Table of Contents

1 Appendices

1.1 Python code for return predictions

In [1]:
```
import numpy as np  # NumPy
import pandas as pd  # pandas
import cufflinks as cf  # Cufflinks
from sklearn.svm import SVC  # scikit-learn
import warnings; warnings.simplefilter('ignore')
from statsmodels.tsa.stattools import adfuller
import configparser as cp
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestRegressor
from sklearn import metrics
from sklearn.metrics import mean_absolute_error
from sklearn.metrics import mean_squared_error
from math import sqrt
import talib
from functools import partial
```

In [2]:
```
dataset = f"C:/Users/Lenovo/Downloads/Mémoire/Database/cut/Close/ADA.xlsx"
data = pd.read_excel(dataset, index_col=0, parse_dates=True).dropna()
```

In [3]:
```
data.head()
```

Out[3]:

Date	ADA
2017-11-09	0.032053
2017-11-10	0.027119
2017-11-11	0.027437
2017-11-12	0.023977
2017-11-13	0.025808

In [4]:
```
data.dropna(inplace=True)
```

Calculating log returns

In [5]:
```
rets = np.log(data / data.shift(1)).dropna()  # log returns
```

In [6]:
```
rets.head()
```

Out[6]:

Date	ADA
2017-11-10	-0.167156
2017-11-11	0.011658
2017-11-12	-0.134797
2017-11-13	0.073589
2017-11-14	0.016219

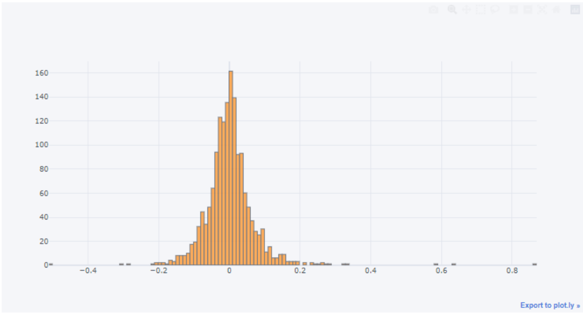
In [7]:
```
adfuller(rets['ADA'])  # stationarity test of time series
```

Out[7]:
```
(-7.094393221849553,
 4.3269355887423704e-10,
 18,
 1558,
 {'1%': -3.4345541763756704,
  '5%': -2.8633968896546276,
  '10%': -2.567758576991337},
 -4095.2906275952337)
```

Figure 1: Python code for return predictions of ADA - part 1

In [8]:
```
cf.go_offline() #force Cufflinks to use offline Plotly mode (bug otherwise)
```

In [9]:
```
rets.iplot(kind='histogram', subplots=True)
```



Add features

In [10]:
```
rets['std14'] = rets['ADA'].rolling(14).std()
feature_names = ['std14'] #empty list to hold the feature names.
for n in [14, 30, 50]:
    rets['ma' + str(n)] = talib.SMA(rets['ADA'].values, timeperiod=n)
    rets['rsi' + str(n)] = talib.RSI(rets['ADA'].values, timeperiod=n) #SMA and RSI methods to calculate the SMA and RSI: 14, 3
0, 50.

    feature_names = feature_names + ['ma' + str(n), 'rsi' + str(n)] #Add the ma and rsi variable names to the feature_names lis
t.
```

In [11]:
```
feature_names
```

Out[11]:
```
['std14', 'ma14', 'rsi14', 'ma30', 'rsi30', 'ma50', 'rsi50']
```

In [12]:
```
rets
```

Out[12]:

Date	ADA	std14	ma14	rsi14	ma30	rsi30	ma50	rsi50
2017-11-10	-0.167156	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2017-11-11	0.011658	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2017-11-12	-0.134797	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2017-11-13	0.073589	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2017-11-14	0.016219	NaN	NaN	NaN	NaN	NaN	NaN	NaN
...	...	...	...	...	...	...	...	...

Figure 2: Python code for return predictions of ADA - part 2

...	...	...	...	...	...	...	...	...
2022-03-01	0.002620	0.050592	-0.010040	50.315504	-0.002506	50.219308	-0.003177	50.134551
2022-03-02	-0.024919	0.050675	-0.010347	48.557390	-0.003809	49.384944	-0.004663	49.636410
2022-03-03	-0.039111	0.049240	-0.008722	47.633657	-0.006244	48.951358	-0.007365	49.378405
2022-03-04	-0.068510	0.051702	-0.012002	45.694435	-0.006647	48.047372	-0.007610	48.841766
2022-03-05	0.026671	0.052652	-0.010139	52.444587	-0.006639	51.073451	-0.007992	50.614855

1577 rows × 8 columns

Add the lags

```python
df = rets
```

```python
col_list = ['ADA', 'std14', 'ma14', 'rsi14', 'ma30', 'rsi30', 'ma50', 'rsi50']
for col in col_list:
    for x in range (1,8):
        df[col+f'__lag{x}'] = df[col].copy().shift(x)
```

```python
rets
```

Date	ADA	std14	ma14	rsi14	ma30	rsi30	ma50	rsi50	ADA_lag1	std14_lag1	...	ma50_lag6	rsi50_lag6	ADA_lag7	std14
2017-11-10	-0.167156	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	
2017-11-11	0.011658	NaN	NaN	NaN	NaN	NaN	NaN	NaN	-0.167156	NaN	...	NaN	NaN	NaN	
2017-11-12	-0.134797	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.011658	NaN	...	NaN	NaN	NaN	
2017-11-13	0.073589	NaN	NaN	NaN	NaN	NaN	NaN	NaN	-0.134797	NaN	...	NaN	NaN	NaN	
2017-11-14	0.016219	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.073589	NaN	...	NaN	NaN	NaN	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
2022-03-01	0.002620	0.050592	-0.010040	50.315504	-0.002506	50.219308	-0.003177	50.134551	0.111760	0.053294	...	-0.008230	49.718370	0.035237	0.04
2022-03-02	-0.024919	0.050675	-0.010347	48.557390	-0.003809	49.384944	-0.004663	49.636410	0.002620	0.050592	...	-0.007408	49.799644	-0.022579	0.03

Figure 3: Python code for return predictions of ADA - part 3

2022-03-03	-0.039111	0.049240	-0.008722	47.633657	-0.006244	48.951358	-0.007365	49.378405	-0.024919	0.050675	...	-0.007085	51.098412	-0.018280	0.03
2022-03-04	-0.068510	0.051702	-0.012002	45.694435	-0.006647	48.047372	-0.007610	48.841766	-0.039111	0.049240	...	-0.006215	49.913192	0.050942	0.04
2022-03-05	0.026671	0.052652	-0.010139	52.444587	-0.006639	51.073451	-0.007992	50.614855	-0.068510	0.051702	...	-0.006492	49.488709	-0.011321	0.04

1577 rows × 64 columns

```python
In [16]: rets.columns
```

```
Out[16]: Index(['ADA', 'std14', 'ma14', 'rsi14', 'ma30', 'rsi30', 'ma50', 'rsi50',
        'ADA_lag1', 'std14_lag1', 'ma14_lag1', 'rsi14_lag1', 'ma30_lag1',
        'rsi30_lag1', 'ma50_lag1', 'rsi50_lag1', 'ADA_lag2', 'std14_lag2',
        'ma14_lag2', 'rsi14_lag2', 'ma30_lag2', 'rsi30_lag2', 'ma50_lag2',
        'rsi50_lag2', 'ADA_lag3', 'std14_lag3', 'ma14_lag3', 'rsi14_lag3',
        'ma30_lag3', 'rsi30_lag3', 'ma50_lag3', 'rsi50_lag3', 'ADA_lag4',
        'std14_lag4', 'ma14_lag4', 'rsi14_lag4', 'ma30_lag4', 'rsi30_lag4',
        'ma50_lag4', 'rsi50_lag4', 'ADA_lag5', 'std14_lag5', 'ma14_lag5',
        'rsi14_lag5', 'ma30_lag5', 'rsi30_lag5', 'ma50_lag5', 'rsi50_lag5',
        'ADA_lag6', 'std14_lag6', 'ma14_lag6', 'rsi14_lag6', 'ma30_lag6',
        'rsi30_lag6', 'ma50_lag6', 'rsi50_lag6', 'ADA_lag7', 'std14_lag7',
        'ma14_lag7', 'rsi14_lag7', 'ma30_lag7', 'rsi30_lag7', 'ma50_lag7',
        'rsi50_lag7'],
       dtype='object')
```

```python
In [17]: rets.dropna(inplace=True)      #remove all the null values from the dataframe

X = rets.drop(['ADA', 'std14', 'ma14', 'rsi14', 'ma30', 'rsi30', 'ma50', 'rsi50'],axis=1)  #Use the feature_names list to extrac
t all the predictor variable columns from the rets dataframe
Y = rets['ADA']  #Extract the log returns column
```

```python
In [18]: X_train,X_test,Y_train,Y_test = train_test_split(X,Y,test_size=0.1,shuffle = False,random_state=0)
```

Random Forest

```python
In [19]: regressor = RandomForestRegressor(n_estimators=100)
```

```python
In [20]: regressor.fit(X_train,Y_train)
```

```
Out[20]: RandomForestRegressor()
```

```python
In [21]: test_data_prediction = regressor.predict(X_test)
```

```python
In [22]: print(test_data_prediction)
```

```
[-0.01255964 -0.01445449 -0.0059128   0.00543303  0.00195952 -0.00058608
 -0.01331349  0.00300497 -0.00558694 -0.00464533 -0.0053352  -0.0024822
 -0.00979736  0.00577899 -0.00617741  0.01070323  0.00603644  0.00343425
 -0.01090256  0.00769217  0.00281217  0.00174251  0.00811192 -0.00119303
 -0.00156469 -0.00566876 -0.03273436 -0.01022796  0.01333507 -0.00235392
 -0.00547029 -0.00107899 -0.01099352  0.00064234 -0.00232129 -0.00076996
  0.00741569 -0.00753069 -0.00529194 -0.00167714  0.01054581  0.00623304
 -0.00019689  0.01460563  0.00382801  0.00520729  0.00410018  0.00420438
  0.00138909 -0.00684324 -0.00153871  0.0021508  -0.00135574  0.02207736
 -0.0027603  -0.00063292  0.00138584 -0.00542623 -0.0073762  -0.01198186
  0.01508424  0.01904636  0.00216382 -0.01067802  0.00178699 -0.00298455
  0.00595253  0.00725367  0.00475706  0.00541288 -0.0002623  -0.00975924
 -0.0154563   0.00579782  0.00229187 -0.01907302 -0.00310787 -0.0062827
 -0.00364609 -0.00022903 -0.00358341  0.00150482  0.00453123  0.003193
 -0.00025555  0.0014004  -0.0022671  -0.00307652  0.003237    0.00195385
 -0.00632248  0.01068759  0.01004195  0.00371506 -0.00373091  0.00127094
  0.00438831 -0.00707202 -0.01387039 -0.00543172 -0.00194701 -0.00254358
```

Figure 4: Python code for return predictions of ADA - part 4

```
 0.00438831 -0.00707202 -0.01387039 -0.00543172 -0.00194701 -0.00254358
 0.00094595  0.00698006 -0.02121541  0.01874581  0.0140905   0.00192788
 0.01786346  0.04061149  0.02400669 -0.00831144 -0.00678203  0.00479369
-0.00423002  0.0055574  -0.01527992  0.0114958   0.00315659 -0.00963466
 0.00396179 -0.00282234 -0.01181548 -0.0045577  -0.00790118 -0.00985311
-0.00324783  0.00067268 -0.00378452  0.00151016  0.01412454  0.00238975
-0.00345018 -0.00445758 -0.0071621  -0.00233211  0.00052674 -0.00587078
-0.00391361  0.01467411  0.00824506 -0.01956686  0.00540248 -0.00706651
-0.02404717 -0.00770565 -0.01205554  0.01668465 -0.00011533  0.00115243
 0.00457974  0.00748179]
```

In [23]:
```
Comparison_ADA_RF = pd.DataFrame({'Actual returns': Y_test, 'Predicted returns': test_data_prediction})
```

In [24]:
```
Comparison_ADA_RF
```

Out[24]:

Date	Actual returns	Predicted returns
2021-10-05	0.019849	-0.012560
2021-10-06	-0.009434	-0.014454
2021-10-07	0.028889	-0.005913
2021-10-08	-0.017642	0.005433
2021-10-09	0.013073	0.001960
...	...	...
2022-03-01	0.002620	0.016685
2022-03-02	-0.024919	-0.000115
2022-03-03	-0.039111	0.001152
2022-03-04	-0.068510	0.004580
2022-03-05	0.026671	0.007482

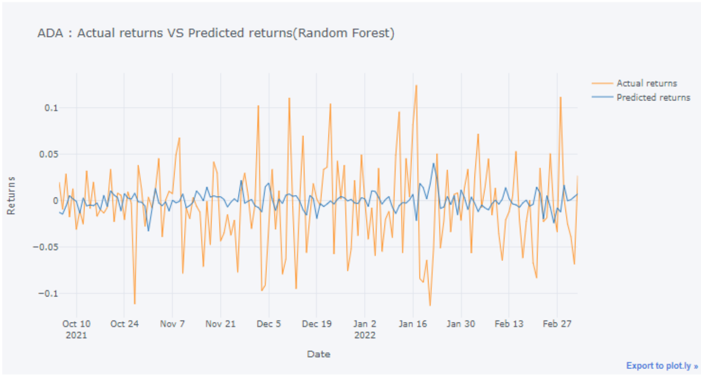
152 rows × 2 columns

In [25]:
```
#Performance indicators
r_score_RF=metrics.r2_score(Y_test,test_data_prediction)
print("R squared value_RF :",r_score_RF)
print("MAE_RF:", mean_absolute_error(Y_test, test_data_prediction))
meanSquaredError_RF=mean_squared_error(Y_test, test_data_prediction)
print("MSE_RF:", meanSquaredError_RF)
rootMeanSquaredError_RF = sqrt(meanSquaredError_RF)
print("RMSE_RF:", rootMeanSquaredError_RF)
```

```
R squared value_RF : -0.14929238034822445
MAE_RF: 0.03769039814650744
MSE_RF: 0.002427116084855 6637
RMSE_RF: 0.04926576991031 0585
```

Figure 5: Python code for return predictions of ADA - part 5

In [26]:
```
Comparison_ADA_RF.iplot(kind='lines', title="ADA : Actual returns VS Predicted returns(Random Forest)", xTitle='Date', yTitle='R
eturns'),
```



Out[26]: (None,)

In [ ]:

Linear Regression

In [27]:
```
from sklearn.linear_model import LinearRegression

# Creation of the Regression Model
model = LinearRegression()
```

In [28]:
```
# Train the model
model.fit(X_train, Y_train)
```

Out[28]: LinearRegression()

In [29]:
```
# Make predictions
y_pred_LR= model.predict(X_test)
```

In [30]:
```
print(y_pred_LR)
```

```
[ 0.00326675  0.00584835 -0.01716241 -0.00175104 -0.01149544  0.01525241
  0.00309906 -0.00177968 -0.00680764  0.00559074 -0.00298105  0.02238099
 -0.02247806  0.00260187 -0.00105222  0.0135486  -0.0110036  -0.00026533
  0.01779384 -0.01488123 -0.01175404  0.00473791  0.00486299  0.01005536
 -0.00689797 -0.01318789  0.01680655 -0.01544413 -0.00816071  0.00371117
  0.00791305  0.00425344  0.00500868 -0.00088901  0.00363509  0.00141332
  0.01997127  0.00628787 -0.00647271 -0.00198178  0.00281015 -0.01454521
  0.01099626  0.00592712 -0.00205288 -0.0028588  -0.00190447 -0.0099708
  0.01256722  0.00076177  0.00630975 -0.01623059 -0.00832442 -0.00898952
  0.00421697  0.00294609 -0.00252832 -0.01593162  0.01912894 -0.00589619
  0.01270448  0.00156973  0.02380256 -0.00607054 -0.02253352 -0.00019578
```

Figure 6: Python code for return predictions of ADA - part 6

```
 0.02286217 -0.009827   -0.00514012  0.01966778  0.00043414  0.01303792
 0.0137161  -0.01594671  0.00251935  0.01776116 -0.01712647 -0.00024794
 0.00896741  0.00229929  0.00908718  0.02465734 -0.01019683  0.02134909
-0.01579293  0.0065253   0.00500115  0.00760181  0.0132464  -0.00678389
 0.01321228  0.00402895  0.0172084   0.02862445 -0.03181463  0.00632745
-0.00316998  0.00207071  0.01458435 -0.00256645 -0.01544042  0.01404637
 0.02822321  0.00065863 -0.02757046  0.00877247  0.02345493  0.00782818
 0.02094884 -0.00752005 -0.01152999 -0.00289258  0.01440811  0.00210139
 0.01644677  0.00308812  0.00020946  0.01289724  0.00691365 -0.02180781
 0.0185846  -0.00739723 -0.02087438  0.01504246  0.00247515 -0.01542343
-0.00517209  0.00307056 -0.00339735 -0.00035087  0.00771252 -0.00943516
-0.0029354   0.01421655  0.00082749  0.00699096  0.01168341 -0.01867291
 0.01953166  0.00215561 -0.02074048  0.00590591 -0.00462363 -0.01120053
 0.00578942  0.00827344 -0.01009688  0.00874766  0.00067992 -0.00154374
 0.00683074 -0.00029406]
```

In [31]:
```
Comparison_ADA_LR = pd.DataFrame({'Actual returns': Y_test, 'Predicted returns': y_pred_LR})
```

In [32]:
```
Comparison_ADA_LR
```

Out[32]:

Date	Actual returns	Predicted returns
2021-10-05	0.019849	0.003267
2021-10-06	-0.009434	0.005848
2021-10-07	0.028889	-0.017162
2021-10-08	-0.017642	-0.001751
2021-10-09	0.013073	-0.011495
...	...	...
2022-03-01	0.002620	0.008748
2022-03-02	-0.024919	0.000680
2022-03-03	-0.039111	-0.001544
2022-03-04	-0.068510	0.006831
2022-03-05	0.026671	-0.000294

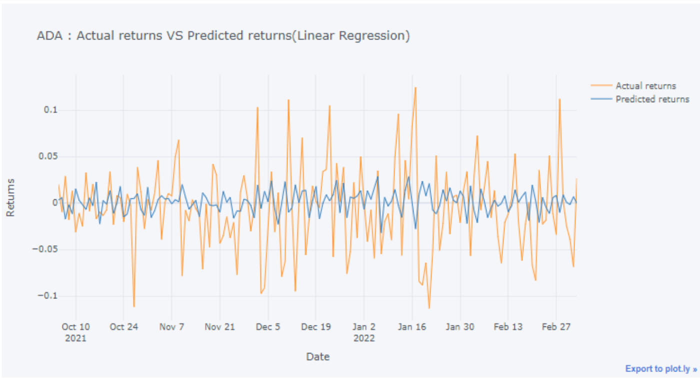
152 rows × 2 columns

In [33]:
```
#Performance indicators
r_score_LR=metrics.r2_score(Y_test,y_pred_LR)
print("R squared value_LR :",r_score_LR)
print("MAE_LR:", mean_absolute_error(Y_test, y_pred_LR))
meanSquaredError_LR=mean_squared_error(Y_test, y_pred_LR)
print("MSE_LR:", meanSquaredError_LR)
rootMeanSquaredError_LR = sqrt(meanSquaredError_LR)
print("RMSE_LR:", rootMeanSquaredError_LR)
```

```
R squared value_LR : -0.18483064914061265
MAE_LR: 0.038244834310511816
MSE_LR: 0.002502167051249259
RMSE_LR: 0.05002166581841572
```

Figure 7: Python code for return predictions of ADA - part 7

In [34]:
```
Comparison_ADA_LR.iplot(kind='lines', title="ADA : Actual returns VS Predicted returns(Linear Regression)", xTitle='Date', yTitl
e='Returns'),
```



Out[34]: (None,)

In [ ]:

Decision Tree

In [35]:
```
from sklearn.tree import DecisionTreeRegressor
# Create Decision Tree regressor
dtree_regressor = DecisionTreeRegressor(random_state=0)
```

In [36]:
```
# Train the model
dtree_regressor.fit(X_train,Y_train)
```

Out[36]: DecisionTreeRegressor(random_state=0)

In [37]:
```
# Make predictions
pred_dtree = dtree_regressor.predict(X_test)
```

In [38]:
```
print(pred_dtree)
```

```
[-0.0078397   0.00102966  0.0002872  -0.01939624 -0.02956703 -0.06401654
  0.02351348  0.04104073  0.00285963  0.01121443  0.00579526  0.01121443
  0.0140677  -0.05340819 -0.05340819  0.07089768 -0.02033129  0.04032645
  0.07867047  0.00660054  0.00589353  0.00660054  0.01171565  0.08039098
 -0.03577243 -0.00901109  0.04315237 -0.03008474  0.00660054 -0.03505798
 -0.08078664  0.00491604 -0.0332271   0.01033012  0.00789082 -0.02645974
 -0.06672755  0.02431261  0.02049827  0.01406493 -0.05258316  0.01061224
 -0.04977072  0.0140677   0.00031334  0.01141772 -0.01875128  0.01033012
  0.0537742   0.02856404  0.03555773  0.00886186 -0.04550721 -0.01609823
 -0.01286079 -0.02786598 -0.10054275 -0.09731253 -0.05965197 -0.02523103
 -0.01481717  0.02412025  0.03220113  0.05942601  0.0013202   0.0185214
 -0.12561608  0.02762366  0.05071465 -0.0120925  -0.0549177  -0.04936053
```

Figure 8: Python code for return predictions of ADA - part 8

```
 -0.00614003 -0.0549177  -0.02938047 -0.04936053  0.0034639  -0.03858825
 -0.04936053 -0.01027155 -0.03440804  0.01063201  0.07590938  0.00693466
 -0.00319947  0.00967664  0.02067887  0.07890383  0.08311002 -0.02036854
 -0.05796971  0.03475336  0.07890383 -0.01249814  0.02476542 -0.05340819
  0.0537742  -0.0332271  -0.01286079 -0.03577243 -0.02135742 -0.02481763
  0.01361216  0.00762893  0.01206849  0.05740226 -0.05183931  0.07590938
  0.01406493 -0.00756874 -0.02089356  0.00772028  0.12570542  0.03244394
  0.00953942  0.03244394 -0.02092009 -0.00616236  0.02762366  0.0411964
 -0.01057815  0.00619266 -0.00049521 -0.01419506 -0.02100914 -0.02523103
 -0.05965197 -0.1333144  -0.01665753 -0.03107465  0.09064327  0.03093612
 -0.07089728 -0.00629585  0.02276103 -0.05340819  0.02431261  0.01849139
  0.00185342  0.0561094   0.0561094  -0.06299199 -0.10054275  0.00471144
 -0.00857185  0.01098203  0.02412025  0.00762893 -0.08134794 -0.02481763
  0.03220113  0.08227719]
```

In [39]:
```
Comparison_ADA_DT = pd.DataFrame({'Actual returns': Y_test, 'Predicted returns': pred_dtree})
```

In [40]:
```
Comparison_ADA_DT
```

Out[40]:

Date	Actual returns	Predicted returns
2021-10-05	0.019849	-0.007840
2021-10-06	-0.009434	0.001030
2021-10-07	0.028889	0.000287
2021-10-08	-0.017642	-0.019396
2021-10-09	0.013073	-0.029567
...	...	...
2022-03-01	0.002620	0.007629
2022-03-02	-0.024919	-0.081348
2022-03-03	-0.039111	-0.024818
2022-03-04	-0.068510	0.032201
2022-03-05	0.026671	0.082277

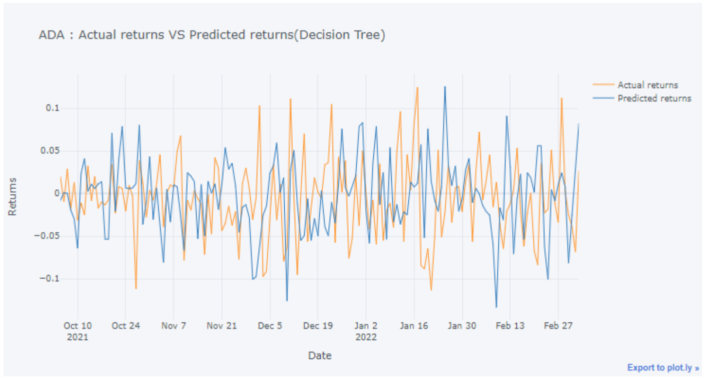
152 rows × 2 columns

In [41]:
```
#Performance indicators
r_score_DT=metrics.r2_score(Y_test,pred_dtree)
print("R squared value_DT :",r_score_DT)
print("MAE_DT:", mean_absolute_error(Y_test, pred_dtree))
meanSquaredError_DT=mean_squared_error(Y_test, pred_dtree)
print("MSE_DT:", meanSquaredError_DT)
rootMeanSquaredError_DT = sqrt(meanSquaredError_DT)
print("RMSE_DT:", rootMeanSquaredError_DT)
```

```
R squared value_DT : -0.8157118036902249
MAE_DT: 0.05003303705550765
MSE_DT: 0.0038344840699836304
RMSE_DT: 0.0619232110761678
```

Figure 9: Python code for return predictions of ADA - part 9

In [42]:
```
Comparison_ADA_DT.iplot(kind='lines', title="ADA : Actual returns VS Predicted returns(Decision Tree)", xTitle='Date', yTitle='R
eturns'),
```



Out[42]: (None,)

In [ ]:

Gradient Boosting Regressor

In [43]:
```
from sklearn.ensemble import GradientBoostingRegressor
# Create Gradient Boosting Regressor
GB_regressor=GradientBoostingRegressor(n_estimators=100)
```

In [44]:
```
# Train the model
GB_regressor.fit(X_train,Y_train)
```

Out[44]: GradientBoostingRegressor()

In [45]:
```
# Make the predictions
GB_predict=GB_regressor.predict(X_test)
```

In [46]:
```
print(GB_predict)
```

```
[-0.00643337 -0.00643337 -0.00540177  0.00515164  0.00131681 -0.0156986
 -0.00538525 -0.0004993  -0.00643337 -0.0004993  -0.00314233 -0.00560311
  0.00116095 -0.00305538 -0.00793167 -0.0004993  -0.01126757 -0.00882194
  0.01034598  0.01369288 -0.00626999 -0.00925906  0.01474951  0.02466203
  0.02397389  0.01053928 -0.03360956 -0.04670482 -0.02812546 -0.00449771
 -0.00384047  0.00138958 -0.00778634 -0.00305538 -0.00387729 -0.00384047
  0.00470231  0.0053945  -0.00853917 -0.00886078  0.00644915  0.00041881
  0.00238991  0.01062604  0.00058073  0.00424229 -0.00255694 -0.00433332
 -0.00430785 -0.00292894 -0.00314082 -0.00387729  0.00251864  0.00717826
  0.00208018 -0.00231815  0.00013442 -0.00145931 -0.02690932 -0.00591404
  0.01052368  0.01003702  0.0013945   0.00808483  0.00880582 -0.00869482
 -0.00015     0.00412149  0.02081647  0.00897896  0.01514963 -0.01143286
```

Figure 10: Python code for return predictions of ADA - part 10

```
-0.00848469 -0.00192618  0.00122561 -0.01209831 -0.00809805 -0.00704207
-0.00597723 -0.00752834 -0.00275532 -0.00324686 -0.00768607  0.00063042
-0.00413931  0.01259874  0.00543744  0.0002014   0.01062682 -0.00421414
 0.00084799  0.00470498  0.00736124  0.00768235  0.00035557  0.00430514
-0.00015854 -0.00184289 -0.00403767 -0.00311729  0.00463561  0.00526411
-0.00395126  0.00202457 -0.00875319  0.02616131  0.0152741   0.01106418
 0.02093016  0.03206638  0.01010187  0.00141292  0.01823384 -0.01178144
-0.00801931  0.00044686 -0.00762068  0.0060327  -0.0004993  -0.00216469
-0.0020141  -0.00452274 -0.01111865 -0.00568814 -0.0098134  -0.03277544
-0.00736159 -0.00221704 -0.01111865  0.00109726  0.00684231  0.00688161
 0.01406424 -0.00206917  0.00194983 -0.00320542  0.001753   -0.00305538
 0.00170936  0.00427799  0.00886677 -0.00289615  0.00397356 -0.01120815
-0.01225948 -0.00634522 -0.01014156  0.00903068  0.0044411   0.0037734
 0.01463651  0.00351999]
```

```
In [47]: Comparison_ADA_GB = pd.DataFrame({'Actual returns': Y_test, 'Predicted returns': GB_predict})

In [48]: Comparison_ADA_GB
Out[48]:
```

Date	Actual returns	Predicted returns
2021-10-05	0.019849	-0.006433
2021-10-06	-0.009434	-0.006433
2021-10-07	0.028889	-0.005402
2021-10-08	-0.017642	0.005152
2021-10-09	0.013073	0.001317
...	...	...
2022-03-01	0.002620	0.009031
2022-03-02	-0.024919	0.004441
2022-03-03	-0.039111	0.003773
2022-03-04	-0.068510	0.014637
2022-03-05	0.026671	0.003520

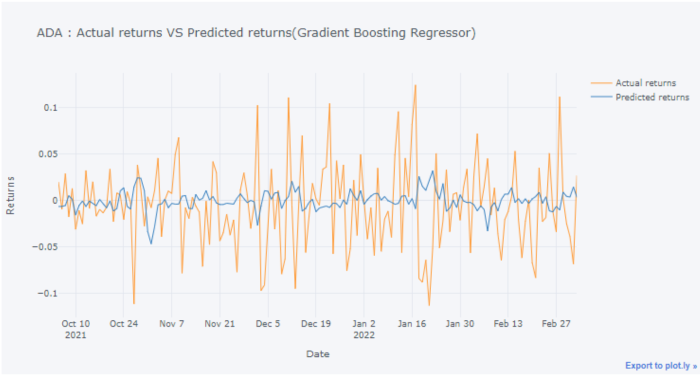
152 rows × 2 columns

```
In [49]: #Performance indicators
r_score_GB=metrics.r2_score(Y_test,GB_predict)
print("R squared value_GB :",r_score_GB)
print("MAE_GB:", mean_absolute_error(Y_test, GB_predict))
meanSquaredError_GB=mean_squared_error(Y_test, GB_predict)
print("MSE_GB:", meanSquaredError_GB)
rootMeanSquaredError_GB = sqrt(meanSquaredError_GB)
print("RMSE_GB:", rootMeanSquaredError_GB)

R squared value_GB : -0.20023024506044473
MAE_GB: 0.038995178727995475
MSE_GB: 0.002534688459723208
RMSE_GB: 0.050345689584344835
```

Figure 11: Python code for return predictions of ADA - part 11

```
In [50]: Comparison_ADA_GB.iplot(kind='lines', title="ADA : Actual returns VS Predicted returns(Gradient Boosting Regressor)", xTitle='Da
te', yTitle='Returns'),
```




```
Out[50]: (None,)

In [ ]:
```

K Nearest Neighbors

```
In [51]: from sklearn import neighbors
# Create K Nearest Neighbors regressor
knn = neighbors.KNeighborsRegressor()

In [52]: # Train the model
knn.fit(X_train,Y_train)

Out[52]: KNeighborsRegressor()

In [53]: # Make predictions
knn_pred = knn.predict(X_test)

In [54]: print(knn_pred)

[ 0.01032589  0.00301405  0.00885652  0.0192057  -0.00431256 -0.02455897
 -0.03702164 -0.01354271 -0.02358669  0.00675239  0.03702095 -0.00738573
 -0.00112497  0.00215606 -0.03147773  0.00222568  0.00158136  0.00205329
  0.00121621 -0.07702118 -0.00858586 -0.00341538  0.0036153   0.03237356
 -0.0412341  -0.01796851  0.00320843 -0.01028733 -0.00591082  0.00687096
 -0.01884615  0.00594587 -0.04411176 -0.00194763  0.03278788 -0.01778545
  0.0254973  -0.02227191 -0.00302655 -0.00485293  0.01748905 -0.01809177
 -0.02019796  0.02948383  0.00879283 -0.01626155  0.0393945   0.03533908
  0.00220072  0.00104518 -0.03465618  0.00850499 -0.0228612   0.00102765
  0.03829037 -0.00257321  0.05547808 -0.00121532 -0.00166097  0.00246286
  0.01987203  0.01993849 -0.03637387 -0.00395352 -0.01175506 -0.03994615
  0.00285686 -0.00918933  0.00546093  0.03937647  0.02785607 -0.0591111
```

Figure 12: Python code for return predictions of ADA - part 12

```
 -0.06011489 -0.00896977 -0.00305812 -0.04586409 -0.00162838 -0.02520287
 -0.00517485  0.07538272  0.02777785 -0.01404818 -0.01178335  0.01517752
 -0.00743786  0.005342   -0.00172541  0.01704258  0.00214169  0.00247031
 -0.01360816 -0.00450987 -0.01019673  0.01343527  0.00651079 -0.01419481
  0.00945656  0.01202888 -0.04567178 -0.03959124 -0.02318263  0.0199783
  0.00814119  0.02237003  0.01442628  0.01701314  0.01796781 -0.00872732
 -0.01740007 -0.04354427 -0.01729776 -0.0417783  -0.02235703  0.02208391
 -0.02926179 -0.01137861  0.00770588 -0.03412518 -0.00174359 -0.00997759
  0.01402943 -0.03446906  0.01902169  0.04066416 -0.00227549 -0.01121638
 -0.07521627 -0.00756925  0.01426713 -0.00856192  0.01024362 -0.00234652
 -0.00605508 -0.0201647   0.01554772  0.01199937 -0.03655064 -0.02331376
  0.0073074  -0.00681628  0.03139861 -0.04213602  0.02795237 -0.00364817
 -0.04174744 -0.01752692 -0.03686884 -0.01574635  0.02484018 -0.00288569
 -0.01701473 -0.0142895 ]
```

In [55]:
```
Comparison_ADA_KNN = pd.DataFrame({'Actual returns': Y_test, 'Predicted returns': knn_pred})
```

In [56]:
```
Comparison_ADA_KNN
```

Out[56]:

Date	Actual returns	Predicted returns
2021-10-05	0.019849	0.010326
2021-10-06	-0.009434	0.003014
2021-10-07	0.028889	0.008857
2021-10-08	-0.017642	0.019206
2021-10-09	0.013073	-0.004313
...	...	...
2022-03-01	0.002620	-0.015746
2022-03-02	-0.024919	0.024840
2022-03-03	-0.039111	-0.002886
2022-03-04	-0.068510	-0.017015
2022-03-05	0.026671	-0.014290

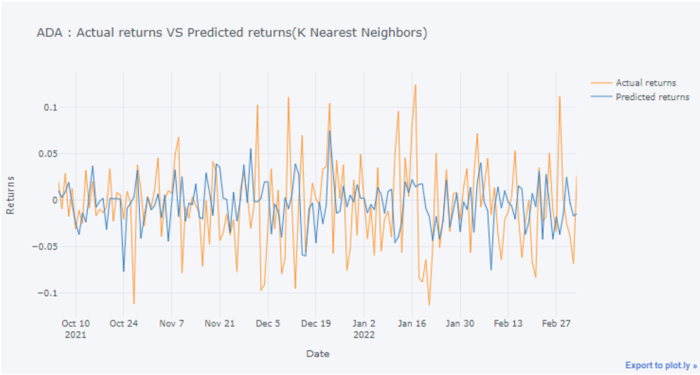
152 rows × 2 columns

In [57]:
```
#Performance indicators
r_score_KNN=metrics.r2_score(Y_test,knn_pred)
print("R squared value_KNN :",r_score_KNN)
print("MAE_KNN:", mean_absolute_error(Y_test, knn_pred))
meanSquaredError_KNN=mean_squared_error(Y_test, knn_pred)
print("MSE_KNN:", meanSquaredError_KNN)
rootMeanSquaredError_KNN = sqrt(meanSquaredError_KNN)
print("RMSE_KNN:", rootMeanSquaredError_KNN)
```

```
R squared value_KNN : -0.25283869580567164
MAE_KNN: 0.039008740742423935
MSE_KNN: 0.0026457888369521856
RMSE_KNN: 0.05143723201098777
```

Figure 13: Python code for return predictions of ADA - part 13

In [58]:
```
Comparison_ADA_KNN.iplot(kind='lines', title="ADA : Actual returns VS Predicted returns(K Nearest Neighbors)", xTitle='Date', yTitle='Returns'),
```



Out[58]: (None,)

In [ ]:

Multilayer Perceptron

In [59]:
```
from sklearn.neural_network import MLPRegressor
from sklearn.datasets import make_regression
# Create MLP Regressor
MLP = MLPRegressor()
```

In [60]:
```
# Train the model
MLP.fit(X_train, Y_train)
```

Out[60]: MLPRegressor()

In [61]:
```
# Make predictions
MLP_pred = MLP.predict(X_test)
```

In [62]:
```
MLP_pred
```

Out[62]:
```
array([ 0.02761331,  0.00584564,  0.0565452 , -0.02381472,  0.00720352,
       -0.05760071,  0.03421961,  0.01496441,  0.07825969,  0.00649307,
       -0.00228143, -0.09388106, -0.01848992, -0.05337279,  0.04742616,
        0.08105628, -0.01253301,  0.01440653, -0.14573476,  0.04669354,
       -0.05810828,  0.03773296,  0.14238758,  0.01511027,  0.11755954,
        0.19840041, -0.17218863, -0.02194661, -0.06370035, -0.27072067,
        0.00269353, -0.02313229, -0.12525307,  0.08151747, -0.04738037,
       -0.00978404, -0.09798776, -0.11895577, -0.1788883 ,  0.18083367,
        0.03319364,  0.09080469,  0.02468655,  0.01085436,  0.05055939,
        0.12084688, -0.08416914, -0.06911367, -0.08801643, -0.06925518,
        0.0471183 ,  0.00300378,  0.02379901,  0.09529833, -0.03191813,
```

