

Euklid Project

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- Luca Schisano

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EUKLID

Our path

1

- Models Selection:
 - LSTM
 - Random Forest
 - SVR

2

- Study/ fit to the data provided

3

- Model optimization through parameter manipulation
- Strategies

4

- Ensemble Model (IBM) on 231 days

- LSTM Model:

IBM STOCK PRICE DAILY (Train/test 70%)

DATASET 1

- PRICE CLOSE

DATASET 2

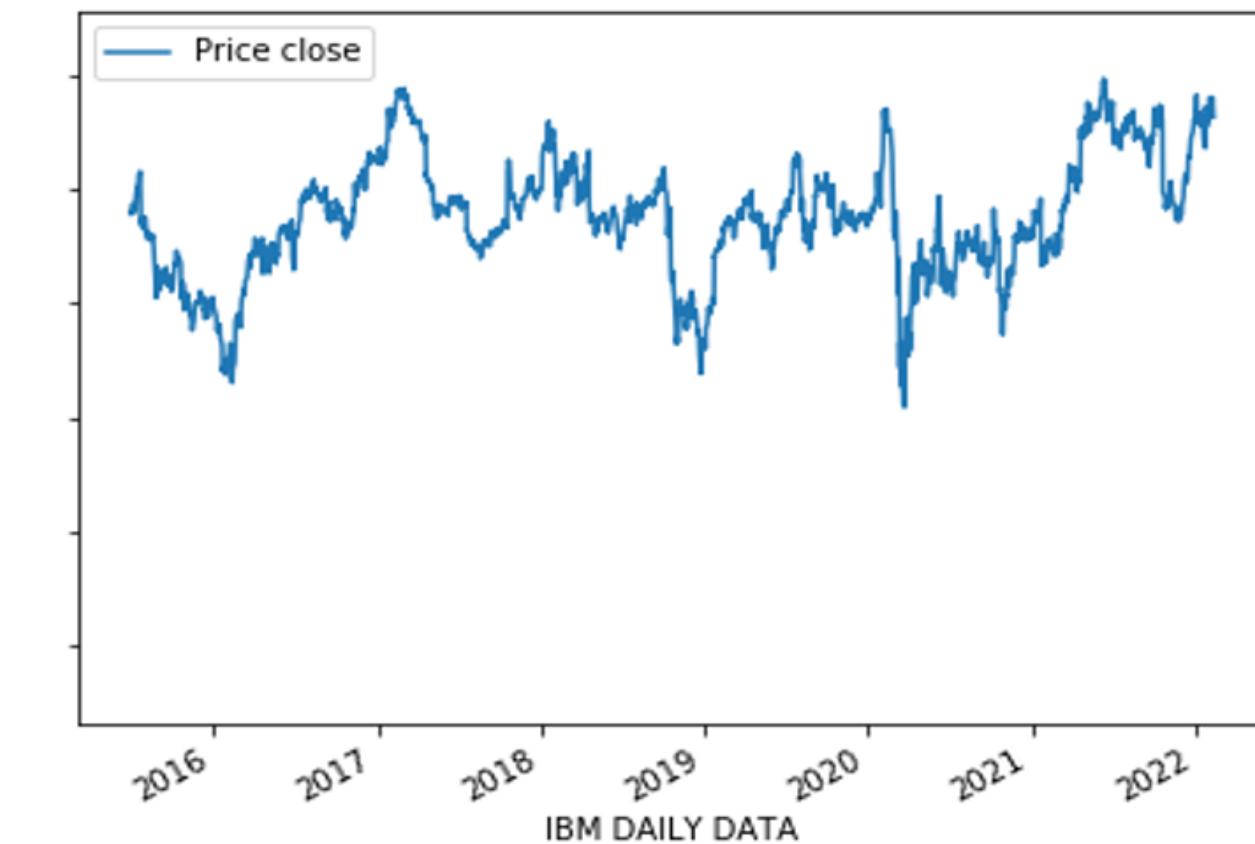
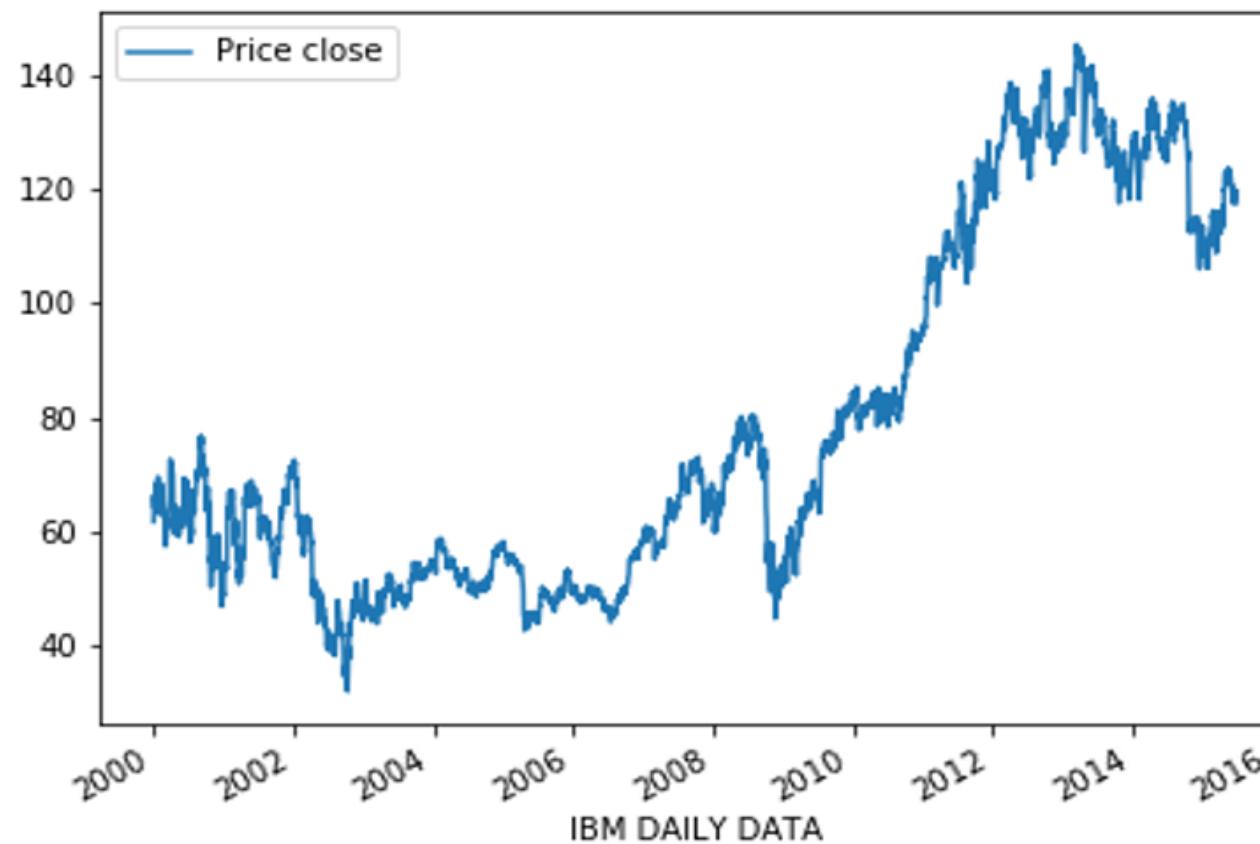
- PRICE CLOSE
- ROLLING MEAN 10 DAYS
- ROLLING MEAN 50 DAYS

