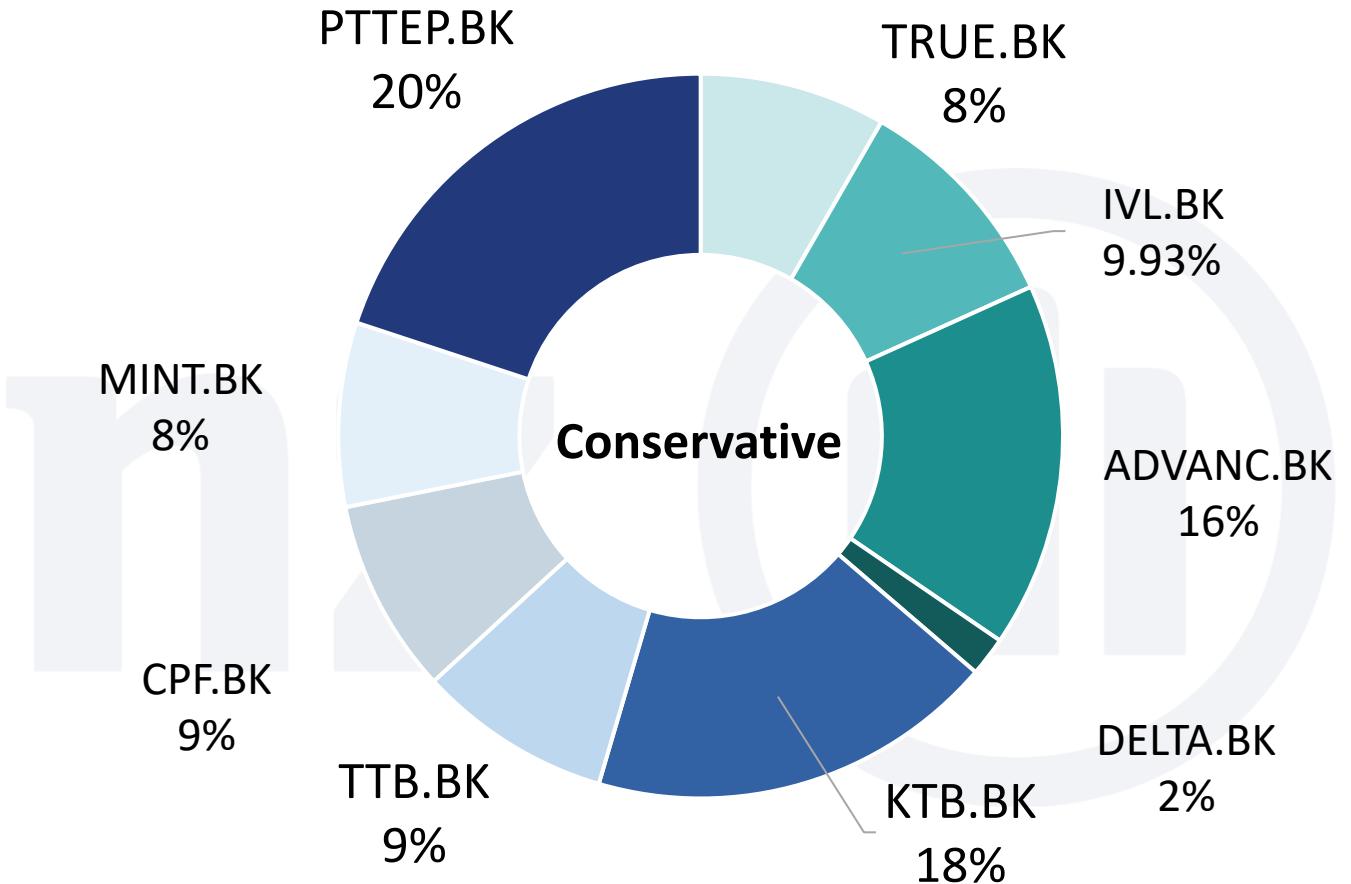
Source: Data Assessment

Approaches

Works done behind constructing the optimal portfolio: Conservative

Suggested Portfolio Stock Proportion

Expected annual return: 15.7%
Annual volatility: 3.8%
Sharpe Ratio: 4.17



Source: Data Assessment

Is the strategic portfolio
OUTPERFORM
the market?