Figure 14: Python code for return predictions of ADA - part 14

```
 0.0471183 ,  0.00300378,  0.02379901,  0.09529833, -0.03191813,
-0.05658817, -0.15303777, -0.1083892 , -0.04130568, -0.15002151,
 0.0418285 , -0.23171099,  0.07481336, -0.14084833, -0.0436826 ,
-0.09525503,  0.02429178,  0.03222845, -0.03092195, -0.07334289,
 0.08800668, -0.0285893 , -0.25121526, -0.02495082, -0.14781579,
-0.07243325, -0.04533309,  0.00170066, -0.07767164, -0.06606931,
-0.10107775,  0.01227746, -0.05162903, -0.05697366, -0.02220531,
 0.01039647, -0.10143577, -0.08199899, -0.0675521 , -0.01585696,
-0.01656045,  0.06436029,  0.0386539 , -0.00652333, -0.05953706,
-0.01374867,  0.00826998, -0.02388419, -0.02039479, -0.02978345,
-0.10195894,  0.013613  , -0.00045237, -0.04954658, -0.06697488,
 0.01733923,  0.07570151, -0.03406929, -0.14412714, -0.08355645,
-0.11667681, -0.07832031,  0.00909836,  0.08399806, -0.01782535,
-0.05117047,  0.00646434, -0.02347136, -0.01706872, -0.02950114,
-0.06315496, -0.01176136, -0.03606759, -0.03858934, -0.049406  ,
-0.03805332,  0.01000899, -0.05926435, -0.02812291,  0.02461065,
 0.03670926,  0.04375254,  0.03626963, -0.05071434, -0.07194428,
-0.0950285 , -0.08118377,  0.07520299,  0.01756603,  0.06536643,
-0.05958919,  0.04907097, -0.0694786 , -0.07744855,  0.03623909,
-0.15348288, -0.09916059,  0.11091255, -0.06656956, -0.02551156,
-0.01053032,  0.02662303])
```

In [63]:
```
Comparison_ADA_MLP = pd.DataFrame({'Actual returns': Y_test, 'Predicted returns': MLP_pred})
```

In [64]:
```
Comparison_ADA_MLP
```

Out[64]:

Date	Actual returns	Predicted returns
2021-10-05	0.019849	0.027613
2021-10-06	-0.009434	0.005846
2021-10-07	0.028889	0.056545
2021-10-08	-0.017642	-0.023815
2021-10-09	0.013073	0.007204
...	...	...
2022-03-01	0.002620	0.110913
2022-03-02	-0.024919	-0.066570
2022-03-03	-0.039111	-0.025512
2022-03-04	-0.068510	-0.010530
2022-03-05	0.026671	0.026623

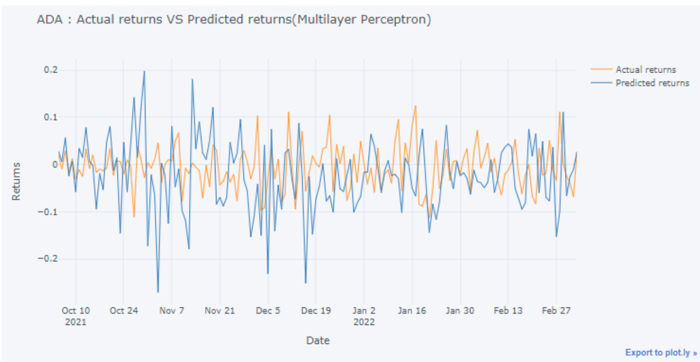
152 rows × 2 columns

In [65]:
```
#Performance indicators
r_score_MLP=metrics.r2_score(Y_test,MLP_pred)
print("R squared value_MLP :",r_score_MLP)
print("MAE_MLP:", mean_absolute_error(Y_test, MLP_pred))
meanSquaredError_MLP=mean_squared_error(Y_test, MLP_pred)
print("MSE_MLP:", meanSquaredError_MLP)
rootMeanSquaredError_MLP = sqrt(meanSquaredError_MLP)
print("RMSE_MLP:", rootMeanSquaredError_MLP)
```

```
R squared value_MLP : -2.843705695866146
MAE_MLP: 0.07050527361128528
MSE_MLP: 0.008117272923241188
RMSE_MLP: 0.0900959095810747
```

In [66]:
```
Comparison_ADA_MLP.iplot(kind='lines', title="ADA : Actual returns VS Predicted returns(Multilayer Perceptron)", xTitle='Date',
yTitle='Returns'),
```

Figure 15: Python code for return predictions of ADA - part 15



Out[66]: (None,)

In [ ]:

Export predictions to Excel

In [99]:
```
All_Predictions = pd.DataFrame({'Actual returns': Y_test, 'Random Forest': test_data_prediction, 'Linear Regression' : y_pred_L
R, 'Decision Tree' : pred_dtree, 'Gradient Boosting Regressor' : GB_predict, 'K Nearest Neighbors' : knn_pred, 'Multilayer Perce
ptron': MLP_pred})
```

In [100]:
```
All_Predictions
```

Out[100]:

Date	Actual returns	Random Forest	Linear Regression	Decision Tree	Gradient Boosting Regressor	K Nearest Neighbors	Multilayer Perceptron
2021-10-05	0.019849	-0.005457	0.003267	-0.007840	-0.006433	0.010326	0.105809
2021-10-06	-0.009434	-0.008521	0.005848	0.001030	-0.006433	0.003014	0.172047
2021-10-07	0.028889	-0.008078	-0.017162	0.000287	-0.005402	0.008857	0.128490
2021-10-08	-0.017642	0.002343	-0.001751	-0.019396	0.005152	0.019206	0.234157
2021-10-09	0.013073	0.002510	-0.011495	-0.029567	0.001317	-0.004313	0.083064
...	...	...	...	...	...	...	...
2022-03-01	0.002620	-0.003469	0.008748	0.007629	0.009031	-0.015746	0.311392
2022-03-02	-0.024919	0.007721	0.000680	-0.081348	0.004441	0.024840	0.223694
2022-03-03	-0.039111	0.003888	-0.001544	-0.024818	0.003773	-0.002886	0.109917
2022-03-04	-0.068510	0.000393	0.006831	0.032201	0.014637	-0.017015	0.204824
2022-03-05	0.026671	-0.005360	-0.000294	0.082277	0.003520	-0.014290	0.118017

152 rows × 7 columns

In [101]:
```
with pd.ExcelWriter(r'C:\Users\Lenovo\Downloads\ADA_Returns.pred.xls')as writer:
    All_Predictions.to_excel(writer, sheet_name = 'ADA')
```

Figure 16: Python code for return predictions of ADA - part 16

1.2 Python code for price predictions

```
In [1]: import numpy as np  # NumPy
        import pandas as pd  # pandas
        import cufflinks as cf  # Cufflinks
        from sklearn.svm import SVC  # sckikit-learn
        import warnings; warnings.simplefilter('ignore')
        from statsmodels.tsa.stattools import adfuller
        import configparser as cp
        import matplotlib.pyplot as plt
        import seaborn as sns
        from sklearn.model_selection import train_test_split
        from sklearn.ensemble import RandomForestRegressor
        from sklearn import metrics
        from sklearn.metrics import mean_absolute_error
        from sklearn.metrics import mean_squared_error
        from math import sqrt
        import talib

In [2]: dataset = f"C:/Users/Lenovo/Downloads/Mémoire/Database/cut/Close/ADA.xlsx"
        data = pd.read_excel(dataset, index_col=0, parse_dates=True).dropna()

In [3]: data.head()

Out[3]:
```

Date	ADA
2017-11-09	0.032053
2017-11-10	0.027119
2017-11-11	0.027437
2017-11-12	0.023977
2017-11-13	0.025808

```
In [4]: data.dropna(inplace=True)

In [5]: adfuller(data['ADA'])  # stationarity test of time series --> not stationnary

Out[5]: (-1.7099796688541458,
         0.4259781251889812,
         22,
         1555,
         {'1%': -3.4345623007753496,
          '5%': -2.8634004754910296,
          '10%': -2.567760486450719},
         -4835.609840993338)

In [6]: cf.go_offline() #force Cufflinks to use offline Plotly mode (bug otherwise)
```

Add features

```
In [8]: data['std14'] = data['ADA'].rolling(14).std()
        feature_names = ['std14'] #empty list to hold the feature names.
        for n in [14, 30, 50]:
            data['ma' + str(n)] = talib.SMA(data['ADA'].values, timeperiod=n)
            data['rsi' + str(n)] = talib.RSI(data['ADA'].values, timeperiod=n) #SMA and RSI methods to calculate the SMA and RSI: 14, 3
        0, 50.

            feature_names = feature_names + ['ma' + str(n), 'rsi' + str(n)] #Add the ma and rsi variable names to the feature_names lis
        t.

In [9]: feature_names

Out[9]: ['std14', 'ma14', 'rsi14', 'ma30', 'rsi30', 'ma50', 'rsi50']
```

Figure 17: Python code for price predictions of ADA - part 1

```
data
```

Date	ADA	std14	ma14	rsi14	ma30	rsi30	ma50	rsi50
2017-11-09	0.032053	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2017-11-10	0.027119	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2017-11-11	0.027437	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2017-11-12	0.023977	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2017-11-13	0.025808	NaN	NaN	NaN	NaN	NaN	NaN	NaN
...	...	...	...	...	...	...	...	...
2022-03-01	0.962346	0.071943	0.933493	46.369854	1.025607	43.764198	1.096753	43.767441
2022-03-02	0.938662	0.057401	0.923041	44.217555	1.021819	42.961125	1.091824	43.340832
2022-03-03	0.902659	0.050296	0.914667	41.094906	1.015620	41.756189	1.083787	42.695303
2022-03-04	0.842889	0.047670	0.903651	36.488015	1.009420	39.837317	1.075982	41.644563
2022-03-05	0.865672	0.040090	0.894220	39.282158	1.003061	40.908106	1.067476	42.197863

1578 rows × 8 columns

Add the lags

```
df = data
```

```
col_list = ['ADA', 'std14', 'ma14', 'rsi14', 'ma30', 'rsi30', 'ma50', 'rsi50']
for col in col_list:
    for x in range (1,8):
        df[col+f'__lag{x}'] = df[col].copy().shift(x)
```

```
data
```

Date	ADA	std14	ma14	rsi14	ma30	rsi30	ma50	rsi50	ADA_lag1	std14_lag1	...	ma50_lag6	rsi50_lag6	ADA_lag7	std14_la
2017-11-09	0.032053	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	...	NaN	NaN	NaN	N
2017-11-10	0.027119	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.032053	NaN	...	NaN	NaN	NaN	N

Figure 18: Python code for price predictions of ADA - part 2

2017-11-10	0.027119	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.032053	NaN	...	NaN	NaN	NaN	N
2017-11-11	0.027437	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.027119	NaN	...	NaN	NaN	NaN	N
2017-11-12	0.023977	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.027437	NaN	...	NaN	NaN	NaN	N
2017-11-13	0.025808	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.023977	NaN	...	NaN	NaN	NaN	N
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
2022-03-01	0.962346	0.071943	0.933493	46.369854	1.025607	43.764198	1.096753	43.767441	0.959828	0.085599	...	1.132691	41.216423	0.889017	0.0944
2022-03-02	0.938662	0.057401	0.923041	44.217555	1.021819	42.961125	1.091824	43.340832	0.962346	0.071943	...	1.125039	40.958503	0.869169	0.0917
2022-03-03	0.902659	0.050296	0.914667	41.094906	1.015620	41.756189	1.083787	42.695303	0.938662	0.057401	...	1.117404	42.007561	0.853425	0.0909
2022-03-04	0.842889	0.047670	0.903651	36.488015	1.009420	39.837317	1.075982	41.644563	0.902659	0.050296	...	1.110932	41.835645	0.898027	0.0898
2022-03-05	0.865672	0.040090	0.894220	39.282158	1.003061	40.908106	1.067476	42.197863	0.842889	0.047670	...	1.104348	41.330556	0.887918	0.0893

1578 rows × 64 columns

In [64]:
```
data.dropna(inplace=True)      #remove all the null values from the dataframe

X = data.drop(['ADA', 'std14', 'ma14', 'rsi14', 'ma30', 'rsi30', 'ma50', 'rsi50'],axis=1)  #Use the feature_names list to extrac
t all the predictor variable columns from the "data" dataframe
Y = data['ADA']  #Extract the price column
```

In [15]:
```
X_train,X_test,Y_train,Y_test = train_test_split(X,Y,test_size=0.1,shuffle = False,random_state=0)
```

Random Forest

In [16]:
```
# Create Random Forest regressor
regressor = RandomForestRegressor(n_estimators=100)
```

In [17]:
```
# Train the model
regressor.fit(X_train,Y_train)
```

Out[17]:
```
RandomForestRegressor()
```

In [18]:
```
test_data_prediction = regressor.predict(X_test)
```

In [19]:
```
print(test_data_prediction)
```

```
[2.21721946 2.20593208 2.15283078 2.15767463 2.17670003 2.20528276
 2.17091019 2.16715412 2.16550292 2.15303117 2.17419164 2.20723328
 2.22030913 2.21886267 2.16532742 2.18862502 2.16041775 2.18736688
 2.2235824  2.22023869 2.21304673 2.15679852 2.20755933 2.18774718
 2.02435161 2.06065499 2.12821997 2.07247662 2.07901301 2.06532139
 2.06135718 2.1834344  2.07750139 2.05740822 2.13065231 2.14398854
 2.22171003 2.23261352 2.19736898 2.1597649  2.13243558 2.12967168
 2.15360705 2.11041951 1.92230077 1.91466036 1.60140502 1.8921597
 2.06955756 1.89658596 1.59768553 1.57213328 1.56454927 1.56040536
 1.47430271 1.50757325 1.54385886 1.5349637  1.52887069 1.48442238
 1.54625736 1.53611999 1.38664474 1.35939249 1.33740353 1.34115147
 1.32721592 1.33817851 1.16670476 1.30793174 1.30182605 1.21421714
 1.20262284 1.31710544 1.30837016 1.21577538 1.30684402 1.3092152
 1.30307515 1.30044738 1.29251403 1.43512722 1.35136782 1.3665517
 1.39179304 1.45247571 1.37375012 1.3321897  1.30818997 1.31602468
 1.32110065 1.3319848  1.31890807 1.29471733 1.2781108  1.28007225
 1.16989924 1.167721   1.15342374 1.11171137 1.14479711 1.28509436
 1.24160108 1.28358147 1.28609849 1.38489012 1.62536583 1.44354494
```

Figure 19: Python code for price predictions of ADA - part 3

```
 1.35741779 1.29305782 1.16657399 1.15939458 1.13002613 1.12212445
 1.13074402 1.11906664 1.12125469 1.12002153 1.1219493  1.12065468
 1.12262479 1.13945801 1.12767921 1.13585684 1.13681179 1.13740501
 1.16182724 1.20737387 1.1918879  1.19586463 1.18614365 1.16420044
 1.17164758 1.17931019 1.17203149 1.16946674 1.15710564 1.16367198
 1.15516246 1.14439265 1.14849647 0.90975824 1.00463251 0.91419783
 0.91060406 1.01736675 1.00119806 0.90987248 1.13665592 1.12757676
 1.1389482  1.00328614 0.88406325]
```

In [20]:
```
Comparison_ADA_RF = pd.DataFrame({'Actual prices': Y_test, 'Predicted prices': test_data_prediction})
```

In [21]:
```
Comparison_ADA_RF
```

Out[21]:

	Actual prices	Predicted prices
Date		
2021-10-04	2.189235	2.217219
2021-10-05	2.233124	2.205932
2021-10-06	2.212155	2.152831
2021-10-07	2.276995	2.157675
2021-10-08	2.237176	2.176700
...	...	...
2022-03-01	0.962346	1.136656
2022-03-02	0.938662	1.127577
2022-03-03	0.902659	1.138948
2022-03-04	0.842889	1.003286
2022-03-05	0.865672	0.884063

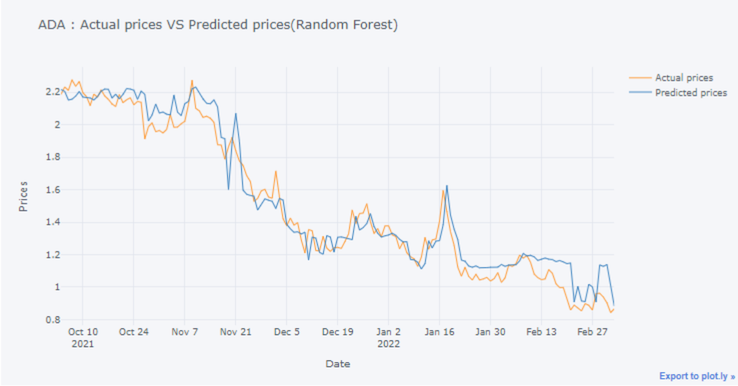
153 rows × 2 columns

In [22]:
```
#Performance indicators
r_score_RF=metrics.r2_score(Y_test,test_data_prediction)
print("R squared value_RF :",r_score_RF)
print("MAE_RF:", mean_absolute_error(Y_test, test_data_prediction))
meanSquaredError_RF=mean_squared_error(Y_test, test_data_prediction)
print("MSE_RF:", meanSquaredError_RF)
rootMeanSquaredError_RF = sqrt(meanSquaredError_RF)
print("RMSE_RF:", rootMeanSquaredError_RF)
```

```
R squared value_RF : 0.9461487674059356
MAE_RF: 0.08117687980392156
MSE_RF: 0.010501136165624786
RMSE_RF: 0.10247505143021293
```

In [23]:
```
Comparison_ADA_RF.iplot(kind='lines', title="ADA : Actual prices VS Predicted prices(Random Forest)", xTitle='Date', yTitle='Pri
ces'),
```

Figure 20: Python code for price predictions of ADA - part 4



Out[23]: (None,)

In [ ]:

Linear Regression

In [24]:
```
from sklearn.linear_model import LinearRegression

# Creation of the Regression Model
model = LinearRegression()
```

In [25]:
```
# Train the model
model.fit(X_train, Y_train)
```

Out[25]: LinearRegression()

In [26]:
```
# Make predictions
y_pred_LR= model.predict(X_test)
```

In [27]:
```
print(y_pred_LR)
```

```
[2.18811806 2.20959389 2.24542197 2.2321494  2.24567716 2.27429828
 2.29366026 2.17410814 2.15852628 2.13474389 2.21853831 2.2088351
 2.25220062 2.16764865 2.15226731 2.19189476 2.12513127 2.17096287
 2.164922   2.1769551  2.13779157 2.07374451 2.1873875  2.18642126
 1.98354943 1.98672342 2.03785553 1.98201968 2.0032762  1.92364768
 1.98724262 2.0711946  2.00178129 1.98402371 2.00619619 1.98439106
 2.13884179 2.28596096 2.11795041 2.10907593 2.09076799 2.02489105
 2.03612683 2.02038081 1.93520725 1.89845092 1.84011511 1.89633806
 1.94055045 1.86153607 1.78922258 1.73146893 1.70129726 1.70927035
 1.56101338 1.59228212 1.62031349 1.59720024 1.57369209 1.59251972
 1.71300619 1.59511326 1.43216179 1.44308138 1.45801971 1.41752668
 1.43874052 1.36293523 1.23724469 1.3963261  1.38069314 1.26003705
 1.2138318  1.30418277 1.22675252 1.26239605 1.30528373 1.26369646
 1.2460237  1.3208068  1.37350652 1.51903583 1.4244125  1.45041361
 1.48066944 1.53822268 1.43725334 1.35821132 1.38312775 1.36718724
```

Figure 21: Python code for price predictions of ADA - part 5

```
 1.00758444 1.08433672 1.06535529 1.05242436 1.18349986 1.16922044
 1.13768645 1.231955   1.19956874 1.19968917 1.1675764  1.09673716
 1.06007682 1.07270692 1.06973402 1.13950289 1.08405396 1.02939157
 1.02224373 1.02921009 0.95917538 0.84526397 0.87852951 0.85474975
 0.85518313 0.94410124 0.91240382 0.87846017 0.98936859 0.97817855
 0.94738029 0.94903516 0.8587895 ]
```

In [28]:
```
Comparison_ADA_LR = pd.DataFrame({'Actual prices': Y_test, 'Predicted prices': y_pred_LR})
```

In [29]:
```
Comparison_ADA_LR
```

Out[29]:

Date	Actual prices	Predicted prices
2021-10-04	2.189235	2.188118
2021-10-05	2.233124	2.209594
2021-10-06	2.212155	2.245422
2021-10-07	2.276995	2.232149
2021-10-08	2.237176	2.245677
...	...	...
2022-03-01	0.962346	0.989369
2022-03-02	0.938662	0.978179
2022-03-03	0.902659	0.947380
2022-03-04	0.842889	0.949035
2022-03-05	0.865672	0.858790

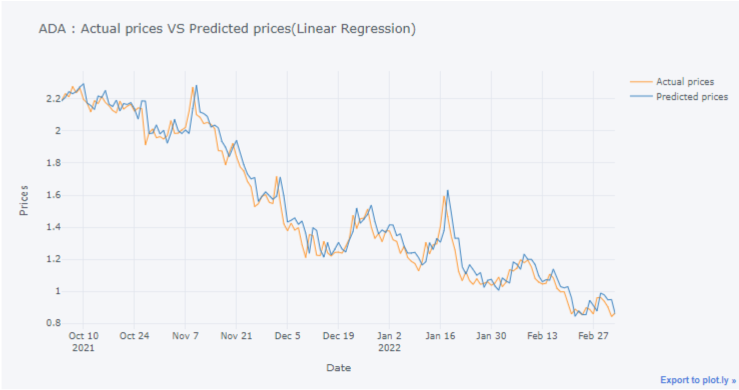
153 rows × 2 columns

In [30]:
```
#Performance indicators
r_score_LR=metrics.r2_score(Y_test,y_pred_LR)
print("R squared value_LR :",r_score_LR)
print("MAE_LR:", mean_absolute_error(Y_test, y_pred_LR))
meanSquaredError_LR=mean_squared_error(Y_test, y_pred_LR)
print("MSE_LR:", meanSquaredError_LR)
rootMeanSquaredError_LR = sqrt(meanSquaredError_LR)
print("RMSE_LR:", rootMeanSquaredError_LR)
```

```
R squared value_LR : 0.969052160694799
MAE_LR: 0.059325061320871536
MSE_LR: 0.006034912460139498
RMSE_LR: 0.07768469900913241
```

In [31]:
```
Comparison_ADA_LR.iplot(kind='lines', title="ADA : Actual prices VS Predicted prices(Linear Regression)", xTitle='Date', yTitle
='Prices'),
```

Figure 22: Python code for price predictions of ADA - part 6




```
Out[31]: (None,)
```

```
In [ ]:
```

Decision Tree

```
In [32]: from sklearn.tree import DecisionTreeRegressor
         # Create Decision Tree regressor
         dtree_regressor = DecisionTreeRegressor(random_state=0)
```

```
In [33]: # Train the model
         dtree_regressor.fit(X_train,Y_train)
Out[33]: DecisionTreeRegressor(random_state=0)
```

```
In [34]: # Make predictions
         pred_dtree = dtree_regressor.predict(X_test)
```

```
In [35]: print(pred_dtree)

[2.135905 2.135905 2.114452 2.114452 2.114452 2.301541 2.114452 2.114452
 2.114452 2.114452 2.114452 2.252873 2.252873 2.252873 2.114452 2.252873
 2.114452 2.114452 2.252873 2.252873 2.135905 2.114452 2.252873 2.114452
 2.114452 2.252873 2.135905 2.135905 2.135905 2.135905 2.135905 2.135905
 2.135905 2.135905 2.135905 2.114452 2.135905 2.135905 2.135905 2.135905
 2.114452 2.114452 2.114452 2.114452 2.114452 2.114452 1.482573 2.135905
 2.135905 2.135905 1.482573 1.482573 1.482573 1.482573 1.17748  1.17748
 1.482573 1.482573 1.482573 1.17748  1.659009 1.659009 1.17748  1.228501
 1.17748  1.228501 1.17748  1.228501 1.056291 1.228501 1.228501 1.056291
 1.056291 1.356087 1.228501 1.056291 1.228501 1.228501 1.228501 1.228501
 1.228501 1.17748  1.17748  1.17748  1.17748  1.17748  1.17748  1.228501
 1.228501 1.228501 1.228501 1.228501 1.228501 1.228501 1.228501 1.228501
 1.153254 1.183698 1.168098 1.056291 1.056291 1.228501 1.228501 1.228501
 1.228501 1.330146 1.798038 1.384869 1.262258 1.262258 1.186161 1.155702
 1.233497 1.234019 1.234019 1.234019 1.234019 1.234019 1.234019 1.234019
 1.234019 1.234019 1.234019 1.234019 1.233497 1.218758 1.218758 1.218758
```

Figure 23: Python code for price predictions of ADA - part 7

```
 1.218758 1.233497 1.233497 1.234019 1.234019 1.234019 1.234019 1.233497
 1.234019 1.234019 1.234019 1.234019 1.234019 1.234019 1.234019 1.234019
 1.234019 1.234019 1.234019 1.234019 1.234019 1.234019 1.234019 0.802262
 0.802262]
```

```
In [36]: Comparison_ADA_DT = pd.DataFrame({'Actual prices': Y_test, 'Predicted prices': pred_dtree})
```

```
In [37]: Comparison_ADA_DT
Out[37]:
```

Date	Actual prices	Predicted prices
2021-10-04	2.189235	2.135905
2021-10-05	2.233124	2.135905
2021-10-06	2.212155	2.114452
2021-10-07	2.276995	2.114452
2021-10-08	2.237176	2.114452
...	...	...
2022-03-01	0.962346	1.234019
2022-03-02	0.938662	1.234019
2022-03-03	0.902659	1.234019
2022-03-04	0.842889	0.802262
2022-03-05	0.865672	0.802262

153 rows × 2 columns

```
In [38]: #Performance indicators
         r_score_DT=metrics.r2_score(Y_test,pred_dtree)
         print("R squared value_DT :",r_score_DT)
         print("MAE_DT:", mean_absolute_error(Y_test, pred_dtree))
         meanSquaredError_DT=mean_squared_error(Y_test, pred_dtree)
         print("MSE_DT:", meanSquaredError_DT)
         rootMeanSquaredError_DT = sqrt(meanSquaredError_DT)
         print("RMSE_DT:", rootMeanSquaredError_DT)

R squared value_DT : 0.8209887325542852
MAE_DT: 0.15264198039215685
MSE_DT: 0.034907681850084964
RMSE_DT: 0.18683597579182915
```

```
In [39]: Comparison_ADA_DT.iplot(kind='lines', title="ADA : Actual prices VS Predicted prices(Decision Tree)", xTitle='Date', yTitle='Pri
         ces'),
```

Figure 24: Python code for price predictions of ADA - part 8


```
Out[39]: (None,)
```

```
In [ ]:
```

Gradient Boosting Regressor

```
In [40]: from sklearn.ensemble import GradientBoostingRegressor
         # Create Gradient Boosting Regressor
         GB_regressor=GradientBoostingRegressor(n_estimators=100)

In [41]: # Train the model
         GB_regressor.fit(X_train,Y_train)

Out[41]: GradientBoostingRegressor()

In [42]: # Make the predictions
         GB_predict=GB_regressor.predict(X_test)

In [43]: print(GB_predict)

[2.17133322 2.17133322 2.16349301 2.16349301 2.19004851 2.19130545
 2.16008567 2.15183982 2.161481   2.14165282 2.13846557 2.139724
 2.15266322 2.13390167 2.1311547  2.11284505 2.11741505 2.10776811
 2.12525526 2.1303485  2.11560832 2.08674593 2.09967938 2.1233619
 1.94369327 1.96821062 2.01430395 1.92538361 1.91772156 1.91772156
 1.90349355 1.96445729 1.90349355 1.90349355 1.96445729 1.99042899
 2.08027095 2.09748537 2.07907731 1.96291744 1.99552223 1.99042899
 2.02811846 2.02633119 1.88490098 1.88490098 1.71484469 1.8926088
 1.94238565 1.8785275  1.67714698 1.67479169 1.70471493 1.70471493
 1.57418122 1.58940251 1.68039251 1.65791416 1.65791416 1.56692416
 1.62040809 1.65016993 1.42497895 1.33667294 1.38235568 1.31971964
 1.39768095 1.29352406 1.21895984 1.3227083  1.3090776  1.21128185
 1.20241919 1.30396233 1.26639706 1.20048944 1.26304384 1.26304384
 1.26304384 1.2835366  1.28872167 1.44405104 1.36984257 1.38155536
 1.37331805 1.4625359  1.35565887 1.33260277 1.32436546 1.3135307
 1.32148793 1.32704515 1.32148793 1.3135307  1.28624657 1.28522588
```

Figure 25: Python code for price predictions of ADA - part 9

```
 1.22750751 1.1864838  1.1864838  1.16084212 1.18307343 1.27957517
 1.25125635 1.27957517 1.29079313 1.392146   1.62141652 1.44869735
 1.33997866 1.30030295 1.14841819 1.17627328 1.19983956 1.19753297
 1.17928788 1.17928788 1.19815494 1.20078818 1.19149459 1.20130262
 1.1691314  1.14858502 1.10320882 1.13298539 1.14684572 1.14368183
 1.18719073 1.18619884 1.16011832 1.18480024 1.16921283 1.13619459
 1.1306197  1.13179998 1.13994334 1.12710007 1.09307668 1.04943978
 1.02083371 1.02083371 1.02083371 0.87108092 0.90533523 0.86909498
 0.88503175 0.90578515 0.90578515 0.8415597  0.9913125  0.96994596
 0.96994596 0.83628359 0.80157936]

In [44]: Comparison_ADA_GB = pd.DataFrame({'Actual prices': Y_test, 'Predicted prices': GB_predict})

In [45]: Comparison_ADA_GB

Out[45]:
```

	Actual prices	Predicted prices
Date		
2021-10-04	2.189235	2.171333
2021-10-05	2.233124	2.171333
2021-10-06	2.212155	2.163493
2021-10-07	2.276995	2.163493
2021-10-08	2.237176	2.190049
...	...	...
2022-03-01	0.962346	0.991312
2022-03-02	0.938662	0.969946
2022-03-03	0.902659	0.969946
2022-03-04	0.842889	0.836284
2022-03-05	0.865672	0.801579

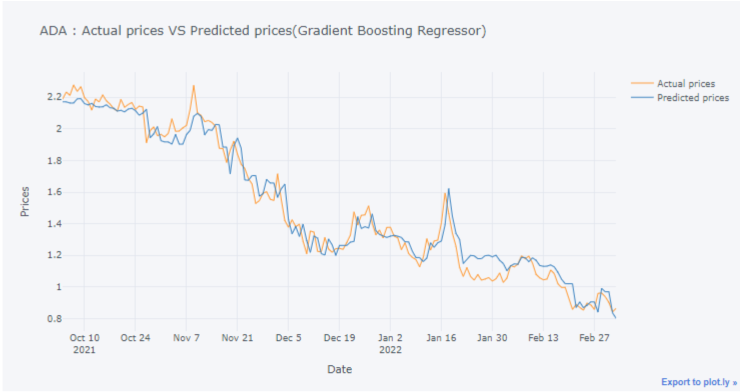
153 rows × 2 columns

```
In [46]: #Performance indicators
         r_score_GB=metrics.r2_score(Y_test,GB_predict)
         print("R squared value_GB :",r_score_GB)
         print("MAE_GB:", mean_absolute_error(Y_test, GB_predict))
         meanSquaredError_GB=mean_squared_error(Y_test, GB_predict)
         print("MSE_GB:", meanSquaredError_GB)
         rootMeanSquaredError_GB = sqrt(meanSquaredError_GB)
         print("RMSE_GB:", rootMeanSquaredError_GB)

R squared value_GB : 0.964000158512029
MAE_GB: 0.06638864527256014
MSE_GB: 0.007020066564785725
RMSE_GB: 0.08378583749528154

In [47]: Comparison_ADA_GB.iplot(kind='lines', title="ADA : Actual prices VS Predicted prices(Gradient Boosting Regressor)", xTitle='Dat
         e', yTitle='Prices'),
```

Figure 26: Python code for price predictions of ADA - part 10




```
Out[47]: (None,)

In [ ]:
```

K Nearest Neighbors

```
In [48]: from sklearn import neighbors
         # Create K Nearest Neighbors regressor
         knn = neighbors.KNeighborsRegressor()

In [49]: # Train the model
         knn.fit(X_train,Y_train)

Out[49]: KNeighborsRegressor()

In [50]: # Make predictions
         knn_pred = knn.predict(X_test)

In [51]: print(knn_pred)

[1.734714  1.5669456 1.695894  1.4617956 1.5300352 1.4833908 1.4743746
 1.439117  1.4388038 1.584805  1.4110472 1.3861056 1.6443994 1.487752
 1.4281482 1.5521368 1.6354756 1.4189266 1.3861056 1.428541  1.4330796
 1.4281482 1.397217  1.4342282 1.3756214 1.3873114 1.6149366 1.1814618
 1.0131782 0.6795878 0.572685  0.955576  0.919674  0.9604716 1.161763
 1.3509124 1.3387014 1.1152098 1.1045216 1.1091944 1.4150826 1.172262
 1.420875  1.3592538 1.2915856 1.2168726 1.2277396 1.2013836 1.2335638
 0.85801   0.3841314 0.1737188 0.3607224 0.5507478 0.3270658 0.1469798
 0.1271792 0.1171634 0.1593798 0.1658852 0.0781418 0.0934414 0.120611
 0.1354392 0.12499   0.1214412 0.0739386 0.1206398 0.092333  0.1111578
 0.0971774 0.0996348 0.0731532 0.0607488 0.0599922 0.0843256 0.0866062
 0.0756514 0.0604024 0.0501384 0.067104  0.1179092 0.105438  0.0777938
 0.0508006 0.0561244 0.064304  0.0808856 0.0824776 0.0821026 0.0641162
 0.0651434 0.0885912 0.0670356 0.059898  0.080784  0.0797922 0.0764778
 0.0956698 0.0786192 0.0761602 0.066517  0.0841896 0.059458  0.045134
 0.0776636 0.071839  0.0561074 0.0609848 0.04559   0.0458402 0.0862112
```

Figure 27: Python code for price predictions of ADA - part 11

```
 0.0671118 0.0630758 0.0443106 0.0430482 0.0394648 0.0356756 0.0350494
 0.0316218 0.031858  0.032044  0.032125  0.0336148 0.0348246 0.0354508
 0.036807  0.0406742 0.29505   0.308849  0.0566638 0.0571222 0.0746518
 0.0755948 0.0568946 0.0381646 0.0583354 0.0612044 0.0396624 0.0554806
 0.0647812 0.0887634 0.0689564 0.0579584 0.0797344 0.0862756 0.086254
 0.0722056 0.0650994 0.1004046 0.0733344 0.0759092 0.0780352]

In [52]: Comparison_ADA_KNN = pd.DataFrame({'Actual prices': Y_test, 'Predicted prices': knn_pred})

In [53]: Comparison_ADA_KNN

Out[53]:
```

Date	Actual prices	Predicted prices
2021-10-04	2.189235	1.734714
2021-10-05	2.233124	1.566946
2021-10-06	2.212155	1.695894
2021-10-07	2.276995	1.461796
2021-10-08	2.237176	1.530035
...	...	...
2022-03-01	0.962346	0.065099
2022-03-02	0.938662	0.100405
2022-03-03	0.902659	0.073334
2022-03-04	0.842889	0.075909
2022-03-05	0.865672	0.078035

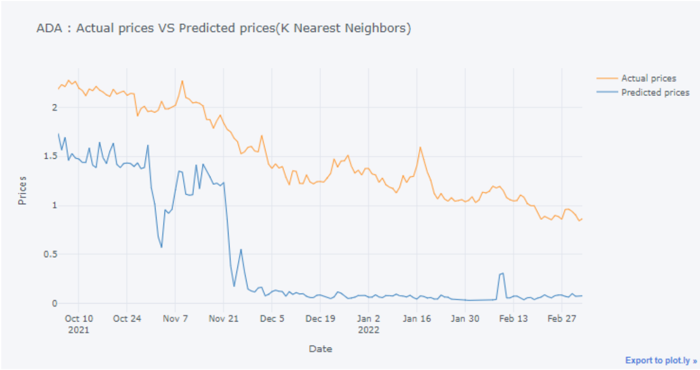
153 rows × 2 columns

```
In [54]: #Performance indicators
         r_score_KNN=metrics.r2_score(Y_test,knn_pred)
         print("R squared value_KNN :",r_score_KNN)
         print("MAE_KNN:", mean_absolute_error(Y_test, knn_pred))
         meanSquaredError_KNN=mean_squared_error(Y_test, knn_pred)
         print("MSE_KNN:", meanSquaredError_KNN)
         rootMeanSquaredError_KNN = sqrt(meanSquaredError_KNN)
         print("RMSE_KNN:", rootMeanSquaredError_KNN)

R squared value_KNN : -4.5775319193697035
MAE_KNN: 1.007904677124183
MSE_KNN: 1.0876338262288083
RMSE_KNN: 1.0428968435223152

In [55]: Comparison_ADA_KNN.iplot(kind='lines', title="ADA : Actual prices VS Predicted prices(K Nearest Neighbors)", xTitle='Date', yTit
         le='Prices'),
```

Figure 28: Python code for price predictions of ADA - part 12




```
Out[55]: (None,)

In [ ]:
```

Multilayer Perceptron

```
In [56]: from sklearn.neural_network import MLPRegressor
         from sklearn.datasets import make_regression
         # Create MLP Regressor
         MLP = MLPRegressor()

In [57]: # Train the model
         MLP.fit(X_train, Y_train)

Out[57]: MLPRegressor()

In [58]: # Make predictions
         MLP_pred = MLP.predict(X_test)

In [59]: MLP_pred

Out[59]: array([2.22410265, 2.16292555, 2.32124003, 2.1909681 , 2.35970991,
                2.1853036 , 2.3277437 , 2.11553266, 2.1953039 , 2.06113303,
                2.34804666, 2.11073654, 2.25502375, 2.05871014, 2.13876626,
                2.01900851, 2.08992216, 2.3059719 , 2.01477677, 2.0976605 ,
                2.10802579, 2.04071879, 2.08331134, 2.09801414, 1.66327655,
                2.09336549, 1.99189148, 1.63054307, 1.7682154 , 1.89301638,
                1.45676453, 2.19769964, 1.78796182, 1.88045988, 1.99618349,
                1.9708039 , 2.23606517, 2.40824842, 1.8731132 , 2.04615593,
                2.20893362, 2.21011244, 1.87906918, 2.04120092, 1.76457401,
                1.87958085, 1.69073232, 1.96499646, 1.86663129, 1.77875153,
                1.70277076, 1.62250947, 1.20376467, 1.61163384, 1.67653368,
                1.40520615, 1.37224823, 1.25933557, 1.43119228, 1.17361088,
                1.53193683, 1.10882011, 1.52868412, 1.45463006, 0.90828344,
                1.36686844, 1.40896571, 1.42407228, 1.02886527, 1.29688769,
                1.06969017, 1.42204859, 1.32529533, 1.2080353 , 0.95132571,
```