DATASET 3

- PRICE CLOSE
- OPEN
- VOLUME
- WMA
- MA
- RSI
- SlowD
- SlowK

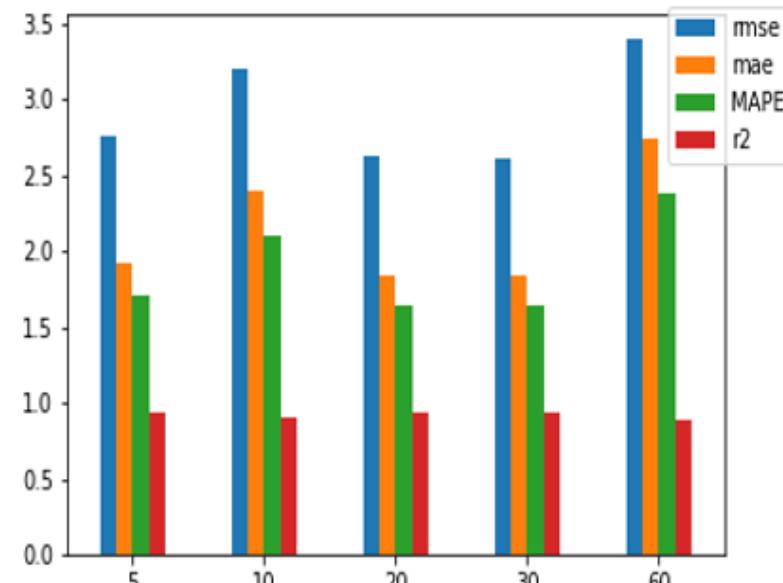
DATASET 4

- PRICE CLOSE
- MA
- RSI
- SlowD
- SlowK
- ATR
- ROC

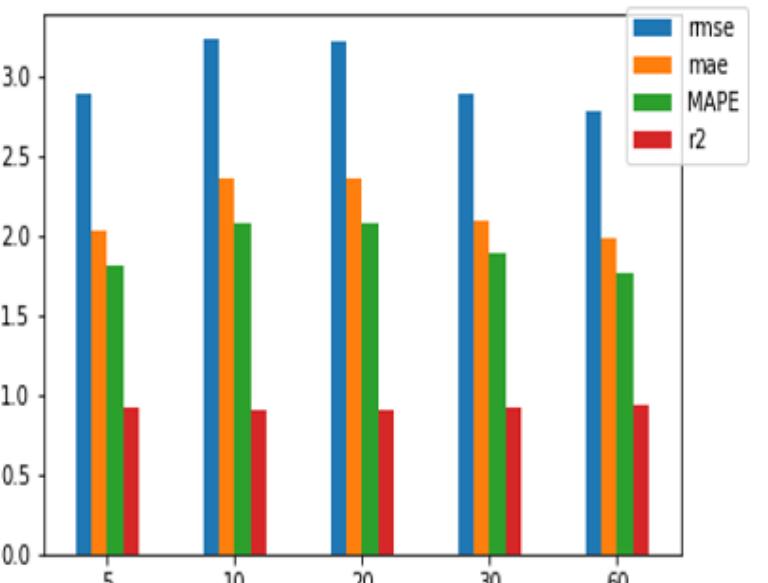


How many day ?