Approaches

Works done behind constructing the optimal portfolio

Benchmark to the performance



Market Representation

Approaches

Works done behind constructing the optimal portfolio

Benchmark to the performance

Market Representation



SET

Daily Average Index Return

Source: Yahoo Finance

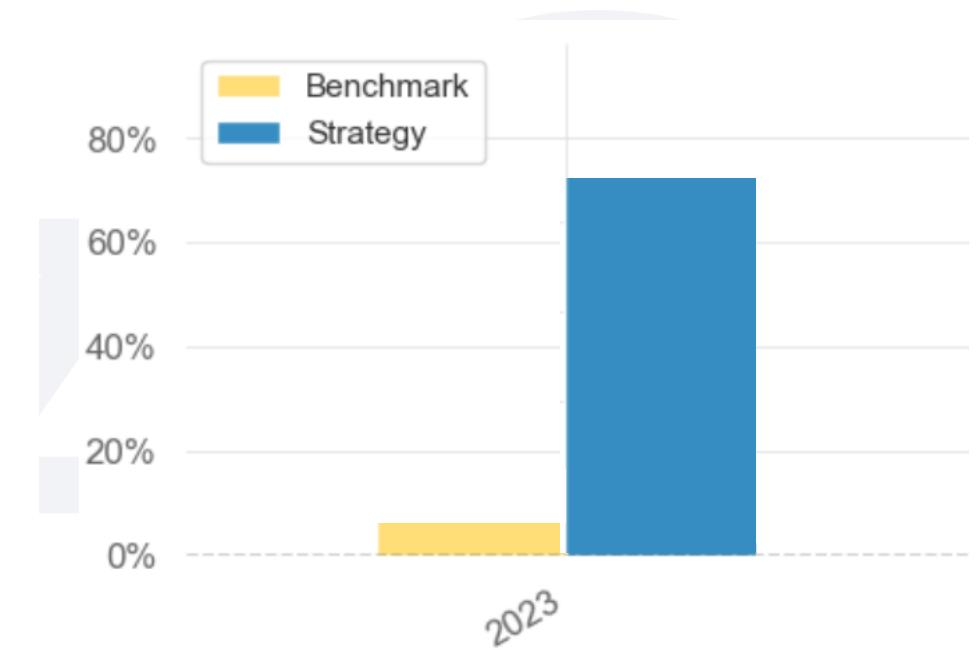
Approaches

Works done behind constructing the optimal portfolio : Conservative

Cumulative Returns VS Benchmark



Return VS Benchmark



Source: Data Assessment

How much will it
IMPACT
to the company?