Figure 29: Python code for price predictions of ADA - part 13

```
                1.28959916, 1.33429166, 1.16448243, 1.20853022, 1.38876202,
                1.45277872, 1.60810315, 1.39178349, 1.54075156, 1.50835027,
                1.77811889, 1.26914075, 1.55837381, 1.54740943, 1.48227411,
                1.51311402, 1.51139879, 1.46038662, 1.38059065, 1.33866798,
                1.4343585 , 1.19405239, 1.26016213, 1.15870914, 1.17426685,
                1.28093881, 1.49709424, 1.21273509, 1.30433115, 1.38393176,
                1.60351421, 1.29454353, 1.52928105, 1.39627514, 1.50474123,
                1.40447039, 1.13215235, 1.2178177 , 1.1569251 , 1.17602775,
                1.2420277 , 1.17862206, 1.15811967, 1.18390471, 1.1550521 ,
                1.15556826, 1.24414835, 1.04902816, 1.16252103, 1.34024672,
                1.24276962, 1.1534442 , 1.28340977, 1.27877489, 1.19709428,
                1.1433369 , 1.14302852, 1.14193418, 1.18312329, 1.12651211,
                1.32400755, 1.13715817, 0.96676021, 1.03233818, 1.1396553 ,
                0.84887913, 0.76778871, 0.98609498, 0.8157194 , 0.83834337,
                0.9952851 , 0.76317249, 0.69950412, 1.25341681, 1.1269454 ,
                0.92758786, 0.7201256 , 0.97275422])

In [60]: Comparison_ADA_MLP = pd.DataFrame({'Actual prices': Y_test, 'Predicted prices': MLP_pred})

In [61]: Comparison_ADA_MLP

Out[61]:
```

Date	Actual prices	Predicted prices
2021-10-04	2.189235	2.224103
2021-10-05	2.233124	2.162926
2021-10-06	2.212155	2.321240
2021-10-07	2.276995	2.190968
2021-10-08	2.237176	2.359710
...	...	...
2022-03-01	0.962346	1.253417
2022-03-02	0.938662	1.126945
2022-03-03	0.902659	0.927588
2022-03-04	0.842889	0.720126
2022-03-05	0.865672	0.972754

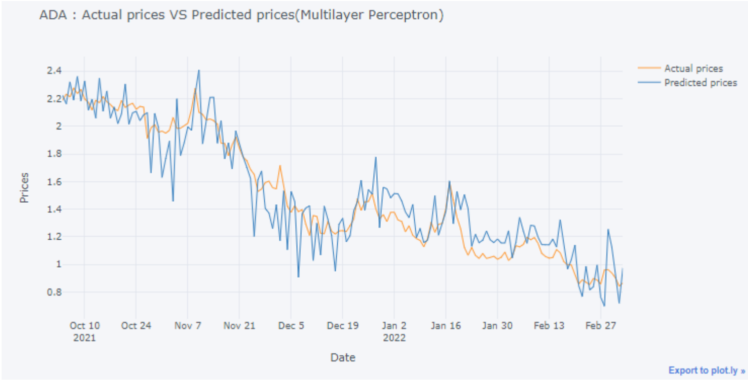
153 rows × 2 columns

```
In [62]: #Performance indicators
         r_score_MLP=metrics.r2_score(Y_test,MLP_pred)
         print("R squared value_MLP :",r_score_MLP)
         print("MAE_MLP:", mean_absolute_error(Y_test, MLP_pred))
         meanSquaredError_MLP=mean_squared_error(Y_test, MLP_pred)
         print("MSE_MLP:", meanSquaredError_MLP)
         rootMeanSquaredError_MLP = sqrt(meanSquaredError_MLP)
         print("RMSE_MLP:", rootMeanSquaredError_MLP)

         R squared value_MLP : 0.8562252176066499
         MAE_MLP: 0.1287885293346291
         MSE_MLP: 0.028036471857137292
         RMSE_MLP: 0.1674409503590364

In [63]: Comparison_ADA_MLP.iplot(kind='lines', title="ADA : Actual prices VS Predicted prices(Multilayer Perceptron)", xTitle='Date', yT
         itle='Prices'),
```

Figure 30: Python code for price predictions of ADA - part 14



Out[63]: (None,)

In [ ]:

Export predictions to Excel

In [65]:
```
All_Predictions = pd.DataFrame({'Actual prices': Y_test, 'Random Forest': test_data_prediction, 'Linear Regression' : y_pred_LR,
'Decision Tree' : pred_dtree, 'Gradient Boosting Regressor' : GB_predict, 'K Nearest Neighbors' : knn_pred, 'Multilayer Perceptr
on': MLP_pred})
```

In [66]:
```
All_Predictions
```

Out[66]:

Date	Actual prices	Random Forest	Linear Regression	Decision Tree	Gradient Boosting Regressor	K Nearest Neighbors	Multilayer Perceptron
2021-10-04	2.189235	2.217219	2.188118	2.135905	2.171333	1.734714	2.224103
2021-10-05	2.233124	2.205932	2.209594	2.135905	2.171333	1.566946	2.162926
2021-10-06	2.212155	2.152831	2.245422	2.114452	2.163493	1.695894	2.321240
2021-10-07	2.276995	2.157675	2.232149	2.114452	2.163493	1.461796	2.190968
2021-10-08	2.237176	2.176700	2.245677	2.114452	2.190049	1.530035	2.359710
...	...	...	...	...	...	...	...
2022-03-01	0.962346	1.136656	0.989369	1.234019	0.991312	0.065099	1.253417
2022-03-02	0.938662	1.127577	0.978179	1.234019	0.969946	0.100405	1.126945
2022-03-03	0.902659	1.138948	0.947380	1.234019	0.969946	0.073334	0.927588
2022-03-04	0.842889	1.003286	0.949035	0.802262	0.836284	0.075909	0.720126
2022-03-05	0.865672	0.884063	0.858790	0.802262	0.801579	0.078035	0.972754

153 rows × 7 columns

In [67]:
```
with pd.ExcelWriter(r'C:\Users\Lenovo\Downloads\ADA_Prices.pred.xls')as writer:
    All_Predictions.to_excel(writer, sheet_name = 'ADA')
```

Figure 31: Python code for price predictions of ADA - part 15

1.3 Price predictions with each algorithm

Date	Actual prices	Random Forest	Linear Regression	Decision Tree	Gradient Boosting Regressor	K Nearest Neighbors	Multilayer Perceptron
2021-10-04 00:00:00	2,189235	2,21721946	2,188118059	2,135905	2,171333222	1,734714	2,224102647
2021-10-05 00:00:00	2,233124	2,20593208	2,20959389	2,135905	2,171333222	1,5669456	2,162925553
2021-10-06 00:00:00	2,212155	2,15283078	2,245421972	2,114452	2,163493011	1,695894	2,321240034
2021-10-07 00:00:00	2,276995	2,15767463	2,232149399	2,114452	2,163493011	1,4617956	2,190968102
2021-10-08 00:00:00	2,237176	2,17670003	2,245677157	2,114452	2,190048513	1,5300352	2,359709914
2021-10-09 00:00:00	2,266615	2,20528276	2,274298281	2,301541	2,191305448	1,4833908	2,185303601
2021-10-10 00:00:00	2,197214	2,17091019	2,293660258	2,114452	2,160085667	1,4743746	2,327743704
2021-10-11 00:00:00	2,173389	2,16715412	2,174108138	2,114452	2,151839824	1,439117	2,115532659
2021-10-12 00:00:00	2,11919	2,16550292	2,158526283	2,114452	2,161481	1,4388038	2,195303898
2021-10-13 00:00:00	2,189053	2,15303117	2,134743892	2,114452	2,141652815	1,584805	2,061133026
2021-10-14 00:00:00	2,170363	2,17419164	2,218538307	2,114452	2,138465575	1,4110472	2,348046662
2021-10-15 00:00:00	2,214651	2,20723328	2,208835103	2,252873	2,139724	1,3861056	2,110736542
2021-10-16 00:00:00	2,177713	2,22030913	2,252200616	2,252873	2,152663218	1,6443994	2,255023748
2021-10-17 00:00:00	2,156963	2,21886267	2,167648655	2,252873	2,133901674	1,487752	2,058710143
2021-10-18 00:00:00	2,128263	2,16532742	2,152267308	2,114452	2,131154705	1,4281482	2,138766257
2021-10-19 00:00:00	2,112962	2,18862502	2,191894763	2,252873	2,112845046	1,5521368	2,019008511
2021-10-20 00:00:00	2,18595	2,16041775	2,125131267	2,114452	2,117415052	1,6354756	2,089922156
2021-10-21 00:00:00	2,136591	2,18736688	2,170962874	2,114452	2,107768112	1,4189266	2,305971896
2021-10-22 00:00:00	2,154199	2,2235824	2,164922002	2,252873	2,125255263	1,3861056	2,014776773
2021-10-23 00:00:00	2,166815	2,22023869	2,176955104	2,252873	2,130348505	1,428541	2,097660502
2021-10-24 00:00:00	2,123435	2,21304673	2,137791575	2,135905	2,115608323	1,4330796	2,108025793
2021-10-25 00:00:00	2,144066	2,15679852	2,073744508	2,114452	2,086745931	1,4281482	2,040718789
2021-10-26 00:00:00	2,138777	2,20755933	2,187387498	2,252873	2,099679384	1,397217	2,083311344
2021-10-27 00:00:00	1,913237	2,18774718	2,186421257	2,114452	2,123361902	1,4342282	2,098014135
2021-10-28 00:00:00	1,988219	2,02435161	1,983549429	2,114452	1,943693269	1,3756214	1,663276548
2021-10-29 00:00:00	2,012187	2,06065499	1,986723422	2,252873	1,968210617	1,3873114	2,093365491
2021-10-30 00:00:00	1,957422	2,12821997	2,037855526	2,135905	2,014303951	1,6149366	1,991891485
2021-10-31 00:00:00	1,965026	2,07247662	1,982019676	2,135905	1,92538361	1,1814618	1,630543071
2021-11-01 00:00:00	1,950002	2,07901301	2,003276199	2,135905	1,917721564	1,0131782	1,768215405
2021-11-02 00:00:00	1,971377	2,06532139	1,923647678	2,135905	1,917721564	0,6795878	1,893016378
2021-11-03 00:00:00	2,063701	2,06135718	1,987242621	2,135905	1,903493546	0,572685	1,456764525
2021-11-04 00:00:00	1,984882	2,1834344	2,071194599	2,135905	1,964457289	0,955576	2,197699639
2021-11-05 00:00:00	1,986206	2,07750139	2,001781294	2,135905	1,903493546	0,919674	1,787961823
2021-11-06 00:00:00	2,006609	2,05740822	1,984023712	2,135905	1,903493546	0,9604716	1,880459884
2021-11-07 00:00:00	2,021872	2,13065231	2,006196185	2,135905	1,964457289	1,161763	1,99618349
2021-11-08 00:00:00	2,124419	2,14398854	1,984391058	2,114452	1,990428993	1,3509124	1,970803896
2021-11-09 00:00:00	2,273483	2,22171003	2,13884179	2,135905	2,080270949	1,3387014	2,236065169
2021-11-10 00:00:00	2,101802	2,23261352	2,285960957	2,135905	2,097485368	1,1152098	2,408248422
2021-11-11 00:00:00	2,085524	2,19736898	2,117950411	2,135905	2,079077307	1,1045216	1,873113196

Figure 32: Price predictions with each algorithm for ADA - part 1

2021-11-12 00:00:00	2,045766	2,1597649	2,10907593	2,135905	1,962917436	1,1091944	2,046155927
2021-11-13 00:00:00	2,053104	2,13243558	2,09076799	2,114452	1,995522234	1,4150826	2,208933623
2021-11-14 00:00:00	2,040853	2,12967168	2,024891052	2,114452	1,990428993	1,172262	2,210112436
2021-11-15 00:00:00	2,015587	2,15360705	2,036126829	2,114452	2,028118461	1,420875	1,879069183
2021-11-16 00:00:00	1,877235	2,11041951	2,02038081	2,114452	2,026331189	1,3592538	2,041200923
2021-11-17 00:00:00	1,87554	1,92230077	1,935207253	2,114452	1,884900979	1,2915856	1,764574013
2021-11-18 00:00:00	1,788331	1,91466036	1,898450916	2,114452	1,884900979	1,2168726	1,879580852
2021-11-19 00:00:00	1,864793	1,60140502	1,840115112	1,482573	1,71484469	1,2277396	1,690732316
2021-11-20 00:00:00	1,921736	1,8921597	1,896338062	2,135905	1,892608796	1,2013836	1,964996463
2021-11-21 00:00:00	1,839763	2,06955756	1,940550448	2,135905	1,942385651	1,2335638	1,866631293
2021-11-22 00:00:00	1,776555	1,89658596	1,861536067	2,135905	1,878527498	0,85801	1,778751528
2021-11-23 00:00:00	1,750503	1,59768553	1,789222582	1,482573	1,677146984	0,3841314	1,702770763
2021-11-24 00:00:00	1,686423	1,57213328	1,731468933	1,482573	1,674791687	0,1737188	1,622509474
2021-11-25 00:00:00	1,651345	1,56454927	1,701297256	1,482573	1,704714929	0,3607224	1,203764668
2021-11-26 00:00:00	1,52842	1,56040536	1,70927035	1,482573	1,704714929	0,5507478	1,611633839
2021-11-27 00:00:00	1,546118	1,47430271	1,561013382	1,17748	1,574181218	0,3270658	1,676533685
2021-11-28 00:00:00	1,592855	1,50757325	1,592282121	1,17748	1,589402506	0,1469798	1,405206145
2021-11-29 00:00:00	1,602508	1,54385886	1,620313486	1,482573	1,68039251	0,1271792	1,372248226
2021-11-30 00:00:00	1,554903	1,5349637	1,597200241	1,482573	1,65791416	0,1171634	1,25933557
2021-12-01 00:00:00	1,547713	1,52887069	1,573692089	1,482573	1,65791416	0,1593798	1,431192277
2021-12-02 00:00:00	1,715366	1,48442238	1,592519722	1,17748	1,566924155	0,1658852	1,173610884
2021-12-03 00:00:00	1,556555	1,54625736	1,713006186	1,659009	1,62040809	0,0781418	1,531936832
2021-12-04 00:00:00	1,420706	1,53611999	1,595113262	1,659009	1,650169927	0,0934414	1,108820111
2021-12-05 00:00:00	1,378105	1,38664474	1,432161789	1,17748	1,424978947	0,120611	1,528684119
2021-12-06 00:00:00	1,425393	1,35939249	1,44308138	1,228501	1,336672939	0,1354392	1,454630059
2021-12-07 00:00:00	1,381941	1,33740353	1,458019709	1,17748	1,382355676	0,12499	0,908283443
2021-12-08 00:00:00	1,397074	1,34115147	1,417526684	1,228501	1,31971964	0,1214412	1,366868444
2021-12-09 00:00:00	1,29044	1,32721592	1,438740523	1,17748	1,397680951	0,0739386	1,408965711
2021-12-10 00:00:00	1,211689	1,33817851	1,36293523	1,228501	1,293524061	0,1206398	1,424072281
2021-12-11 00:00:00	1,354248	1,16670476	1,237244689	1,056291	1,218959839	0,092333	1,028865273
2021-12-12 00:00:00	1,347282	1,30793174	1,396326099	1,228501	1,322708296	0,1111578	1,296887689
2021-12-13 00:00:00	1,225348	1,30182605	1,380693139	1,228501	1,309077604	0,0971774	1,069690169
2021-12-14 00:00:00	1,222835	1,21421714	1,260037049	1,056291	1,211281847	0,0996348	1,422048585
2021-12-15 00:00:00	1,311847	1,20262284	1,213831801	1,056291	1,202419187	0,0731532	1,325295333
2021-12-16 00:00:00	1,240534	1,31710544	1,304182772	1,356087	1,303962334	0,0607488	1,208035298
2021-12-17 00:00:00	1,219892	1,30837016	1,226752521	1,228501	1,266397059	0,0599922	0,95132571
2021-12-18 00:00:00	1,242534	1,21577538	1,26239605	1,056291	1,200489437	0,0843256	1,289599163
2021-12-19 00:00:00	1,244661	1,30684402	1,305283731	1,228501	1,26304384	0,0866062	1,334291659
2021-12-20 00:00:00	1,23824	1,3092152	1,263696458	1,228501	1,26304384	0,0756514	1,16448243
2021-12-21 00:00:00	1,280859	1,30307515	1,246023702	1,228501	1,26304384	0,0604024	1,208530224

Figure 33: Price predictions with each algorithm for ADA - part 2

2021-12-22 00:00:00	1,328041	1,30044738	1,320806799	1,228501	1,283536596	0,0501384	1,388762018
2021-12-23 00:00:00	1,474691	1,29251403	1,373506523	1,228501	1,288721674	0,067104	1,452778719
2021-12-24 00:00:00	1,392367	1,43512722	1,519035834	1,17748	1,444051041	0,1179092	1,608103152
2021-12-25 00:00:00	1,453495	1,35136782	1,4244125	1,17748	1,369842572	0,105438	1,391783486
2021-12-26 00:00:00	1,456045	1,3665517	1,450413615	1,17748	1,381555365	0,0777938	1,540751561
2021-12-27 00:00:00	1,512913	1,39179304	1,480669442	1,17748	1,373318052	0,0508006	1,508350266
2021-12-28 00:00:00	1,402264	1,45247571	1,538222681	1,17748	1,462535903	0,0561244	1,778118888
2021-12-29 00:00:00	1,330814	1,37375012	1,437253336	1,17748	1,355658868	0,064304	1,269140748
2021-12-30 00:00:00	1,360415	1,3321897	1,358211317	1,228501	1,33260277	0,0808856	1,558373812
2021-12-31 00:00:00	1,310209	1,30818997	1,383127746	1,228501	1,324365457	0,0824776	1,547409434
2022-01-01 00:00:00	1,376975	1,31602468	1,367187237	1,228501	1,313530697	0,0821026	1,482274111
2022-01-02 00:00:00	1,377584	1,32110065	1,414605639	1,228501	1,321487926	0,0641162	1,513114024
2022-01-03 00:00:00	1,321637	1,3319848	1,413767283	1,228501	1,327045154	0,0651434	1,511398786
2022-01-04 00:00:00	1,311658	1,31890807	1,346725573	1,228501	1,321487926	0,0885912	1,460386625
2022-01-05 00:00:00	1,236002	1,29471733	1,359295092	1,228501	1,313530697	0,0670356	1,380590652
2022-01-06 00:00:00	1,279782	1,2781108	1,283650531	1,228501	1,286246572	0,059898	1,338667977
2022-01-07 00:00:00	1,211547	1,28007225	1,238673165	1,228501	1,285225879	0,080784	1,434358496
2022-01-08 00:00:00	1,187512	1,16989924	1,238945694	1,153254	1,227507508	0,0797922	1,194052387
2022-01-09 00:00:00	1,17386	1,167721	1,243401843	1,183698	1,186483798	0,0764778	1,26016213
2022-01-10 00:00:00	1,128052	1,15342374	1,210842024	1,168098	1,186483798	0,0956698	1,158709141
2022-01-11 00:00:00	1,18511	1,11171137	1,164691641	1,056291	1,160842117	0,0786192	1,174266848
2022-01-12 00:00:00	1,304535	1,14479711	1,184322355	1,056291	1,183073426	0,0761602	1,280938813
2022-01-13 00:00:00	1,233161	1,28509436	1,303177312	1,228501	1,279575172	0,066517	1,497094239
2022-01-14 00:00:00	1,290926	1,24160108	1,261428228	1,228501	1,25125635	0,0841896	1,212735086
2022-01-15 00:00:00	1,296263	1,28358147	1,329767096	1,228501	1,279575172	0,059458	1,304331153
2022-01-16 00:00:00	1,407251	1,28609849	1,306354663	1,228501	1,290793129	0,045134	1,383931764
2022-01-17 00:00:00	1,594131	1,38489012	1,379006336	1,330146	1,392145999	0,0776636	1,60351421
2022-01-18 00:00:00	1,465541	1,62536583	1,631747228	1,798038	1,621416517	0,071839	1,294543535
2022-01-19 00:00:00	1,341757	1,44354494	1,487460403	1,384869	1,448697352	0,0561074	1,529281046
2022-01-20 00:00:00	1,258055	1,35741779	1,330992465	1,262258	1,339978663	0,0609848	1,39627514
2022-01-21 00:00:00	1,123233	1,29305782	1,331741558	1,262258	1,300302951	0,04559	1,504741229
2022-01-22 00:00:00	1,066716	1,16657399	1,153294446	1,186161	1,148418192	0,0458402	1,404470392
2022-01-23 00:00:00	1,122371	1,15939458	1,108731078	1,155702	1,176273282	0,0862112	1,132152355
2022-01-24 00:00:00	1,066598	1,13002613	1,166324658	1,233497	1,199839558	0,0671118	1,217817699
2022-01-25 00:00:00	1,043574	1,12212445	1,136005196	1,234019	1,197532968	0,0630758	1,156925104
2022-01-26 00:00:00	1,079047	1,13074402	1,100457963	1,234019	1,179287876	0,0443106	1,176027753
2022-01-27 00:00:00	1,043533	1,11906664	1,117374811	1,234019	1,179287876	0,0430482	1,242027701
2022-01-28 00:00:00	1,050606	1,12125469	1,025602024	1,234019	1,198154941	0,0394648	1,178622063
2022-01-29 00:00:00	1,05957	1,12002153	1,069099145	1,234019	1,200788178	0,0356756	1,158119673
2022-01-30 00:00:00	1,037473	1,1219493	1,075227076	1,234019	1,191494591	0,0350494	1,183904706

Figure 34: Price predictions with each algorithm for ADA - part 3

2022-01-31 00:00:00	1,052303	1,12065468	1,033231237	1,234019	1,201302616	0,0316218	1,155052103
2022-02-01 00:00:00	1,088624	1,12262479	1,007584444	1,234019	1,169131395	0,031858	1,155568264
2022-02-02 00:00:00	1,028906	1,13945801	1,08433672	1,234019	1,148585017	0,032044	1,244148351
2022-02-03 00:00:00	1,056444	1,12767921	1,06535529	1,234019	1,103208822	0,032125	1,049028156
2022-02-04 00:00:00	1,135624	1,13585684	1,052424364	1,234019	1,132985394	0,0336148	1,162521031
2022-02-05 00:00:00	1,127345	1,13681179	1,183499857	1,233497	1,146845722	0,0348246	1,340246716
2022-02-06 00:00:00	1,144547	1,13740501	1,169220441	1,218758	1,143681833	0,0354508	1,242769617
2022-02-07 00:00:00	1,197307	1,16182724	1,137686453	1,218758	1,187190734	0,036807	1,153444197
2022-02-08 00:00:00	1,17872	1,20737387	1,231955004	1,218758	1,186198841	0,0406742	1,283409766
2022-02-09 00:00:00	1,19481	1,1918879	1,199568735	1,218758	1,160118321	0,29505	1,278774886
2022-02-10 00:00:00	1,152478	1,19586463	1,19968917	1,233497	1,184800238	0,308849	1,197094281
2022-02-11 00:00:00	1,080347	1,18614365	1,167576403	1,233497	1,169212835	0,0566638	1,143336901
2022-02-12 00:00:00	1,058199	1,16420044	1,096737164	1,234019	1,136194586	0,0571222	1,14302852
2022-02-13 00:00:00	1,045819	1,17164758	1,060076825	1,234019	1,1306197	0,0746518	1,141934182
2022-02-14 00:00:00	1,050267	1,17931019	1,072706916	1,234019	1,131799981	0,0755948	1,183123286
2022-02-15 00:00:00	1,107586	1,17203149	1,069734017	1,234019	1,139943343	0,0568946	1,126512115
2022-02-16 00:00:00	1,084981	1,16946674	1,139502893	1,233497	1,127100072	0,0381646	1,324007549
2022-02-17 00:00:00	1,019895	1,15710564	1,084053964	1,234019	1,093076684	0,0583354	1,137158172
2022-02-18 00:00:00	0,997113	1,16367198	1,029391568	1,234019	1,049439784	0,0612044	0,966760206
2022-02-19 00:00:00	0,997703	1,15516246	1,022243726	1,234019	1,020833713	0,0396624	1,032338184
2022-02-20 00:00:00	0,932902	1,14439265	1,029210092	1,234019	1,020833713	0,0554806	1,1396553
2022-02-21 00:00:00	0,858236	1,14849647	0,959175382	1,234019	1,020833713	0,0647812	0,848879127
2022-02-22 00:00:00	0,889017	0,90975824	0,845263972	1,234019	0,871080919	0,0887634	0,767788712
2022-02-23 00:00:00	0,869169	1,00463251	0,878529507	1,234019	0,905335226	0,0689564	0,986094982
2022-02-24 00:00:00	0,853425	0,91419783	0,85474975	1,234019	0,869094981	0,0579584	0,815719395
2022-02-25 00:00:00	0,898027	0,91060406	0,85518313	1,234019	0,885031749	0,0797344	0,838343369
2022-02-26 00:00:00	0,887918	1,01736675	0,944101241	1,234019	0,905785145	0,0862756	0,995285096
2022-02-27 00:00:00	0,858335	1,00119806	0,912403817	1,234019	0,905785145	0,086254	0,763172493
2022-02-28 00:00:00	0,959828	0,90987248	0,878460173	1,234019	0,841559704	0,0722056	0,699504124
2022-03-01 00:00:00	0,962346	1,13665592	0,989368589	1,234019	0,991312498	0,0650994	1,25341681
2022-03-02 00:00:00	0,938662	1,12757676	0,978178554	1,234019	0,969945959	0,1004046	1,126945401
2022-03-03 00:00:00	0,902659	1,1389482	0,947380285	1,234019	0,969945959	0,0733344	0,927587861
2022-03-04 00:00:00	0,842889	1,00328614	0,949035163	0,802262	0,83628359	0,0759092	0,720125597
2022-03-05 00:00:00	0,865672	0,88406325	0,858789504	0,802262	0,801579363	0,0780352	0,972754217

Figure 35: Price predictions with each algorithm for ADA - part 4

1.4 Performance indicators of each cryptoassets

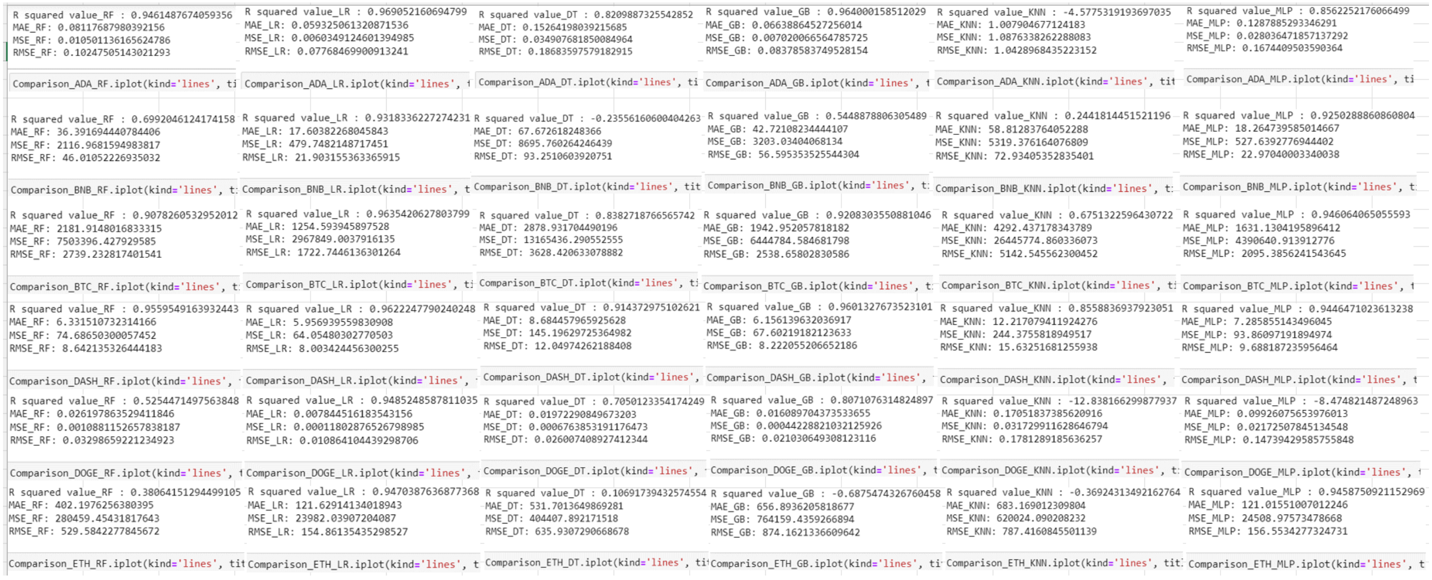


Figure 36: Performance indicator scores - part 1

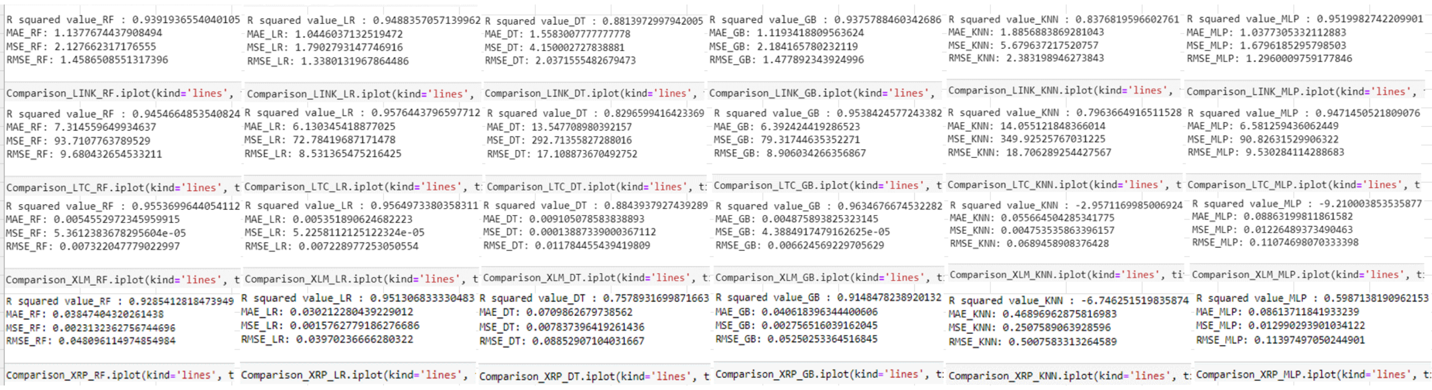


Figure 37: Performance indicator scores - part 2

1.5 Price predictions and returns

1.5.1 Using linear regression

Price predictions										
Date	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
03-10-21	2,252873	430,50882	48199,953	177,95457	0,221748	3418,3586	27,55904	170,60997	0,16222	1,05517
04-10-21	2,1881181	426,89587	48342,296	176,88534	0,2207647	3446,7307	27,335747	171,30667	0,1534275	1,0402923
05-10-21	2,2095939	426,13375	49368,834	175,13844	0,2348893	3413,9664	27,038719	171,46021	0,155286	1,0224304
06-10-21	2,245422	435,22691	51291,636	184,49707	0,244246	3520,6692	26,252907	177,34779	0,1710109	1,0460374
07-10-21	2,2321494	441,04928	55020,286	179,3567	0,2555576	3548,676	25,563157	180,66351	0,1721074	1,0542639
08-10-21	2,2456772	443,36862	53410,863	182,84617	0,2500185	3565,7981	26,791005	178,60997	0,1775248	1,0827678
09-10-21	2,2742983	443,32819	55211,603	191,44418	0,2328372	3667,0844	27,966408	174,94743	0,1867475	1,1213462
10-10-21	2,2936603	428,03243	54394,787	195,12351	0,2406605	3554,3669	26,757346	174,36616	0,1823756	1,1325884
11-10-21	2,1741081	400,75385	53650,978	181,9074	0,2390925	3425,2476	24,918309	171,21442	0,1683351	1,1081643
12-10-21	2,1585263	406,96946	57826,904	182,72364	0,2323804	3520,98	25,207495	177,52007	0,1735281	1,1131909
13-10-21	2,1347439	453,2254	56452,882	180,31525	0,2226766	3477,4081	24,610036	170,09059	0,1667067	1,072942
14-10-21	2,2185383	474,2339	57351,441	173,57621	0,2245968	3544,0475	25,264657	174,6294	0,1692511	1,0924079
15-10-21	2,2088351	476,80118	57513,903	180,08432	0,2317845	3757,9588	26,550179	179,25502	0,1700518	1,1181717
16-10-21	2,2522006	473,75058	61087,178	188,0793	0,2304564	3777,7722	26,413987	185,62968	0,1702	1,1570706
17-10-21	2,1676487	455,71132	61032,595	190,58916	0,2364118	3751,9854	27,071934	184,57316	0,1663464	1,1388487
18-10-21	2,1522673	465,25954	61786,277	187,5827	0,2387408	3788,6947	26,514725	180,26364	0,1669821	1,088355
19-10-21	2,1918948	493,15046	61754,311	180,38188	0,2432823	3714,0421	25,572317	185,49386	0,1632335	1,0594253
20-10-21	2,1251313	487,96169	63076,337	188,99415	0,2490967	3841,659	25,238289	187,849	0,1702937	1,077058
21-10-21	2,1709629	501,09029	66155,712	198,87017	0,2524044	4114,5867	27,274427	206,87745	0,1672811	1,1302563
22-10-21	2,164922	487,12236	62652,94	198,32788	0,2490076	4146,1153	28,599616	195,23022	0,1728808	1,1001042
23-10-21	2,1769551	480,83962	60744,265	196,00062	0,243344	4032,5245	28,305487	188,95256	0,170482	1,0720776
24-10-21	2,1377916	469,41916	59756,59	200,28453	0,2511458	4091,8801	30,205432	196,5212	0,1716786	1,0690777
25-10-21	2,0737445	473,59589	60392,89	207,36809	0,2711656	4107,9506	30,214863	189,02564	0,1643749	1,0696504
26-10-21	2,1873875	507,70281	64020,44	210,11299	0,2684855	4367,9004	32,634615	198,35213	0,1685443	1,1142597
27-10-21	2,1864213	480,05508	60584,753	194,79993	0,2594331	4184,3577	32,542437	196,63015	0,1685859	1,0881688
28-10-21	1,9835494	442,03085	58945,843	168,72526	0,2335705	3993,1066	30,078168	182,99362	0,1565398	1,00198
29-10-21	1,9867234	475,47103	60481,215	177,79575	0,2736061	4268,7779	31,516682	190,15566	0,1539426	1,0563486
30-10-21	2,0378555	525,27739	62060,633	181,69892	0,2942086	4420,3872	31,568238	193,92367	0,1693096	1,0819207
31-10-21	1,9820197	535,04951	62069,167	181,16244	0,282225	4393,6644	30,732648	189,15511	0,1779286	1,0685917
01-11-21	2,0032762	531,58858	61126,729	191,51733	0,2807686	4290,4521	30,534087	191,84588	0,1819114	1,1107893
02-11-21	1,9236477	534,80203	60393,12	189,01947	0,2560857	4264,6468	31,077618	196,82885	0,1874698	1,0696295
03-11-21	1,9872426	558,95036	63195,995	192,76153	0,2616363	4681,2214	32,331541	201,03731	0,2086348	1,1217269
04-11-21	2,0711946	574,51641	63100,351	196,77144	0,2777331	4696,6232	32,047245	207,3594	0,2042792	1,2119179
05-11-21	2,0017813	568,66324	61874,456	200,28372	0,2589334	4615,0266	31,047038	203,30409	0,1980353	1,1982394
06-11-21	1,9840237	594,90991	61188,267	196,25644	0,2539019	4554,0527	32,384634	199,97929	0,2156904	1,1574832