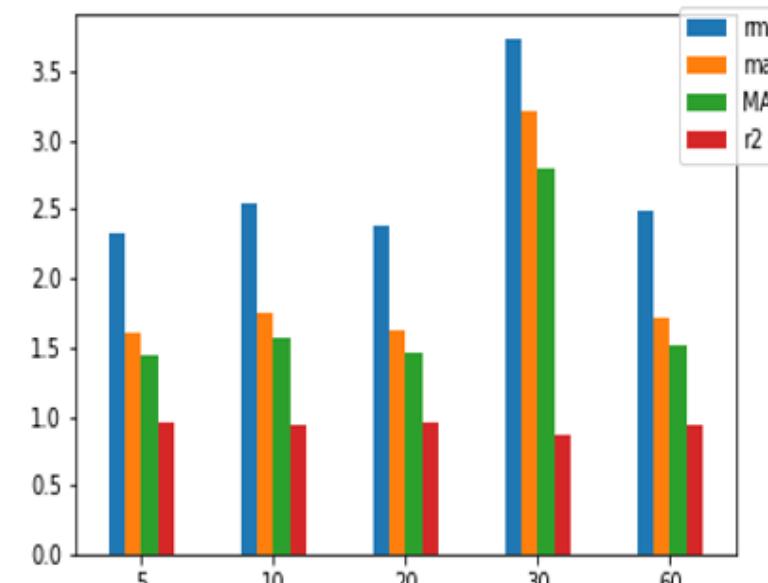
**DATASET 1
PERFORMANCE
MATRICS**



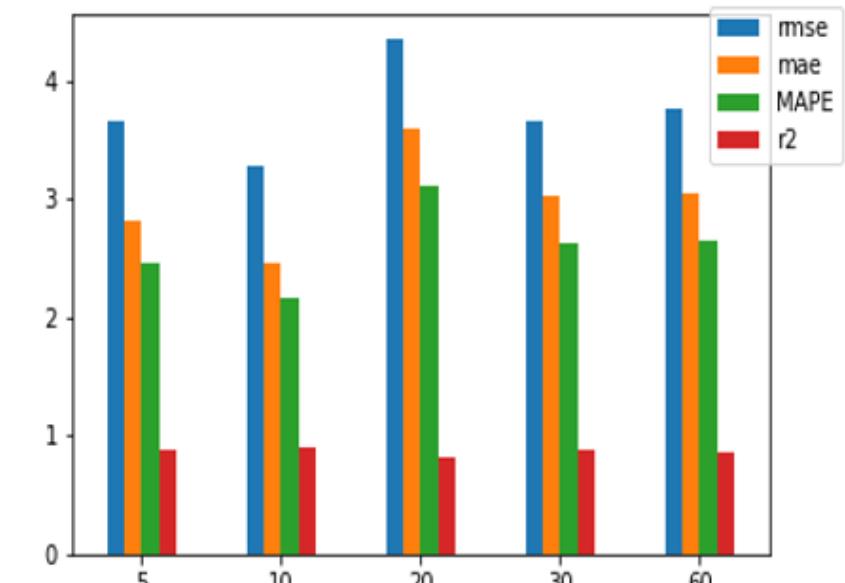
**DATASET 2
PERFORMANCE
MATRICS**



**DATASET 3
PERFORMANCE
MATRICS**

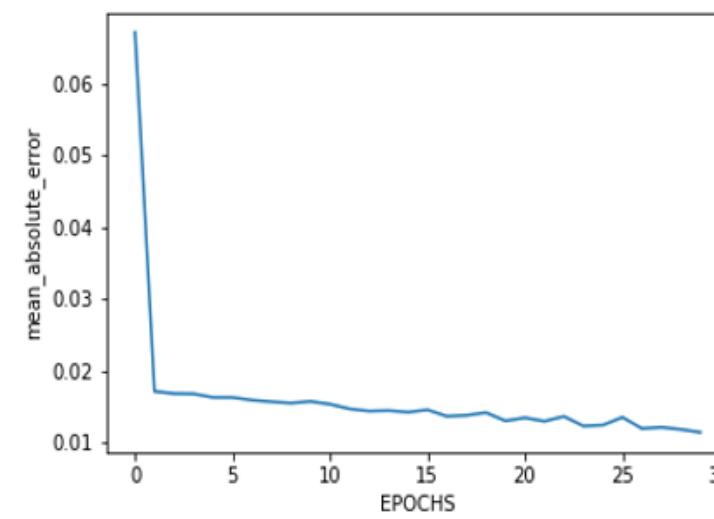


**DATASET 4
PERFORMANCE
MATRICS**

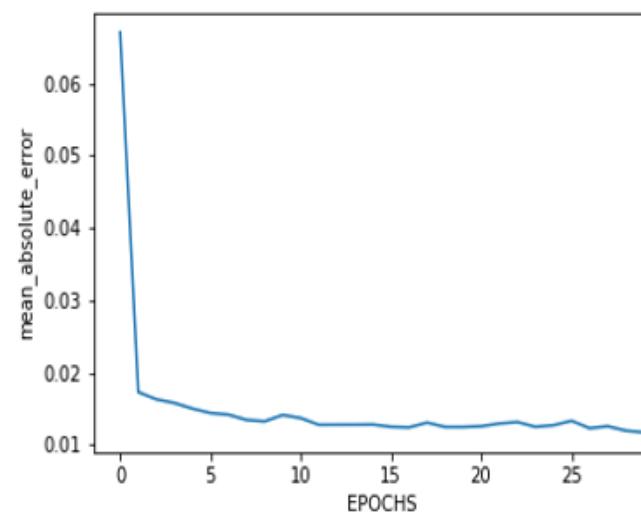


