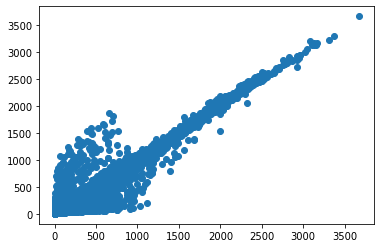
MLP model Accuracy

WITH SVOL

R2 score:

0.9390598471354223

Scatter plot



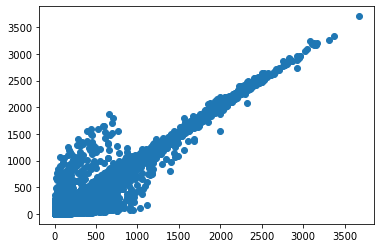
R2 score with bs\_call

0.9426345334131156

With Normal vol

R2 score:

0.9402648495883987



R2 score with blackscholes

0.9426345334131156

Model: "model"

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Layer (type) Output Shape Param # Connected to

==================================================================================================

input\_1 (InputLayer) [(None, 20, 1)] 0

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sequential (Sequential) (None, 8) 6224 input\_1[0][0]

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input\_2 (InputLayer) [(None, 4)] 0

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concatenate (Concatenate) (None, 12) 0 sequential[0][0]

input\_2[0][0]

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dense (Dense) (None, 100) 1300 concatenate[0][0]

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batch\_normalization (BatchNorma (None, 100) 400 dense[0][0]

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leaky\_re\_lu (LeakyReLU) (None, 100) 0 batch\_normalization[0][0]

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dense\_1 (Dense) (None, 100) 10100 leaky\_re\_lu[0][0]

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batch\_normalization\_1 (BatchNor (None, 100) 400 dense\_1[0][0]

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leaky\_re\_lu\_1 (LeakyReLU) (None, 100) 0 batch\_normalization\_1[0][0]

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dense\_2 (Dense) (None, 100) 10100 leaky\_re\_lu\_1[0][0]

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batch\_normalization\_2 (BatchNor (None, 100) 400 dense\_2[0][0]

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leaky\_re\_lu\_2 (LeakyReLU) (None, 100) 0 batch\_normalization\_2[0][0]

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dense\_3 (Dense) (None, 1) 101 leaky\_re\_lu\_2[0][0]

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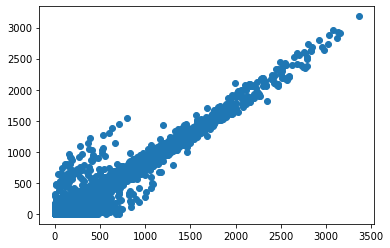
Total params: 29,025

Trainable params: 28,425

Non-trainable params: 600

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LSTM)

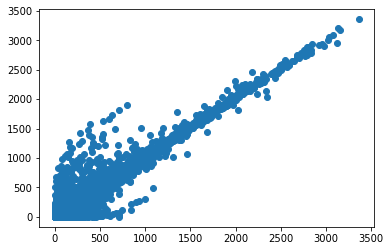


Y\_test vs y\_pred

MAE-:67.24218145483937

MSE-:12372.700947288793

BlackScholes-:



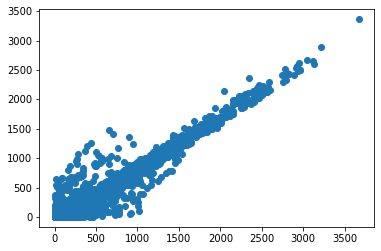
MAE-:39.1590574699689

MSE-:9042.55910966539

LSTM(with resources):

print(reg.score(x,y)):0.9457331686671906

MAE:84.50230266866564 , MSE: 16523.330198358926

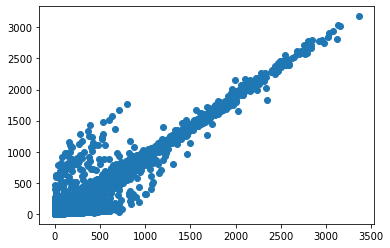


MLP with VOL

print(reg.score(x,y),mae,mse)

0.9481883559940043 48.89514604119551 8869.770818254554

Explained\_VAR=-0.06683200134715994

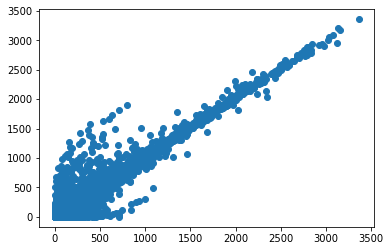


Blackscholes

print(reg\_bs.score(x\_bs,y\_bs),mae\_bs,mse\_bs)

0.9490160095354201 39.1590574699689 9042.55910966539

Explained\_VAR\_bs= 0.02993812146705732

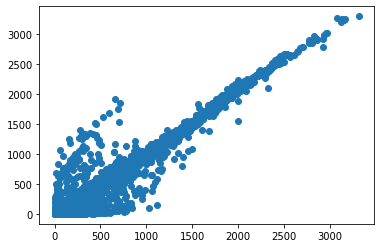


MLP with SVOL

print(reg.score(x,y),mae,mse)

0.9417065132812992 45.111140932682645 10336.259042919924

Explained\_Var=0.03702640008421065

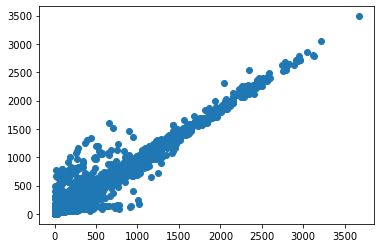


WITH Resources(vix,gold,crude\_oil)

print(reg.score(x,y),mae,mse)

0.9595654044941849 53.64289135793368 7536.533853067281

Explained\_var=-0.10291439853620465



Metrics of MLP MODEL

REG\_SCORE - 0.9735251090889137

Mean Absolute Error - 34.88984724242013

Mean Squared Error - 5425.483661827558

Explained\_Variance\_Score - 0.9735184766261576