Returns										
Date	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
04-10-21	-2,87%	-0,84%	0,30%	-0,60%	-0,44%	0,83%	-0,81%	0,41%	-5,42%	-1,41%
05-10-21	0,98%	-0,18%	2,12%	-0,99%	6,40%	-0,95%	-1,09%	0,09%	1,21%	-1,72%
06-10-21	1,62%	2,13%	3,89%	5,34%	3,98%	3,13%	-2,91%	3,43%	10,13%	2,31%
07-10-21	-0,59%	1,34%	7,27%	-2,79%	4,63%	0,80%	-2,63%	1,87%	0,64%	0,79%
08-10-21	0,61%	0,53%	-2,93%	1,95%	-2,17%	0,48%	4,80%	-1,14%	3,15%	2,70%
09-10-21	1,27%	-0,01%	3,37%	4,70%	-6,87%	2,84%	4,39%	-2,05%	5,20%	3,56%
10-10-21	0,85%	-3,45%	-1,48%	1,92%	3,36%	-3,07%	-4,32%	-0,33%	-2,34%	1,00%
11-10-21	-5,21%	-6,37%	-1,37%	-6,77%	-0,65%	-3,63%	-6,87%	-1,81%	-7,70%	-2,16%
12-10-21	-0,72%	1,55%	7,78%	0,45%	-2,81%	2,79%	1,16%	3,68%	3,08%	0,45%
13-10-21	-1,10%	11,37%	-2,38%	-1,32%	-4,18%	-1,24%	-2,37%	-4,19%	-3,93%	-3,62%
14-10-21	3,93%	4,64%	1,59%	-3,74%	0,86%	1,92%	2,66%	2,67%	1,53%	1,81%
15-10-21	-0,44%	0,54%	0,28%	3,75%	3,20%	6,04%	5,09%	2,65%	0,47%	2,36%
16-10-21	1,96%	-0,64%	6,21%	4,44%	-0,57%	0,53%	-0,51%	3,56%	0,09%	3,48%
17-10-21	-3,75%	-3,81%	-0,09%	1,33%	2,58%	-0,68%	2,49%	-0,57%	-2,26%	-1,57%
18-10-21	-0,71%	2,10%	1,23%	-1,58%	0,99%	0,98%	-2,06%	-2,33%	0,38%	-4,43%
19-10-21	1,84%	5,99%	-0,05%	-3,84%	1,90%	-1,97%	-3,55%	2,90%	-2,24%	-2,66%
20-10-21	-3,05%	-1,05%	2,14%	4,77%	2,39%	3,44%	-1,31%	1,27%	4,33%	1,66%
21-10-21	2,16%	2,69%	4,88%	5,23%	1,33%	7,10%	8,07%	10,13%	-1,77%	4,94%
22-10-21	-0,28%	-2,79%	-5,29%	-0,27%	-1,35%	0,77%	4,86%	-5,63%	3,35%	-2,67%
23-10-21	0,56%	-1,29%	-3,05%	-1,17%	-2,27%	-2,74%	-1,03%	-3,22%	-1,39%	-2,55%
24-10-21	-1,80%	-2,38%	-1,63%	2,19%	3,21%	1,47%	6,71%	4,01%	0,70%	-0,28%
25-10-21	-3,00%	0,89%	1,06%	3,54%	7,97%	0,39%	0,03%	-3,81%	-4,25%	0,05%
26-10-21	5,48%	7,20%	6,01%	1,32%	-0,99%	6,33%	8,01%	4,93%	2,54%	4,17%
27-10-21	-0,04%	-5,45%	-5,37%	-7,29%	-3,37%	-4,20%	-0,28%	-0,87%	0,02%	-2,34%
28-10-21	-9,28%	-7,92%	-2,71%	-13,39%	-9,97%	-4,57%	-7,57%	-6,94%	-7,15%	-7,92%
29-10-21	0,16%	7,57%	2,60%	5,38%	17,14%	6,90%	4,78%	3,91%	-1,66%	5,43%
30-10-21	2,57%	10,48%	2,61%	2,20%	7,53%	3,55%	0,16%	1,98%	9,98%	2,42%
31-10-21	-2,74%	1,86%	0,01%	-0,30%	-4,07%	-0,60%	-2,65%	-2,46%	5,09%	-1,23%
01-11-21	1,07%	-0,65%	-1,52%	5,72%	-0,52%	-2,35%	-0,65%	1,42%	2,24%	3,95%
02-11-21	-3,97%	0,60%	-1,20%	-1,30%	-8,79%	-0,60%	1,78%	2,60%	3,06%	-3,71%
03-11-21	3,31%	4,52%	4,64%	1,98%	2,17%	9,77%	4,03%	2,14%	11,29%	4,87%
04-11-21	4,22%	2,78%	-0,15%	2,08%	6,15%	0,33%	-0,88%	3,14%	-2,09%	8,04%
05-11-21	-3,35%	-1,02%	-1,94%	1,78%	-6,77%	-1,74%	-3,12%	-1,96%	-3,06%	-1,13%
06-11-21	-0,89%	4,62%	-1,11%	-2,01%	-1,94%	-1,32%	4,31%	-1,64%	8,92%	-3,40%

Figure 38: Price predictions and returns with linear regression - part 1

07-11-21	2,0061962	624,0628	60952,331	191,05018	0,255341	4545,3797	32,127144	199,61408	0,2190034	1,136403
08-11-21	1,9843911	651,12362	63960,866	191,32994	0,2605586	4662,067	32,283289	202,53007	0,2111334	1,2002224
09-11-21	2,1388418	662,70543	68061,689	210,66939	0,2728236	4895,952	34,721102	229,30565	0,2067158	1,2769619
10-11-21	2,285961	628,56089	67261,22	233,86348	0,2731866	4756,9559	34,156222	262,01591	0,2010137	1,2463827
11-11-21	2,1179504	612,90361	65556,511	220,25473	0,2516164	4677,444	35,461515	259,89138	0,1857667	1,1743662
12-11-21	2,1090759	629,13816	64124,779	229,19665	0,2536119	4709,2364	35,53743	261,18577	0,1914559	1,1973306
13-11-21	2,090768	631,80993	63659,852	218,76105	0,2469279	4683,4559	33,692555	252,12133	0,1812219	1,15993
14-11-21	2,0248911	648,77383	64763,842	225,70667	0,2563098	4739,3206	34,418787	255,06149	0,188788	1,1962552
15-11-21	2,0361268	657,17768	65901,503	229,55385	0,2706299	4573,2506	34,296975	280,42114	0,1887063	1,1824276
16-11-21	2,0203808	646,69376	62898,287	219,45171	0,2647658	4535,9565	32,545948	259,30638	0,1898641	1,1279286
17-11-21	1,9352073	600,54563	60647,625	196,22954	0,2316563	4336,8538	30,755156	231,33449	0,1795802	1,0960745
18-11-21	1,8984509	564,81018	60052,207	186,68273	0,230316	4257,3445	30,013654	228,1046	0,1844907	1,1016428
19-11-21	1,8401151	526,5491	57307,072	175,27061	0,222675	4040,8347	27,818907	203,01404	0,173152	1,0550634
20-11-21	1,8963381	569,68936	57237,47	189,08352	0,2203201	4176,4613	27,636871	209,72414	0,16935	1,0653599
21-11-21	1,9405504	602,46391	59035,924	188,22319	0,2330634	4485,6425	28,59811	221,00016	0,1761209	1,0529767
22-11-21	1,8615361	586,93092	59416,99	199,28832	0,2198064	4360,5043	29,540611	213,11855	0,1794818	1,0529081
23-11-21	1,7892226	569,24634	56614,583	189,77248	0,2173265	4277,5685	27,816724	207,93164	0,1673334	1,0571109
24-11-21	1,7314689	558,56751	57120,857	184,31337	0,2166914	4241,4587	27,075539	208,06155	0,1631229	1,0798119
25-11-21	1,7012973	574,95985	56759,018	192,79874	0,2133607	4298,1008	27,087933	206,5999	0,1652254	1,0198097
26-11-21	1,7092703	606,05253	56266,128	208,64618	0,2181358	4315,5576	25,917386	211,07117	0,1695437	1,0094046
27-11-21	1,5610134	595,30704	54558,323	180,19053	0,2099436	4155,3744	25,652209	197,80845	0,1558998	0,9492963
28-11-21	1,5922821	590,78858	54818,827	179,53543	0,1912953	4090,5137	24,861821	195,45848	0,1607167	0,9717616
29-11-21	1,6203135	608,4154	56840,692	178,30405	0,1972948	4255,4445	24,527109	198,07425	0,158266	0,9500157
30-11-21	1,5972002	614,7107	57874,48	180,74499	0,2101125	4413,4222	25,549932	204,35952	0,164407	0,972651
01-12-21	1,5736921	645,71874	57565,97	182,37868	0,2107406	4721,1946	26,689741	214,50191	0,1598304	0,9793839
02-12-21	1,5925197	646,53379	57318,324	174,83864	0,2055011	4641,4458	25,559321	208,9593	0,1619328	0,985854
03-12-21	1,7130062	626,94418	56618,357	169,45134	0,2063243	4474,2681	24,386728	204,69895	0,156633	0,9532453
04-12-21	1,5951133	594,52455	53354,088	162,29566	0,1967526	4266,3379	23,368934	189,47618	0,1614662	0,9224288
05-12-21	1,4321618	565,81342	49389,152	144,46781	0,1808771	4151,603	21,350838	164,49246	0,132141	0,8512141
06-12-21	1,4430814	558,97476	49151,381	136,0773	0,1743793	4297,046	19,675259	156,67383	0,1323124	0,8288018
07-12-21	1,4580197	574,06981	50772,94	136,42445	0,1755665	4373,8969	20,04013	160,1476	0,1393796	0,8273204
08-12-21	1,4175267	583,75056	50165,111	137,36064	0,1774995	4344,1968	21,476629	157,50153	0,1394959	0,8090509
09-12-21	1,4387405	604,51522	50296,508	143,98701	0,1745888	4375,1833	22,714183	162,60399	0,1404595	0,8428718
10-12-21	1,3629352	582,36847	47478,06	134,98331	0,1683393	4190,6872	21,103707	153,87915	0,1300887	0,8564367
11-12-21	1,2372447	536,70915	48027,372	136,35056	0,1589323	3962,3543	19,131137	150,29183	0,1214655	0,7886938
12-12-21	1,3963261	550,47645	49652,971	146,48374	0,1624501	4113,332	18,93091	163,92948	0,1318612	0,8385882
13-12-21	1,3806931	545,57258	49537,989	134,61183	0,163715	4053,7801	18,869097	156,44454	0,1309637	0,8179349

07-11-21	1,12%	4,90%	-0,39%	-2,65%	0,57%	-0,19%	-0,80%	-0,18%	1,54%	-1,82%
08-11-21	-1,09%	4,34%	4,94%	0,15%	2,04%	2,57%	0,49%	1,46%	-3,59%	5,62%
09-11-21	7,78%	1,78%	6,41%	10,11%	4,71%	5,02%	7,55%	13,22%	-2,09%	6,39%
10-11-21	6,88%	-5,15%	-1,18%	11,01%	0,13%	-2,84%	-1,63%	14,26%	-2,76%	-2,39%
11-11-21	-7,35%	-2,49%	-2,53%	-5,82%	-7,90%	-1,67%	3,82%	-0,81%	-7,59%	-5,78%
12-11-21	-0,42%	2,65%	-2,18%	4,06%	0,79%	0,68%	0,21%	0,50%	3,06%	1,96%
13-11-21	-0,87%	0,42%	-0,73%	-4,55%	-2,64%	-0,55%	-5,19%	-3,47%	-5,35%	-3,12%
14-11-21	-3,15%	2,68%	1,73%	3,17%	3,80%	1,19%	2,16%	1,17%	4,18%	3,13%
15-11-21	0,55%	1,30%	1,76%	1,70%	5,59%	-3,50%	-0,35%	9,94%	-0,04%	-1,16%
16-11-21	-0,77%	-1,60%	-4,56%	-4,40%	-2,17%	-0,82%	-5,11%	-7,53%	0,61%	-4,61%
17-11-21	-4,22%	-7,14%	-3,58%	-10,58%	-12,51%	-4,39%	-5,50%	-10,79%	-5,42%	-2,82%
18-11-21	-1,90%	-5,95%	-0,98%	-4,87%	-0,58%	-1,83%	-2,41%	-1,40%	2,73%	0,51%
19-11-21	-3,07%	-6,77%	-4,57%	-6,11%	-3,32%	-5,09%	-7,31%	-11,00%	-6,15%	-4,23%
20-11-21	3,06%	8,19%	-0,12%	7,88%	-1,06%	3,36%	-0,65%	3,31%	-2,20%	0,98%
21-11-21	2,33%	5,75%	3,14%	-0,45%	5,78%	7,40%	3,48%	5,38%	4,00%	-1,16%
22-11-21	-4,07%	-2,58%	0,65%	5,88%	-5,69%	-2,79%	3,30%	-3,57%	1,91%	-0,01%
23-11-21	-3,88%	-3,01%	-4,72%	-4,77%	-1,13%	-1,90%	-5,84%	-2,43%	-6,77%	0,40%
24-11-21	-3,23%	-1,88%	0,89%	-2,88%	-0,29%	-0,84%	-2,66%	0,06%	-2,52%	2,15%
25-11-21	-1,74%	2,93%	-0,63%	4,60%	-1,54%	1,34%	0,05%	-0,70%	1,29%	-5,56%
26-11-21	0,47%	5,41%	-0,87%	8,22%	2,24%	0,41%	-4,32%	2,16%	2,61%	-1,02%
27-11-21	-8,67%	-1,77%	-3,04%	-13,64%	-3,76%	-3,71%	-1,02%	-6,28%	-8,05%	-5,95%
28-11-21	2,00%	-0,76%	0,48%	-0,36%	-8,88%	-1,56%	-3,08%	-1,19%	3,09%	2,37%
29-11-21	1,76%	2,98%	3,69%	-0,69%	3,14%	4,03%	-1,35%	1,34%	-1,52%	-2,24%
30-11-21	-1,43%	1,03%	1,82%	1,37%	6,50%	3,71%	4,17%	3,17%	3,88%	2,38%
01-12-21	-1,47%	5,04%	-0,53%	0,90%	0,30%	6,97%	4,46%	4,96%	-2,78%	0,69%
02-12-21	1,20%	0,13%	-0,43%	-4,13%	-2,49%	-1,69%	-4,24%	-2,58%	1,32%	0,66%
03-12-21	7,57%	-3,03%	-1,22%	-3,08%	0,40%	-3,60%	-4,59%	-2,04%	-3,27%	-3,31%
04-12-21	-6,88%	-5,17%	-5,77%	-4,22%	-4,64%	-4,65%	-4,17%	-7,44%	3,09%	-3,23%
05-12-21	-10,22%	-4,83%	-7,43%	-10,98%	-8,07%	-2,69%	-8,64%	-13,19%	-18,16%	-7,72%
06-12-21	0,76%	-1,21%	-0,48%	-5,81%	-3,59%	3,50%	-7,85%	-4,75%	0,13%	-2,63%
07-12-21	1,04%	2,70%	3,30%	0,26%	0,68%	1,79%	1,85%	2,22%	5,34%	-0,18%
08-12-21	-2,78%	1,69%	-1,20%	0,69%	1,10%	-0,68%	7,17%	-1,65%	0,08%	-2,21%
09-12-21	1,50%	3,56%	0,26%	4,82%	-1,64%	0,71%	5,76%	3,24%	0,69%	4,18%
10-12-21	-5,27%	-3,66%	-5,60%	-6,25%	-3,58%	-4,22%	-7,09%	-5,37%	-7,38%	1,61%
11-12-21	-9,22%	-7,84%	1,16%	1,01%	-5,59%	-5,45%	-9,35%	-2,33%	-6,63%	-7,91%
12-12-21	12,86%	2,57%	3,38%	7,43%	2,21%	3,81%	-1,05%	9,07%	8,56%	6,33%
13-12-21	-1,12%	-0,89%	-0,23%	-8,10%	0,78%	-1,45%	-0,33%	-4,57%	-0,68%	-2,46%

Figure 39: Price predictions and returns with linear regression - part 2

14-12-21	1,260037	525,37852	46922,091	127,56659	0,1566649	3886,8354	18,16444	144,67029	0,124935	0,7932095	14-12-21	-8,74%	-3,70%	-5,28%	-5,23%	-4,31%	-4,12%	-3,73%	-7,53%	-4,60%	-3,02%
15-12-21	1,2138318	497,31799	46251,941	133,31015	0,1718152	3778,1803	17,3388	144,97875	0,1183469	0,8060054	15-12-21	-3,67%	-5,34%	-1,43%	4,50%	9,67%	-2,80%	-4,55%	0,21%	-5,27%	1,61%
16-12-21	1,3041828	526,3324	48248,361	134,90716	0,1796597	3918,2541	18,637257	151,57442	0,127783	0,8231878	16-12-21	7,44%	5,83%	4,32%	1,20%	4,57%	3,71%	7,49%	4,55%	7,97%	2,13%
17-12-21	1,2267525	527,75401	47798,527	127,92892	0,1704126	3986,4662	19,396262	148,56617	0,1220163	0,7917594	17-12-21	-5,94%	0,27%	-0,93%	-5,17%	-5,15%	1,74%	4,07%	-1,98%	-4,51%	-3,82%
18-12-21	1,262396	541,2922	46507,361	123,07799	0,1748259	3996,5463	18,793128	146,38482	0,126907	0,8053432	18-12-21	2,91%	2,57%	-2,70%	-3,79%	2,59%	0,25%	-3,11%	-1,47%	4,01%	1,72%
19-12-21	1,3052837	542,15075	46317,592	128,13126	0,1710319	3956,3487	19,412478	145,5717	0,1249192	0,8120365	19-12-21	3,40%	0,16%	-0,41%	4,11%	-2,17%	-1,01%	3,30%	-0,56%	-1,57%	0,83%
20-12-21	1,2636965	520,19421	46634,665	129,81299	0,1703247	3920,0281	18,614141	151,21991	0,1268561	0,8130204	20-12-21	-3,19%	-4,05%	0,68%	1,31%	-0,41%	-0,92%	-4,11%	3,88%	1,55%	0,12%
21-12-21	1,2460237	504,21878	46159,422	123,51028	0,1752822	3858,5979	17,63924	147,79616	0,1211905	0,8504018	21-12-21	-1,40%	-3,07%	-1,02%	-4,86%	2,91%	-1,57%	-5,24%	-2,26%	-4,47%	4,60%
22-12-21	1,3208068	519,43743	48537,375	130,4589	0,1693912	4013,7307	18,709752	152,23891	0,1313368	0,9457765	22-12-21	6,00%	3,02%	5,15%	5,63%	-3,36%	4,02%	6,07%	3,01%	8,37%	11,22%
23-12-21	1,3735065	552,03808	48787,945	133,95247	0,1722546	4054,2186	19,515166	153,74499	0,1289411	0,9675337	23-12-21	3,99%	6,28%	0,52%	2,68%	1,69%	1,01%	4,30%	0,99%	-1,82%	2,30%
24-12-21	1,5190358	568,3084	50902,223	143,00521	0,1822097	4194,1452	22,712448	163,99981	0,1356542	1,0031642	24-12-21	10,60%	2,95%	4,33%	6,76%	5,78%	3,45%	16,38%	6,67%	5,21%	3,68%
25-12-21	1,4244125	545,45189	50196,384	147,78516	0,1883132	4083,2029	21,914193	159,54136	0,1332431	0,9030701	25-12-21	-6,23%	-4,02%	-1,39%	3,34%	3,35%	-2,65%	-3,51%	-2,72%	-1,78%	-9,98%
26-12-21	1,4504136	555,35948	50032,597	149,03691	0,191523	4099,8523	21,280671	156,9015	0,1344655	0,9188253	26-12-21	1,83%	1,82%	-0,33%	0,85%	1,70%	0,41%	-2,89%	-1,65%	0,92%	1,74%
27-12-21	1,4806694	551,63992	50216,801	148,03499	0,191048	4039,5156	22,52035	155,81441	0,1388874	0,9132638	27-12-21	2,09%	-0,67%	0,37%	-0,67%	-0,25%	-1,47%	5,83%	-0,69%	3,29%	-0,61%
28-12-21	1,5382227	565,5008	50862,799	154,10466	0,1832758	4150,9392	23,098163	156,17299	0,1388462	0,9435951	28-12-21	3,89%	2,51%	1,29%	4,10%	-4,07%	2,76%	2,57%	0,23%	-0,03%	3,32%
29-12-21	1,4372533	542,74836	46779,334	135,36531	0,1756489	3930,4498	20,755611	143,76105	0,1258862	0,8502177	29-12-21	-6,56%	-4,02%	-8,03%	-12,16%	-4,16%	-5,31%	-10,14%	-7,95%	-9,33%	-9,90%
30-12-21	1,3582113	515,78962	45356,723	131,94119	0,169024	3663,3285	19,448014	141,9444	0,1222374	0,8096132	30-12-21	-5,50%	-4,97%	-3,04%	-2,53%	-3,77%	-6,80%	-6,30%	-1,26%	-2,90%	-4,78%
31-12-21	1,3831277	501,48221	47040,142	134,09658	0,1707163	3706,3983	19,87673	148,53712	0,1236526	0,827817	31-12-21	1,83%	-2,77%	3,71%	1,63%	1,00%	1,18%	2,20%	4,64%	1,16%	2,25%
01-01-22	1,3671872	513,18459	46803,187	136,74267	0,1690719	3756,7121	20,041928	148,56457	0,1241115	0,8182768	01-01-22	-1,15%	2,33%	-0,50%	1,97%	-0,96%	1,36%	0,83%	0,02%	0,37%	-1,15%
02-01-22	1,4146056	531,80493	47291,894	137,49215	0,1730594	3856,4451	20,826347	152,12249	0,1251915	0,8313125	02-01-22	3,47%	3,63%	1,04%	0,55%	2,36%	2,65%	3,91%	2,39%	0,87%	1,59%
03-01-22	1,4137673	532,65723	46748,026	140,22928	0,1724899	3960,471	21,716378	152,53822	0,131855	0,8562488	03-01-22	-0,06%	0,16%	-1,15%	1,99%	-0,33%	2,70%	4,27%	0,27%	5,32%	3,00%
04-01-22	1,3467256	508,99384	46349,946	140,48421	0,167746	3879,4428	23,732996	146,60777	0,1256355	0,842806	04-01-22	-4,74%	-4,44%	-0,85%	0,18%	-2,75%	-2,05%	9,29%	-3,89%	-4,72%	-1,57%
05-01-22	1,3592951	502,82089	46153,458	132,49259	0,1657499	3848,756	24,001421	146,75361	0,1236544	0,8374676	05-01-22	0,93%	-1,21%	-0,42%	-5,69%	-1,19%	-0,79%	1,13%	0,10%	-1,58%	-0,63%
06-01-22	1,2836505	454,30612	42996,879	120,26044	0,159421	3559,4583	25,082771	138,98912	0,1271773	0,7922965	06-01-22	-5,56%	-9,65%	-6,84%	-9,23%	-3,82%	-7,52%	4,51%	-5,29%	2,85%	-5,39%
07-01-22	1,2386732	449,54021	42222,164	123,32026	0,1583235	3410,1998	25,130488	137,66211	0,1223986	0,7821266	07-01-22	-3,50%	-1,05%	-1,80%	2,54%	-0,69%	-4,19%	0,19%	-0,95%	-3,76%	-1,28%
08-01-22	1,2389457	447,16975	41486,554	134,26766	0,1565337	3225,743	25,630648	134,32007	0,1116969	0,7500022	08-01-22	0,02%	-0,53%	-1,74%	8,88%	-1,13%	-5,41%	1,99%	-2,43%	-8,74%	-4,11%
09-01-22	1,2434018	427,87683	40928,516	142,52679	0,1535	3123,003	26,205205	133,21941	0,1132661	0,7422896	09-01-22	0,36%	-4,31%	-1,35%	6,15%	-1,94%	-3,19%	2,24%	-0,82%	1,40%	-1,03%
10-01-22	1,210842	453,74263	41733,022	156,29271	0,1541002	3259,9552	27,758852	131,516	0,1157761	0,7501427	10-01-22	-2,62%	6,05%	1,97%	9,66%	0,39%	4,39%	5,93%	-1,28%	2,22%	1,06%
11-01-22	1,1646916	425,9019	41403,167	151,41744	0,1459581	3172,6433	28,120569	128,49046	0,1105949	0,7592882	11-01-22	-3,81%	-6,14%	-0,79%	-3,12%	-5,28%	-2,68%	1,30%	-2,30%	-4,48%	1,22%
12-01-22	1,1843224	439,0058	42452,334	145,37731	0,1494512	3235,8081	26,836194	134,80511	0,1153038	0,7597047	12-01-22	1,69%	3,08%	2,53%	-3,99%	2,39%	1,99%	-4,57%	4,91%	4,26%	0,05%
13-01-22	1,3031773	482,75776	43923,427	144,17129	0,1610092	3387,2723	27,503569	144,42349	0,1150395	0,784858	13-01-22	10,04%	9,97%	3,47%	-0,83%	7,73%	4,68%	2,49%	7,14%	-0,23%	3,31%
14-01-22	1,2614282	494,78386	43240,986	138,52375	0,1654599	3345,2478	25,645269	136,54784	0,1122335	0,7579998	14-01-22	-3,20%	2,49%	-1,55%	-3,92%	2,76%	-1,24%	-6,76%	-5,45%	-2,44%	-3,42%
15-01-22	1,3297671	493,61966	42823,878	140,36287	0,1798352	3349,0238	25,601738	145,80076	0,117539	0,7787346	15-01-22	5,42%	-0,24%	-0,96%	1,33%	8,69%	0,11%	-0,17%	6,78%	4,73%	2,74%
16-01-22	1,3063547	471,98389	42780,825	143,86193	0,1846536	3274,5606	25,979328	149,8278	0,1182	0,786718	16-01-22	-1,76%	-4,38%	-0,10%	2,49%	2,68%	-2,22%	1,47%	2,76%	0,56%	1,03%
17-01-22	1,3790063	497,65392	43212,861	137,62	0,1784903	3337,9916	25,995488	149,21455	0,1142816	0,7739422	17-01-22	5,56%	5,44%	1,01%	-4,34%	-3,34%	1,94%	0,06%	-0,41%	-3,32%	-1,62%
18-01-22	1,6317472	495,68043	42216,251	134,9252	0,1705942	3291,4604	24,633622	152,88976	0,112452	0,7671079	18-01-22	18,33%	-0,40%	-2,31%	-1,96%	-4,42%	-1,39%	-5,24%	2,46%	-1,60%	-0,88%
19-01-22	1,4874604	483,72542	41956,835	130,72939	0,1645821	3213,8283	23,116935	142,41274	0,1129898	0,7521289	19-01-22	-8,84%	-2,41%	-0,61%	-3,11%	-3,52%	-2,36%	-6,16%	-6,85%	0,48%	-1,95%
20-01-22	1,3309925	465,5952	41691,468	126,62499	0,1641908	3158,7733	22,158133	138,31728	0,1084878	0,7242179	20-01-22	-10,52%	-3,75%	-0,63%	-3,14%	-0,24%	-1,71%	-4,15%	-2,88%	-3,98%	-3,71%

Figure 40: Price predictions and returns with linear regression - part 3

21-01-22	1,3317416	449,04092	40683,059	118,46976	0,1592408	3063,8204	20,358886	134,02442	0,1092057	0,7074734	21-01-22	0,06%	-3,56%	-2,42%	-6,44%	-3,01%	-3,01%	-8,12%	-3,10%	0,66%	-2,31%
22-01-22	1,1532944	395,20983	36733,168	105,76634	0,1473845	2670,1796	18,587063	117,36961	0,0991039	0,6367868	22-01-22	-13,40%	-11,99%	-9,71%	-10,72%	-7,45%	-12,85%	-8,70%	-12,43%	-9,25%	-9,99%
23-01-22	1,1087311	347,74302	35005,049	100,19417	0,1337951	2398,6104	16,612496	111,58426	0,0922666	0,6088475	23-01-22	-3,86%	-12,01%	-4,70%	-5,27%	-9,22%	-10,17%	-10,62%	-4,93%	-6,90%	-4,39%
24-01-22	1,1663247	365,92806	35940,571	100,4111	0,135103	2494,9889	16,939068	113,02271	0,0976143	0,6224821	24-01-22	5,19%	5,23%	2,67%	0,22%	0,98%	4,02%	1,97%	1,29%	5,80%	2,24%
25-01-22	1,1360052	368,44805	36358,954	92,584284	0,1331787	2478,0254	17,246027	110,37451	0,1005349	0,6128957	25-01-22	-2,60%	0,69%	1,16%	-7,79%	-1,42%	-0,68%	1,81%	-2,34%	2,99%	-1,54%
26-01-22	1,100458	392,45099	36685,182	93,870463	0,1335837	2648,6272	17,053148	106,42802	0,0966708	0,6147403	26-01-22	-3,13%	6,51%	0,90%	1,39%	0,30%	6,88%	-1,12%	-3,58%	-3,84%	0,30%
27-01-22	1,1173748	379,08019	36506,914	94,330826	0,1401316	2574,7412	16,440736	105,21271	0,0926774	0,6365427	27-01-22	1,54%	-3,41%	-0,49%	0,49%	4,90%	-2,79%	-3,59%	-1,14%	-4,13%	3,55%
28-01-22	1,025602	363,34531	36974,175	92,275725	0,1375994	2483,0078	15,715257	105,4134	0,095211	0,6044815	28-01-22	-8,21%	-4,15%	1,28%	-2,18%	-1,81%	-3,56%	-4,41%	0,19%	2,73%	-5,04%
29-01-22	1,0690991	386,47025	38295,599	96,888294	0,1380133	2646,0702	16,665356	108,85351	0,0987599	0,6136046	29-01-22	4,24%	6,36%	3,57%	5,00%	0,30%	6,57%	6,05%	3,26%	3,73%	1,51%
30-01-22	1,0752271	382,88811	37955,045	96,359869	0,140959	2583,5749	16,446352	109,87451	0,1015385	0,6087429	30-01-22	0,57%	-0,93%	-0,89%	-0,55%	2,13%	-2,36%	-1,31%	0,94%	2,81%	-0,79%
31-01-22	1,0332312	371,38243	37254,932	96,319045	0,1370766	2548,9929	17,640094	107,62199	0,1024709	0,5978258	31-01-22	-3,91%	-3,00%	-1,84%	-0,04%	-2,75%	-1,34%	7,26%	-2,05%	0,92%	-1,79%
01-02-22	1,0075844	371,29805	38582,239	97,83504	0,1404332	2697,719	18,017657	108,80708	0,0987161	0,6109534	01-02-22	-2,48%	-0,02%	3,56%	1,57%	2,45%	5,83%	2,14%	1,10%	-3,66%	2,20%
02-02-22	1,0843367	380,08351	38465,562	96,861658	0,1429577	2767,755	17,512039	118,01453	0,1038341	0,6217212	02-02-22	7,62%	2,37%	-0,30%	-0,99%	1,80%	2,60%	-2,81%	8,46%	5,18%	1,76%
03-02-22	1,0653553	368,03036	36893,34	92,415089	0,137068	2639,7905	16,266673	110,94432	0,1017012	0,5972539	03-02-22	-1,75%	-3,17%	-4,09%	-4,59%	-4,12%	-4,62%	-7,11%	-5,99%	-2,05%	-3,94%
04-02-22	1,0524244	382,25658	37021,623	93,245116	0,1348145	2636,2731	16,0111	109,4274	0,1013901	0,6032636	04-02-22	-1,21%	3,87%	0,35%	0,90%	-1,64%	-0,13%	-1,57%	-1,37%	-0,31%	1,01%
05-02-22	1,1834999	407,13759	41563,379	101,20328	0,1451752	2960,1413	17,727225	123,99916	0,1111701	0,6519995	05-02-22	12,45%	6,51%	12,27%	8,53%	7,69%	12,29%	10,72%	13,32%	9,65%	8,08%
06-02-22	1,1692204	409,6253	41438,656	104,13176	0,14696	3059,7157	17,535429	122,72463	0,1152548	0,6556488	06-02-22	-1,21%	0,61%	-0,30%	2,89%	1,23%	3,36%	-1,08%	-1,03%	3,67%	0,56%
07-02-22	1,1376865	423,20055	42112,563	107,35912	0,1535889	3031,2616	17,372722	124,46591	0,1110722	0,6751051	07-02-22	-2,70%	3,31%	1,63%	3,10%	4,51%	-0,93%	-0,93%	1,42%	-3,63%	2,97%
08-02-22	1,231955	426,04414	43770,648	117,5439	0,1648402	3095,4168	18,253146	135,33265	0,1203201	0,8367662	08-02-22	8,29%	0,67%	3,94%	9,49%	7,33%	2,12%	5,07%	8,73%	8,33%	23,95%
09-02-22	1,1995687	410,10214	43733,722	117,06798	0,161387	3169,7644	17,933916	132,12101	0,1185164	0,8753857	09-02-22	-2,63%	-3,74%	-0,08%	-0,40%	-2,09%	2,40%	-1,75%	-2,37%	-1,50%	4,62%
10-02-22	1,1996892	418,43913	44060,621	114,26843	0,1611068	3232,5038	17,674494	139,04634	0,1169708	0,8621453	10-02-22	0,01%	2,03%	0,75%	-2,39%	-0,17%	1,98%	-1,45%	5,24%	-1,30%	-1,51%
11-02-22	1,1675764	423,31918	43326,672	110,1542	0,1538302	3124,5604	17,328486	134,95758	0,1109742	0,8409982	11-02-22	-2,68%	1,17%	-1,67%	-3,60%	-4,52%	-3,34%	-1,96%	-2,94%	-5,13%	-2,45%
12-02-22	1,0967372	407,1605	41886,903	103,82839	0,1418271	2962,5566	15,849247	124,56644	0,1076021	0,758893	12-02-22	-6,07%	-3,82%	-3,32%	-5,74%	-7,80%	-5,18%	-8,54%	-7,70%	-3,04%	-9,76%
13-02-22	1,0600768	412,30275	41945,96	102,40841	0,1434028	2920,9833	15,400984	126,75628	0,1078202	0,8061755	13-02-22	-3,34%	1,26%	0,14%	-1,37%	1,11%	-1,40%	-2,83%	1,76%	0,20%	6,23%
14-02-22	1,0727069	405,80511	42576,05	103,5593	0,1462353	2939,6485	14,997885	127,13258	0,1092821	0,8142741	14-02-22	1,19%	-1,58%	1,50%	1,12%	1,98%	0,64%	-2,62%	0,30%	1,36%	1,00%
15-02-22	1,069734	412,78382	42351,212	104,60791	0,1430521	2946,2645	14,746362	123,74853	0,1083819	0,8080562	15-02-22	-0,28%	1,72%	-0,53%	1,01%	-2,18%	0,23%	-1,68%	-2,66%	-0,82%	-0,76%
16-02-22	1,1395029	429,22587	44402,597	109,05629	0,1475986	3152,2815	16,528543	130,73116	0,1154667	0,8564696	16-02-22	6,52%	3,98%	4,84%	4,25%	3,18%	6,99%	12,09%	5,64%	6,54%	5,99%
17-02-22	1,084054	424,04529	44082,452	115,791	0,1447318	3120,2779	16,827715	127,2954	0,1144339	0,8188183	17-02-22	-4,87%	-1,21%	-0,72%	6,18%	-1,94%	-1,02%	1,81%	-2,63%	-0,89%	-4,40%
18-02-22	1,0293916	407,5301	40690,323	105,24009	0,1319418	2937,2629	15,661899	116,05904	0,1051896	0,7445493	18-02-22	-5,04%	-3,89%	-7,69%	-9,11%	-8,84%	-5,87%	-6,93%	-8,83%	-8,08%	-9,07%
19-02-22	1,0222437	387,06222	39406,466	105,05798	0,1331171	2761,3973	14,715638	114,34625	0,1022793	0,7723299	19-02-22	-0,69%	-5,02%	-3,16%	-0,17%	0,89%	-5,99%	-6,04%	-1,48%	-2,77%	3,73%
20-02-22	1,0292101	386,98015	39529,457	102,14927	0,1373362	2716,6806	14,938402	113,32406	0,1024487	0,8048874	20-02-22	0,68%	-0,02%	0,31%	-2,77%	3,17%	-1,62%	1,51%	-0,89%	0,17%	4,22%
21-02-22	0,9591754	379,53911	38603,627	99,381859	0,1365648	2710,3182	14,630186	109,07547	0,099857	0,7626544	21-02-22	-6,80%	-1,92%	-2,34%	-2,71%	-0,56%	-0,23%	-2,06%	-3,75%	-2,53%	-5,25%
22-02-22	0,845264	364,16723	37137,88	88,116706	0,1337457	2639,6808	13,762166	101,51098	0,0950157	0,7431212	22-02-22	-11,88%	-4,05%	-3,80%	-11,34%	-2,06%	-2,61%	-5,93%	-6,94%	-4,85%	-2,56%
23-02-22	0,8785295	360,43173	37471,617	93,45921	0,1317114	2660,1125	13,54541	105,2335	0,0983475	0,7475385	23-02-22	3,94%	-1,03%	0,90%	6,06%	-1,52%	0,77%	-1,58%	3,67%	3,51%	0,59%
24-02-22	0,8547498	345,33831	36891,15	89,797758	0,1262069	2603,2773	13,348423	105,81137	0,0957939	0,7163777	24-02-22	-2,71%	-4,19%	-1,55%	-3,92%	-4,18%	-2,14%	-1,45%	0,55%	-2,60%	-4,17%
25-02-22	0,8551831	356,84514	38177,443	87,847132	0,1233095	2654,6935	13,601098	105,19608	0,0882863	0,6665854	25-02-22	0,05%	3,33%	3,49%	-2,17%	-2,30%	1,98%	1,89%	-0,58%	-7,84%	-6,95%
26-02-22	0,9441012	380,29075	39387,08	91,6952	0,1261529	2824,5675	14,8311	112,20901	0,0966281	0,7339555	26-02-22	10,40%	6,57%	3,17%	4,38%	2,31%	6,40%	9,04%	6,67%	9,45%	10,11%
27-02-22	0,9124038	374,81518	39197,694	95,28702	0,1240698	2810,4177	15,053775	109,35732	0,0976406	0,7507388	27-02-22	-3,36%	-1,44%	-0,48%	3,92%	-1,65%	-0,50%	1,50%	-2,54%	1,05%	2,29%
28-02-22	0,8784602	365,39493	37796,809	88,606406	0,1198044	2673,0642	14,10923	104,36479	0,097717	0,7255023	28-02-22	-3,72%	-2,51%	-3,57%	-7,01%	-3,44%	-4,89%	-6,27%	-4,57%	0,08%	-3,36%
01-03-22	0,9893686	392,44023	42692,035	101,7584	0,1273814	2910,1239	15,150622	113,54536	0,1060013	0,805533	01-03-22	12,63%	7,40%	12,95%	14,84%	6,32%	8,87%	7,38%	8,80%	8,48%	11,03%
02-03-22	0,9781786	413,14783	44524,212	100,44873	0,1308529	2996,3072	15,427216	112,95274	0,1075193	0,7809326	02-03-22	-1,13%	5,28%	4,29%	-1,29%	2,73%	2,96%	1,83%	-0,52%	1,43%	-3,05%
03-03-22	0,9473803	418,90039	44070,684	99,284139	0,1305875	3018,1298	15,752863	110,16635	0,102915	0,7676073	03-03-22	-3,15%	1,39%	-1,02%	-1,16%	-0,20%	0,73%	2,11%	-2,47%	-4,28%	-1,71%
04-03-22	0,9490352	417,14318	42910,345	99,173348	0,1302893	2964,8621	16,308545	112,49638	0,1024664	0,7612699	04-03-22	0,17%	-0,42%	-2,63%	-0,11%	-0,23%	-1,76%	3,53%	2,12%	-0,44%	-0,83%
05-03-22	0,8587895	378,31274	39123,188	93,504209	0,1254877	2690,2889	14,898913	101,87873	0,0955246	0,7110359	05-03-22	-9,51%	-9,31%	-8,83%	-5,72%	-3,69%	-9,26%	-8,64%	-9,44%	-6,77%	-6,60%