How many epochs?

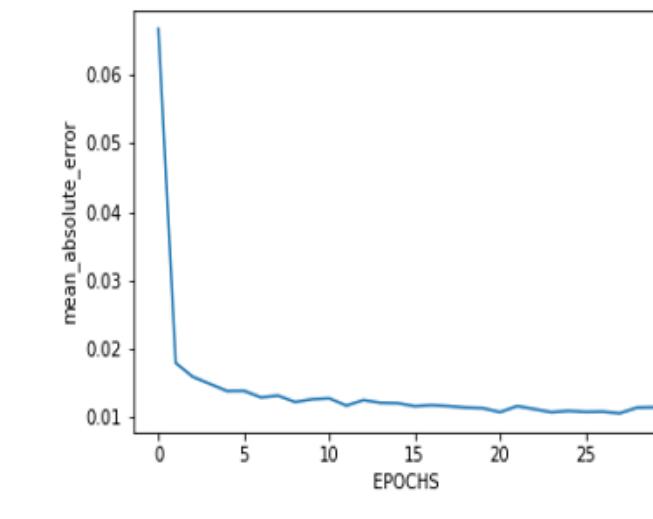
DATASET 1
Mean Absolute Error



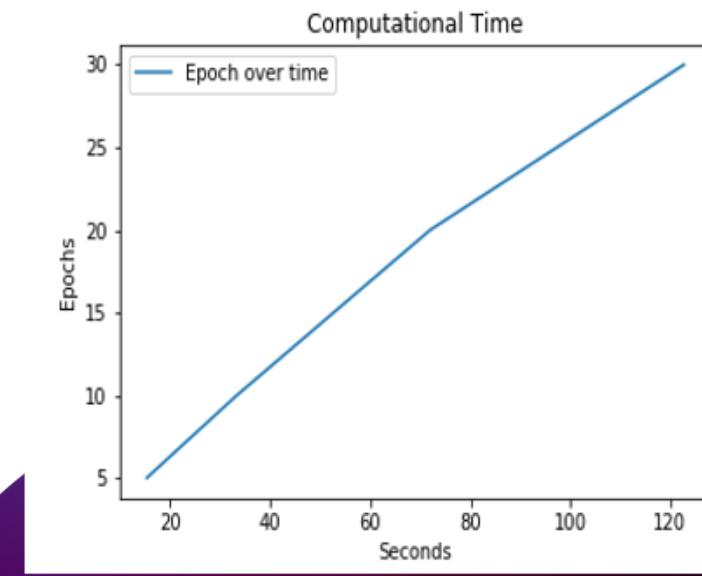
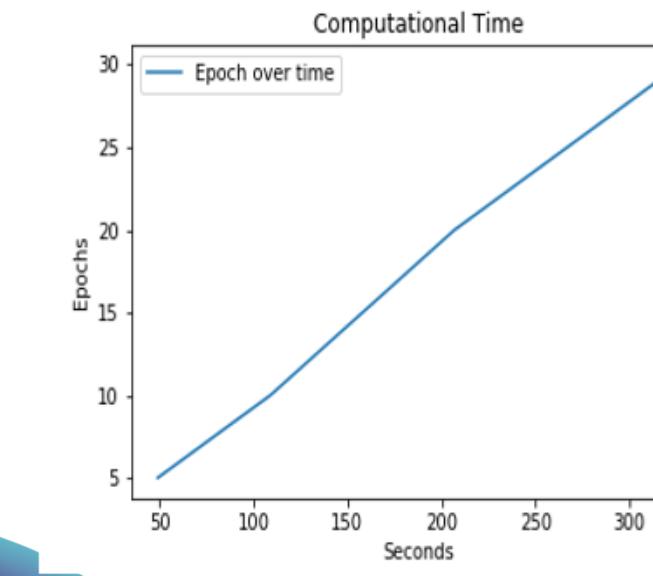
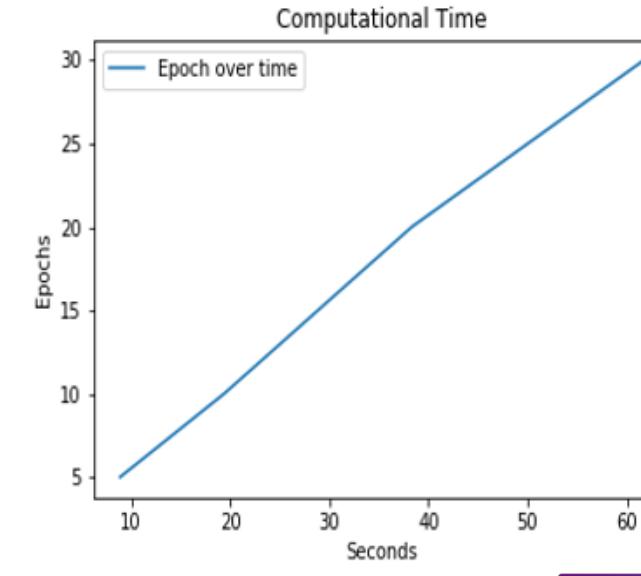
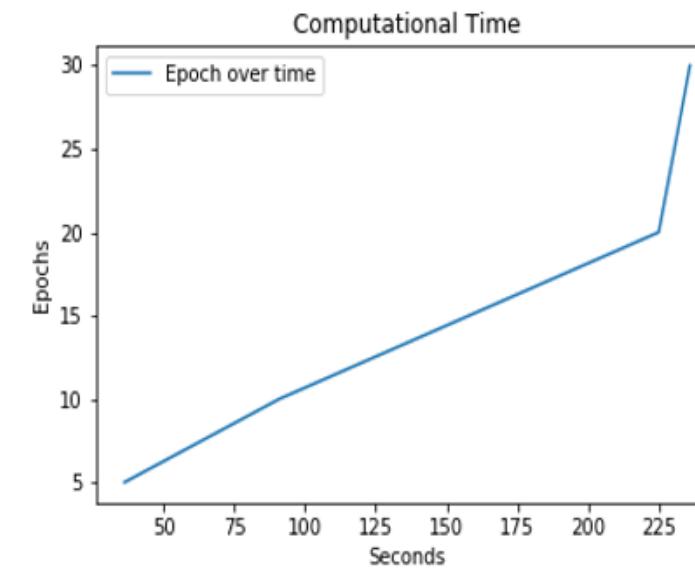
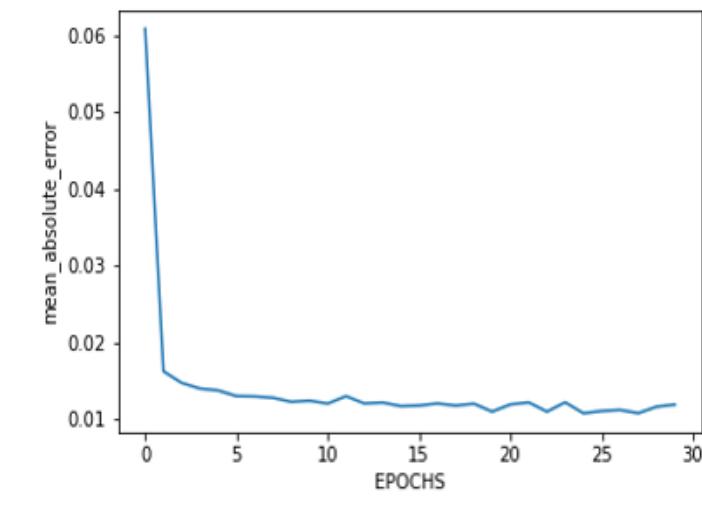
DATASET 2
Mean Absolute Error