Impact to Firm

Investment portfolio allocation

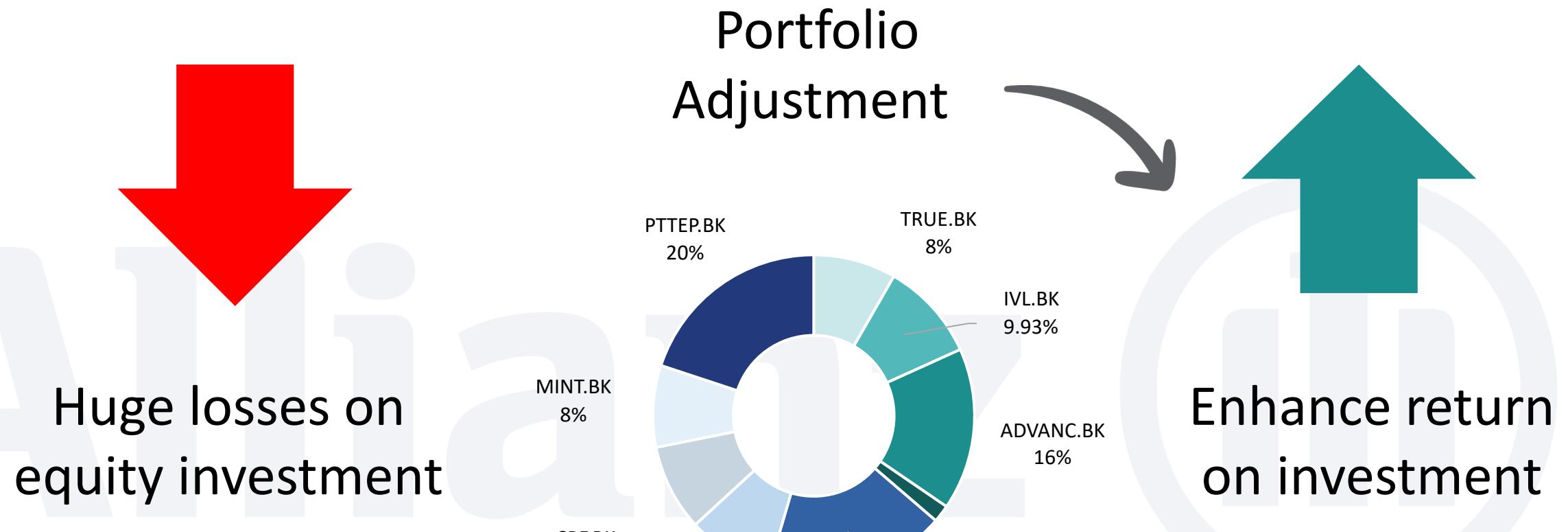
Ticker	Weight Percentage	Baht
PTTEP.BK	19.93%	189,186,770.52
KTB.BK	18.24%	173,155,441.23
ADVANC.BK	16.30%	154,665,784.95
IVL.BK	9.93%	94,280,162.13
CPF.BK	8.68%	82,349,208.36
TTB.BK	8.64%	82,017,002.01
TRUE.BK	8.31%	78,894,262.32
MINT.BK	8.22%	77,973,576.15
DELTA.BK	1.75%	16,638,792.33
Total portfolio		18,983,220,000.00
Equity Proportion		949,161,000.00

Source: Data Assessment

Impact to Firm Investment portfolio allocation

Ticker	Weight Percentage	Baht
TRUE.BK	18.18%	78,894,262.32
IVL.BK	9.93%	94,280,162.13
ADVANC.BK	16.30%	154,665,784.95
DELTA.BK	1.75%	16,638,792.33
KTB.BK	18.20%	173,155,441.23
TTB.BK	8.44%	82,017,002.01
CPF.BK	8.08%	82,349,208.36
MINT.BK	8.22%	77,973,576.15
PTTEP.BK	19.93%	189,186,770.52
Total portfolio		18,983,220,000.00
Equity Proportion		949,161,000.00