Figure 41: Price predictions and returns with linear regression - part 4

1.5.2 Using gradient boosting regression

Price predictions										
Date	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
03-10-21	2,252873	430,50882	48199,953	177,95457	0,221748	3418,3586	27,55904	170,60997	0,16222	1,05517
04-10-21	2,1713332	441,35184	47989,305	174,49151	0,2141964	3401,259	26,965009	170,34125	0,159475	1,0649818
05-10-21	2,1713332	419,00046	48918,14	174,49151	0,2309942	3251,9306	25,891182	169,05387	0,1541202	1,0550711
06-10-21	2,163493	453,43742	51834,868	182,5549	0,2381962	3502,268	27,994107	183,08001	0,1662686	1,0716047
07-10-21	2,163493	463,17774	55457,494	184,26057	0,253216	3513,908	27,969974	177,32504	0,1755281	1,0863743
08-10-21	2,1900485	440,12827	53905,035	184,59516	0,2463152	3517,2772	27,969974	179,04002	0,1755281	1,0683261
09-10-21	2,1913054	413,16699	53905,035	184,59516	0,239235	3436,5224	26,635635	174,9693	0,1755281	1,0342703
10-10-21	2,1600857	415,78231	54322,512	192,26592	0,2325011	3436,5224	27,969974	177,9806	0,177802	1,0680453
11-10-21	2,1518398	407,60147	53309,597	184,59516	0,2312419	3348,7715	26,147714	174,79224	0,1769377	1,1064916
12-10-21	2,161481	415,12824	56168,379	184,90705	0,2312419	3566,8402	25,739721	176,45017	0,1763236	1,1428229
13-10-21	2,1416528	443,46433	56197,116	183,9319	0,2312419	3571,5996	25,297702	174,06153	0,1763236	1,1428229
14-10-21	2,1384656	465,61827	56473,48	183,72459	0,2312419	3538,7408	25,708677	173,16204	0,1763236	1,1388957
15-10-21	2,139724	468,83264	56359,274	186,13281	0,2316997	3688,6933	27,129648	176,45017	0,1763236	1,0939984
16-10-21	2,1526632	482,799	58407,876	192,01026	0,2316997	3698,5666	27,20408	188,00844	0,1757131	1,0939984
17-10-21	2,1339017	479,49791	58885,871	189,76678	0,2309942	3714,2608	27,228652	188,30101	0,1751392	1,0939984
18-10-21	2,1311547	474,42656	60445,919	183,02046	0,2322817	3764,2118	26,132051	186,68417	0,1657789	1,1303297
19-10-21	2,112845	480,35876	59939,375	182,99763	0,2391825	3784,4432	25,371962	187,77615	0,1657789	1,0558329
20-10-21	2,1174151	481,46597	60207,979	191,18804	0,2322817	3686,169	25,249999	186,87848	0,1657789	1,0277908
21-10-21	2,1077681	485,23005	61169,243	201,83065	0,2391825	3589,2836	27,243506	205,55313	0,1757497	1,0277908
22-10-21	2,1252553	480,93834	60072,174	198,39574	0,2473015	3313,2722	27,802113	194,73119	0,1757497	1,0572076
23-10-21	2,1303485	480,30024	59331,609	197,95843	0,2402213	3048,6926	28,082076	189,78804	0,1755281	1,0250557
24-10-21	2,1156083	480,68633	58471,541	198,571	0,2364916	2951,9106	29,559993	195,23342	0,1757497	1,0310694
25-10-21	2,0867459	481,02351	59013,804	201,85347	0,2556147	2956,8339	29,848086	190,14347	0,1790288	1,0285739
26-10-21	2,0996794	461,48588	60289,525	204,89364	0,2638674	2974,2427	31,871165	196,29959	0,1751392	1,0310694
27-10-21	2,1233619	464,67633	59516,565	201,53626	0,2662495	2922,8528	32,415697	203,89528	0,1751392	1,0310694
28-10-21	1,9436933	447,70097	58046,583	175,16081	0,2611374	3001,464	29,09315	177,38237	0,1540983	0,9721054
29-10-21	1,9682106	451,92799	59436,977	184,17895	0,2696477	3104,8741	30,513628	186,23826	0,1642897	1,0190196
30-10-21	2,014304	497,46698	58735,197	184,65665	0,2684838	2954,7178	30,188872	193,61039	0,1746661	1,0248603
31-10-21	1,9253836	500,08757	60061,216	184,99123	0,2680264	2996,1866	29,780309	188,51652	0,1774496	1,0248603
01-11-21	1,9177216	498,86288	58900,589	192,66199	0,2722473	3009,3205	30,105741	189,20239	0,1886304	1,0308739
02-11-21	1,9177216	516,35373	59185,471	182,99763	0,2733842	2954,4132	31,625407	202,03269	0,1946085	1,0456436
03-11-21	1,9034935	506,33681	60110,879	197,9356	0,2740898	2950,5216	31,882304	204,85444	0,2069202	1,0310694
04-11-21	1,9644573	536,83429	60318,925	198,37292	0,2741068	2966,7747	31,608415	205,66724	0,2118444	1,0601013
05-11-21	1,9034935	542,15252	59208,384	198,39574	0,27505	2991,9949	30,592042	207,28731	0,203217	1,0686672
06-11-21	1,9034935	593,02516	59312,529	200,15934	0,2741068	2991,9949	32,486081	202,35675	0,2129357	1,1120458

Returns										
Date	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
04-10-21	-3,62%	2,52%	-0,44%	-1,95%	-3,41%	-0,50%	-2,16%	-0,16%	-1,69%	0,93%
05-10-21	0,00%	-5,06%	1,94%	0,00%	7,84%	-4,39%	-3,98%	-0,76%	-3,36%	-0,93%
06-10-21	-0,36%	8,22%	5,96%	4,62%	3,12%	7,70%	8,12%	8,30%	7,88%	1,57%
07-10-21	0,00%	2,15%	6,99%	0,93%	6,31%	0,33%	-0,09%	-3,14%	5,57%	1,38%
08-10-21	1,23%	-4,98%	-2,80%	0,18%	-2,73%	0,10%	0,00%	0,97%	0,00%	-1,66%
09-10-21	0,06%	-6,13%	0,00%	0,00%	-2,87%	-2,30%	-4,77%	-2,27%	0,00%	-3,19%
10-10-21	-1,42%	0,63%	0,77%	4,16%	-2,81%	0,00%	5,01%	1,72%	1,30%	3,27%
11-10-21	-0,38%	-1,97%	-1,86%	-3,99%	-0,54%	-2,55%	-6,52%	-1,79%	-0,49%	3,60%
12-10-21	0,45%	1,85%	5,36%	0,17%	0,00%	6,51%	-1,56%	0,95%	-0,35%	3,28%
13-10-21	-0,92%	6,83%	0,05%	-0,53%	0,00%	0,13%	-1,72%	-1,35%	0,00%	0,00%
14-10-21	-0,15%	5,00%	0,49%	-0,11%	0,00%	-0,92%	1,62%	-0,52%	0,00%	-0,34%
15-10-21	0,06%	0,69%	-0,20%	1,31%	0,20%	4,24%	5,53%	1,90%	0,00%	-3,94%
16-10-21	0,60%	2,98%	3,63%	3,16%	0,00%	0,27%	0,27%	6,55%	-0,35%	0,00%
17-10-21	-0,87%	-0,68%	0,82%	-1,17%	-0,30%	0,42%	0,09%	0,16%	-0,33%	0,00%
18-10-21	-0,13%	-1,06%	2,65%	-3,56%	0,56%	1,34%	-4,03%	-0,86%	-5,34%	3,32%
19-10-21	-0,86%	1,25%	-0,84%	-0,01%	2,97%	0,54%	-2,91%	0,58%	0,00%	-6,59%
20-10-21	0,22%	0,23%	0,45%	4,48%	-2,89%	-2,60%	-0,48%	-0,48%	0,00%	-2,66%
21-10-21	-0,46%	0,78%	1,60%	5,57%	2,97%	-2,63%	7,90%	9,99%	6,01%	0,00%
22-10-21	0,83%	-0,88%	-1,79%	-1,70%	3,39%	-7,69%	2,05%	-5,26%	0,00%	2,86%
23-10-21	0,24%	-0,13%	-1,23%	-0,22%	-2,86%	-7,99%	1,01%	-2,54%	-0,13%	-3,04%
24-10-21	-0,69%	0,08%	-1,45%	0,31%	-1,55%	-3,17%	5,26%	2,87%	0,13%	0,59%
25-10-21	-1,36%	0,07%	0,93%	1,65%	8,09%	0,17%	0,97%	-2,61%	1,87%	-0,24%
26-10-21	0,62%	-4,06%	2,16%	1,51%	3,23%	0,59%	6,78%	3,24%	-2,17%	0,24%
27-10-21	1,13%	0,69%	-1,28%	-1,64%	0,90%	-1,73%	1,71%	3,87%	0,00%	0,00%
28-10-21	-8,46%	-3,65%	-2,47%	-13,09%	-1,92%	2,69%	-10,25%	-13,00%	-12,01%	-5,72%
29-10-21	1,26%	0,94%	2,40%	5,15%	3,26%	3,45%	4,88%	4,99%	6,61%	4,83%
30-10-21	2,34%	10,08%	-1,18%	0,26%	-0,43%	-4,84%	-1,06%	3,96%	6,32%	0,57%
31-10-21	-4,41%	0,53%	2,26%	0,18%	-0,17%	1,40%	-1,35%	-2,63%	1,59%	0,00%
01-11-21	-0,40%	-0,24%	-1,93%	4,15%	1,57%	0,44%	1,09%	0,36%	6,30%	0,59%
02-11-21	0,00%	3,51%	0,48%	-5,02%	0,42%	-1,82%	5,05%	6,78%	3,17%	1,43%
03-11-21	-0,74%	-1,94%	1,56%	8,16%	0,26%	-0,13%	0,81%	1,40%	6,33%	-1,39%
04-11-21	3,20%	6,02%	0,35%	0,22%	0,01%	0,55%	-0,86%	0,40%	2,38%	2,82%
05-11-21	-3,10%	0,99%	-1,84%	0,01%	0,34%	0,85%	-3,22%	0,79%	-4,07%	0,81%
06-11-21	0,00%	9,38%	0,18%	0,89%	-0,34%	0,00%	6,19%	-2,38%	4,78%	4,06%

Figure 42: Price predictions and returns with gradient boosting regression - part 1

07-11-21	1,9644573	587,76326	59911,589	190,69121	0,2743445	2991,9949	31,370312	201,60495	0,2174129	1,1120458
08-11-21	1,990429	607,63354	60573,176	193,38895	0,2743445	2966,7747	32,71287	203,83046	0,2157082	1,1381334
09-11-21	2,0802709	628,01994	60142,256	208,9391	0,2743445	2994,7567	32,742174	221,74666	0,2159336	1,1591514
10-11-21	2,0974854	649,22322	59973,809	235,32903	0,2743445	2988,7186	33,115831	253,50175	0,2074454	1,1929351
11-11-21	2,0790773	638,41671	59831,685	224,48678	0,2700819	2961,7718	33,875366	257,59266	0,1984792	1,1179074
12-11-21	1,9629174	636,0429	59812,647	230,69992	0,2700819	2956,8537	33,457473	260,59355	0,1952112	1,2070118
13-11-21	1,9955222	621,0959	56722,906	224,59883	0,259459	2956,8537	33,947944	265,40623	0,1922312	1,1571881
14-11-21	1,990429	620,41148	56401,602	232,284	0,262936	2956,8537	33,845787	261,4734	0,1922312	1,1428012
15-11-21	2,0281185	613,87212	58556,062	231,97632	0,2631365	2956,8537	33,805526	281,49832	0,1922312	1,1496721
16-11-21	2,0263312	628,65966	57563,751	232,284	0,262455	3004,1052	32,709387	258,40746	0,193592	1,1379316
17-11-21	1,884901	595,95211	57009,327	207,44617	0,2572773	2996,9088	29,450602	224,03839	0,1782027	1,1119462
18-11-21	1,884901	586,35132	58485,499	184,25936	0,2361141	2979,8394	30,348623	225,21308	0,1879796	1,052029
19-11-21	1,7148447	533,87802	56080,571	175,33804	0,211367	2987,8676	27,370865	204,2232	0,1688425	1,0334089
20-11-21	1,8926088	533,45233	56941,958	184,02982	0,232583	3070,7104	28,838048	205,17226	0,1757131	1,0559563
21-11-21	1,9423857	531,57693	58548,393	192,72075	0,232583	2981,4252	28,908695	222,11816	0,1757131	1,0559563
22-11-21	1,8785275	525,49895	58181,336	201,39886	0,2110568	3069,6797	28,823365	223,6175	0,1757131	1,047032
23-11-21	1,677147	508,39823	56960,328	198,24661	0,2110568	3002,6989	28,652705	209,26964	0,1755704	1,0359565
24-11-21	1,6747917	507,75947	55965,03	182,66401	0,2136447	3047,8964	28,618152	208,68443	0,1754915	1,0513254
25-11-21	1,7047149	505,00902	55470,933	190,33477	0,2110568	2968,6149	26,597228	208,00031	0,1668261	1,0359565
26-11-21	1,7047149	525,64841	57654,756	201,39886	0,2097692	3036,6839	26,597228	209,26964	0,1668261	1,0359565
27-11-21	1,5741812	507,15374	55059,857	184,88116	0,2072982	3007,7679	25,996053	194,40873	0,160643	0,9304882
28-11-21	1,5894025	487,06875	55102,597	184,23654	0,2101328	3009,1718	24,868586	194,21446	0,1653369	0,9251284
29-11-21	1,6803925	504,09682	56158,599	173,62366	0,2097692	2999,9073	25,452273	199,61715	0,1668261	0,9487064
30-11-21	1,6579142	504,09682	55502,12	182,22683	0,209468	2976,2781	25,435558	202,05002	0,1761075	0,9514975
01-12-21	1,6579142	511,73812	55102,434	175,04272	0,209468	3024,3606	25,593085	202,13482	0,1761075	0,9507735
02-12-21	1,5669242	536,80944	55199,38	173,32834	0,209468	3068,0951	25,649338	206,17494	0,1667472	0,9496088
03-12-21	1,6204081	548,64265	55302,823	173,21629	0,209468	3027,7485	25,389209	204,07085	0,1666045	0,9468177
04-12-21	1,6501699	504,75334	53198,21	163,06079	0,2007439	3007,9818	23,434128	182,68968	0,1604214	0,9100725
05-12-21	1,4249789	481,23414	50344,967	145,57941	0,1863926	2968,4679	22,648664	164,4953	0,1323538	0,8411477
06-12-21	1,3366729	451,57054	50167,651	131,66761	0,1766861	2980,6718	20,577423	155,71571	0,1311639	0,8350746
07-12-21	1,3823557	451,88991	50568,738	137,07406	0,1846783	2998,14	20,483373	163,25276	0,1311639	0,8235827
08-12-21	1,3197196	443,49598	50730,124	144,48817	0,1846783	3013,3599	21,846728	164,38709	0,1401821	0,8224179
09-12-21	1,397681	487,29003	50692,389	144,48817	0,1846783	3037,1844	21,766253	165,07029	0,140756	0,8539431
10-12-21	1,2935241	446,62887	48893,973	135,07076	0,1746705	3057,0943	21,105062	162,4174	0,1315162	0,8569262
11-12-21	1,2189598	455,53274	47500,758	132,94465	0,1759008	2993,6704	18,726769	153,64903	0,1315162	0,8221224
12-12-21	1,3227083	442,58949	50079,633	142,66902	0,1759008	3126,8667	20,559214	167,03176	0,1315162	0,8281955
13-12-21	1,3090776	442,52569	50578,626	144,31842	0,1759008	2976,9347	20,668881	167,28704	0,1315162	0,8252124
14-12-21	1,2112818	406,28696	48129,01	128,66572	0,1773251	2964,6615	18,656878	150,48807	0,125678	0,7503267

07-11-21	3,20%	-0,89%	1,01%	-4,73%	0,09%	0,00%	-3,43%	-0,37%	2,10%	0,00%
08-11-21	1,32%	3,38%	1,10%	1,41%	0,00%	-0,84%	4,28%	1,10%	-0,78%	2,35%
09-11-21	4,51%	3,36%	-0,71%	8,04%	0,00%	0,94%	0,09%	8,79%	0,10%	1,85%
10-11-21	0,83%	3,38%	-0,28%	12,63%	0,00%	-0,20%	1,14%	14,32%	-3,93%	2,91%
11-11-21	-0,88%	-1,66%	-0,24%	-4,61%	-1,55%	-0,90%	2,29%	1,61%	-4,32%	-6,29%
12-11-21	-5,59%	-0,37%	-0,03%	2,77%	0,00%	-0,17%	-1,23%	1,16%	-1,65%	7,97%
13-11-21	1,66%	-2,35%	-5,17%	-2,64%	-3,93%	0,00%	1,47%	1,85%	-1,53%	-4,13%
14-11-21	-0,26%	-0,11%	-0,57%	3,42%	1,34%	0,00%	-0,30%	-1,48%	0,00%	-1,24%
15-11-21	1,89%	-1,05%	3,82%	-0,13%	0,08%	0,00%	-0,12%	7,66%	0,00%	0,60%
16-11-21	-0,09%	2,41%	-1,69%	0,13%	-0,26%	1,60%	-3,24%	-8,20%	0,71%	-1,02%
17-11-21	-6,98%	-5,20%	-0,96%	-10,69%	-1,97%	-0,24%	-9,96%	-13,30%	-7,95%	-2,28%
18-11-21	0,00%	-1,61%	2,59%	-11,18%	-8,23%	-0,57%	3,05%	0,52%	5,49%	-5,39%
19-11-21	-9,02%	-8,95%	-4,11%	-4,84%	-10,48%	0,27%	-9,81%	-9,32%	-10,18%	-1,77%
20-11-21	10,37%	-0,08%	1,54%	4,96%	10,04%	2,77%	5,36%	0,46%	4,07%	2,18%
21-11-21	2,63%	-0,35%	2,82%	4,72%	0,00%	-2,91%	0,24%	8,26%	0,00%	0,00%
22-11-21	-3,29%	-1,14%	-0,63%	4,50%	-9,26%	2,96%	-0,30%	0,68%	0,00%	-0,85%
23-11-21	-10,72%	-3,25%	-2,10%	-1,57%	0,00%	-2,18%	-0,59%	-6,42%	-0,08%	-1,06%
24-11-21	-0,14%	-0,13%	-1,75%	-7,86%	1,23%	1,51%	-0,12%	-0,28%	-0,04%	1,48%
25-11-21	1,79%	-0,54%	-0,88%	4,20%	-1,21%	-2,60%	-7,06%	-0,33%	-4,94%	-1,46%
26-11-21	0,00%	4,09%	3,94%	5,81%	-0,61%	2,29%	0,00%	0,61%	0,00%	0,00%
27-11-21	-7,66%	-3,52%	-4,50%	-8,20%	-1,18%	-0,95%	-2,26%	-7,10%	-3,71%	-10,18%
28-11-21	0,97%	-3,96%	0,08%	-0,35%	1,37%	0,05%	-4,34%	-0,10%	2,92%	-0,58%
29-11-21	5,72%	3,50%	1,92%	-5,76%	-0,17%	-0,31%	2,35%	2,78%	0,90%	2,55%
30-11-21	-1,34%	0,00%	-1,17%	4,96%	-0,14%	-0,79%	-0,07%	1,22%	5,56%	0,29%
01-12-21	0,00%	1,52%	-0,72%	-3,94%	0,00%	1,62%	0,62%	0,04%	0,00%	-0,08%
02-12-21	-5,49%	4,90%	0,18%	-0,98%	0,00%	1,45%	0,22%	2,00%	-5,32%	-0,12%
03-12-21	3,41%	2,20%	0,19%	-0,06%	0,00%	-1,32%	-1,01%	-1,02%	-0,09%	-0,29%
04-12-21	1,84%	-8,00%	-3,81%	-5,86%	-4,16%	-0,65%	-7,70%	-10,48%	-3,71%	-3,88%
05-12-21	-13,65%	-4,66%	-5,36%	-10,72%	-7,15%	-1,31%	-3,35%	-9,96%	-17,50%	-7,57%
06-12-21	-6,20%	-6,16%	-0,35%	-9,56%	-5,21%	0,41%	-9,15%	-5,34%	-0,90%	-0,72%
07-12-21	3,42%	0,07%	0,80%	4,11%	4,52%	0,59%	-0,46%	4,84%	0,00%	-1,38%
08-12-21	-4,53%	-1,86%	0,32%	5,41%	0,00%	0,51%	6,66%	0,69%	6,88%	-0,14%
09-12-21	5,91%	9,87%	-0,07%	0,00%	0,00%	0,79%	-0,37%	0,42%	0,41%	3,83%
10-12-21	-7,45%	-8,34%	-3,55%	-6,52%	-5,42%	0,66%	-3,04%	-1,61%	-6,56%	0,35%
11-12-21	-5,76%	1,99%	-2,85%	-1,57%	0,70%	-2,07%	-11,27%	-5,40%	0,00%	-4,06%
12-12-21	8,51%	-2,84%	5,43%	7,31%	0,00%	4,45%	9,79%	8,71%	0,00%	0,74%
13-12-21	-1,03%	-0,01%	1,00%	1,16%	0,00%	-4,79%	0,53%	0,15%	0,00%	-0,36%
14-12-21	-7,47%	-8,19%	-4,84%	-10,85%	0,81%	-0,41%	-9,73%	-10,04%	-4,44%	-9,07%

Figure 43: Price predictions and returns with gradient boosting regression - part 2

15-12-21	1,2024192	405,15949	47136,902	127,01632	0,1814876	3190,0472	17,390441	148,56583	0,1241491	0,8221224	**15-12-21**	-0,73%	-0,28%	-2,06%	-1,28%	2,35%	7,60%	-6,79%	-1,28%	-1,22%	9,57%
16-12-21	1,3039623	433,19849	49275,593	130,15961	0,1916326	3070,0436	19,047951	152,25096	0,1295196	0,8145571	**16-12-21**	8,44%	6,92%	4,54%	2,47%	5,59%	-3,76%	9,53%	2,48%	4,33%	-0,92%
17-12-21	1,2663971	418,40649	46097,818	126,55124	0,1739901	3014,3476	18,654242	150,59329	0,125678	0,7996452	**17-12-21**	-2,88%	-3,41%	-6,45%	-2,77%	-9,21%	-1,81%	-2,07%	-1,09%	-2,97%	-1,83%
18-12-21	1,2004894	473,75103	44022,931	126,55124	0,1733627	3022,6014	18,654242	148,56583	0,1315162	0,8026283	**18-12-21**	-5,20%	13,23%	-4,50%	0,00%	-0,36%	0,27%	0,00%	-1,35%	4,65%	0,37%
19-12-21	1,2630438	470,39368	46559,513	127,31238	0,1713472	3158,018	19,069448	150,78518	0,1315162	0,8026283	**19-12-21**	5,21%	-0,71%	5,76%	0,60%	-1,16%	4,48%	2,23%	1,49%	0,00%	0,00%
20-12-21	1,2630438	458,31551	46551,635	126,4392	0,1713472	2956,989	18,654242	152,78903	0,1309423	0,8087014	**20-12-21**	0,00%	-2,57%	-0,02%	-0,69%	0,00%	-6,37%	-2,18%	1,33%	-0,44%	0,76%
21-12-21	1,2630438	472,44734	46354,942	126,4392	0,1713472	3143,365	18,654242	153,20159	0,1251041	0,8589506	**21-12-21**	0,00%	3,08%	-0,42%	0,00%	0,00%	6,30%	0,00%	0,27%	-4,46%	6,21%
22-12-21	1,2835366	474,96506	48791,756	129,75224	0,1713472	3101,97	19,045315	151,19225	0,1294134	0,8779611	**22-12-21**	1,62%	0,53%	5,26%	2,62%	0,00%	-1,32%	2,10%	-1,31%	3,44%	2,21%
23-12-21	1,2887217	470,87779	49864,366	132,77565	0,1701877	2942,9286	20,906673	152,55955	0,1309423	0,916451	**23-12-21**	0,40%	-0,86%	2,20%	2,33%	-0,68%	-5,13%	9,77%	0,90%	1,18%	4,38%
24-12-21	1,444051	483,71246	49068,658	142,99229	0,192356	2976,9331	21,216176	162,4689	0,1403248	0,9356305	**24-12-21**	12,05%	2,73%	-1,60%	7,69%	13,03%	1,16%	1,48%	6,50%	7,17%	2,09%
25-12-21	1,3698426	474,75037	50097,801	145,10488	0,1919924	2983,1736	21,545987	163,96817	0,131085	0,8932611	**25-12-21**	-5,14%	-1,85%	2,10%	1,48%	-0,19%	0,21%	1,55%	0,92%	-6,58%	-4,53%
26-12-21	1,3815554	453,03611	49511,519	145,3122	0,1945803	2947,1014	22,00439	153,25754	0,131085	0,8932611	**26-12-21**	0,86%	-4,57%	-1,17%	0,14%	1,35%	-1,21%	2,13%	-6,53%	0,00%	0,00%
27-12-21	1,3733181	430,90116	49408,076	145,3122	0,1945803	2974,1591	22,400317	152,79683	0,1403248	0,8932611	**27-12-21**	-0,60%	-4,89%	-0,21%	0,00%	0,00%	0,92%	1,80%	-0,30%	7,05%	0,00%
28-12-21	1,4625359	457,50409	49088,601	145,3122	0,1945803	2967,7955	22,805589	153,25754	0,1403248	0,8934566	**28-12-21**	6,50%	6,17%	-0,65%	0,00%	0,00%	-0,21%	1,81%	0,30%	0,00%	0,02%
29-12-21	1,3556589	430,46084	47649,244	135,09556	0,1718397	2941,9243	21,944292	149,03019	0,1251041	0,8658695	**29-12-21**	-7,31%	-5,91%	-2,93%	-7,03%	-11,69%	-0,87%	-3,78%	-2,76%	-10,85%	-3,09%
30-12-21	1,3326028	412,67466	44835,292	129,60824	0,1718397	2967,9984	19,463042	148,6195	0,1251041	0,8343444	**30-12-21**	-1,70%	-4,13%	-5,91%	-4,06%	0,00%	0,89%	-11,31%	-0,28%	0,00%	-3,64%
31-12-21	1,3243655	411,8208	46078,377	129,60824	0,1722032	3024,1366	20,937506	150,83885	0,1235752	0,8257222	**31-12-21**	-0,62%	-0,21%	2,77%	0,00%	0,21%	1,89%	7,58%	1,49%	-1,22%	-1,03%
01-01-22	1,3135307	431,83974	44812,307	129,60824	0,1718397	3105,1197	19,217888	148,15879	0,1251041	0,8228525	**01-01-22**	-0,82%	4,86%	-2,75%	0,00%	-0,21%	2,68%	-8,21%	-1,78%	1,24%	-0,35%
02-01-22	1,3214879	452,42534	46777,558	137,39733	0,1718397	3157,8242	20,811712	150,29208	0,1235752	0,8257222	**02-01-22**	0,61%	4,77%	4,39%	6,01%	0,00%	1,70%	8,29%	1,44%	-1,22%	0,35%
03-01-22	1,3270452	454,94306	46820,445	144,81144	0,1718397	3141,2978	21,02067	152,21857	0,1306173	0,8504503	**03-01-22**	0,42%	0,56%	0,09%	5,40%	0,00%	-0,52%	1,00%	1,28%	5,70%	2,99%
04-01-22	1,3214879	430,75465	44812,307	144,81144	0,1718397	3150,6365	22,810166	149,14859	0,1251041	0,8289256	**04-01-22**	-0,42%	-5,32%	-4,29%	0,00%	0,00%	0,30%	8,51%	-2,02%	-4,22%	-2,53%
05-01-22	1,3135307	440,97884	44804,428	134,5948	0,1718397	3119,6249	23,154064	146,92924	0,1251041	0,8228525	**05-01-22**	-0,60%	2,37%	-0,02%	-7,06%	0,00%	-0,98%	1,51%	-1,49%	0,00%	-0,73%
06-01-22	1,2862466	435,35789	44086,5	119,64908	0,1733627	2940,1527	24,711262	137,88147	0,1295561	0,7264863	**06-01-22**	-2,08%	-1,27%	-1,60%	-11,10%	0,89%	-5,75%	6,73%	-6,16%	3,56%	-11,71%
07-01-22	1,2852259	453,16813	41557,867	124,49613	0,1733627	2836,6158	24,891996	136,00112	0,1251041	0,7469093	**07-01-22**	-0,08%	4,09%	-5,74%	4,05%	0,00%	-3,52%	0,73%	-1,36%	-3,44%	2,81%
08-01-22	1,2275075	453,51788	41140,021	130,28377	0,1713472	2733,7856	24,99942	133,30889	0,1162226	0,722559	**08-01-22**	-4,49%	0,08%	-1,01%	4,65%	-1,16%	-3,63%	0,43%	-1,98%	-7,10%	-3,26%
09-01-22	1,1864838	436,11361	40886,275	142,99229	0,1713472	2758,345	26,005137	128,21713	0,1162226	0,7255421	**09-01-22**	-3,34%	-3,84%	-0,62%	9,75%	0,00%	0,90%	4,02%	-3,82%	0,00%	0,41%
10-01-22	1,1864838	423,60137	40886,275	153,86025	0,1713472	2804,8303	27,192046	130,49911	0,1157549	0,7255421	**10-01-22**	0,00%	-2,87%	0,00%	7,60%	0,00%	1,69%	4,56%	1,78%	-0,40%	0,00%
11-01-22	1,1608421	401,60554	40194,464	146,39179	0,1713472	3029,5692	27,768147	128,29021	0,1149208	0,7094654	**11-01-22**	-2,16%	-5,19%	-1,69%	-4,85%	0,00%	8,01%	2,12%	-1,69%	-0,72%	-2,22%
12-01-22	1,1830734	437,32154	41007,083	145,33502	0,1713472	3134,0653	27,897185	132,61671	0,1144969	0,7094654	**12-01-22**	1,92%	8,89%	2,02%	-0,72%	0,00%	3,45%	0,46%	3,37%	-0,37%	0,00%
13-01-22	1,2795752	456,48735	44635,084	145,04158	0,1701877	3208,6479	27,901213	138,56592	0,1165179	0,8026283	**13-01-22**	8,16%	4,38%	8,85%	-0,20%	-0,68%	2,38%	0,01%	4,49%	1,77%	13,13%
14-01-22	1,2512564	462,64939	40687,159	145,01875	0,1724121	3236,1963	26,053623	134,32225	0,1136628	0,7096856	**14-01-22**	-2,21%	1,35%	-8,84%	-0,02%	1,31%	0,86%	-6,62%	-3,06%	-2,45%	-11,58%
15-01-22	1,2795752	464,90184	41172,802	145,01875	0,1945803	3236,1969	25,896982	144,8515	0,1174946	0,7094654	**15-01-22**	2,26%	0,49%	1,19%	0,00%	12,86%	0,00%	-0,60%	7,84%	3,37%	-0,03%
16-01-22	1,2907931	462,70691	41055,596	145,01875	0,1967208	3227,2867	25,986939	145,62856	0,1165179	0,7454699	**16-01-22**	0,88%	-0,47%	-0,28%	0,00%	1,10%	-0,28%	0,35%	0,54%	-0,83%	5,07%
17-01-22	1,392146	463,5039	41296,073	135,47765	0,1844354	3238,9844	25,936687	146,82071	0,1174946	0,7454699	**17-01-22**	7,85%	0,17%	0,59%	-6,58%	-6,25%	0,36%	-0,19%	0,82%	0,84%	0,00%
18-01-22	1,6214165	456,35976	41031,079	135,27034	0,1744276	3231,0961	25,360936	152,14019	0,1144969	0,7211195	**18-01-22**	16,47%	-1,54%	-0,64%	-0,15%	-5,43%	-0,24%	-2,22%	3,62%	-2,55%	-3,27%
19-01-22	1,4486974	457,04383	41101,901	126,66405	0,1718397	3114,3437	23,230084	141,7125	0,1144969	0,7211195	**19-01-22**	-10,65%	0,15%	0,17%	-6,36%	-1,48%	-3,61%	-8,40%	-6,85%	0,00%	0,00%
20-01-22	1,3399787	454,25088	41181,887	126,66405	0,1718397	3114,3437	23,002352	140,15569	0,1136628	0,7211195	**20-01-22**	-7,50%	-0,61%	0,19%	0,00%	0,00%	0,00%	-0,98%	-1,10%	-0,73%	0,00%
21-01-22	1,300303	438,29302	40509,277	117,64339	0,1718397	3110,7154	23,046718	129,34353	0,1106888	0,7211195	**21-01-22**	-2,96%	-3,51%	-1,63%	-7,12%	0,00%	-0,12%	0,19%	-7,71%	-2,62%	0,00%

Figure 44: Price predictions and returns with gradient boosting regression - part 3