DATASET 3
Mean Absolute Error

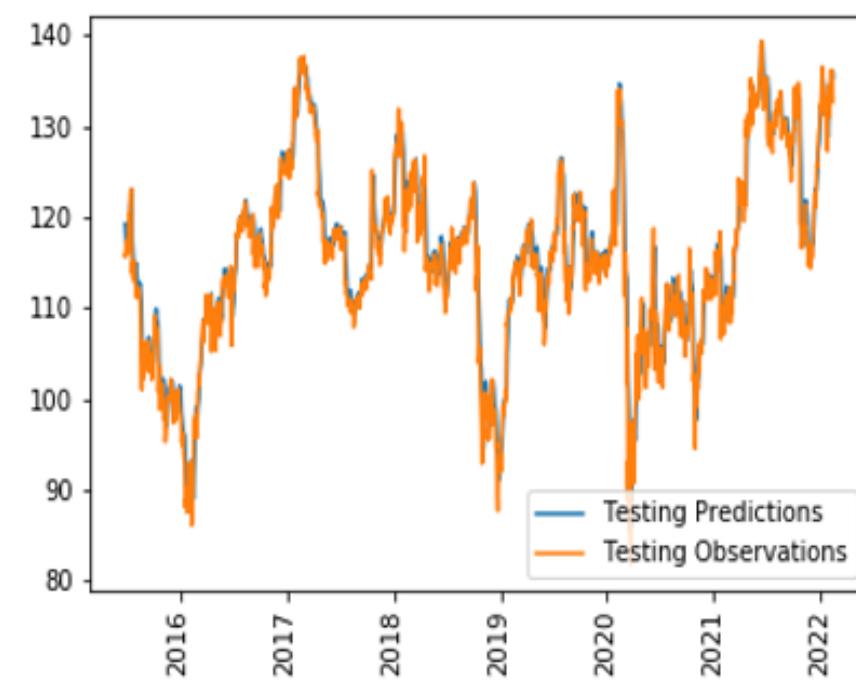


DATASET 4
Mean Absolute Error

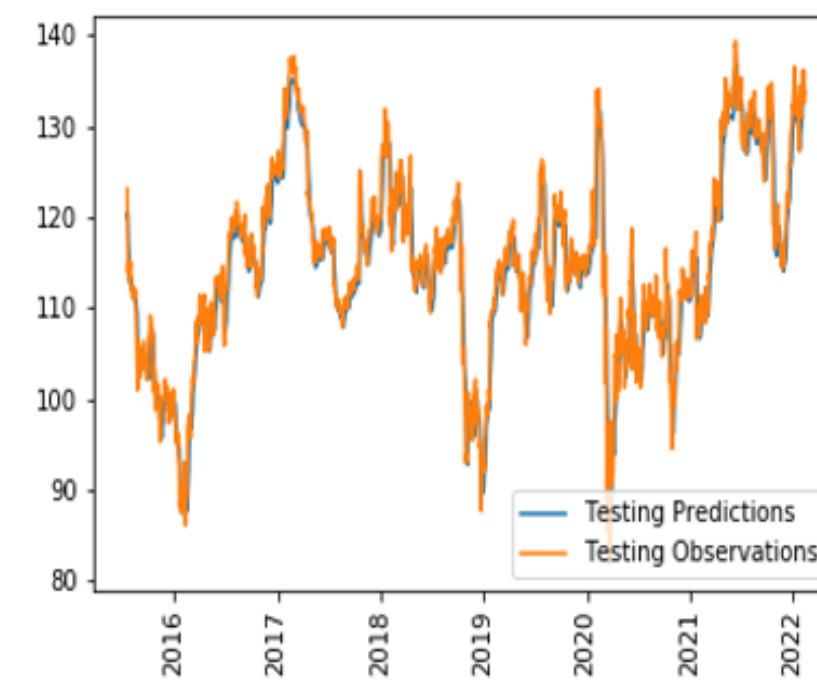


Results

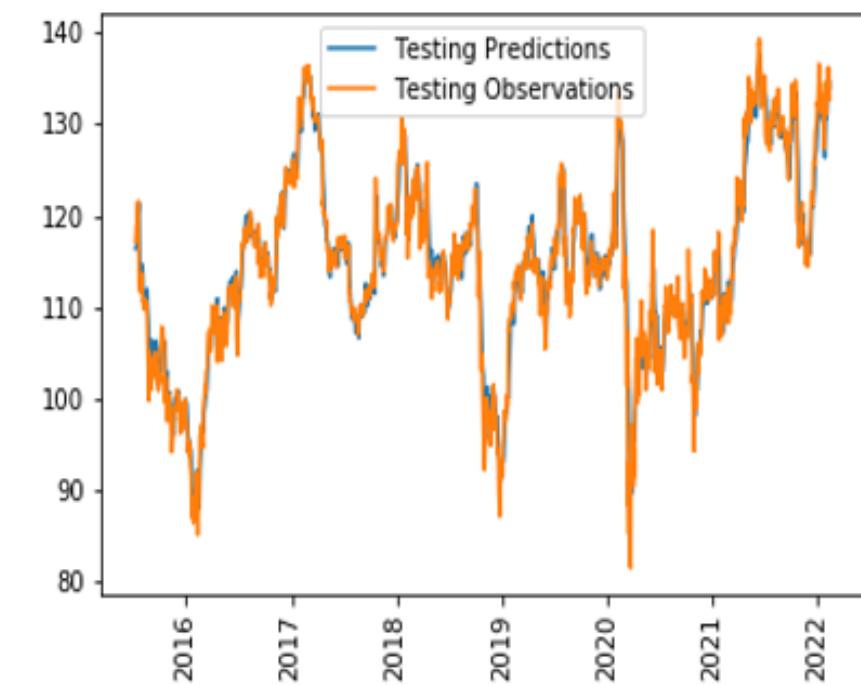
DATASET 1



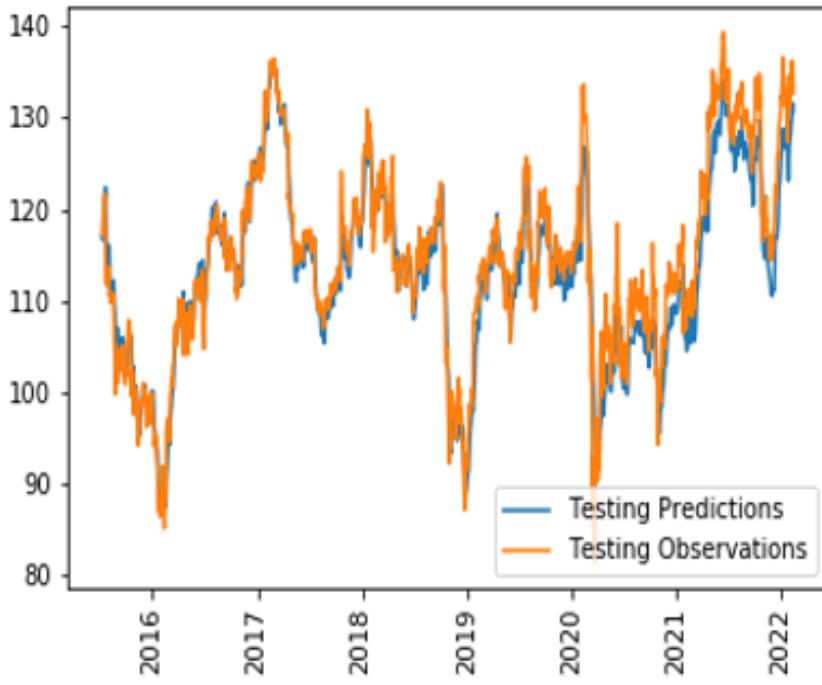
DATASET 2



DATASET 3



DATASET 4

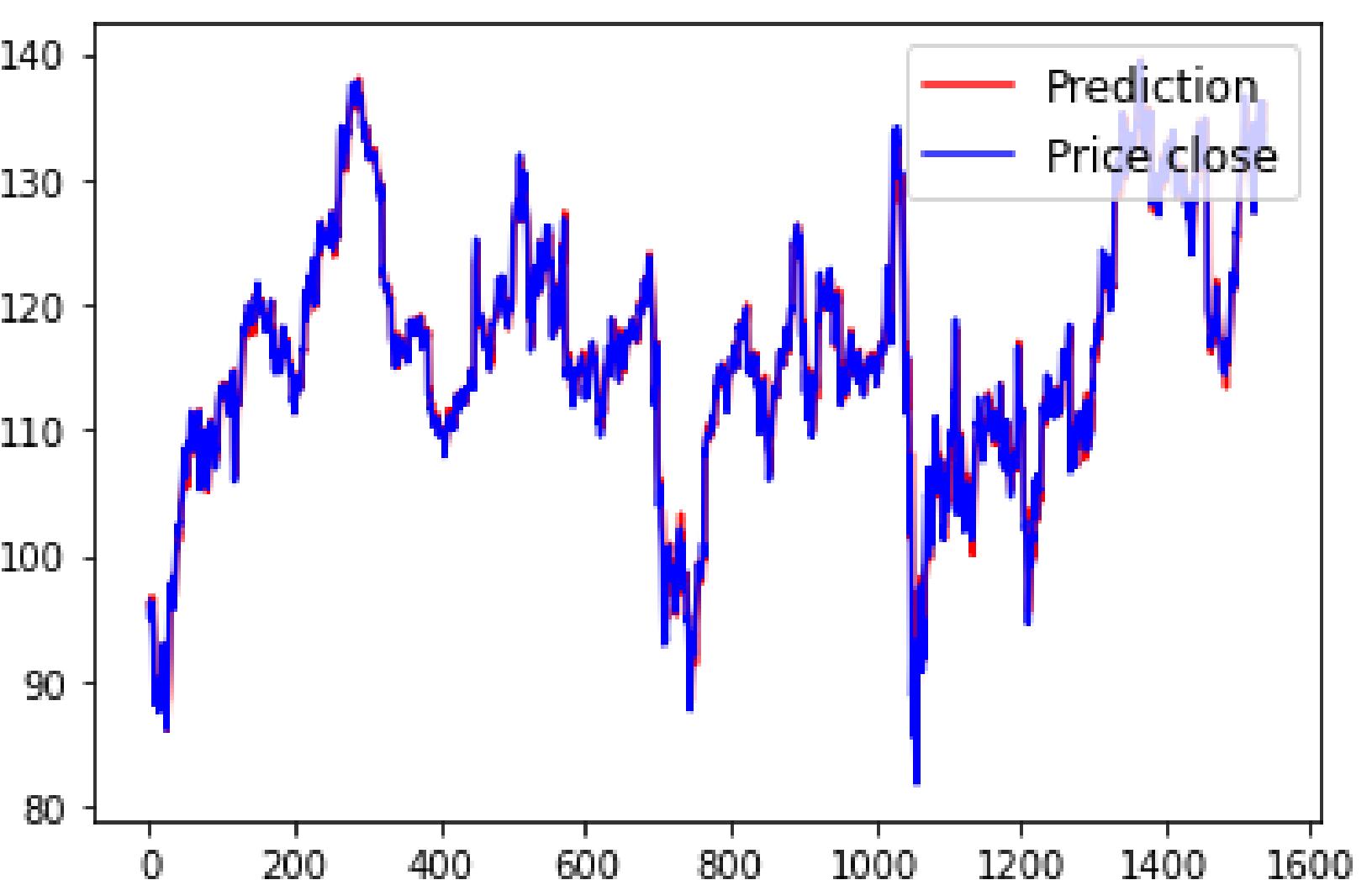


- **SVR Model:**

IBM daily data

SVR model fitted:

```
1 # design svm model
2 clf = SVR(kernel="rbf", C=1000.0, degree=3, epsilon=0.1, coef0=1, verbose=2)
3
4 # fit model
5 clf.fit(X_train,y_train)
6
7 |
```



The model and strategy we made

	IBM DAILY DATA	Price close	Prediction	Strategy Pre	Open
0	2000-01-03	66.433693	67.103767	1	107.492828
1	2000-01-04	64.178642	66.511218	0	108.986618
2	2000-01-05	66.433693	66.687531	1	107.970840
3	2000-01-06	65.288307	65.038529	0	112.810707
4	2000-01-07	65.001938	63.730684	0	112.093689
...
5529	2021-12-22	128.205688	135.103283	0	129.059998
5530	2021-12-23	129.075226	135.519942	1	130.000000
5531	2021-12-27	130.053436	135.290163	0	130.630005
5532	2021-12-28	131.051422	136.115212	1	131.600006
5533	2021-12-29	131.762848	133.858326	0	132.399994