Return
> 4X
Compared to the actual return of the company



Let's use the power of technology to

UNLOCK

your portfolio's true potential

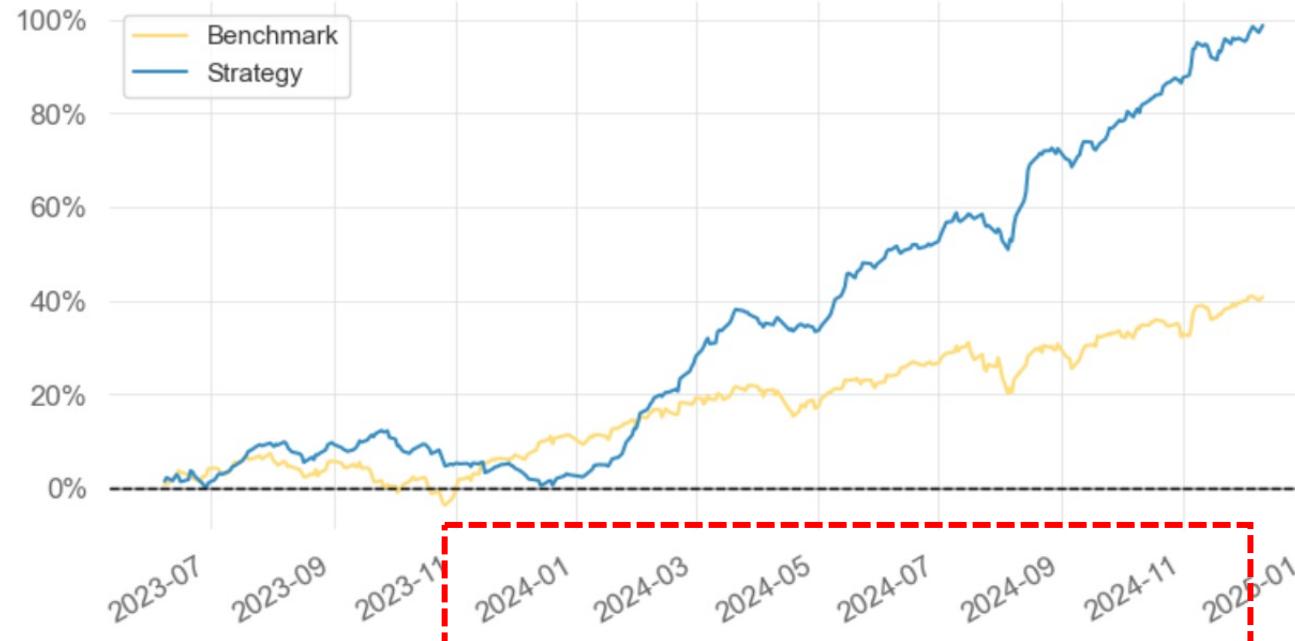
Thank You

Appendix

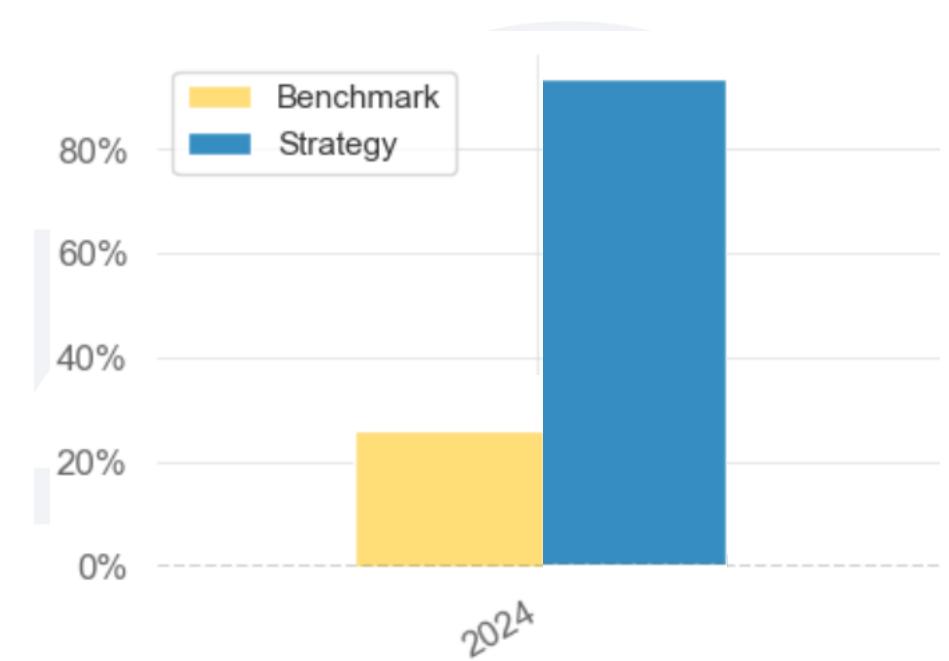
Approaches

Works done behind constructing the optimal portfolio: Aggressive

Cumulative Returns VS Benchmark



Return VS Benchmark