21-01-22	1,300303	438,29302	40509,277	117,64339	0,1718397	3110,7154	23,046718	129,34353	0,1106888	0,7211195	**21-01-22**	-2,96%	-3,51%	-1,63%	-7,12%	0,00%	-0,12%	0,19%	-7,71%	-2,62%	0,00%
22-01-22	1,1484182	369,28329	38185,992	106,71692	0,1733004	2682,9493	18,623742	117,38359	0,0963999	0,6240941	**22-01-22**	-11,68%	-15,75%	-5,74%	-9,29%	0,85%	-13,75%	-19,19%	-9,25%	-12,91%	-13,45%
23-01-22	1,1762733	354,89646	36240,297	98,177669	0,173664	2536,1966	16,432746	109,25974	0,0938575	0,6092175	**23-01-22**	2,43%	-3,90%	-5,10%	-8,00%	0,21%	-5,47%	-11,76%	-6,92%	-2,64%	-2,38%
24-01-22	1,1998396	354,33033	35614,083	96,989733	0,1716484	2724,3782	16,097546	114,67842	0,0960567	0,6310837	**24-01-22**	2,00%	-0,16%	-1,73%	-1,21%	-1,16%	7,42%	-2,04%	4,96%	2,34%	3,59%
25-01-22	1,197533	355,06981	35866,047	92,563495	0,1716484	2594,0608	14,986095	114,29597	0,0960567	0,616509	**25-01-22**	-0,19%	0,21%	0,71%	-4,56%	0,00%	-4,78%	-6,90%	-0,33%	0,00%	-2,31%
26-01-22	1,1792879	368,65801	38276,307	92,422518	0,1728787	2521,7409	15,165948	107,40219	0,0963999	0,6222865	**26-01-22**	-1,52%	3,83%	6,72%	-0,15%	0,72%	-2,79%	1,20%	-6,03%	0,36%	0,94%
27-01-22	1,1792879	366,01687	37419,853	91,616094	0,1717192	2577,6209	14,598394	107,40219	0,0963999	0,6222865	**27-01-22**	0,00%	-0,72%	-2,24%	-0,87%	-0,67%	2,22%	-3,74%	0,00%	0,00%	0,00%
28-01-22	1,1981549	378,57416	37526,838	91,949236	0,1748942	2494,3995	13,981497	107,40219	0,0960567	0,6022723	**28-01-22**	1,60%	3,43%	0,29%	0,36%	1,85%	-3,23%	-4,23%	0,00%	-0,36%	-3,22%
29-01-22	1,2007882	378,57416	37729,018	95,261727	0,173664	2634,9969	14,260362	115,76235	0,1011922	0,6134452	**29-01-22**	0,22%	0,00%	0,54%	3,60%	-0,70%	5,64%	1,99%	7,78%	5,35%	1,86%
30-01-22	1,1914946	377,97122	37526,838	95,691286	0,1704889	2634,9969	14,260362	115,91108	0,1054679	0,6224819	**30-01-22**	-0,77%	-0,16%	-0,54%	0,45%	-1,83%	0,00%	0,00%	0,13%	4,23%	1,47%
31-01-22	1,2013026	372,75164	37653,934	93,219777	0,1713472	2634,9969	17,434076	115,91108	0,1034112	0,599451	**31-01-22**	0,82%	-1,38%	0,34%	-2,58%	0,50%	0,00%	22,26%	0,00%	-1,95%	-3,70%
01-02-22	1,1691314	370,56407	38168,237	96,532267	0,1722032	2730,7263	16,543079	115,48034	0,1034112	0,6213037	**01-02-22**	-2,68%	-0,59%	1,37%	3,55%	0,50%	3,63%	-5,11%	-0,37%	0,00%	3,65%
02-02-22	1,148585	377,97122	37959,189	95,395962	0,1701877	2849,0297	17,83851	116,07575	0,1054679	0,6180459	**02-02-22**	-1,76%	2,00%	-0,55%	-1,18%	-1,17%	4,33%	7,83%	0,52%	1,99%	-0,52%
03-02-22	1,1032088	362,64908	38865,406	93,013181	0,1733627	2689,4214	15,87305	108,04364	0,1034112	0,595015	**03-02-22**	-3,95%	-4,05%	2,39%	-2,50%	1,87%	-5,60%	-11,02%	-6,92%	-1,95%	-3,73%
04-02-22	1,1329854	352,8323	37646,345	96,026633	0,1733627	2658,9963	16,185632	114,61163	0,1034112	0,5978363	**04-02-22**	2,70%	-2,71%	-3,14%	3,24%	0,00%	-1,13%	1,97%	6,08%	0,00%	0,47%
05-02-22	1,1468457	364,28263	40570,822	103,80602	0,1701877	3081,4609	16,943551	120,35938	0,111442	0,6583591	**05-02-22**	1,22%	3,25%	7,77%	8,10%	-1,83%	15,89%	4,68%	5,01%	7,77%	10,12%
06-02-22	1,1436818	374,85262	41227,195	104,43163	0,1698241	3100,015	18,551927	120,35938	0,114416	0,6583591	**06-02-22**	-0,28%	2,90%	1,62%	0,60%	-0,21%	0,60%	9,49%	0,00%	2,67%	0,00%
07-02-22	1,1871907	390,79506	41299,323	107,8647	0,1744276	3126,9104	18,6504	124,55722	0,114416	0,6804447	**07-02-22**	3,80%	4,25%	0,17%	3,29%	2,71%	0,87%	0,53%	3,49%	0,00%	3,35%
08-02-22	1,1861988	422,41417	45722,723	116,95119	0,1744276	3213,2347	18,534328	137,15316	0,1172711	0,8402654	**08-02-22**	-0,08%	8,09%	10,71%	8,42%	0,00%	2,76%	-0,62%	10,11%	2,50%	23,49%
09-02-22	1,1601183	403,67916	45796,229	112,58996	0,1744276	3186,2247	18,534328	133,82576	0,1156174	0,891476	**09-02-22**	-2,20%	-4,44%	0,16%	-3,73%	0,00%	-0,84%	0,00%	-2,43%	-1,41%	6,09%
10-02-22	1,1848002	402,46372	46233,311	112,91854	0,1744276	3181,0408	18,438786	140,12932	0,1187193	0,8705059	**10-02-22**	2,13%	-0,30%	0,95%	0,29%	0,00%	-0,16%	-0,52%	4,71%	2,68%	-2,35%
11-02-22	1,1692128	392,65462	45414,011	114,38986	0,1744276	3031,3971	17,030668	135,69615	0,1164516	0,8390086	**11-02-22**	-1,32%	-2,44%	-1,77%	1,30%	0,00%	-4,70%	-7,64%	-3,16%	-1,91%	-3,62%
12-02-22	1,1361946	393,45034	41425,885	106,50773	0,1718397	2967,3437	15,324468	129,02249	0,1116656	0,7382337	**12-02-22**	-2,82%	0,20%	-8,78%	-6,89%	-1,48%	-2,11%	-10,02%	-4,92%	-4,11%	-12,01%
13-02-22	1,1306197	394,21337	41425,885	105,74906	0,1718397	2933,169	15,324468	128,62721	0,1108315	0,8310239	**13-02-22**	-0,49%	0,19%	0,00%	-0,71%	0,00%	-1,15%	0,00%	-0,31%	-0,75%	12,57%
14-02-22	1,1318	388,52259	41204,223	105,08966	0,1744276	2778,0476	15,28609	128,62721	0,1108315	0,8341406	**14-02-22**	0,10%	-1,44%	-0,54%	-0,62%	1,51%	-5,29%	-0,25%	0,00%	0,00%	0,38%
15-02-22	1,1399433	392,4039	41313,576	104,96896	0,1718397	2894,8271	15,381633	126,09885	0,1108315	0,8341406	**15-02-22**	0,72%	1,00%	0,27%	-0,11%	-1,48%	4,20%	0,63%	-1,97%	0,00%	0,00%
16-02-22	1,1271001	419,78977	45690,173	107,68043	0,1744276	3132,1425	16,9905	133,37993	0,114416	0,8707765	**16-02-22**	-1,13%	6,98%	10,59%	2,58%	1,51%	8,20%	10,46%	5,77%	3,23%	4,39%
17-02-22	1,0930767	398,56605	45579,834	112,40569	0,1744276	3031,0653	17,030923	128,89464	0,114416	0,8405864	**17-02-22**	-3,02%	-5,06%	-0,24%	4,39%	0,00%	-3,23%	0,24%	-3,36%	0,00%	-3,47%
18-02-22	1,0494398	358,57842	40439,181	105,17627	0,1718397	2797,5812	15,520528	117,32782	0,1054679	0,7413504	**18-02-22**	-3,99%	-10,03%	-11,28%	-6,43%	-1,48%	-7,70%	-8,87%	-8,97%	-7,82%	-11,81%
19-02-22	1,0208337	354,02386	40344,358	106,49237	0,1718397	2764,9895	15,00771	116,16381	0,1042454	0,7657007	**19-02-22**	-2,73%	-1,27%	-0,23%	1,25%	0,00%	-1,16%	-3,30%	-0,99%	-1,16%	3,28%
20-02-22	1,0208337	343,09895	40081,011	105,08966	0,1718397	2764,9895	15,28609	113,88232	0,1034112	0,8333351	**20-02-22**	0,00%	-3,09%	-0,65%	-1,32%	0,00%	0,00%	1,85%	-1,96%	-0,80%	8,83%
21-02-22	1,0208337	364,20513	37909,62	96,221348	0,1718397	2596,9878	14,553877	112,94802	0,0963999	0,7601	**21-02-22**	0,00%	6,15%	-5,42%	-8,44%	0,00%	-6,08%	-4,79%	-0,82%	-6,78%	-8,79%
22-02-22	0,8710809	353,47102	37313,101	87,949624	0,1729992	2566,3128	14,241279	106,38003	0,0938575	0,6866815	**22-02-22**	-14,67%	-2,95%	-1,57%	-8,60%	0,67%	-1,18%	-2,15%	-5,82%	-2,64%	-9,66%
23-02-22	0,9053352	369,22915	37412,016	92,623302	0,1722032	2660,4711	14,665633	106,38003	0,0963999	0,7285114	**23-02-22**	3,93%	4,46%	0,27%	5,31%	-0,46%	3,67%	2,98%	0,00%	2,71%	6,09%
24-02-22	0,869095	362,67934	37507,713	91,372783	0,1713472	2458,8749	13,944396	106,38003	0,0935144	0,6902151	**24-02-22**	-4,00%	-1,77%	0,26%	-1,35%	-0,50%	-7,58%	-4,92%	0,00%	-2,99%	-5,26%
25-02-22	0,8850317	356,30973	37107,683	87,067963	0,1733627	2445,2153	14,047874	106,38003	0,0938575	0,6902151	**25-02-22**	1,83%	-1,76%	-1,07%	-4,71%	1,18%	-0,56%	0,74%	0,00%	0,37%	0,00%
26-02-22	0,9057851	371,55902	39093,041	91,949989	0,1713472	2680,0188	14,127738	112,9707	0,0960567	0,7401722	**26-02-22**	2,34%	4,28%	5,35%	5,61%	-1,16%	9,60%	0,57%	6,20%	2,34%	7,24%
27-02-22	0,9057851	371,55902	39715,815	92,34227	0,1713472	2714,705	14,209387	106,38003	0,1032108	0,7401722	**27-02-22**	0,00%	0,00%	1,59%	0,43%	0,00%	1,29%	0,58%	-5,83%	7,45%	0,00%
28-02-22	0,8415597	352,17465	38112,645	86,368527	0,1713472	2617,3687	14,081917	106,38003	0,1013349	0,7285114	**28-02-22**	-7,09%	-5,22%	-4,04%	-6,47%	0,00%	-3,59%	-0,90%	0,00%	-1,82%	-1,58%
01-03-22	0,9913125	375,46784	41636,865	98,120416	0,1701877	2955,3049	14,905429	113,53078	0,1062211	0,7645225	**01-03-22**	17,79%	6,61%	9,25%	13,61%	-0,68%	12,91%	5,85%	6,72%	4,82%	4,94%
02-03-22	0,969946	393,50525	46049,693	98,327729	0,1698241	3047,8081	15,461689	113,53078	0,111442	0,7601	**02-03-22**	-2,16%	4,80%	10,60%	0,21%	-0,21%	3,13%	3,73%	0,00%	4,92%	-0,58%
03-03-22	0,969946	407,15423	45947,721	98,91035	0,1718397	3026,3364	15,586252	113,258	0,1056106	0,7357496	**03-03-22**	0,00%	3,47%	-0,22%	0,59%	1,19%	-0,70%	0,81%	-0,24%	-5,23%	-3,20%
04-03-22	0,8362836	399,34608	42078,127	95,772215	0,1718397	2855,2708	14,5904	113,45699	0,1035539	0,7281683	**04-03-22**	-13,78%	-1,92%	-8,42%	-3,17%	0,00%	-5,65%	-6,39%	0,18%	-1,95%	-1,03%
05-03-22	0,8015794	369,79378	40039,061	91,147316	0,1729992	2567,5607	14,549977	97,980345	0,0963999	0,7027764	**05-03-22**	-4,15%	-7,40%	-4,85%	-4,83%	0,67%	-10,08%	-0,28%	-13,64%	-6,91%	-3,49%

Figure 45: Price predictions and returns with gradient boosting regression - part 4

1.5.3 Using random forest

Price predictions										
Date	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
03-10-21	2,252873	430,50882	48199,953	177,95457	0,221748	3418,3586	27,55904	170,60997	0,16222	1,05517
04-10-21	2,2172195	429,25279	47928,543	176,58399	0,2189075	3404,0772	27,929573	169,71497	0,163305	1,0585425
05-10-21	2,2059321	408,57768	49163,188	172,59914	0,2448312	3290,6359	26,602716	169,46084	0,1544494	1,0669105
06-10-21	2,1528308	443,02134	52023,064	182,81946	0,2567609	3533,2652	28,186872	171,26695	0,1735974	1,0841602
07-10-21	2,1576746	424,04603	56561,626	185,2798	0,263472	3545,5648	28,15464	176,48828	0,1740194	1,0951832
08-10-21	2,1767	429,89235	55278,486	184,38783	0,2632427	3549,1842	28,678699	177,04747	0,1764172	1,0852283
09-10-21	2,2052828	409,41488	55774,9	187,8083	0,2576695	3563,7319	26,968249	172,3062	0,1747965	1,0805815
10-10-21	2,1709102	411,62224	56424,848	194,53809	0,2564775	3553,5432	28,397846	180,01337	0,1784735	1,1020425
11-10-21	2,1671541	404,15569	56138,963	185,32086	0,2495809	3404,6901	26,432115	171,88081	0,173749	1,1349104
12-10-21	2,1655029	408,07996	56995,229	187,02143	0,2449889	3534,1009	26,17823	179,20746	0,1751897	1,1391747
13-10-21	2,1530312	453,13628	57019,906	185,76871	0,2371992	3541,7663	25,901735	173,2404	0,1764241	1,1394727
14-10-21	2,1741916	457,34225	57081,809	186,60473	0,2399461	3566,882	25,902457	173,3996	0,1791192	1,1203607
15-10-21	2,2072333	453,36436	56893,05	186,27878	0,2404054	3605,2584	27,890774	181,6029	0,1792069	1,1179408
16-10-21	2,2203091	456,69469	57501,186	199,19518	0,2410467	3573,3511	28,144358	192,41257	0,1792459	1,1300311
17-10-21	2,2188627	456,14564	57432,791	193,8179	0,2456883	3610,8465	28,100413	194,27317	0,1744443	1,1540837
18-10-21	2,1653274	452,29878	57478,279	186,77813	0,2471244	3586,8713	26,757342	197,12261	0,1730883	1,141047
19-10-21	2,188625	445,70346	57548,064	185,24545	0,2504834	3570,5982	25,992409	198,2813	0,170856	1,0949248
20-10-21	2,1604178	453,301	57619,209	198,35926	0,2512249	3587,8243	25,878393	198,12193	0,1707193	1,0910733
21-10-21	2,1873669	452,42996	57615,284	202,88855	0,2558168	3589,481	28,252124	212,62948	0,1756079	1,1129745
22-10-21	2,2235824	456,02848	57454,609	203,89409	0,259136	3579,5713	28,28112	206,40485	0,1740756	1,1301885
23-10-21	2,2202387	450,26477	57310,531	202,68159	0,2532952	3542,6547	28,358792	192,53377	0,175341	1,0996527
24-10-21	2,2130467	451,94414	57246,402	200,05637	0,2570482	3535,743	30,722305	201,29192	0,1745177	1,1010623
25-10-21	2,1567985	449,01191	57288,899	201,0062	0,2704628	3537,326	29,955332	189,08889	0,1713256	1,0803157
26-10-21	2,2075593	447,96302	57357,01	202,99866	0,2723442	3529,0478	32,820331	199,94355	0,175084	1,0876076
27-10-21	2,1877472	458,22723	57410,349	202,0452	0,265347	3529,5896	32,327903	208,83455	0,1755002	1,1022961
28-10-21	2,0243516	450,50086	56979,891	177,20447	0,2605633	3508,7468	27,705305	180,03818	0,1540736	0,9589478
29-10-21	2,060655	452,01189	57476,367	182,18506	0,2751883	3530,8352	30,509552	189,95694	0,1660457	1,0415961
30-10-21	2,12822	474,49569	57970,346	183,68805	0,2801738	3526,6291	30,797121	199,67561	0,172171	1,0632379
31-10-21	2,0724766	475,50829	58217,583	183,83821	0,278282	3531,4633	28,577437	191,06905	0,1812465	1,0783526
01-11-21	2,079013	482,81169	58567,005	195,68842	0,2838572	3527,7382	29,82581	196,12502	0,1955198	1,101717
02-11-21	2,0653214	508,74129	59327,939	186,87045	0,2832286	3525,1587	31,13303	206,80987	0,2012316	1,1110567
03-11-21	2,0613572	510,04082	59820,932	200,76681	0,2803892	3549,3718	31,673704	207,05291	0,2150693	1,117149
04-11-21	2,1834344	551,20577	59716,161	202,47678	0,2804566	3555,5515	31,77514	208,89157	0,216618	1,1604963
05-11-21	2,0775014	529,81083	59198,093	201,16626	0,2729561	3541,5359	31,177774	206,54548	0,2077222	1,177998
06-11-21	2,0574082	579,85843	59963,634	200,77024	0,2716848	3534,6966	32,524302	206,57338	0,2133793	1,1691452

Returns										
Date	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
04-10-21	-1,58%	-0,29%	-0,56%	-0,77%	-1,28%	-0,42%	1,34%	-0,52%	0,67%	0,32%
05-10-21	-0,51%	-4,82%	2,58%	-2,26%	11,84%	-3,33%	-4,75%	-0,15%	-5,42%	0,79%
06-10-21	-2,41%	8,43%	5,82%	5,92%	4,87%	7,37%	5,95%	1,07%	12,40%	1,62%
07-10-21	0,22%	-4,28%	8,72%	1,35%	2,61%	0,35%	-0,11%	3,05%	0,24%	1,02%
08-10-21	0,88%	1,38%	-2,27%	-0,48%	-0,09%	0,10%	1,86%	0,32%	1,38%	-0,91%
09-10-21	1,31%	-4,76%	0,90%	1,86%	-2,12%	0,41%	-5,96%	-2,68%	-0,92%	-0,43%
10-10-21	-1,56%	0,54%	1,17%	3,58%	-0,46%	-0,29%	5,30%	4,47%	2,10%	1,99%
11-10-21	-0,17%	-1,81%	-0,51%	-4,74%	-2,69%	-4,19%	-6,92%	-4,52%	-2,65%	2,98%
12-10-21	-0,08%	0,97%	1,53%	0,92%	-1,84%	3,80%	-0,96%	4,26%	0,83%	0,38%
13-10-21	-0,58%	11,04%	0,04%	-0,67%	-3,18%	0,22%	-1,06%	-3,33%	0,70%	0,03%
14-10-21	0,98%	0,93%	0,11%	0,45%	1,16%	0,71%	0,00%	0,09%	1,53%	-1,68%
15-10-21	1,52%	-0,87%	-0,33%	-0,17%	0,19%	1,08%	7,68%	4,73%	0,05%	-0,22%
16-10-21	0,59%	0,73%	1,07%	6,93%	0,27%	-0,89%	0,91%	5,95%	0,02%	1,08%
17-10-21	-0,07%	-0,12%	-0,12%	-2,70%	1,93%	1,05%	-0,16%	0,97%	-2,68%	2,13%
18-10-21	-2,41%	-0,84%	0,08%	-3,63%	0,58%	-0,66%	-4,78%	1,47%	-0,78%	-1,13%
19-10-21	1,08%	-1,46%	0,12%	-0,82%	1,36%	-0,45%	-2,86%	0,59%	-1,29%	-4,04%
20-10-21	-1,29%	1,70%	0,12%	7,08%	0,30%	0,48%	-0,44%	-0,08%	-0,08%	-0,35%
21-10-21	1,25%	-0,19%	-0,01%	2,28%	1,83%	0,05%	9,17%	7,32%	2,86%	2,01%
22-10-21	1,66%	0,80%	-0,28%	0,50%	1,30%	-0,28%	0,10%	-2,93%	-0,87%	1,55%
23-10-21	-0,15%	-1,26%	-0,25%	-0,59%	-2,25%	-1,03%	0,27%	-6,72%	0,73%	-2,70%
24-10-21	-0,32%	0,37%	-0,11%	-1,30%	1,48%	-0,20%	8,33%	4,55%	-0,47%	0,13%
25-10-21	-2,54%	-0,65%	0,07%	0,47%	5,22%	0,04%	-2,50%	-6,06%	-1,83%	-1,88%
26-10-21	2,35%	-0,23%	0,12%	0,99%	0,70%	-0,23%	9,56%	5,74%	2,19%	0,67%
27-10-21	-0,90%	2,29%	0,09%	-0,47%	-2,57%	0,02%	-1,50%	4,45%	0,24%	1,35%
28-10-21	-7,47%	-1,69%	-0,75%	-12,29%	-1,80%	-0,59%	-14,30%	-13,79%	-12,21%	-13,00%
29-10-21	1,79%	0,34%	0,87%	2,81%	5,61%	0,63%	10,12%	5,51%	7,77%	8,62%
30-10-21	3,28%	4,97%	0,86%	0,82%	1,81%	-0,12%	0,94%	5,12%	3,69%	2,08%
31-10-21	-2,62%	0,21%	0,43%	0,08%	-0,68%	0,14%	-7,21%	-4,31%	5,27%	1,42%
01-11-21	0,32%	1,54%	0,60%	6,45%	2,00%	-0,11%	4,37%	2,65%	7,88%	2,17%
02-11-21	-0,66%	5,37%	1,30%	-4,51%	-0,22%	-0,07%	4,38%	5,45%	2,92%	0,85%
03-11-21	-0,19%	0,26%	0,83%	7,44%	-1,00%	0,69%	1,74%	0,12%	6,88%	0,55%
04-11-21	5,92%	8,07%	-0,18%	0,85%	0,02%	0,17%	0,32%	0,89%	0,72%	3,88%
05-11-21	-4,85%	-3,88%	-0,87%	-0,65%	-2,67%	-0,39%	-1,88%	-1,12%	-4,11%	1,51%
06-11-21	-0,97%	9,45%	1,29%	-0,20%	-0,47%	-0,19%	4,32%	0,01%	2,72%	-0,75%

Figure 46: Price predictions and returns with random forest - part 1

07-11-21	2,1306523	602,434	60988,264	192,05102	0,2700745	3526,4022	32,215948	205,73113	0,2194157	1,1621452
08-11-21	2,1439885	610,66582	61493,914	196,60018	0,2731509	3540,6768	33,066812	205,83303	0,2133435	1,2177881
09-11-21	2,22171	624,03765	61358,809	208,11477	0,2813697	3545,1191	32,863478	222,54214	0,2105475	1,2627176
10-11-21	2,2326135	622,59575	61615,094	233,38992	0,2828068	3549,9251	32,924441	256,92765	0,21373	1,265647
11-11-21	2,197369	627,47083	60378,566	221,03563	0,2667938	3533,2262	33,038219	258,82165	0,200947	1,1642976
12-11-21	2,1597649	634,92954	58978,196	240,96653	0,2615864	3553,0309	32,64701	261,98662	0,2028487	1,223512
13-11-21	2,1324356	631,31041	58366,014	227,80876	0,2634147	3524,5652	32,993594	260,90336	0,199881	1,1615136
14-11-21	2,1296717	635,60394	58225,28	237,78384	0,2623643	3531,475	33,168343	263,44396	0,2004641	1,1515195
15-11-21	2,1536071	628,48433	58361,405	240,26279	0,264454	3520,0028	33,200514	282,92934	0,199809	1,164614
16-11-21	2,1104195	624,49492	58369,749	236,74046	0,2629382	3520,4359	32,470777	258,19458	0,2006986	1,1572659
17-11-21	1,9223008	586,53659	58110,517	205,73156	0,2515361	3517,158	27,261219	228,70843	0,1742531	1,1008865
18-11-21	1,9146604	583,76662	58287,984	186,20657	0,2412138	3524,4126	26,720126	228,22995	0,1976105	1,0483275
19-11-21	1,601405	521,851	55563,772	177,48181	0,2234821	3529,8835	26,377541	201,23095	0,1661646	0,995858
20-11-21	1,8921597	550,99331	56482,818	186,7281	0,2336083	3542,7702	27,001731	208,1041	0,1754301	1,0318156
21-11-21	2,0695576	577,79779	56635,309	196,03245	0,2331428	3556,4785	27,522805	226,83131	0,1770935	1,0617165
22-11-21	1,896586	555,44419	56717,77	203,00873	0,2165813	3538,8362	27,998289	225,53346	0,1805332	1,0208126
23-11-21	1,5976855	526,96454	54500,091	200,61579	0,2077912	3533,7012	27,618213	202,93916	0,169928	0,9893081
24-11-21	1,5721333	542,2958	55446,771	182,78182	0,2134936	3520,6021	27,553841	210,43303	0,1723382	1,0115313
25-11-21	1,5645493	548,18867	54445,697	185,90703	0,208887	3512,2558	25,758315	203,78671	0,1668434	0,9874476
26-11-21	1,5604054	564,33	55189,567	201,15725	0,2102473	3522,5133	25,683705	210,00984	0,1674109	0,9919453
27-11-21	1,4743027	554,18994	53466,73	183,18242	0,2021203	3526,0113	25,031673	192,18826	0,1605954	0,9087479
28-11-21	1,5075733	567,28001	54078,492	182,82475	0,2090688	3527,1421	25,169297	193,47143	0,1645919	0,9303525
29-11-21	1,5438589	578,34679	54501,306	178,41767	0,2091385	3528,5026	25,070774	201,81204	0,1663239	0,9698972
30-11-21	1,5349637	580,27933	55681,848	180,99783	0,2133641	3523,5928	25,393909	203,78166	0,168957	0,9769567
01-12-21	1,5288707	582,47069	54583,469	175,92301	0,212035	3528,8697	25,731753	202,46653	0,168053	0,9859531
02-12-21	1,4844224	586,70067	54706,918	174,48544	0,2077773	3531,8719	25,775388	203,76922	0,1671892	0,9693501
03-12-21	1,5462574	585,22911	53791,223	174,86628	0,2071464	3533,0327	25,487898	202,6207	0,1665624	0,9626948
04-12-21	1,53612	562,61934	53916,31	164,61361	0,1999353	3531,0599	22,84605	181,20877	0,1585792	0,9180115
05-12-21	1,3866447	546,97481	50114,908	146,6045	0,1862413	3522,7041	22,376019	162,01669	0,1303627	0,86042
06-12-21	1,3593925	506,40871	49796,14	132,73545	0,1885761	3529,2982	19,329732	153,58661	0,1303766	0,8455457
07-12-21	1,3374035	528,87856	50012,498	141,44341	0,1884184	3526,6601	19,077093	162,40974	0,129459	0,8382062
08-12-21	1,3411515	540,11415	50440,294	141,51957	0,1866773	3524,9533	20,119307	161,48804	0,1408309	0,8235014
09-12-21	1,3272159	560,90927	50152,383	146,11143	0,1859231	3526,4512	21,471774	163,01184	0,1431251	0,8336594
10-12-21	1,3381785	546,18259	47377,094	135,9471	0,1858421	3524,2837	21,486041	151,24174	0,1307169	0,8479271
11-12-21	1,1667048	480,75769	45977,803	132,40612	0,1850516	3532,5629	18,945571	153,21014	0,1309076	0,828483
12-12-21	1,3079317	517,07215	49843,994	141,32202	0,1850134	3530,7881	19,800935	169,25223	0,1301839	0,8424302
13-12-21	1,3018261	524,60335	50534,49	139,56681	0,1832451	3519,7132	19,813747	174,6577	0,1292045	0,8348387
14-12-21	1,2142171	437,48224	46046,012	130,69226	0,1826032	3531,4453	18,330494	146,20696	0,1230811	0,7507091

07-11-21	3,56%	3,89%	1,71%	-4,34%	-0,59%	-0,23%	-0,95%	-0,41%	2,83%	-0,60%
08-11-21	0,63%	1,37%	0,83%	2,37%	1,14%	0,40%	2,64%	0,05%	-2,77%	4,79%
09-11-21	3,63%	2,19%	-0,22%	5,86%	3,01%	0,13%	-0,61%	8,12%	-1,31%	3,69%
10-11-21	0,49%	-0,23%	0,42%	12,14%	0,51%	0,14%	0,19%	15,45%	1,51%	0,23%
11-11-21	-1,58%	0,78%	-2,01%	-5,29%	-5,66%	-0,47%	0,35%	0,74%	-5,98%	-8,01%
12-11-21	-1,71%	1,19%	-2,32%	9,02%	-1,95%	0,56%	-1,18%	1,22%	0,95%	5,09%
13-11-21	-1,27%	-0,57%	-1,04%	-5,46%	0,70%	-0,80%	1,06%	-0,41%	-1,46%	-5,07%
14-11-21	-0,13%	0,68%	-0,24%	4,38%	-0,40%	0,20%	0,53%	0,97%	0,29%	-0,86%
15-11-21	1,12%	-1,12%	0,23%	1,04%	0,80%	-0,32%	0,10%	7,40%	-0,33%	1,14%
16-11-21	-2,01%	-0,63%	0,01%	-1,47%	-0,57%	0,01%	-2,20%	-8,74%	0,45%	-0,63%
17-11-21	-8,91%	-6,08%	-0,44%	-13,10%	-4,34%	-0,09%	-16,04%	-11,42%	-13,18%	-4,87%
18-11-21	-0,40%	-0,47%	0,31%	-9,49%	-4,10%	0,21%	-1,98%	-0,21%	13,40%	-4,77%
19-11-21	-16,36%	-10,61%	-4,67%	-4,69%	-7,35%	0,16%	-1,28%	-11,83%	-15,91%	-5,01%
20-11-21	18,16%	5,58%	1,65%	5,21%	4,53%	0,37%	2,37%	3,42%	5,58%	3,61%
21-11-21	9,38%	4,86%	0,27%	4,98%	-0,20%	0,39%	1,93%	9,00%	0,95%	2,90%
22-11-21	-8,36%	-3,87%	0,15%	3,56%	-7,10%	-0,50%	1,73%	-0,57%	1,94%	-3,85%
23-11-21	-15,76%	-5,13%	-3,91%	-1,18%	-4,06%	-0,15%	-1,36%	-10,02%	-5,87%	-3,09%
24-11-21	-1,60%	2,91%	1,74%	-8,89%	2,74%	-0,37%	-0,23%	3,69%	1,42%	2,25%
25-11-21	-0,48%	1,09%	-1,81%	1,71%	-2,16%	-0,24%	-6,52%	-3,16%	-3,19%	-2,38%
26-11-21	-0,26%	2,94%	1,37%	8,20%	0,65%	0,29%	-0,29%	3,05%	0,34%	0,46%
27-11-21	-5,52%	-1,80%	-3,12%	-8,94%	-3,87%	0,10%	-2,54%	-8,49%	-4,07%	-8,39%
28-11-21	2,26%	2,36%	1,14%	-0,20%	3,44%	0,03%	0,55%	0,67%	2,49%	2,38%
29-11-21	2,41%	1,95%	0,78%	-2,41%	0,03%	0,04%	-0,39%	4,31%	1,05%	4,25%
30-11-21	-0,58%	0,33%	2,17%	1,45%	2,02%	-0,14%	1,29%	0,98%	1,58%	0,73%
01-12-21	-0,40%	0,38%	-1,97%	-2,80%	-0,62%	0,15%	1,33%	-0,65%	-0,54%	0,92%
02-12-21	-2,91%	0,73%	0,23%	-0,82%	-2,01%	0,09%	0,17%	0,64%	-0,51%	-1,68%
03-12-21	4,17%	-0,25%	-1,67%	0,22%	-0,30%	0,03%	-1,12%	-0,56%	-0,37%	-0,69%
04-12-21	-0,66%	-3,86%	0,23%	-5,86%	-3,48%	-0,06%	-10,37%	-10,57%	-4,79%	-4,64%
05-12-21	-9,73%	-2,78%	-7,05%	-10,94%	-6,85%	-0,24%	-2,06%	-10,59%	-17,79%	-6,27%
06-12-21	-1,97%	-7,42%	-0,64%	-9,46%	1,25%	0,19%	-13,61%	-5,20%	0,01%	-1,73%
07-12-21	-1,62%	4,44%	0,43%	6,56%	-0,08%	-0,07%	-1,31%	5,74%	-0,70%	-0,87%
08-12-21	0,28%	2,12%	0,86%	0,05%	-0,92%	-0,05%	5,46%	-0,57%	8,78%	-1,75%
09-12-21	-1,04%	3,85%	-0,57%	3,24%	-0,40%	0,04%	6,72%	0,94%	1,63%	1,23%
10-12-21	0,83%	-2,63%	-5,53%	-6,96%	-0,04%	-0,06%	0,07%	-7,22%	-8,67%	1,71%
11-12-21	-12,81%	-11,98%	-2,95%	-2,60%	-0,43%	0,23%	-11,82%	1,30%	0,15%	-2,29%
12-12-21	12,10%	7,55%	8,41%	6,73%	-0,02%	-0,05%	4,51%	10,47%	-0,55%	1,68%
13-12-21	-0,47%	1,46%	1,39%	-1,24%	-0,96%	-0,31%	0,06%	3,19%	-0,75%	-0,90%
14-12-21	-6,73%	-16,61%	-8,88%	-6,36%	-0,35%	0,33%	-7,49%	-16,29%	-4,74%	-10,08%

Figure 47: Price predictions and returns with random forest - part 2

15-12-21	1,2026228	406,51275	45444,635	129,56593	0,1875498	3523,1986	17,812703	149,6413	0,122992	0,8161594	15-12-21	-0,95%	-7,08%	-1,31%	-0,86%	2,71%	-0,23%	-2,82%	2,35%	-0,07%	8,72%
16-12-21	1,3171054	445,87668	49542,342	132,9967	0,1861742	3523,0128	18,855368	151,18179	0,1297256	0,836764	16-12-21	9,52%	9,68%	9,02%	2,65%	-0,73%	-0,01%	5,85%	1,03%	5,47%	2,52%
17-12-21	1,3083702	438,04572	47072,351	131,32906	0,1884722	3544,0469	18,524031	145,85254	0,1232519	0,8065912	17-12-21	-0,66%	-1,76%	-4,99%	-1,25%	1,23%	0,60%	-1,76%	-3,53%	-4,99%	-3,61%
18-12-21	1,2157754	441,40753	45137,553	128,35732	0,190783	3540,9242	18,900761	143,65088	0,127252	0,7963874	18-12-21	-7,08%	0,77%	-4,11%	-2,26%	1,23%	-0,09%	2,03%	-1,51%	3,25%	-1,27%
19-12-21	1,306844	454,82463	45682,277	130,56592	0,1904832	3531,2916	18,896151	145,23374	0,1285924	0,8017617	19-12-21	7,49%	3,04%	1,21%	1,72%	-0,16%	-0,27%	-0,02%	1,10%	1,05%	0,67%
20-12-21	1,3092152	463,4855	45439,847	131,63815	0,1917099	3530,8596	18,60829	150,37762	0,1298019	0,8001645	20-12-21	0,18%	1,90%	-0,53%	0,82%	0,64%	-0,01%	-1,52%	3,54%	0,94%	-0,20%
21-12-21	1,3030752	458,63328	45718,26	130,55875	0,1930312	3551,1404	18,765022	145,58576	0,1254702	0,8553885	21-12-21	-0,47%	-1,05%	0,61%	-0,82%	0,69%	0,57%	0,84%	-3,19%	-3,34%	6,90%
22-12-21	1,3004474	462,82863	49148,207	130,56158	0,1927131	3533,6464	18,887639	149,89023	0,1294103	0,9210052	22-12-21	-0,20%	0,91%	7,50%	0,00%	-0,16%	-0,49%	0,65%	2,96%	3,14%	7,67%
23-12-21	1,292514	460,22201	48941,238	132,94337	0,1928305	3527,8737	19,050502	151,31652	0,1301838	0,9611565	23-12-21	-0,61%	-0,56%	-0,42%	1,82%	0,06%	-0,16%	0,86%	0,95%	0,60%	4,36%
24-12-21	1,4351272	475,4329	49519,501	138,53424	0,1928851	3542,6287	20,668288	167,00393	0,1421596	0,9760742	24-12-21	11,03%	3,31%	1,18%	4,21%	0,03%	0,42%	8,49%	10,37%	9,20%	1,55%
25-12-21	1,3513678	463,64513	49808,931	143,68049	0,1916758	3532,5629	21,674396	169,39538	0,1301881	0,8778866	25-12-21	-5,84%	-2,48%	0,58%	3,71%	-0,63%	-0,28%	4,87%	1,43%	-8,42%	-10,06%
26-12-21	1,3665517	474,76398	49564,768	147,7358	0,2031138	3541,2598	22,184227	152,98605	0,1304718	0,8732149	26-12-21	1,12%	2,40%	-0,49%	2,82%	5,97%	0,25%	2,35%	-9,69%	0,22%	-0,53%
27-12-21	1,391793	457,43164	49555,67	147,42641	0,2030331	3547,6815	22,817609	150,02622	0,1413898	0,8812948	27-12-21	1,85%	-3,65%	-0,02%	-0,21%	-0,04%	0,18%	2,86%	-1,93%	8,37%	0,93%
28-12-21	1,4524757	502,19107	49500,413	148,62452	0,1962196	3542,7418	22,773624	153,35791	0,1402745	0,8889205	28-12-21	4,36%	9,78%	-0,11%	0,81%	-3,36%	-0,14%	-0,19%	2,22%	-0,79%	0,87%
29-12-21	1,3737501	455,54667	46547,324	135,77083	0,1919103	3547,6252	22,085653	147,35633	0,127043	0,8450076	29-12-21	-5,42%	-9,29%	-5,97%	-8,65%	-2,20%	0,14%	-3,02%	-3,91%	-9,43%	-4,94%
30-12-21	1,3321897	413,22623	44753,109	131,47657	0,1939058	3493,9871	20,061845	147,6173	0,125558	0,8223056	30-12-21	-3,03%	-9,29%	-3,85%	-3,16%	1,04%	-1,51%	-9,16%	0,18%	-1,17%	-2,69%
31-12-21	1,30819	425,51232	45404,192	129,54086	0,1947061	3530,3863	20,106133	143,10722	0,1261831	0,8204037	31-12-21	-1,80%	2,97%	1,45%	-1,47%	0,41%	1,04%	0,22%	-3,06%	0,50%	-0,23%
01-01-22	1,3160247	409,03048	44686,053	129,65072	0,1936725	3517,7206	19,300552	139,93309	0,1224022	0,8144011	01-01-22	0,60%	-3,87%	-1,58%	0,08%	-0,53%	-0,36%	-4,01%	-2,22%	-3,00%	-0,73%
02-01-22	1,3211007	441,01432	46337,508	136,69566	0,1931132	3565,5595	20,033214	142,85917	0,1255387	0,8159011	02-01-22	0,39%	7,82%	3,70%	5,43%	-0,29%	1,36%	3,80%	2,09%	2,56%	0,18%
03-01-22	1,3319848	457,63638	46457,736	141,20663	0,1932622	3584,415	21,134033	143,47668	0,1314004	0,8424716	03-01-22	0,82%	3,77%	0,26%	3,30%	0,08%	0,53%	5,49%	0,43%	4,67%	3,26%
04-01-22	1,3189081	420,494	45171,519	139,34404	0,1923115	3576,4875	22,706121	147,62372	0,1288298	0,8347326	04-01-22	-0,98%	-8,12%	-2,77%	-1,32%	-0,49%	-0,22%	7,44%	2,89%	-1,96%	-0,92%
05-01-22	1,2947173	414,71538	45231,887	131,27741	0,1922966	3572,4878	22,844005	147,3044	0,1254986	0,8226954	05-01-22	-1,83%	-1,37%	0,13%	-5,79%	-0,01%	-0,11%	0,61%	-0,22%	-2,59%	-1,44%
06-01-22	1,2781108	410,99051	43714,369	118,99515	0,1925792	3421,185	24,90677	132,88494	0,131529	0,6944326	06-01-22	-1,28%	-0,90%	-3,35%	-9,36%	0,15%	-4,24%	9,03%	-9,79%	4,81%	-15,59%
07-01-22	1,2800723	411,45216	40879,116	125,67556	0,1917542	3118,6801	24,980508	133,29593	0,1255406	0,7197921	07-01-22	0,15%	0,11%	-6,49%	5,61%	-0,43%	-8,84%	0,30%	0,31%	-4,55%	3,65%
08-01-22	1,1698992	410,7089	40694,516	128,75623	0,1920468	2951,5283	25,190544	129,77735	0,1184979	0,6943297	08-01-22	-8,61%	-0,18%	-0,45%	2,45%	0,15%	-5,36%	0,84%	-2,64%	-5,61%	-3,54%
09-01-22	1,167721	399,46068	40551,354	140,03859	0,1927155	2925,5013	25,682216	128,834	0,1180848	0,6955018	09-01-22	-0,19%	-2,74%	-0,35%	8,76%	0,35%	-0,88%	1,95%	-0,73%	-0,35%	0,17%
10-01-22	1,1534237	401,21809	40361,37	154,37323	0,1926491	2911,5989	27,735877	128,94664	0,1183677	0,6945135	10-01-22	-1,22%	0,44%	-0,47%	10,24%	-0,03%	-0,48%	8,00%	0,09%	0,24%	-0,14%
11-01-22	1,1117114	384,45944	40455,182	144,79679	0,1925686	2950,55	27,917185	128,67313	0,1129267	0,6914156	11-01-22	-3,62%	-4,18%	0,23%	-6,20%	-0,04%	1,34%	0,65%	-0,21%	-4,60%	-0,45%
12-01-22	1,1447971	414,87438	40438,598	141,62714	0,1921138	3028,2334	27,985574	129,33435	0,1166498	0,694458	12-01-22	2,98%	7,91%	-0,04%	-2,19%	-0,24%	2,63%	0,24%	0,51%	3,30%	0,44%
13-01-22	1,2850944	417,1917	45643,85	141,89332	0,1907984	3099,4537	28,08375	143,06453	0,1213582	0,7947159	13-01-22	12,26%	0,56%	12,87%	0,19%	-0,68%	2,35%	0,35%	10,62%	4,04%	14,44%
14-01-22	1,2416011	435,89173	40433,622	141,85543	0,1946489	3157,4468	26,107919	133,99972	0,1181745	0,6906563	14-01-22	-3,38%	4,48%	-11,41%	-0,03%	2,02%	1,87%	-7,04%	-6,34%	-2,62%	-13,09%
15-01-22	1,2835815	437,25912	40408,94	143,37243	0,1968895	3170,8815	26,210263	145,29793	0,1202865	0,6857052	15-01-22	3,38%	0,31%	-0,06%	1,07%	1,15%	0,43%	0,39%	8,43%	1,79%	-0,72%
16-01-22	1,2860985	441,45625	40509,516	143,47413	0,2022369	3159,1938	26,208388	144,10868	0,1220016	0,7066059	16-01-22	0,20%	0,96%	0,25%	0,07%	2,72%	-0,37%	-0,01%	-0,82%	1,43%	3,05%
17-01-22	1,3848901	441,11726	40487,305	136,20244	0,2010708	3158,5611	26,064929	147,63448	0,1208007	0,7124802	17-01-22	7,68%	-0,08%	-0,05%	-5,07%	-0,58%	-0,02%	-0,55%	2,45%	-0,98%	0,83%
18-01-22	1,6253658	440,52869	40426,427	133,92121	0,1983805	3142,7419	25,848511	153,04908	0,1181194	0,6885693	18-01-22	17,36%	-0,13%	-0,15%	-1,67%	-1,34%	-0,50%	-0,83%	3,67%	-2,22%	-3,36%
19-01-22	1,4435449	438,50816	40386,345	128,51906	0,1912152	3069,0413	23,033749	141,09091	0,1182099	0,6816501	19-01-22	-11,19%	-0,46%	-0,10%	-4,03%	-3,61%	-2,35%	-10,89%	-7,81%	0,08%	-1,00%
20-01-22	1,3574178	438,50023	40403,375	126,65836	0,1928731	3067,984	23,260772	137,60524	0,1138254	0,686953	20-01-22	-5,97%	0,00%	0,04%	-1,45%	0,87%	-0,03%	0,99%	-2,47%	-3,71%	0,78%
21-01-22	1,2930578	415,72566	39945,311	118,22636	0,1922064	3062,6959	22,963147	129,80111	0,1096351	0,6836464	21-01-22	-4,74%	-5,19%	-1,13%	-6,66%	-0,35%	-0,17%	-1,28%	-5,67%	-3,68%	-0,48%