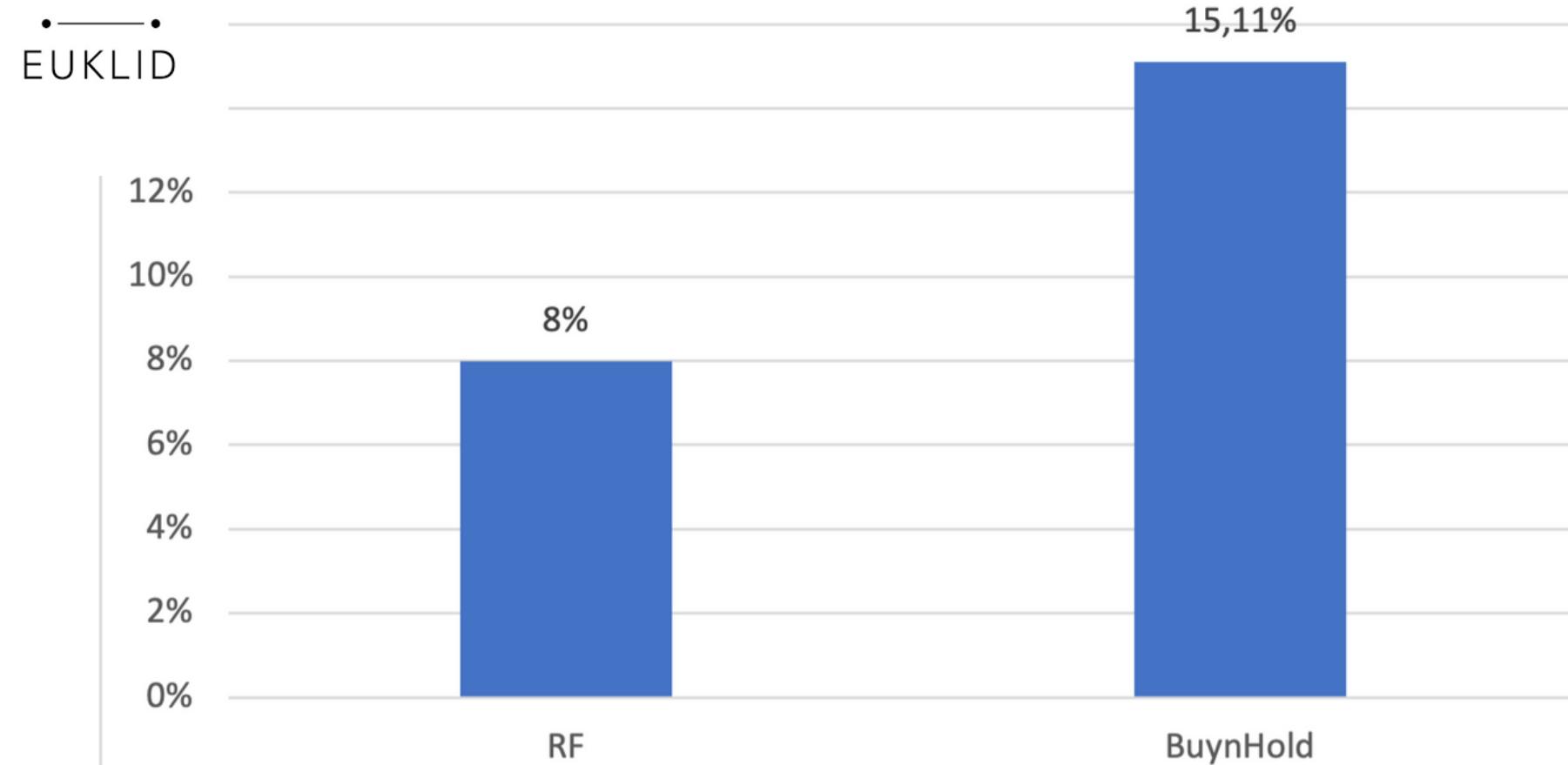


- Random Forest Model:

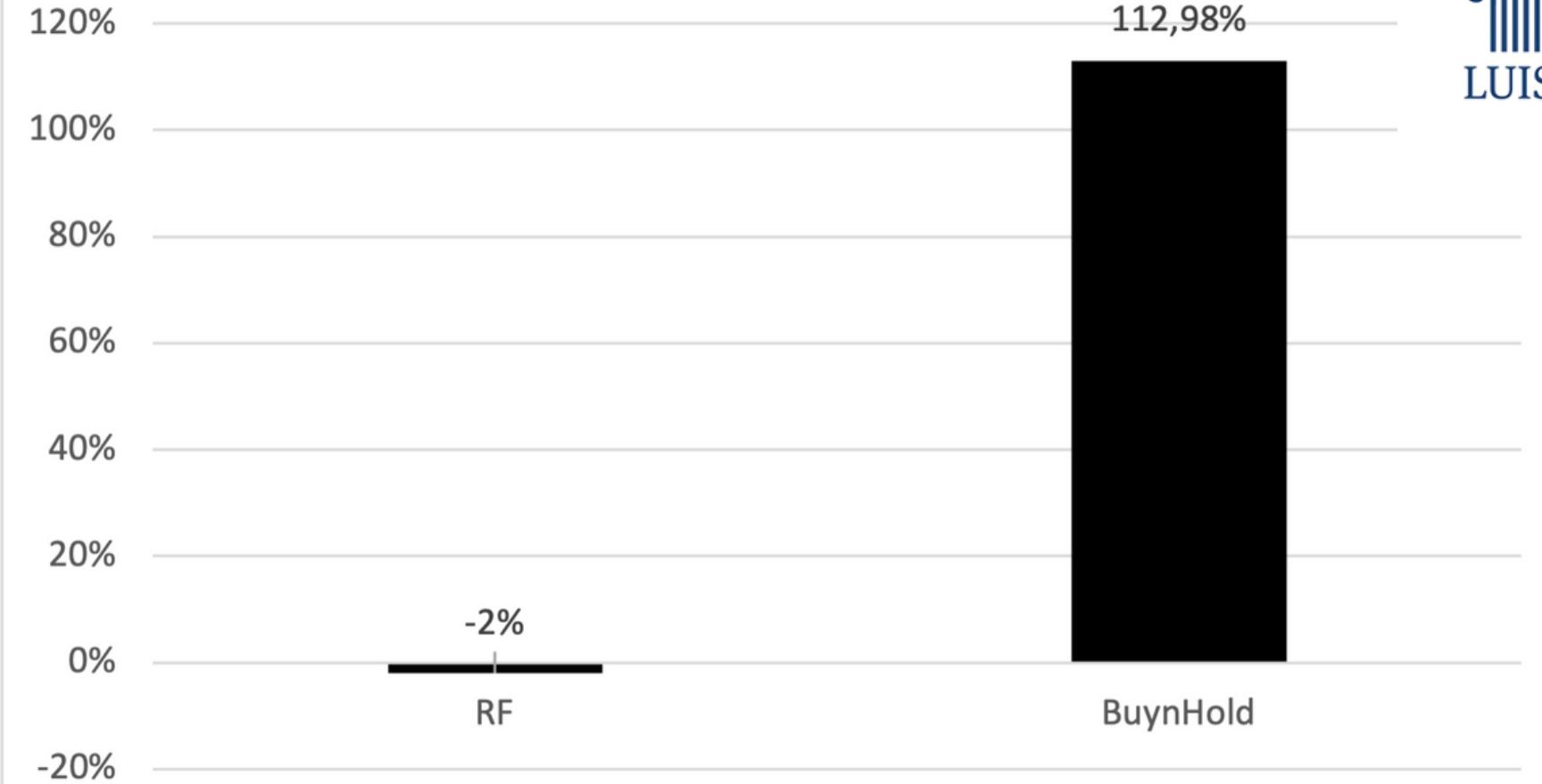
```
GridSearchCV(cv=5, estimator=RandomForestClassifier(random_state=24),  
            param_grid={'criterion': ['gini', 'entropy'],  
                        'max_depth': [4, 5, 6, 7, 8],  
                        'max_features': ['auto', 'sqrt', 'log2'],  
                        'n_estimators': [200, 500]})
```

```
{'criterion': 'gini',  
 'max_depth': 4,  
 'max_features': 'auto',  
 'n_estimators': 200}
```