Impact to Firm

Investment portfolio allocation: Aggressive

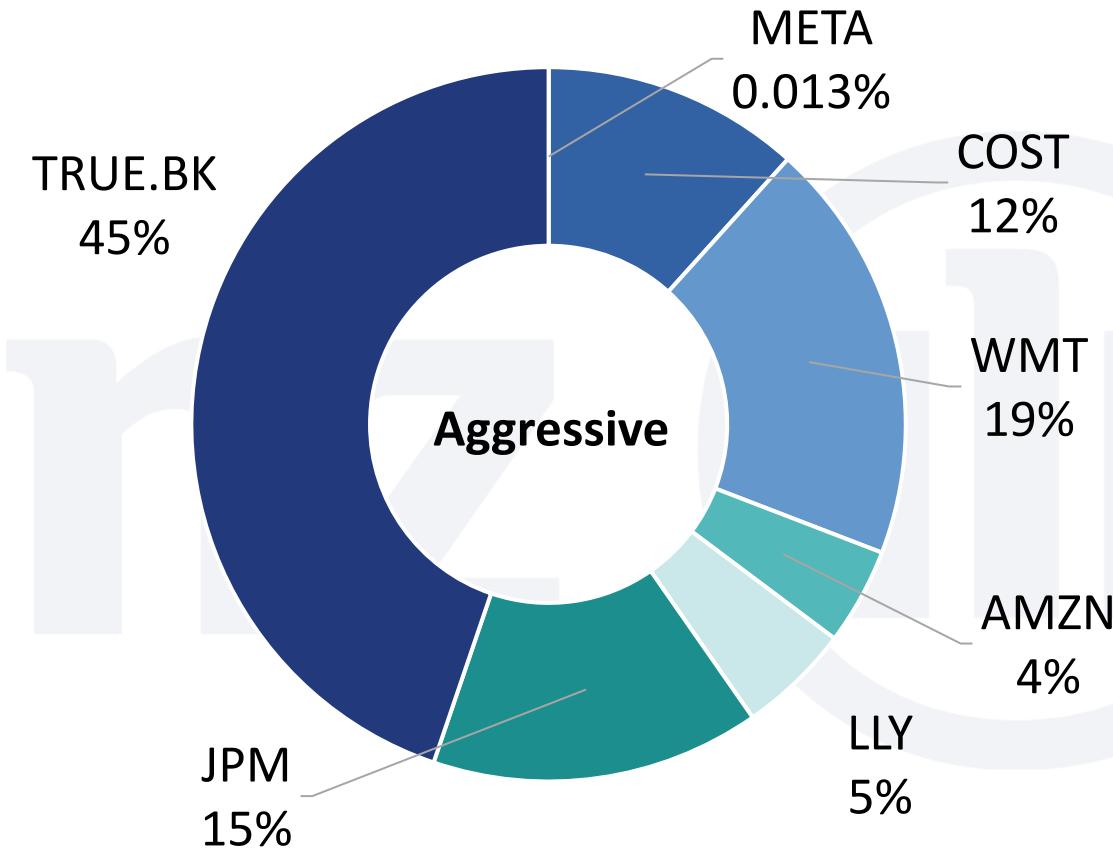
Tickers	Percentage	Baht
META	0.012%	113,899.32
COST	12%	110,776,580.31
WMT	19%	181,906,705.65
AMZN	4%	41,620,709.85
LLY	5%	48,274,328.46
JPM	15%	141,406,005.78
TRUE.BK	44.78%	425,053,279.02
Total Portfolio		18,983,220,000.00
Equity Proportion		949,161,000.00