Figure 48: Price predictions and returns with random forest - part 3

22-01-22	1,166574	364,60738	35887,889	107,04183	0,1920449	2558,1817	17,770568	117,5946	0,0980476	0,6243502	22-01-22	-9,78%	-12,30%	-10,16%	-9,46%	-0,08%	-16,47%	-22,61%	-9,40%	-10,57%	-8,67%
23-01-22	1,1593946	355,37186	35278,873	98,96593	0,192275	2452,1785	16,205969	110,50584	0,0944791	0,5917314	23-01-22	-0,62%	-2,53%	-1,70%	-7,54%	0,12%	-4,14%	-8,80%	-6,03%	-3,64%	-5,22%
24-01-22	1,1300261	365,36764	35545,767	99,713984	0,193282	2507,5816	16,792151	115,83015	0,0953384	0,6255142	24-01-22	-2,53%	2,81%	0,76%	0,76%	0,52%	2,26%	3,62%	4,82%	0,91%	5,71%
25-01-22	1,1221245	365,7168	37433,459	92,417984	0,1906086	2479,5392	15,942535	115,39363	0,0957532	0,6112309	25-01-22	-0,70%	0,10%	5,31%	-7,32%	-1,38%	-1,12%	-5,06%	-0,38%	0,44%	-2,28%
26-01-22	1,130744	370,19225	38484,825	91,973228	0,1900022	2513,8701	16,003787	109,15333	0,0949056	0,6179496	26-01-22	0,77%	1,22%	2,81%	-0,48%	-0,32%	1,38%	0,38%	-5,41%	-0,89%	1,10%
27-01-22	1,1190666	367,69534	37535,971	91,966963	0,1896142	2509,7054	15,911048	109,93676	0,0958443	0,6226373	27-01-22	-1,03%	-0,67%	-2,47%	-0,01%	-0,20%	-0,17%	-0,58%	0,72%	0,99%	0,76%
28-01-22	1,1212547	373,12019	37426,234	91,703768	0,1896296	2450,5405	15,562279	109,69079	0,0976188	0,6051001	28-01-22	0,20%	1,48%	-0,29%	-0,29%	0,01%	-2,36%	-2,19%	-0,22%	1,85%	-2,82%
29-01-22	1,1200215	377,12483	37657,746	93,849428	0,1910527	2547,9795	15,99962	115,99687	0,098072	0,6182126	29-01-22	-0,11%	1,07%	0,62%	2,34%	0,75%	3,98%	2,81%	5,75%	0,46%	2,17%
30-01-22	1,1219493	375,19912	37687,112	95,85327	0,1909545	2544,9356	16,057411	117,10009	0,1050853	0,6248324	30-01-22	0,17%	-0,51%	0,08%	2,14%	-0,05%	-0,12%	0,36%	0,95%	7,15%	1,07%
31-01-22	1,1206547	368,35761	37304,049	91,478831	0,1915701	2545,1666	18,436565	113,85304	0,102204	0,6044865	31-01-22	-0,12%	-1,82%	-1,02%	-4,56%	0,32%	0,01%	14,82%	-2,77%	-2,74%	-3,26%
01-02-22	1,1226248	366,52433	37357,647	93,48897	0,1922145	2691,3353	17,561051	115,53582	0,1030625	0,6182182	01-02-22	0,18%	-0,50%	0,14%	2,20%	0,34%	5,74%	-4,75%	1,48%	0,84%	2,27%
02-02-22	1,139458	378,27252	37881,259	94,015456	0,1924608	2740,8045	17,668964	119,31585	0,1055037	0,6235647	02-02-22	1,50%	3,21%	1,40%	0,56%	0,13%	1,84%	0,61%	3,27%	2,37%	0,86%
03-02-22	1,1276792	364,58785	37125,075	90,558883	0,1922932	2693,6923	16,024737	109,54201	0,1034888	0,6015197	03-02-22	-1,03%	-3,62%	-2,00%	-3,68%	-0,09%	-1,72%	-9,31%	-8,19%	-1,91%	-3,54%
04-02-22	1,1358568	352,51909	37208,367	95,562116	0,192466	2682,7896	15,626698	117,09542	0,1051689	0,6047751	04-02-22	0,73%	-3,31%	0,22%	5,52%	0,09%	-0,40%	-2,48%	6,90%	1,62%	0,54%
05-02-22	1,1368118	382,01908	39822,328	102,9176	0,1954084	3101,3722	17,712417	124,04323	0,1097358	0,6686744	05-02-22	0,08%	8,37%	7,03%	7,70%	1,53%	15,60%	13,35%	5,93%	4,34%	10,57%
06-02-22	1,137405	387,56472	40145,136	105,12119	0,1945512	3152,8588	18,536094	122,69968	0,1148341	0,67003	06-02-22	0,05%	1,45%	0,81%	2,14%	-0,44%	1,66%	4,65%	-1,08%	4,65%	0,20%
07-02-22	1,1618272	395,85334	40525,044	108,76425	0,1980742	3207,5862	19,131644	128,18004	0,1121226	0,6688908	07-02-22	2,15%	2,14%	0,95%	3,47%	1,81%	1,74%	3,21%	4,47%	-2,36%	-0,17%
08-02-22	1,2073739	414,72284	46139,691	118,44196	0,1995908	3197,1673	19,091461	141,47508	0,1179287	0,8281593	08-02-22	3,92%	4,77%	13,85%	8,90%	0,77%	-0,32%	-0,21%	10,37%	5,18%	23,81%
09-02-22	1,1918879	386,53521	46111,731	116,49383	0,2006323	3194,1885	18,970651	134,86729	0,1188161	0,8836794	09-02-22	-1,28%	-6,80%	-0,06%	-1,64%	0,52%	-0,09%	-0,63%	-4,67%	0,75%	6,70%
10-02-22	1,1958646	390,65179	45704,941	115,35052	0,1981551	3297,0214	18,882601	143,74414	0,1213903	0,8601432	10-02-22	0,33%	1,06%	-0,88%	-0,98%	-1,23%	3,22%	-0,46%	6,58%	2,17%	-2,66%
11-02-22	1,1861437	381,14435	44617,792	115,34024	0,1954785	3193,6976	16,927056	137,8584	0,1197019	0,8561639	11-02-22	-0,81%	-2,43%	-2,38%	-0,01%	-1,35%	-3,13%	-10,36%	-4,09%	-1,39%	-0,46%
12-02-22	1,1642004	380,22201	42070,007	103,9993	0,1936606	3002,2861	15,675852	131,20323	0,1085296	0,7251571	12-02-22	-1,85%	-0,24%	-5,71%	-9,83%	-0,93%	-5,99%	-7,39%	-4,83%	-9,33%	-15,30%
13-02-22	1,1716476	380,99003	42146,74	105,35333	0,1941259	3007,924	15,482486	134,59478	0,1074656	0,8501524	13-02-22	0,64%	0,20%	0,18%	1,30%	0,24%	0,19%	-1,23%	2,58%	-0,98%	17,24%
14-02-22	1,1793102	380,41051	41986,341	103,83326	0,1974258	2942,949	15,469464	132,07623	0,1085551	0,8538118	14-02-22	0,65%	-0,15%	-0,38%	-1,44%	1,70%	-2,16%	-0,08%	-1,87%	1,01%	0,43%
15-02-22	1,1720315	380,21718	41919,509	106,21177	0,1938359	3008,4986	15,385708	127,13873	0,1075061	0,8397617	15-02-22	-0,62%	-0,05%	-0,16%	2,29%	-1,82%	2,23%	-0,54%	-3,74%	-0,97%	-1,65%
16-02-22	1,1694667	417,44616	45356,276	107,97864	0,197584	3262,6362	17,176083	135,13443	0,1149479	0,8613101	16-02-22	-0,22%	9,79%	8,20%	1,66%	1,93%	8,45%	11,64%	6,29%	6,92%	2,57%
17-02-22	1,1571056	396,04823	45609,059	114,83835	0,1973421	3198,1376	17,066638	132,73001	0,1164133	0,8685145	17-02-22	-1,06%	-5,13%	0,56%	6,35%	-0,12%	-1,98%	-0,64%	-1,78%	1,27%	0,84%
18-02-22	1,163672	376,83041	40788,839	105,24331	0,192038	2929,9826	15,455522	117,80232	0,1056935	0,738441	18-02-22	0,57%	-4,85%	-10,57%	-8,36%	-2,69%	-8,38%	-9,44%	-11,25%	-9,21%	-14,98%
19-02-22	1,1551625	374,91926	40549,506	104,63584	0,1921341	2856,9387	15,343204	118,33459	0,102907	0,7762084	19-02-22	-0,73%	-0,51%	-0,59%	-0,58%	0,05%	-2,49%	-0,73%	0,45%	-2,64%	5,11%
20-02-22	1,1443927	373,45191	40319,359	101,43834	0,1922376	2843,0758	15,511352	118,46464	0,101987	0,8597916	20-02-22	-0,93%	-0,39%	-0,57%	-3,06%	0,05%	-0,49%	1,10%	0,11%	-0,89%	10,77%
21-02-22	1,1484965	363,6929	38613,963	96,351201	0,192049	2694,9728	14,608993	116,49831	0,0960731	0,7670118	21-02-22	0,36%	-2,61%	-4,23%	-5,02%	-0,10%	-5,21%	-5,82%	-1,66%	-5,80%	-10,79%
22-02-22	0,9097582	351,89565	37741,904	82,077502	0,1937381	2521,9334	13,859359	107,20097	0,092499	0,688164	22-02-22	-20,79%	-3,24%	-2,26%	-14,81%	0,88%	-6,42%	-5,13%	-7,98%	-3,72%	-10,28%
23-02-22	1,0046325	361,46257	39148,804	92,616313	0,1940243	2630,8198	14,328091	107,14624	0,0927709	0,7096415	23-02-22	10,43%	2,72%	3,73%	12,84%	0,15%	4,32%	3,38%	-0,05%	0,29%	3,12%
24-02-22	0,9141978	358,3265	38742,044	90,049193	0,1926802	2511,2709	13,801181	107,51483	0,0954772	0,6803053	24-02-22	-9,00%	-0,87%	-1,04%	-2,77%	-0,69%	-4,54%	-3,68%	0,34%	2,92%	-4,13%
25-02-22	0,9106041	356,05561	38092,846	84,804728	0,1908859	2491,2012	13,884304	106,74657	0,094125	0,674585	25-02-22	-0,39%	-0,63%	-1,68%	-5,82%	-0,93%	-0,80%	0,60%	-0,71%	-1,42%	-0,84%
26-02-22	1,0173668	366,73942	38147,751	93,316602	0,1912098	2760,155	14,200684	114,23441	0,0954617	0,7168195	26-02-22	11,72%	3,00%	0,14%	10,04%	0,17%	10,80%	2,28%	7,01%	1,42%	6,26%
27-02-22	1,0011981	367,17018	38642,406	90,957904	0,1927067	2844,0095	14,558431	109,24663	0,1055426	0,7113851	27-02-22	-1,59%	0,12%	1,30%	-2,53%	0,78%	3,04%	2,52%	-4,37%	10,56%	-0,76%
28-02-22	0,9098725	355,10165	36919,451	83,32634	0,1913768	2667,5942	13,914306	107,19068	0,0991587	0,7076031	28-02-22	-9,12%	-3,29%	-4,46%	-8,39%	-0,69%	-6,20%	-4,42%	-1,88%	-6,05%	-0,53%
01-03-22	1,1366559	380,82305	40798,012	99,157037	0,1915574	2933,9913	15,681898	116,66968	0,1057158	0,7439598	01-03-22	24,92%	7,24%	10,51%	19,00%	0,09%	9,99%	12,70%	8,84%	6,61%	5,14%
02-03-22	1,1275768	391,96022	45877,018	97,857658	0,1918336	3075,3488	15,810664	116,53883	0,1076659	0,7553546	02-03-22	-0,80%	2,92%	12,45%	-1,31%	0,14%	4,82%	0,82%	-0,11%	1,84%	1,53%
03-03-22	1,1389482	390,67464	46068,652	97,633612	0,191915	3080,8622	15,389468	116,46775	0,10432	0,7122925	03-03-22	1,01%	-0,33%	0,42%	-0,23%	0,04%	0,18%	-2,66%	-0,06%	-3,11%	-5,70%
04-03-22	1,0032861	388,08466	41701,666	97,758333	0,1921521	2912,6825	14,449045	116,63561	0,1034271	0,7043695	04-03-22	-11,91%	-0,66%	-9,48%	0,13%	0,12%	-5,46%	-6,11%	0,14%	-0,86%	-1,11%
05-03-22	0,8840633	364,77923	39595,588	90,150491	0,1923328	2544,065	13,823179	98,214534	0,0972255	0,6795351	05-03-22	-11,88%	-6,01%	-5,05%	-7,78%	0,09%	-12,66%	-4,33%	-15,79%	-6,00%	-3,53%

Figure 49: Price predictions and returns with random forest - part 4

1.6 Active investing portfolios

1.6.1 Using linear regression

1.6.1.1 Absolute momentum portfolio

Ab

	ADA		BNB		BTC		DASH		DOGE		ETH		LINK	
	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight
		10%		10%		10%		10%		10%		10%		10%
2021-10-04	-2,87%	0,00%	-0,84%	0,00%	0,30%	33,33%	-0,60%	0,00%	-0,44%	0,00%	0,83%	33,33%	-0,81%	0,00%
2021-10-05	0,98%	20,00%	-0,18%	0,00%	2,12%	20,00%	-0,99%	0,00%	6,40%	20,00%	-0,95%	0,00%	-1,09%	0,00%
2021-10-06	1,62%	11,11%	2,13%	11,11%	3,89%	11,11%	5,34%	11,11%	3,98%	11,11%	3,13%	11,11%	-2,91%	0,00%
2021-10-07	-0,59%	0,00%	1,34%	14,29%	7,27%	14,29%	-2,79%	0,00%	4,63%	14,29%	0,80%	14,29%	-2,63%	0,00%
2021-10-08	0,61%	14,29%	0,53%	14,29%	-2,93%	0,00%	1,95%	14,29%	-2,17%	0,00%	0,48%	14,29%	4,80%	14,29%
2021-10-09	1,27%	14,29%	-0,01%	0,00%	3,37%	14,29%	4,70%	14,29%	-6,87%	0,00%	2,84%	14,29%	4,39%	14,29%
2021-10-10	0,85%	25,00%	-3,45%	0,00%	-1,48%	0,00%	1,92%	25,00%	3,36%	25,00%	-3,07%	0,00%	-4,32%	0,00%
2021-10-11	-5,21%	0,00%	-6,37%	0,00%	-1,37%	0,00%	-6,77%	0,00%	-0,65%	0,00%	-3,63%	0,00%	-6,87%	0,00%
2021-10-12	-0,72%	0,00%	1,55%	12,50%	7,78%	12,50%	0,45%	12,50%	-2,81%	0,00%	2,79%	12,50%	1,16%	12,50%
2021-10-13	-1,10%	0,00%	11,37%	100,00%	-2,38%	0,00%	-1,32%	0,00%	-4,18%	0,00%	-1,24%	0,00%	-2,37%	0,00%
2021-10-14	3,93%	11,11%	4,64%	11,11%	1,59%	11,11%	-3,74%	0,00%	0,86%	11,11%	1,92%	11,11%	2,66%	11,11%
2021-10-15	-0,44%	0,00%	0,54%	11,11%	0,28%	11,11%	3,75%	11,11%	3,20%	11,11%	6,04%	11,11%	5,09%	11,11%
2021-10-16	1,96%	14,29%	-0,64%	0,00%	6,21%	14,29%	4,44%	14,29%	-0,57%	0,00%	0,53%	14,29%	-0,51%	0,00%
2021-10-17	-3,75%	0,00%	-3,81%	0,00%	-0,09%	0,00%	1,33%	33,33%	2,58%	33,33%	-0,68%	0,00%	2,49%	33,33%
2021-10-18	-0,71%	0,00%	2,10%	20,00%	1,23%	20,00%	-1,58%	0,00%	0,99%	20,00%	0,98%	20,00%	-2,06%	0,00%
2021-10-19	1,84%	25,00%	5,99%	25,00%	-0,05%	0,00%	-3,84%	0,00%	1,90%	25,00%	-1,97%	0,00%	-3,55%	0,00%
2021-10-20	-3,05%	0,00%	-1,05%	0,00%	2,14%	14,29%	4,77%	14,29%	2,39%	14,29%	3,44%	14,29%	-1,31%	0,00%
2021-10-21	2,16%	11,11%	2,69%	11,11%	4,88%	11,11%	5,23%	11,11%	1,33%	11,11%	7,10%	11,11%	8,07%	11,11%
2021-10-22	-0,28%	0,00%	-2,79%	0,00%	-5,29%	0,00%	-0,27%	0,00%	-1,35%	0,00%	0,77%	33,33%	4,86%	33,33%
2021-10-23	0,56%	100,00%	-1,29%	0,00%	-3,05%	0,00%	-1,17%	0,00%	-2,27%	0,00%	-2,74%	0,00%	-1,03%	0,00%
2021-10-24	-1,80%	0,00%	-2,38%	0,00%	-1,63%	0,00%	2,19%	16,67%	3,21%	16,67%	1,47%	16,67%	6,71%	16,67%
2021-10-25	-3,00%	0,00%	0,89%	14,29%	1,06%	14,29%	3,54%	14,29%	7,97%	14,29%	0,39%	14,29%	0,03%	14,29%
2021-10-26	5,48%	11,11%	7,20%	11,11%	6,01%	11,11%	1,32%	11,11%	-0,99%	0,00%	6,33%	11,11%	8,01%	11,11%
2021-10-27	-0,04%	0,00%	-5,45%	0,00%	-5,37%	0,00%	-7,29%	0,00%	-3,37%	0,00%	-4,20%	0,00%	-0,28%	0,00%
2021-10-28	-9,28%	0,00%	-7,92%	0,00%	-2,71%	0,00%	-13,39%	0,00%	-9,97%	0,00%	-4,57%	0,00%	-7,57%	0,00%
2021-10-29	0,16%	11,11%	7,57%	11,11%	2,60%	11,11%	5,38%	11,11%	17,14%	11,11%	6,90%	11,11%	4,78%	11,11%
2021-10-30	2,57%	10,00%	10,48%	10,00%	2,61%	10,00%	2,20%	10,00%	7,53%	10,00%	3,55%	10,00%	0,16%	10,00%
2021-10-31	-2,74%	0,00%	1,86%	33,33%	0,01%	33,33%	-0,30%	0,00%	-4,07%	0,00%	-0,60%	0,00%	-2,65%	0,00%
2021-11-01	1,07%	20,00%	-0,65%	0,00%	-1,52%	0,00%	5,72%	20,00%	-0,52%	0,00%	-2,35%	0,00%	-0,65%	0,00%
2021-11-02	-3,97%	0,00%	0,60%	25,00%	-1,20%	0,00%	-1,30%	0,00%	-8,79%	0,00%	-0,60%	0,00%	1,78%	25,00%
2021-11-03	3,31%	10,00%	4,52%	10,00%	4,64%	10,00%	1,98%	10,00%	2,17%	10,00%	9,77%	10,00%	4,03%	10,00%
2021-11-04	4,22%	14,29%	2,78%	14,29%	-0,15%	0,00%	2,08%	14,29%	6,15%	14,29%	0,33%	14,29%	-0,88%	0,00%
2021-11-05	-3,35%	0,00%	-1,02%	0,00%	-1,94%	0,00%	1,78%	100,00%	-6,77%	0,00%	-1,74%	0,00%	-3,12%	0,00%
2021-11-06	-0,89%	0,00%	4,62%	33,33%	-1,11%	0,00%	-2,01%	0,00%	-1,94%	0,00%	-1,32%	0,00%	4,31%	33,33%
2021-11-07	1,12%	25,00%	4,90%	25,00%	-0,39%	0,00%	-2,65%	0,00%	0,57%	25,00%	-0,19%	0,00%	-0,80%	0,00%
2021-11-08	-1,09%	0,00%	4,34%	12,50%	4,94%	12,50%	0,15%	12,50%	2,04%	12,50%	2,57%	12,50%	0,49%	12,50%

Figure 50: Absolute momentum portfolio using linear regression - part 1

bsolute momentum

LTC		XLM		XRP									
Returns	Weight	Returns	Weight	Returns	Weight	sum of weights	nb assets returns<0	Portfolio returns without transac. cost	Number of transactions	Transaction cost	Portfolio returns with transac. cost	1+r	Cumulative return
	10%		10%		10%								
0,41%	33,33%	-5,42%	0,00%	-1,41%	0,00%	100,00%	7	0,51%	10	1,0%	-0,5%	0,995	-0,49%
0,09%	20,00%	1,21%	20,00%	-1,72%	0,00%	100,00%	5	2,16%	6	0,6%	1,6%	1,016	1,06%
3,43%	11,11%	10,13%	11,11%	2,31%	11,11%	100,00%	1	4,00%	9	0,9%	3,1%	1,031	4,19%
1,87%	14,29%	0,64%	14,29%	0,79%	14,29%	100,00%	3	2,48%	9	0,9%	1,6%	1,016	5,84%
-1,14%	0,00%	3,15%	14,29%	2,70%	14,29%	100,00%	3	2,03%	6	0,6%	1,4%	1,014	7,35%
-2,05%	0,00%	5,20%	14,29%	3,56%	14,29%	100,00%	3	3,62%	2	0,2%	3,4%	1,034	11,02%
-0,33%	0,00%	-2,34%	0,00%	1,00%	25,00%	100,00%	6	1,78%	8	0,8%	1,0%	1,010	12,11%
-1,81%	0,00%	-7,70%	0,00%	-2,16%	0,00%	0,00%	10	0,00%	4	0,4%	-0,4%	0,996	11,66%
3,68%	12,50%	3,08%	12,50%	0,45%	12,50%	100,00%	2	2,62%	8	0,8%	1,8%	1,018	13,70%
-4,19%	0,00%	-3,93%	0,00%	-3,62%	0,00%	100,00%	9	11,37%	8	0,8%	10,6%	1,106	25,71%
2,67%	11,11%	1,53%	11,11%	1,81%	11,11%	100,00%	1	2,40%	9	0,9%	1,5%	1,015	27,60%
2,65%	11,11%	0,47%	11,11%	2,36%	11,11%	100,00%	1	2,71%	2	0,2%	2,5%	1,025	30,80%
3,56%	14,29%	0,09%	14,29%	3,48%	14,29%	100,00%	3	2,90%	10	1,0%	1,9%	1,019	33,28%
-0,57%	0,00%	-2,26%	0,00%	-1,57%	0,00%	100,00%	7	2,14%	9	0,9%	1,2%	1,012	34,92%
-2,33%	0,00%	0,38%	20,00%	-4,43%	0,00%	100,00%	5	1,14%	7	0,7%	0,4%	1,004	35,51%
2,90%	25,00%	-2,24%	0,00%	-2,66%	0,00%	100,00%	6	3,16%	7	0,7%	2,5%	1,025	38,84%
1,27%	14,29%	4,33%	14,29%	1,66%	14,29%	100,00%	3	2,86%	9	0,9%	2,0%	1,020	41,56%
10,13%	11,11%	-1,77%	0,00%	4,94%	11,11%	100,00%	1	5,17%	10	1,0%	4,2%	1,042	47,46%
-5,63%	0,00%	3,35%	33,33%	-2,67%	0,00%	100,00%	7	2,99%	10	1,0%	2,0%	1,020	50,40%
-3,22%	0,00%	-1,39%	0,00%	-2,55%	0,00%	100,00%	9	0,56%	4	0,4%	0,2%	1,002	50,63%
4,01%	16,67%	0,70%	16,67%	-0,28%	0,00%	100,00%	4	3,05%	7	0,7%	2,3%	1,023	54,17%
-3,81%	0,00%	-4,25%	0,00%	0,05%	14,29%	100,00%	3	1,99%	9	0,9%	1,1%	1,011	55,85%
4,93%	11,11%	2,54%	11,11%	4,17%	11,11%	100,00%	1	5,11%	10	1,0%	4,1%	1,041	62,26%
-0,87%	0,00%	0,02%	100,00%	-2,34%	0,00%	100,00%	9	0,02%	9	0,9%	-0,9%	0,991	60,84%
-6,94%	0,00%	-7,15%	0,00%	-7,92%	0,00%	0,00%	10	0,00%	1	0,1%	-0,1%	0,999	60,68%
3,91%	11,11%	-1,66%	0,00%	5,43%	11,11%	100,00%	1	5,99%	9	0,9%	5,1%	1,051	68,85%
1,98%	10,00%	9,98%	10,00%	2,42%	10,00%	100,00%	0	4,35%	10	1,0%	3,3%	1,033	74,50%
-2,46%	0,00%	5,09%	33,33%	-1,23%	0,00%	100,00%	7	2,32%	10	1,0%	1,3%	1,013	76,81%
1,42%	20,00%	2,24%	20,00%	3,95%	20,00%	100,00%	5	2,88%	7	0,7%	2,2%	1,022	80,66%
2,60%	25,00%	3,06%	25,00%	-3,71%	0,00%	100,00%	6	2,01%	7	0,7%	1,3%	1,013	83,03%
2,14%	10,00%	11,29%	10,00%	4,87%	10,00%	100,00%	0	4,87%	10	1,0%	3,9%	1,039	90,11%
3,14%	14,29%	-2,09%	0,00%	8,04%	14,29%	100,00%	3	3,82%	10	1,0%	2,8%	1,028	95,48%
-1,96%	0,00%	-3,06%	0,00%	-1,13%	0,00%	100,00%	9	1,78%	7	0,7%	1,1%	1,011	97,60%
-1,64%	0,00%	8,92%	33,33%	-3,40%	0,00%	100,00%	7	5,95%	4	0,4%	5,5%	1,055	108,56%
-0,18%	0,00%	1,54%	25,00%	-1,82%	0,00%	100,00%	6	2,03%	5	0,5%	1,5%	1,015	111,75%
1,46%	12,50%	-3,59%	0,00%	5,62%	12,50%	100,00%	2	2,70%	10	1,0%	1,7%	1,017	115,35%

Portfolio absolute momentum	
Avg return	1,969%
Volatility	0,0207248
Sharpe ratio	0,95015535

Figure 51: Absolute momentum portfolio using linear regression - part 2

2021-11-09	7,78%	11,11%	1,78%	11,11%	6,41%	11,11%	10,11%	11,11%	4,71%	11,11%	5,02%	11,11%	7,55%	11,11%
2021-11-10	6,88%	25,00%	-5,15%	0,00%	-1,18%	0,00%	11,01%	25,00%	0,13%	25,00%	-2,84%	0,00%	-1,63%	0,00%
2021-11-11	-7,35%	0,00%	-2,49%	0,00%	-2,53%	0,00%	-5,82%	0,00%	-7,90%	0,00%	-1,67%	0,00%	3,82%	100,00%
2021-11-12	-0,42%	0,00%	2,65%	12,50%	-2,18%	0,00%	4,06%	12,50%	0,79%	12,50%	0,68%	12,50%	0,21%	12,50%
2021-11-13	-0,87%	0,00%	0,42%	100,00%	-0,73%	0,00%	-4,55%	0,00%	-2,64%	0,00%	-0,55%	0,00%	-5,19%	0,00%
2021-11-14	-3,15%	0,00%	2,68%	11,11%	1,73%	11,11%	3,17%	11,11%	3,80%	11,11%	1,19%	11,11%	2,16%	11,11%
2021-11-15	0,55%	16,67%	1,30%	16,67%	1,76%	16,67%	1,70%	16,67%	5,59%	16,67%	-3,50%	0,00%	-0,35%	0,00%
2021-11-16	-0,77%	0,00%	-1,60%	0,00%	-4,56%	0,00%	-4,40%	0,00%	-2,17%	0,00%	-0,82%	0,00%	-5,11%	0,00%
2021-11-17	-4,22%	0,00%	-7,14%	0,00%	-3,58%	0,00%	-10,58%	0,00%	-12,51%	0,00%	-4,39%	0,00%	-5,50%	0,00%
2021-11-18	-1,90%	0,00%	-5,95%	0,00%	-0,98%	0,00%	-4,87%	0,00%	-0,58%	0,00%	-1,83%	0,00%	-2,41%	0,00%
2021-11-19	-3,07%	0,00%	-6,77%	0,00%	-4,57%	0,00%	-6,11%	0,00%	-3,32%	0,00%	-5,09%	0,00%	-7,31%	0,00%
2021-11-20	3,06%	16,67%	8,19%	16,67%	-0,12%	0,00%	7,88%	16,67%	-1,06%	0,00%	3,36%	16,67%	-0,65%	0,00%
2021-11-21	2,33%	12,50%	5,75%	12,50%	3,14%	12,50%	-0,45%	0,00%	5,78%	12,50%	7,40%	12,50%	3,48%	12,50%
2021-11-22	-4,07%	0,00%	-2,58%	0,00%	0,65%	25,00%	5,88%	25,00%	-5,69%	0,00%	-2,79%	0,00%	3,30%	25,00%
2021-11-23	-3,88%	0,00%	-3,01%	0,00%	-4,72%	0,00%	-4,77%	0,00%	-1,13%	0,00%	-1,90%	0,00%	-5,84%	0,00%
2021-11-24	-3,23%	0,00%	-1,88%	0,00%	0,89%	33,33%	-2,88%	0,00%	-0,29%	0,00%	-0,84%	0,00%	-2,66%	0,00%
2021-11-25	-1,74%	0,00%	2,93%	20,00%	-0,63%	0,00%	4,60%	20,00%	-1,54%	0,00%	1,34%	20,00%	0,05%	20,00%
2021-11-26	0,47%	14,29%	5,41%	14,29%	-0,87%	0,00%	8,22%	14,29%	2,24%	14,29%	0,41%	14,29%	-4,32%	0,00%
2021-11-27	-8,67%	0,00%	-1,77%	0,00%	-3,04%	0,00%	-13,64%	0,00%	-3,76%	0,00%	-3,71%	0,00%	-1,02%	0,00%
2021-11-28	2,00%	25,00%	-0,76%	0,00%	0,48%	25,00%	-0,36%	0,00%	-8,88%	0,00%	-1,56%	0,00%	-3,08%	0,00%
2021-11-29	1,76%	16,67%	2,98%	16,67%	3,69%	16,67%	-0,69%	0,00%	3,14%	16,67%	4,03%	16,67%	-1,35%	0,00%
2021-11-30	-1,43%	0,00%	1,03%	11,11%	1,82%	11,11%	1,37%	11,11%	6,50%	11,11%	3,71%	11,11%	4,17%	11,11%
2021-12-01	-1,47%	0,00%	5,04%	14,29%	-0,53%	0,00%	0,90%	14,29%	0,30%	14,29%	6,97%	14,29%	4,46%	14,29%
2021-12-02	1,20%	25,00%	0,13%	25,00%	-0,43%	0,00%	-4,13%	0,00%	-2,49%	0,00%	-1,69%	0,00%	-4,24%	0,00%
2021-12-03	7,57%	50,00%	-3,03%	0,00%	-1,22%	0,00%	-3,08%	0,00%	0,40%	50,00%	-3,60%	0,00%	-4,59%	0,00%
2021-12-04	-6,88%	0,00%	-5,17%	0,00%	-5,77%	0,00%	-4,22%	0,00%	-4,64%	0,00%	-4,65%	0,00%	-4,17%	0,00%
2021-12-05	-10,22%	0,00%	-4,83%	0,00%	-7,43%	0,00%	-10,98%	0,00%	-8,07%	0,00%	-2,69%	0,00%	-8,64%	0,00%
2021-12-06	0,76%	33,33%	-1,21%	0,00%	-0,48%	0,00%	-5,81%	0,00%	-3,59%	0,00%	3,50%	33,33%	-7,85%	0,00%
2021-12-07	1,04%	11,11%	2,70%	11,11%	3,30%	11,11%	0,26%	11,11%	0,68%	11,11%	1,79%	11,11%	1,85%	11,11%
2021-12-08	-2,78%	0,00%	1,69%	20,00%	-1,20%	0,00%	0,69%	20,00%	1,10%	20,00%	-0,68%	0,00%	7,17%	20,00%
2021-12-09	1,50%	11,11%	3,56%	11,11%	0,26%	11,11%	4,82%	11,11%	-1,64%	0,00%	0,71%	11,11%	5,76%	11,11%
2021-12-10	-5,27%	0,00%	-3,66%	0,00%	-5,60%	0,00%	-6,25%	0,00%	-3,58%	0,00%	-4,22%	0,00%	-7,09%	0,00%
2021-12-11	-9,22%	0,00%	-7,84%	0,00%	1,16%	50,00%	1,01%	50,00%	-5,59%	0,00%	-5,45%	0,00%	-9,35%	0,00%
2021-12-12	12,86%	11,11%	2,57%	11,11%	3,38%	11,11%	7,43%	11,11%	2,21%	11,11%	3,81%	11,11%	-1,05%	0,00%
2021-12-13	-1,12%	0,00%	-0,89%	0,00%	-0,23%	0,00%	-8,10%	0,00%	0,78%	100,00%	-1,45%	0,00%	-0,33%	0,00%
2021-12-14	-8,74%	0,00%	-3,70%	0,00%	-5,28%	0,00%	-5,23%	0,00%	-4,31%	0,00%	-4,12%	0,00%	-3,73%	0,00%
2021-12-15	-3,67%	0,00%	-5,34%	0,00%	-1,43%	0,00%	4,50%	25,00%	9,67%	25,00%	-2,80%	0,00%	-4,55%	0,00%
2021-12-16	7,44%	10,00%	5,83%	10,00%	4,32%	10,00%	1,20%	10,00%	4,57%	10,00%	3,71%	10,00%	7,49%	10,00%
2021-12-17	-5,94%	0,00%	0,27%	33,33%	-0,93%	0,00%	-5,17%	0,00%	-5,15%	0,00%	1,74%	33,33%	4,07%	33,33%
2021-12-18	2,91%	16,67%	2,57%	16,67%	-2,70%	0,00%	-3,79%	0,00%	2,59%	16,67%	0,25%	16,67%	-3,11%	0,00%
2021-12-19	3,40%	20,00%	0,16%	20,00%	-0,41%	0,00%	4,11%	20,00%	-2,17%	0,00%	-1,01%	0,00%	3,30%	20,00%
2021-12-20	-3,19%	0,00%	-4,05%	0,00%	0,68%	20,00%	1,31%	20,00%	-0,41%	0,00%	-0,92%	0,00%	-4,11%	0,00%
2021-12-21	-1,40%	0,00%	-3,07%	0,00%	-1,02%	0,00%	-4,86%	0,00%	2,91%	50,00%	-1,57%	0,00%	-5,24%	0,00%
2021-12-22	6,00%	11,11%	3,02%	11,11%	5,15%	11,11%	5,63%	11,11%	-3,36%	0,00%	4,02%	11,11%	6,07%	11,11%
2021-12-23	3,99%	11,11%	6,28%	11,11%	0,52%	11,11%	2,68%	11,11%	1,69%	11,11%	1,01%	11,11%	4,30%	11,11%