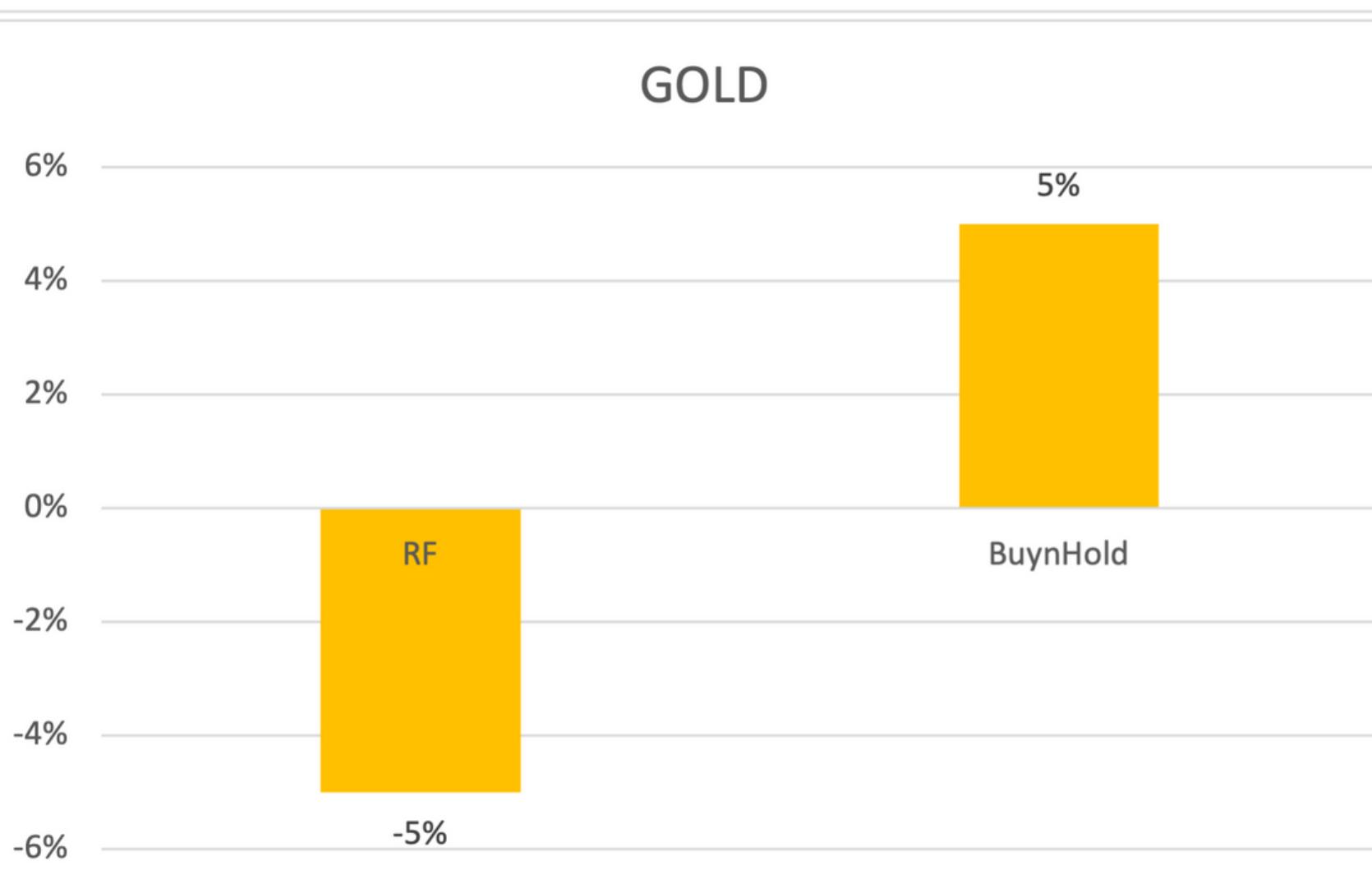
IBM



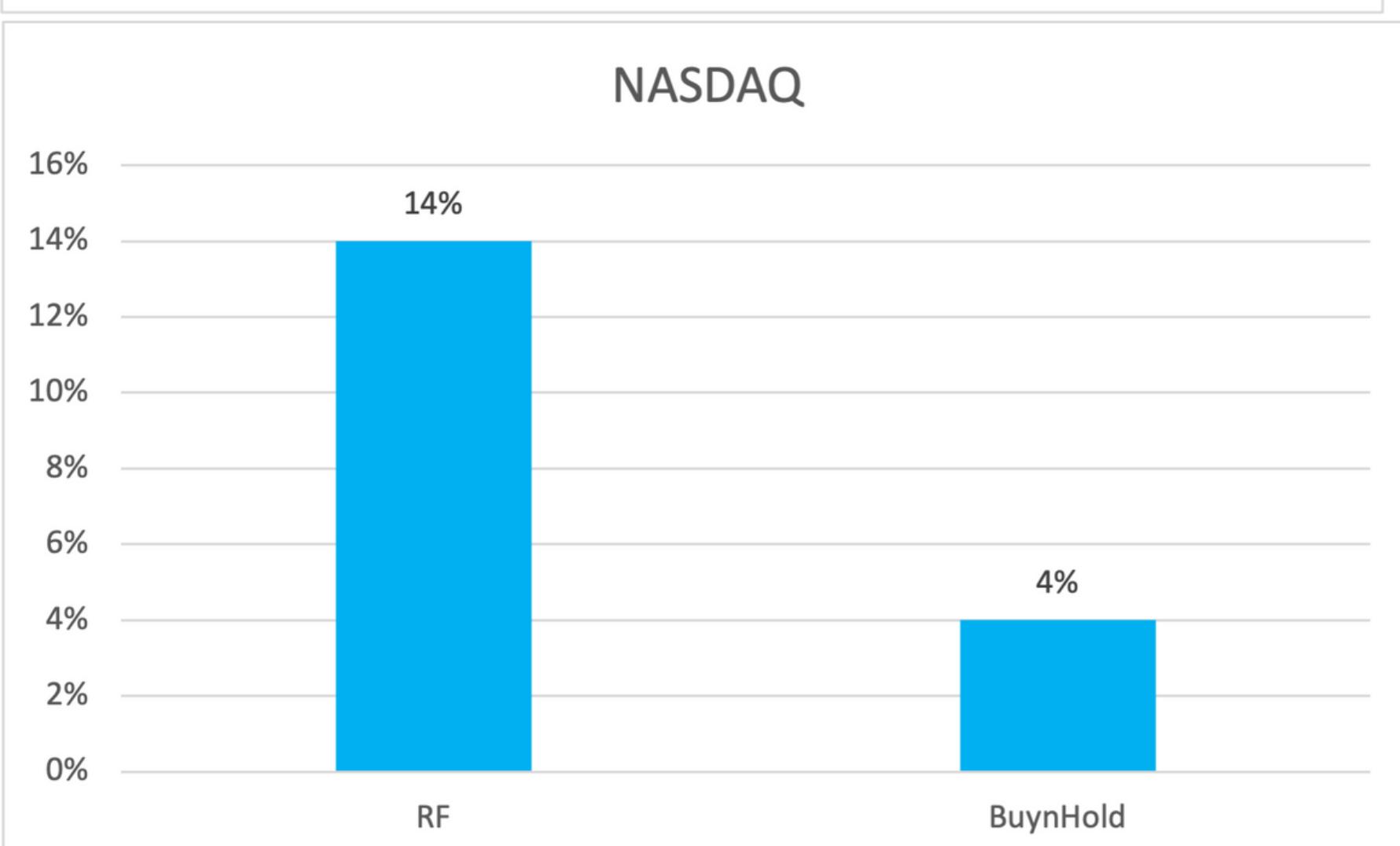
WTI



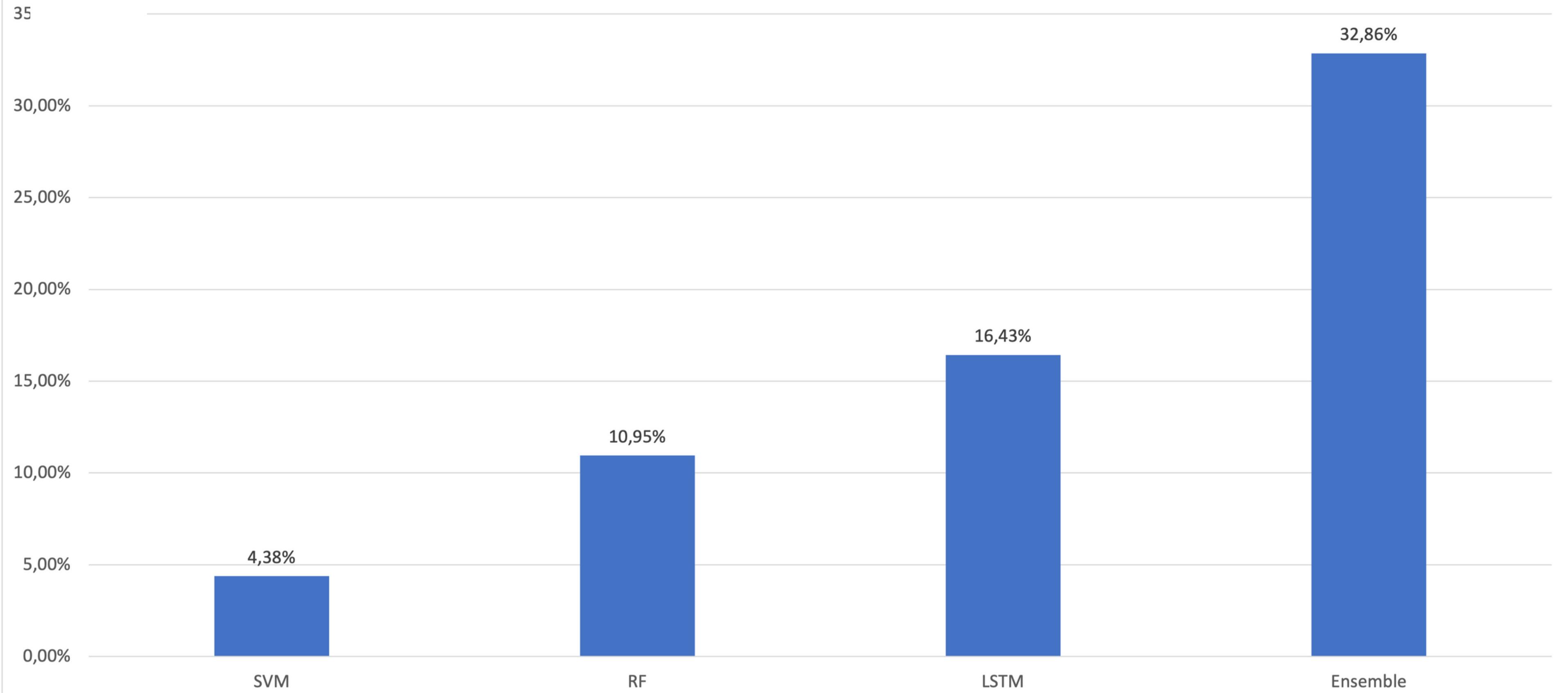
GOLD



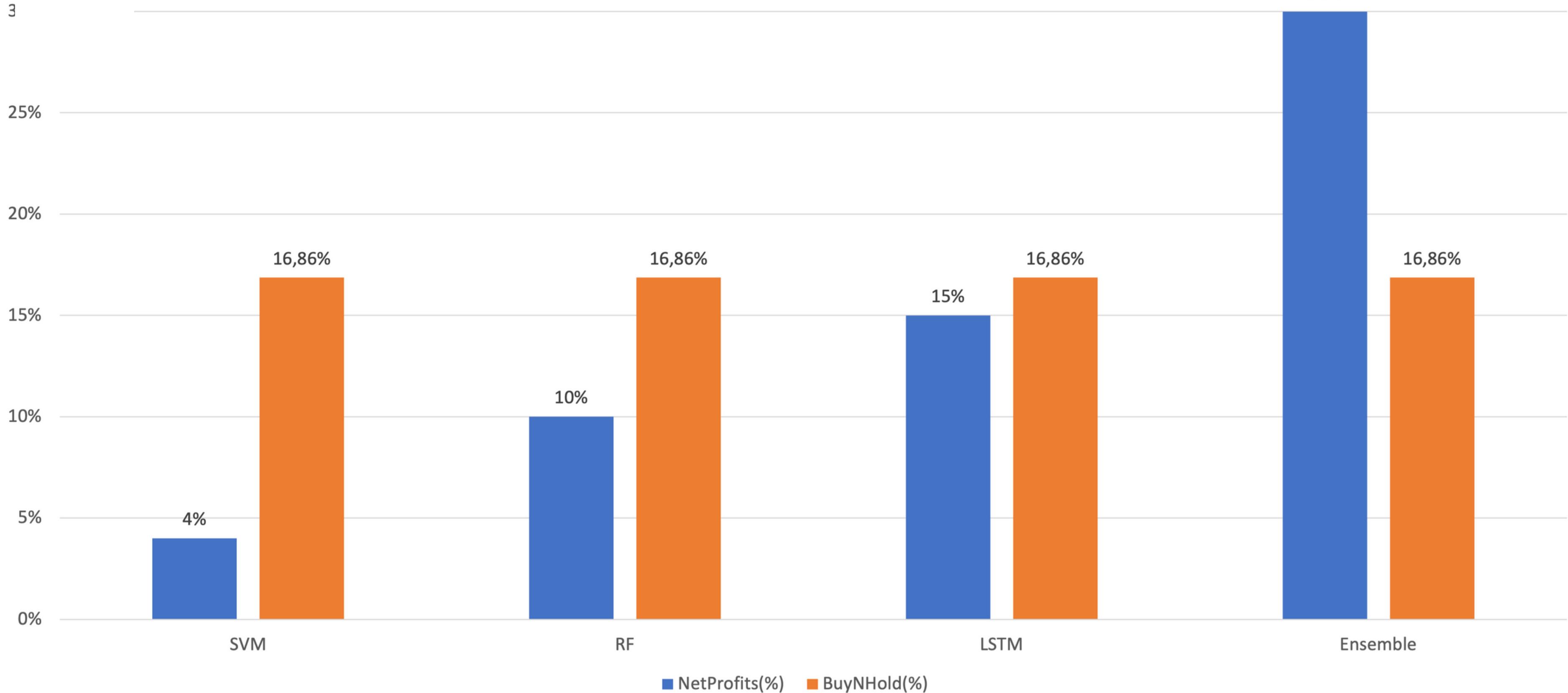
NASDAQ



Avg Return Yr (%)



VS Buy and Hold (231 Trading Days)



All 4 equity graphs, full code and junk available at:

<https://github.com/AndreaBuscemi/EUKLID-ITALIANO-DS-Project.git>

Thank you for your time and attention!