Approaches

Works done behind constructing the optimal portfolio: Aggressive

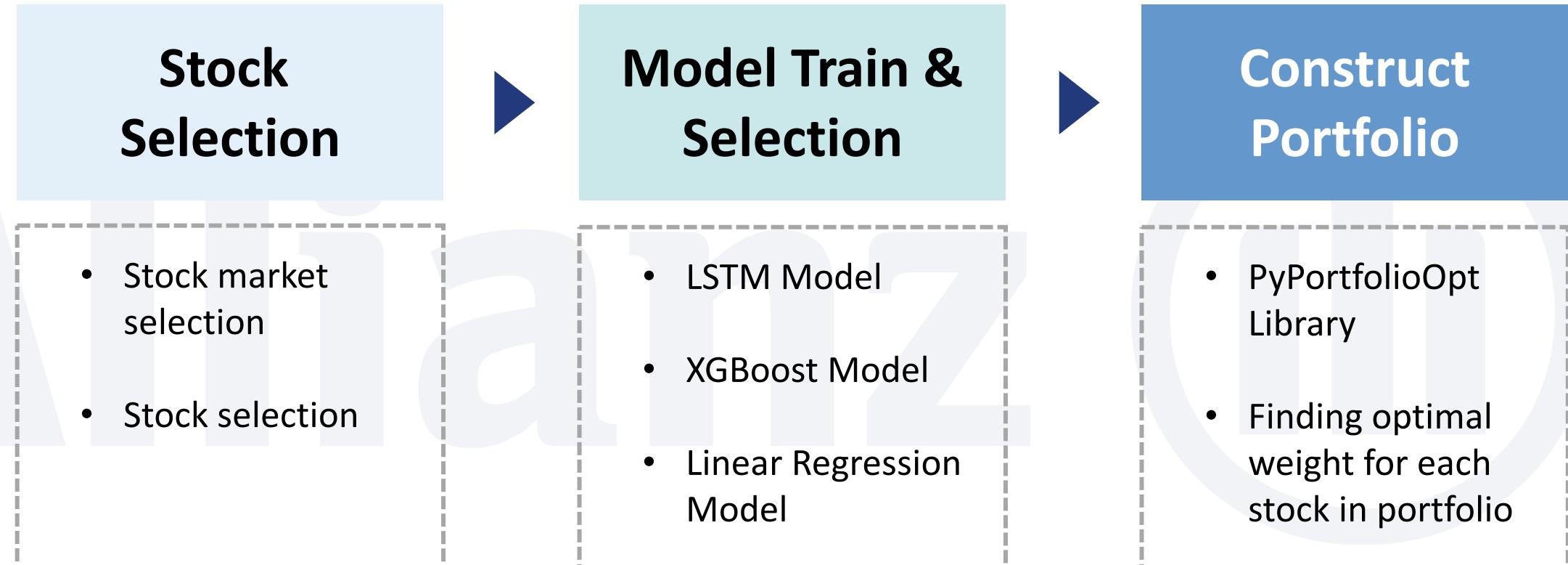
Suggested Portfolio Stock Proportion

Expected annual return: 54.3%
 Annual volatility: 9.9%
 Sharpe Ratio: 5.48



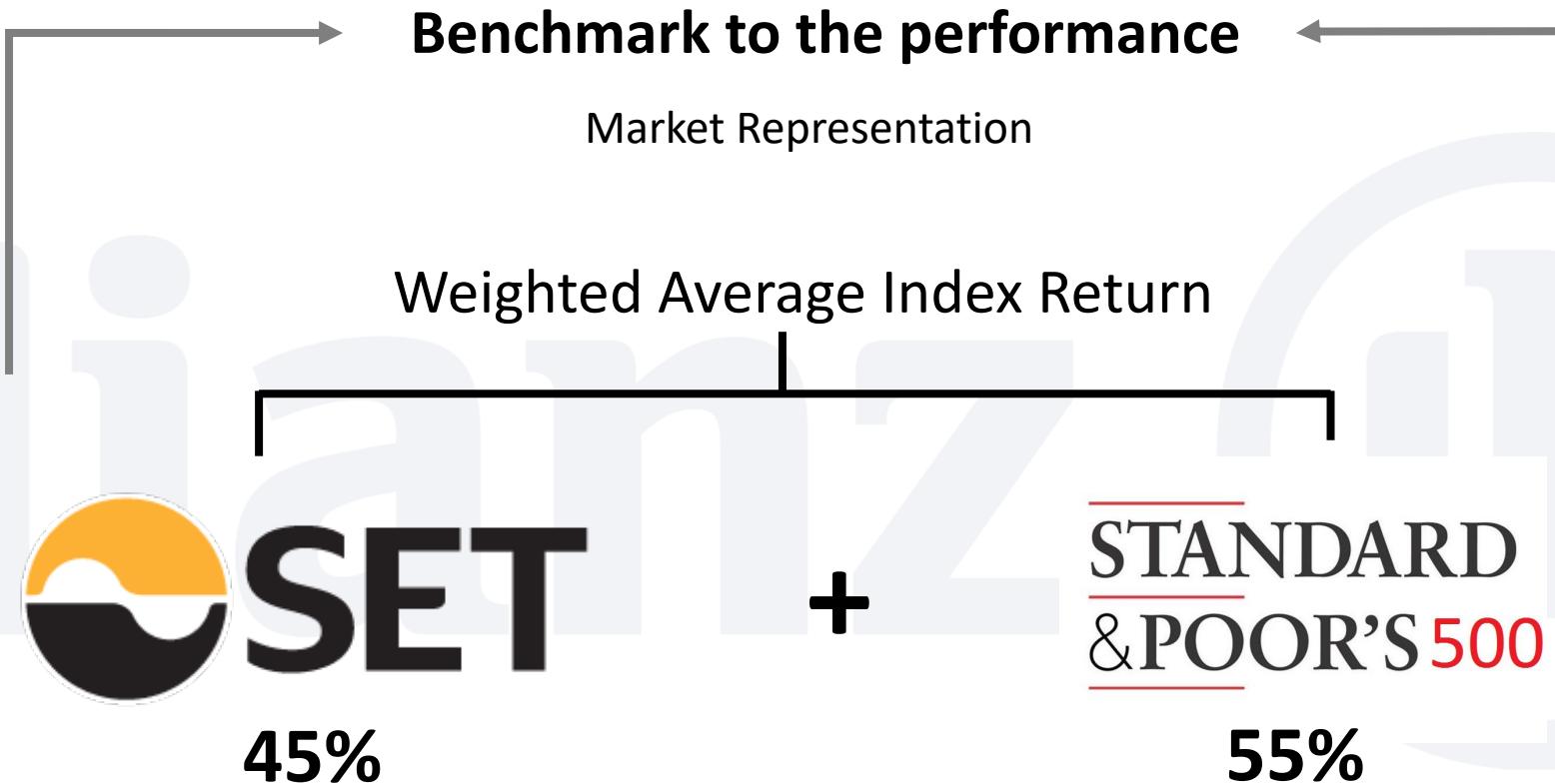
Approaches

Works done behind constructing the optimal portfolio



Approaches

Works done behind constructing the optimal portfolio



Model

Return on each top 10 stocks

Unnamed: 0 Expected Return (%)		
0	NVDA	148.669016
1	META	97.482479
2	JPM	63.159531
3	AMZN	63.019192
4	LLY	60.158086
5	COST	57.258683
6	AVGO	55.203867
7	ORCL	54.855311
8	WMT	46.947178
9	GOOGL	42.660600

SET_expected_return		
Unnamed: 0 Expected Return (%)		
0	TRUE.BK	51.305509
1	INTUCH.BK	38.682348
2	ADVANC.BK	34.294558
3	DELTA.BK	22.232005
4	KBANK.BK	21.553113
5	TTB.BK	18.725275
6	CPF.BK	12.934558
7	KTB.BK	10.439443
8	PTT.BK	8.446279
9	CPALL.BK	0.033943

Model

Interest rate