Figure 52: Absolute momentum portfolio using linear regression - part 3

13,22%	11,11%	-2,09%	0,00%	6,39%	11,11%	100,00%	1	7,00%	9	0,9%	6,1%	1,061	128,48%
14,26%	25,00%	-2,76%	0,00%	-2,39%	0,00%	100,00%	6	8,07%	9	0,9%	7,2%	1,072	144,86%
-0,81%	0,00%	-7,59%	0,00%	-5,78%	0,00%	100,00%	9	3,82%	5	0,5%	3,3%	1,033	153,00%
0,50%	12,50%	3,06%	12,50%	1,96%	12,50%	100,00%	2	1,74%	8	0,8%	0,9%	1,009	155,37%
-3,47%	0,00%	-5,35%	0,00%	-3,12%	0,00%	100,00%	9	0,42%	8	0,8%	-0,4%	0,996	154,41%
1,17%	11,11%	4,18%	11,11%	3,13%	11,11%	100,00%	1	2,58%	9	0,9%	1,7%	1,017	158,69%
9,94%	16,67%	-0,04%	0,00%	-1,16%	0,00%	100,00%	4	3,47%	10	1,0%	2,5%	1,025	165,08%
-7,53%	0,00%	0,61%	100,00%	-4,61%	0,00%	100,00%	9	0,61%	7	0,7%	-0,1%	0,999	164,85%
-10,79%	0,00%	-5,42%	0,00%	-2,82%	0,00%	0,00%	10	0,00%	1	0,1%	-0,1%	0,999	164,59%
-1,40%	0,00%	2,73%	50,00%	0,51%	50,00%	100,00%	8	1,62%	2	0,2%	1,4%	1,014	168,35%
-11,00%	0,00%	-6,15%	0,00%	-4,23%	0,00%	0,00%	10	0,00%	2	0,2%	-0,2%	0,998	167,81%
3,31%	16,67%	-2,20%	0,00%	0,98%	16,67%	100,00%	4	4,46%	6	0,6%	3,9%	1,039	178,15%
5,38%	12,50%	4,00%	12,50%	-1,16%	0,00%	100,00%	2	4,66%	10	1,0%	3,7%	1,037	188,33%
-3,57%	0,00%	1,91%	25,00%	-0,01%	0,00%	100,00%	6	2,93%	9	0,9%	2,0%	1,020	194,19%
-2,43%	0,00%	-6,77%	0,00%	0,40%	100,00%	100,00%	9	0,40%	5	0,5%	-0,1%	0,999	193,89%
0,06%	33,33%	-2,52%	0,00%	2,15%	33,33%	100,00%	7	1,03%	3	0,3%	0,7%	1,007	196,05%
-0,70%	0,00%	1,29%	20,00%	-5,56%	0,00%	100,00%	5	2,04%	8	0,8%	1,2%	1,012	199,73%
2,16%	14,29%	2,61%	14,29%	-1,02%	0,00%	100,00%	3	3,07%	8	0,8%	2,3%	1,023	206,54%
-6,28%	0,00%	-8,05%	0,00%	-5,95%	0,00%	0,00%	10	0,00%	7	0,7%	-0,7%	0,993	204,40%
-1,19%	0,00%	3,09%	25,00%	2,37%	25,00%	100,00%	6	1,98%	4	0,4%	1,6%	1,016	209,22%
1,34%	16,67%	-1,52%	0,00%	-2,24%	0,00%	100,00%	4	2,82%	8	0,8%	2,0%	1,020	215,48%
3,17%	11,11%	3,88%	11,11%	2,38%	11,11%	100,00%	1	3,12%	10	1,0%	2,1%	1,021	222,15%
4,96%	14,29%	-2,78%	0,00%	0,69%	14,29%	100,00%	3	3,33%	9	0,9%	2,4%	1,024	229,99%
-2,58%	0,00%	1,32%	25,00%	0,66%	25,00%	100,00%	6	0,82%	9	0,9%	-0,1%	0,999	229,74%
-2,04%	0,00%	-3,27%	0,00%	-3,31%	0,00%	100,00%	8	3,98%	5	0,5%	3,5%	1,035	241,23%
-7,44%	0,00%	3,09%	100,00%	-3,23%	0,00%	100,00%	9	3,09%	3	0,3%	2,8%	1,028	250,73%
-13,19%	0,00%	-18,16%	0,00%	-7,72%	0,00%	0,00%	10	0,00%	1	0,1%	-0,1%	0,999	250,38%
-4,75%	0,00%	0,13%	33,33%	-2,63%	0,00%	100,00%	7	1,47%	3	0,3%	1,2%	1,012	254,46%
2,22%	11,11%	5,34%	11,11%	-0,18%	0,00%	100,00%	1	2,13%	9	0,9%	1,2%	1,012	258,82%
-1,65%	0,00%	0,08%	20,00%	-2,21%	0,00%	100,00%	5	2,15%	9	0,9%	1,2%	1,012	263,29%
3,24%	11,11%	0,69%	11,11%	4,18%	11,11%	100,00%	1	2,75%	10	1,0%	1,7%	1,017	269,64%
-5,37%	0,00%	-7,38%	0,00%	1,61%	100,00%	100,00%	9	1,61%	9	0,9%	0,7%	1,007	272,26%
-2,33%	0,00%	-6,63%	0,00%	-7,91%	0,00%	100,00%	8	1,08%	3	0,3%	0,8%	1,008	275,18%
9,07%	11,11%	8,56%	11,11%	6,33%	11,11%	100,00%	1	6,25%	9	0,9%	5,3%	1,053	295,24%
-4,57%	0,00%	-0,68%	0,00%	-2,46%	0,00%	100,00%	9	0,78%	9	0,9%	-0,1%	0,999	294,77%
-7,53%	0,00%	-4,60%	0,00%	-3,02%	0,00%	0,00%	10	0,00%	1	0,1%	-0,1%	0,999	294,37%
0,21%	25,00%	-5,27%	0,00%	1,61%	25,00%	100,00%	6	4,00%	4	0,4%	3,6%	1,036	308,57%
4,55%	10,00%	7,97%	10,00%	2,13%	10,00%	100,00%	0	4,92%	10	1,0%	3,9%	1,039	324,59%
-1,98%	0,00%	-4,51%	0,00%	-3,82%	0,00%	100,00%	7	2,03%	10	1,0%	1,0%	1,010	328,95%
-1,47%	0,00%	4,01%	16,67%	1,72%	16,67%	100,00%	4	2,34%	7	0,7%	1,6%	1,016	335,98%
-0,56%	0,00%	-1,57%	0,00%	0,83%	20,00%	100,00%	5	2,36%	8	0,8%	1,6%	1,016	342,77%
3,88%	20,00%	1,55%	20,00%	0,12%	20,00%	100,00%	5	1,51%	6	0,6%	0,9%	1,009	346,80%
-2,26%	0,00%	-4,47%	0,00%	4,60%	50,00%	100,00%	8	3,75%	6	0,6%	3,2%	1,032	360,90%
3,01%	11,11%	8,37%	11,11%	11,22%	11,11%	100,00%	1	5,83%	10	1,0%	4,8%	1,048	383,16%
0,99%	11,11%	-1,82%	0,00%	2,30%	11,11%	100,00%	1	2,64%	2	0,2%	2,4%	1,024	394,95%

Figure 53: Absolute momentum portfolio using linear regression - part 4

2021-12-24	10,60%	10,00%	2,95%	10,00%	4,33%	10,00%	6,76%	10,00%	5,78%	10,00%	3,45%	10,00%	16,38%	10,00%
2021-12-25	-6,23%	0,00%	-4,02%	0,00%	-1,39%	0,00%	3,34%	50,00%	3,35%	50,00%	-2,65%	0,00%	-3,51%	0,00%
2021-12-26	1,83%	14,29%	1,82%	14,29%	-0,33%	0,00%	0,85%	14,29%	1,70%	14,29%	0,41%	14,29%	-2,89%	0,00%
2021-12-27	2,09%	25,00%	-0,67%	0,00%	0,37%	25,00%	-0,67%	0,00%	-0,25%	0,00%	-1,47%	0,00%	5,83%	25,00%
2021-12-28	3,89%	12,50%	2,51%	12,50%	1,29%	12,50%	4,10%	12,50%	-4,07%	0,00%	2,76%	12,50%	2,57%	12,50%
2021-12-29	-6,56%	0,00%	-4,02%	0,00%	-8,03%	0,00%	-12,16%	0,00%	-4,16%	0,00%	-5,31%	0,00%	-10,14%	0,00%
2021-12-30	-5,50%	0,00%	-4,97%	0,00%	-3,04%	0,00%	-2,53%	0,00%	-3,77%	0,00%	-6,80%	0,00%	-6,30%	0,00%
2021-12-31	1,83%	11,11%	-2,77%	0,00%	3,71%	11,11%	1,63%	11,11%	1,00%	11,11%	1,18%	11,11%	2,20%	11,11%
2022-01-01	-1,15%	0,00%	2,33%	16,67%	-0,50%	0,00%	1,97%	16,67%	-0,96%	0,00%	1,36%	16,67%	0,83%	16,67%
2022-01-02	3,47%	10,00%	3,63%	10,00%	1,04%	10,00%	0,55%	10,00%	2,36%	10,00%	2,65%	10,00%	3,91%	10,00%
2022-01-03	-0,06%	0,00%	0,16%	14,29%	-1,15%	0,00%	1,99%	14,29%	-0,33%	0,00%	2,70%	14,29%	4,27%	14,29%
2022-01-04	-4,74%	0,00%	-4,44%	0,00%	-0,85%	0,00%	0,18%	50,00%	-2,75%	0,00%	-2,05%	0,00%	9,29%	50,00%
2022-01-05	0,93%	33,33%	-1,21%	0,00%	-0,42%	0,00%	-5,69%	0,00%	-1,19%	0,00%	-0,79%	0,00%	1,13%	33,33%
2022-01-06	-5,56%	0,00%	-9,65%	0,00%	-6,84%	0,00%	-9,23%	0,00%	-3,82%	0,00%	-7,52%	0,00%	4,51%	50,00%
2022-01-07	-3,50%	0,00%	-1,05%	0,00%	-1,80%	0,00%	2,54%	50,00%	-0,69%	0,00%	-4,19%	0,00%	0,19%	50,00%
2022-01-08	0,02%	33,33%	-0,53%	0,00%	-1,74%	0,00%	8,88%	33,33%	-1,13%	0,00%	-5,41%	0,00%	1,99%	33,33%
2022-01-09	0,36%	25,00%	-4,31%	0,00%	-1,35%	0,00%	6,15%	25,00%	-1,94%	0,00%	-3,19%	0,00%	2,24%	25,00%
2022-01-10	-2,62%	0,00%	6,05%	12,50%	1,97%	12,50%	9,66%	12,50%	0,39%	12,50%	4,39%	12,50%	5,93%	12,50%
2022-01-11	-3,81%	0,00%	-6,14%	0,00%	-0,79%	0,00%	-3,12%	0,00%	-5,28%	0,00%	-2,68%	0,00%	1,30%	50,00%
2022-01-12	1,69%	12,50%	3,08%	12,50%	2,53%	12,50%	-3,99%	0,00%	2,39%	12,50%	1,99%	12,50%	-4,57%	0,00%
2022-01-13	10,04%	12,50%	9,97%	12,50%	3,47%	12,50%	-0,83%	0,00%	7,73%	12,50%	4,68%	12,50%	2,49%	12,50%
2022-01-14	-3,20%	0,00%	2,49%	50,00%	-1,55%	0,00%	-3,92%	0,00%	2,76%	50,00%	-1,24%	0,00%	-6,76%	0,00%
2022-01-15	5,42%	14,29%	-0,24%	0,00%	-0,96%	0,00%	1,33%	14,29%	8,69%	14,29%	0,11%	14,29%	-0,17%	0,00%
2022-01-16	-1,76%	0,00%	-4,38%	0,00%	-0,10%	0,00%	2,49%	16,67%	2,68%	16,67%	-2,22%	0,00%	1,47%	16,67%
2022-01-17	5,56%	20,00%	5,44%	20,00%	1,01%	20,00%	-4,34%	0,00%	-3,34%	0,00%	1,94%	20,00%	0,06%	20,00%
2022-01-18	18,33%	50,00%	-0,40%	0,00%	-2,31%	0,00%	-1,96%	0,00%	-4,42%	0,00%	-1,39%	0,00%	-5,24%	0,00%
2022-01-19	-8,84%	0,00%	-2,41%	0,00%	-0,61%	0,00%	-3,11%	0,00%	-3,52%	0,00%	-2,36%	0,00%	-6,16%	0,00%
2022-01-20	-10,52%	0,00%	-3,75%	0,00%	-0,63%	0,00%	-3,14%	0,00%	-0,24%	0,00%	-1,71%	0,00%	-4,15%	0,00%
2022-01-21	0,06%	50,00%	-3,56%	0,00%	-2,42%	0,00%	-6,44%	0,00%	-3,01%	0,00%	-3,01%	0,00%	-8,12%	0,00%
2022-01-22	-13,40%	0,00%	-11,99%	0,00%	-9,71%	0,00%	-10,72%	0,00%	-7,45%	0,00%	-12,85%	0,00%	-8,70%	0,00%
2022-01-23	-3,86%	0,00%	-12,01%	0,00%	-4,70%	0,00%	-5,27%	0,00%	-9,22%	0,00%	-10,17%	0,00%	-10,62%	0,00%
2022-01-24	5,19%	10,00%	5,23%	10,00%	2,67%	10,00%	0,22%	10,00%	0,98%	10,00%	4,02%	10,00%	1,97%	10,00%
2022-01-25	-2,60%	0,00%	0,69%	25,00%	1,16%	25,00%	-7,79%	0,00%	-1,42%	0,00%	-0,68%	0,00%	1,81%	25,00%
2022-01-26	-3,13%	0,00%	6,51%	16,67%	0,90%	16,67%	1,39%	16,67%	0,30%	16,67%	6,88%	16,67%	-1,12%	0,00%
2022-01-27	1,54%	25,00%	-3,41%	0,00%	-0,49%	0,00%	0,49%	25,00%	4,90%	25,00%	-2,79%	0,00%	-3,59%	0,00%
2022-01-28	-8,21%	0,00%	-4,15%	0,00%	1,28%	33,33%	-2,18%	0,00%	-1,81%	0,00%	-3,56%	0,00%	-4,41%	0,00%
2022-01-29	4,24%	10,00%	6,36%	10,00%	3,57%	10,00%	5,00%	10,00%	0,30%	10,00%	6,57%	10,00%	6,05%	10,00%
2022-01-30	0,57%	25,00%	-0,93%	0,00%	-0,89%	0,00%	-0,55%	0,00%	2,13%	25,00%	-2,36%	0,00%	-1,31%	0,00%
2022-01-31	-3,91%	0,00%	-3,00%	0,00%	-1,84%	0,00%	-0,04%	0,00%	-2,75%	0,00%	-1,34%	0,00%	7,26%	50,00%
2022-02-01	-2,48%	0,00%	-0,02%	0,00%	3,56%	14,29%	1,57%	14,29%	2,45%	14,29%	5,83%	14,29%	2,14%	14,29%
2022-02-02	7,62%	14,29%	2,37%	14,29%	-0,30%	0,00%	-0,99%	0,00%	1,80%	14,29%	2,60%	14,29%	-2,81%	0,00%
2022-02-03	-1,75%	0,00%	-3,17%	0,00%	-4,09%	0,00%	-4,59%	0,00%	-4,12%	0,00%	-4,62%	0,00%	-7,11%	0,00%
2022-02-04	-1,21%	0,00%	3,87%	25,00%	0,35%	25,00%	0,90%	25,00%	-1,64%	0,00%	-0,13%	0,00%	-1,57%	0,00%
2022-02-05	12,45%	10,00%	6,51%	10,00%	12,27%	10,00%	8,53%	10,00%	7,69%	10,00%	12,29%	10,00%	10,72%	10,00%
2022-02-06	-1,21%	0,00%	0,61%	16,67%	-0,30%	0,00%	2,89%	16,67%	1,23%	16,67%	3,36%	16,67%	-1,08%	0,00%

Figure 54: Absolute momentum portfolio using linear regression - part 5

6,67%	10,00%	5,21%	10,00%	3,68%	10,00%	100,00%	0	6,58%	10	1,0%	5,6%	1,056	422,57%
-2,72%	0,00%	-1,78%	0,00%	-9,98%	0,00%	100,00%	8	3,35%	10	1,0%	2,3%	1,023	434,83%
-1,65%	0,00%	0,92%	14,29%	1,74%	14,29%	100,00%	3	1,32%	7	0,7%	0,6%	1,006	438,16%
-0,69%	0,00%	3,29%	25,00%	-0,61%	0,00%	100,00%	6	2,89%	9	0,9%	2,0%	1,020	448,88%
0,23%	12,50%	-0,03%	0,00%	3,32%	12,50%	100,00%	2	2,58%	9	0,9%	1,7%	1,017	458,12%
-7,95%	0,00%	-9,33%	0,00%	-9,90%	0,00%	0,00%	10	0,00%	8	0,8%	-0,8%	0,992	453,66%
-1,26%	0,00%	-2,90%	0,00%	-4,78%	0,00%	0,00%	10	0,00%	0	0,0%	0,0%	1,000	453,66%
4,64%	11,11%	1,16%	11,11%	2,25%	11,11%	100,00%	1	2,18%	9	0,9%	1,3%	1,013	460,74%
0,02%	16,67%	0,37%	16,67%	-1,15%	0,00%	100,00%	4	1,15%	10	1,0%	0,1%	1,001	461,56%
2,39%	10,00%	0,87%	10,00%	1,59%	10,00%	100,00%	0	2,25%	10	1,0%	1,2%	1,012	468,57%
0,27%	14,29%	5,32%	14,29%	3,00%	14,29%	100,00%	3	2,53%	10	1,0%	1,5%	1,015	477,27%
-3,89%	0,00%	-4,72%	0,00%	-1,57%	0,00%	100,00%	8	4,73%	7	0,7%	4,0%	1,040	500,56%
0,10%	33,33%	-1,58%	0,00%	-0,63%	0,00%	100,00%	7	0,72%	4	0,4%	0,3%	1,003	502,49%
-5,29%	0,00%	2,85%	50,00%	-5,39%	0,00%	100,00%	8	3,68%	4	0,4%	3,3%	1,033	522,24%
-0,95%	0,00%	-3,76%	0,00%	-1,28%	0,00%	100,00%	8	1,37%	2	0,2%	1,2%	1,012	529,50%
-2,43%	0,00%	-8,74%	0,00%	-4,11%	0,00%	100,00%	7	3,63%	3	0,3%	3,3%	1,033	550,46%
-0,82%	0,00%	1,40%	25,00%	-1,03%	0,00%	100,00%	6	2,54%	4	0,4%	2,1%	1,021	564,38%
-1,28%	0,00%	2,22%	12,50%	1,06%	12,50%	100,00%	2	3,96%	9	0,9%	3,1%	1,031	584,68%
-2,30%	0,00%	-4,48%	0,00%	1,22%	50,00%	100,00%	8	1,26%	8	0,8%	0,5%	1,005	587,84%
4,91%	12,50%	4,26%	12,50%	0,05%	12,50%	100,00%	2	2,61%	9	0,9%	1,7%	1,017	599,62%
7,14%	12,50%	-0,23%	0,00%	3,31%	12,50%	100,00%	2	6,10%	2	0,2%	5,9%	1,059	640,91%
-5,45%	0,00%	-2,44%	0,00%	-3,42%	0,00%	100,00%	8	2,63%	8	0,8%	1,8%	1,018	654,45%
6,78%	14,29%	4,73%	14,29%	2,74%	14,29%	100,00%	3	4,26%	8	0,8%	3,5%	1,035	680,52%
2,76%	16,67%	0,56%	16,67%	1,03%	16,67%	100,00%	4	1,83%	8	0,8%	1,0%	1,010	688,58%
-0,41%	0,00%	-3,32%	0,00%	-1,62%	0,00%	100,00%	5	2,80%	10	1,0%	1,8%	1,018	702,79%
2,46%	50,00%	-1,60%	0,00%	-0,88%	0,00%	100,00%	8	10,40%	6	0,6%	9,8%	1,098	781,43%
-6,85%	0,00%	0,48%	100,00%	-1,95%	0,00%	100,00%	9	0,48%	3	0,3%	0,2%	1,002	783,00%
-2,88%	0,00%	-3,98%	0,00%	-3,71%	0,00%	0,00%	10	0,00%	1	0,1%	-0,1%	0,999	782,12%
-3,10%	0,00%	0,66%	50,00%	-2,31%	0,00%	100,00%	8	0,36%	2	0,2%	0,2%	1,002	783,52%
-12,43%	0,00%	-9,25%	0,00%	-9,99%	0,00%	0,00%	10	0,00%	2	0,2%	-0,2%	0,998	781,75%
-4,93%	0,00%	-6,90%	0,00%	-4,39%	0,00%	0,00%	10	0,00%	0	0,0%	0,0%	1,000	781,75%
1,29%	10,00%	5,80%	10,00%	2,24%	10,00%	100,00%	0	2,96%	10	1,0%	2,0%	1,020	799,03%
-2,34%	0,00%	2,99%	25,00%	-1,54%	0,00%	100,00%	6	1,66%	10	1,0%	0,7%	1,007	805,00%
-3,58%	0,00%	-3,84%	0,00%	0,30%	16,67%	100,00%	4	2,72%	8	0,8%	1,9%	1,019	822,34%
-1,14%	0,00%	-4,13%	0,00%	3,55%	25,00%	100,00%	6	2,62%	7	0,7%	1,9%	1,019	840,03%
0,19%	33,33%	2,73%	33,33%	-5,04%	0,00%	100,00%	7	1,40%	7	0,7%	0,7%	1,007	846,63%
3,26%	10,00%	3,73%	10,00%	1,51%	10,00%	100,00%	0	4,06%	10	1,0%	3,1%	1,031	875,59%
0,94%	25,00%	2,81%	25,00%	-0,79%	0,00%	100,00%	6	1,61%	10	1,0%	0,6%	1,006	881,59%
-2,05%	0,00%	0,92%	50,00%	-1,79%	0,00%	100,00%	8	4,09%	5	0,5%	3,6%	1,036	916,81%
1,10%	14,29%	-3,66%	0,00%	2,20%	14,29%	100,00%	3	2,69%	8	0,8%	1,9%	1,019	936,07%
8,46%	14,29%	5,18%	14,29%	1,76%	14,29%	100,00%	3	4,26%	6	0,6%	3,7%	1,037	973,94%
-5,99%	0,00%	-2,05%	0,00%	-3,94%	0,00%	0,00%	10	0,00%	7	0,7%	-0,7%	0,993	966,42%
-1,37%	0,00%	-0,31%	0,00%	1,01%	25,00%	100,00%	6	1,53%	4	0,4%	1,1%	1,011	978,46%
13,32%	10,00%	9,65%	10,00%	8,08%	10,00%	100,00%	0	10,15%	10	1,0%	9,1%	1,091	1077,14%
-1,03%	0,00%	3,67%	16,67%	0,56%	16,67%	100,00%	4	2,06%	10	1,0%	1,1%	1,011	1089,56%

Figure 55: Absolute momentum portfolio using linear regression - part 6

2022-02-07	-2,70%	0,00%	3,31%	16,67%	1,63%	16,67%	3,10%	16,67%	4,51%	16,67%	-0,93%	0,00%	-0,93%	0,00%
2022-02-08	8,29%	10,00%	0,67%	10,00%	3,94%	10,00%	9,49%	10,00%	7,33%	10,00%	2,12%	10,00%	5,07%	10,00%
2022-02-09	-2,63%	0,00%	-3,74%	0,00%	-0,08%	0,00%	-0,40%	0,00%	-2,09%	0,00%	2,40%	50,00%	-1,75%	0,00%
2022-02-10	0,01%	20,00%	2,03%	20,00%	0,75%	20,00%	-2,39%	0,00%	-0,17%	0,00%	1,98%	20,00%	-1,45%	0,00%
2022-02-11	-2,68%	0,00%	1,17%	100,00%	-1,67%	0,00%	-3,60%	0,00%	-4,52%	0,00%	-3,34%	0,00%	-1,96%	0,00%
2022-02-12	-6,07%	0,00%	-3,82%	0,00%	-3,32%	0,00%	-5,74%	0,00%	-7,80%	0,00%	-5,18%	0,00%	-8,54%	0,00%
2022-02-13	-3,34%	0,00%	1,26%	16,67%	0,14%	16,67%	-1,37%	0,00%	1,11%	16,67%	-1,40%	0,00%	-2,83%	0,00%
2022-02-14	1,19%	12,50%	-1,58%	0,00%	1,50%	12,50%	1,12%	12,50%	1,98%	12,50%	0,64%	12,50%	-2,62%	0,00%
2022-02-15	-0,28%	0,00%	1,72%	33,33%	-0,53%	0,00%	1,01%	33,33%	-2,18%	0,00%	0,23%	33,33%	-1,68%	0,00%
2022-02-16	6,52%	10,00%	3,98%	10,00%	4,84%	10,00%	4,25%	10,00%	3,18%	10,00%	6,99%	10,00%	12,09%	10,00%
2022-02-17	-4,87%	0,00%	-1,21%	0,00%	-0,72%	0,00%	6,18%	50,00%	-1,94%	0,00%	-1,02%	0,00%	1,81%	50,00%
2022-02-18	-5,04%	0,00%	-3,89%	0,00%	-7,69%	0,00%	-9,11%	0,00%	-8,84%	0,00%	-5,87%	0,00%	-6,93%	0,00%
2022-02-19	-0,69%	0,00%	-5,02%	0,00%	-3,16%	0,00%	-0,17%	0,00%	0,89%	50,00%	-5,99%	0,00%	-6,04%	0,00%
2022-02-20	0,68%	16,67%	-0,02%	0,00%	0,31%	16,67%	-2,77%	0,00%	3,17%	16,67%	-1,62%	0,00%	1,51%	16,67%
2022-02-21	-6,80%	0,00%	-1,92%	0,00%	-2,34%	0,00%	-2,71%	0,00%	-0,56%	0,00%	-0,23%	0,00%	-2,06%	0,00%
2022-02-22	-11,88%	0,00%	-4,05%	0,00%	-3,80%	0,00%	-11,34%	0,00%	-2,06%	0,00%	-2,61%	0,00%	-5,93%	0,00%
2022-02-23	3,94%	14,29%	-1,03%	0,00%	0,90%	14,29%	6,06%	14,29%	-1,52%	0,00%	0,77%	14,29%	-1,58%	0,00%
2022-02-24	-2,71%	0,00%	-4,19%	0,00%	-1,55%	0,00%	-3,92%	0,00%	-4,18%	0,00%	-2,14%	0,00%	-1,45%	0,00%
2022-02-25	0,05%	20,00%	3,33%	20,00%	3,49%	20,00%	-2,17%	0,00%	-2,30%	0,00%	1,98%	20,00%	1,89%	20,00%
2022-02-26	10,40%	10,00%	6,57%	10,00%	3,17%	10,00%	4,38%	10,00%	2,31%	10,00%	6,40%	10,00%	9,04%	10,00%
2022-02-27	-3,36%	0,00%	-1,44%	0,00%	-0,48%	0,00%	3,92%	25,00%	-1,65%	0,00%	-0,50%	0,00%	1,50%	25,00%
2022-02-28	-3,72%	0,00%	-2,51%	0,00%	-3,57%	0,00%	-7,01%	0,00%	-3,44%	0,00%	-4,89%	0,00%	-6,27%	0,00%
2022-03-01	12,63%	10,00%	7,40%	10,00%	12,95%	10,00%	14,84%	10,00%	6,32%	10,00%	8,87%	10,00%	7,38%	10,00%
2022-03-02	-1,13%	0,00%	5,28%	16,67%	4,29%	16,67%	-1,29%	0,00%	2,73%	16,67%	2,96%	16,67%	1,83%	16,67%
2022-03-03	-3,15%	0,00%	1,39%	33,33%	-1,02%	0,00%	-1,16%	0,00%	-0,20%	0,00%	0,73%	33,33%	2,11%	33,33%
2022-03-04	0,17%	33,33%	-0,42%	0,00%	-2,63%	0,00%	-0,11%	0,00%	-0,23%	0,00%	-1,76%	0,00%	3,53%	33,33%
2022-03-05	-9,51%	0,00%	-9,31%	0,00%	-8,83%	0,00%	-5,72%	0,00%	-3,69%	0,00%	-9,26%	0,00%	-8,64%	0,00%

Figure 56: Absolute momentum portfolio using linear regression - part 7

1,42%	16,67%	-3,63%	0,00%	2,97%	16,67%	100,00%	4	2,82%	4	0,4%	2,4%	1,024	1118,38%
8,73%	10,00%	8,33%	10,00%	23,95%	10,00%	100,00%	0	7,79%	10	1,0%	6,8%	1,068	1201,10%
-2,37%	0,00%	-1,50%	0,00%	4,62%	50,00%	100,00%	8	3,51%	10	1,0%	2,5%	1,025	1233,74%
5,24%	20,00%	-1,30%	0,00%	-1,51%	0,00%	100,00%	5	2,00%	6	0,6%	1,4%	1,014	1252,44%
-2,94%	0,00%	-5,13%	0,00%	-2,45%	0,00%	100,00%	9	1,17%	5	0,5%	0,7%	1,007	1261,45%
-7,70%	0,00%	-3,04%	0,00%	-9,76%	0,00%	0,00%	10	0,00%	1	0,1%	-0,1%	0,999	1260,09%
1,76%	16,67%	0,20%	16,67%	6,23%	16,67%	100,00%	4	1,78%	6	0,6%	1,2%	1,012	1276,20%
0,30%	12,50%	1,36%	12,50%	1,00%	12,50%	100,00%	2	1,14%	9	0,9%	0,2%	1,002	1279,45%
-2,66%	0,00%	-0,82%	0,00%	-0,76%	0,00%	100,00%	7	0,99%	9	0,9%	0,1%	1,001	1280,63%
5,64%	10,00%	6,54%	10,00%	5,99%	10,00%	100,00%	0	6,00%	10	1,0%	5,0%	1,050	1349,71%
-2,63%	0,00%	-0,89%	0,00%	-4,40%	0,00%	100,00%	8	3,99%	10	1,0%	3,0%	1,030	1393,09%
-8,83%	0,00%	-8,08%	0,00%	-9,07%	0,00%	0,00%	10	0,00%	2	0,2%	-0,2%	0,998	1390,11%
-1,48%	0,00%	-2,77%	0,00%	3,73%	50,00%	100,00%	8	2,31%	2	0,2%	2,1%	1,021	1421,56%
-0,89%	0,00%	0,17%	16,67%	4,22%	16,67%	100,00%	4	1,68%	6	0,6%	1,1%	1,011	1437,94%
-3,75%	0,00%	-2,53%	0,00%	-5,25%	0,00%	0,00%	10	0,00%	6	0,6%	-0,6%	0,994	1428,71%
-6,94%	0,00%	-4,85%	0,00%	-2,56%	0,00%	0,00%	10	0,00%	0	0,0%	0,0%	1,000	1428,71%
3,67%	14,29%	3,51%	14,29%	0,59%	14,29%	100,00%	3	2,78%	7	0,7%	2,1%	1,021	1460,46%
0,55%	100,00%	-2,60%	0,00%	-4,17%	0,00%	100,00%	9	0,55%	7	0,7%	-0,2%	0,998	1458,11%
-0,58%	0,00%	-7,84%	0,00%	-6,95%	0,00%	100,00%	5	2,15%	6	0,6%	1,5%	1,015	1482,22%
6,67%	10,00%	9,45%	10,00%	10,11%	10,00%	100,00%	0	6,85%	10	1,0%	5,8%	1,058	1574,76%
-2,54%	0,00%	1,05%	25,00%	2,29%	25,00%	100,00%	6	2,19%	10	1,0%	1,2%	1,012	1594,66%
-4,57%	0,00%	0,08%	100,00%	-3,36%	0,00%	100,00%	9	0,08%	4	0,4%	-0,3%	0,997	1589,21%
8,80%	10,00%	8,48%	10,00%	11,03%	10,00%	100,00%	0	9,87%	10	1,0%	8,9%	1,089	1739,04%
-0,52%	0,00%	1,43%	16,67%	-3,05%	0,00%	100,00%	4	3,09%	10	1,0%	2,1%	1,021	1777,39%
-2,47%	0,00%	-4,28%	0,00%	-1,71%	0,00%	100,00%	7	1,41%	6	0,6%	0,8%	1,008	1792,61%
2,12%	33,33%	-0,44%	0,00%	-0,83%	0,00%	100,00%	7	1,94%	4	0,4%	1,5%	1,015	1821,74%
-9,44%	0,00%	-6,77%	0,00%	-6,60%	0,00%	0,00%	10	0,00%	3	0,3%	-0,3%	0,997	1815,97%

Figure 57: Absolute momentum portfolio using linear regression - part 8

1.6.1.2 Dual momentum portfolio

	ADA		BNB		BTC		DASH		DOGE		ETH		LINK	
	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight
		10%		10%		10%		10%		10%		10%		10%
2021-10-04	-2,87%	0,00%	-0,84%	0,00%	0,30%	0,00%	-0,60%	0,00%	-0,44%	0,00%	0,83%	50,00%	-0,81%	0,00%
2021-10-05	0,98%	0,00%	-0,18%	0,00%	2,12%	50,00%	-0,99%	0,00%	6,40%	50,00%	-0,95%	0,00%	-1,09%	0,00%
2021-10-06	1,62%	0,00%	2,13%	0,00%	3,89%	0,00%	5,34%	50,00%	3,98%	0,00%	3,13%	0,00%	-2,91%	0,00%
2021-10-07	-0,59%	0,00%	1,34%	0,00%	7,27%	50,00%	-2,79%	0,00%	4,63%	50,00%	0,80%	0,00%	-2,63%	0,00%
2021-10-08	0,61%	0,00%	0,53%	0,00%	-2,93%	0,00%	1,95%	0,00%	-2,17%	0,00%	0,48%	0,00%	4,80%	50,00%
2021-10-09	1,27%	0,00%	-0,01%	0,00%	3,37%	0,00%	4,70%	50,00%	-6,87%	0,00%	2,84%	0,00%	4,39%	0,00%
2021-10-10	0,85%	0,00%	-3,45%	0,00%	-1,48%	0,00%	1,92%	50,00%	3,36%	50,00%	-3,07%	0,00%	-4,32%	0,00%
2021-10-11	-5,21%	0,00%	-6,37%	0,00%	-1,37%	50,00%	-6,77%	0,00%	-0,65%	50,00%	-3,63%	0,00%	-6,87%	0,00%
2021-10-12	-0,72%	0,00%	1,55%	0,00%	7,78%	50,00%	0,45%	0,00%	-2,81%	0,00%	2,79%	0,00%	1,16%	0,00%
2021-10-13	-1,10%	50,00%	11,37%	50,00%	-2,38%	0,00%	-1,32%	0,00%	-4,18%	0,00%	-1,24%	0,00%	-2,37%	0,00%
2021-10-14	3,93%	50,00%	4,64%	50,00%	1,59%	0,00%	-3,74%	0,00%	0,86%	0,00%	1,92%	0,00%	2,66%	0,00%
2021-10-15	-0,44%	0,00%	0,54%	0,00%	0,28%	0,00%	3,75%	0,00%	3,20%	0,00%	6,04%	50,00%	5,09%	50,00%
2021-10-16	1,96%	0,00%	-0,64%	0,00%	6,21%	50,00%	4,44%	50,00%	-0,57%	0,00%	0,53%	0,00%	-0,51%	0,00%
2021-10-17	-3,75%	0,00%	-3,81%	0,00%	-0,09%	0,00%	1,33%	0,00%	2,58%	50,00%	-0,68%	0,00%	2,49%	50,00%
2021-10-18	-0,71%	0,00%	2,10%	50,00%	1,23%	50,00%	-1,58%	0,00%	0,99%	0,00%	0,98%	0,00%	-2,06%	0,00%
2021-10-19	1,84%	0,00%	5,99%	50,00%	-0,05%	0,00%	-3,84%	0,00%	1,90%	0,00%	-1,97%	0,00%	-3,55%	0,00%
2021-10-20	-3,05%	0,00%	-1,05%	0,00%	2,14%	0,00%	4,77%	50,00%	2,39%	0,00%	3,44%	0,00%	-1,31%	0,00%
2021-10-21	2,16%	0,00%	2,69%	0,00%	4,88%	0,00%	5,23%	0,00%	1,33%	0,00%	7,10%	0,00%	8,07%	50,00%
2021-10-22	-0,28%	0,00%	-2,79%	0,00%	-5,29%	0,00%	-0,27%	0,00%	-1,35%	0,00%	0,77%	0,00%	4,86%	50,00%
2021-10-23	0,56%	50,00%	-1,29%	0,00%	-3,05%	0,00%	-1,17%	0,00%	-2,27%	0,00%	-2,74%	0,00%	-1,03%	50,00%
2021-10-24	-1,80%	0,00%	-2,38%	0,00%	-1,63%	0,00%	2,19%	0,00%	3,21%	0,00%	1,47%	0,00%	6,71%	50,00%
2021-10-25	-3,00%	0,00%	0,89%	0,00%	1,06%	0,00%	3,54%	50,00%	7,97%	50,00%	0,39%	0,00%	0,03%	0,00%
2021-10-26	5,48%	0,00%	7,20%	50,00%	6,01%	0,00%	1,32%	0,00%	-0,99%	0,00%	6,33%	0,00%	8,01%	50,00%
2021-10-27	-0,04%	50,00%	-5,45%	0,00%	-5,37%	0,00%	-7,29%	0,00%	-3,37%	0,00%	-4,20%	0,00%	-0,28%	0,00%
2021-10-28	-9,28%	0,00%	-7,92%	0,00%	-2,71%	50,00%	-13,39%	0,00%	-9,97%	0,00%	-4,57%	50,00%	-7,57%	0,00%
2021-10-29	0,16%	0,00%	7,57%	50,00%	2,60%	0,00%	5,38%	0,00%	17,14%	50,00%	6,90%	0,00%	4,78%	0,00%
2021-10-30	2,57%	0,00%	10,48%	50,00%	2,61%	0,00%	2,20%	0,00%	7,53%	0,00%	3,55%	0,00%	0,16%	0,00%
2021-10-31	-2,74%	0,00%	1,86%	50,00%	0,01%	0,00%	-0,30%	0,00%	-4,07%	0,00%	-0,60%	0,00%	-2,65%	0,00%
2021-11-01	1,07%	0,00%	-0,65%	0,00%	-1,52%	0,00%	5,72%	50,00%	-0,52%	0,00%	-2,35%	0,00%	-0,65%	0,00%
2021-11-02	-3,97%	0,00%	0,60%	0,00%	-1,20%	0,00%	-1,30%	0,00%	-8,79%	0,00%	-0,60%	0,00%	1,78%	0,00%
2021-11-03	3,31%	0,00%	4,52%	0,00%	4,64%	0,00%	1,98%	0,00%	2,17%	0,00%	9,77%	50,00%	4,03%	0,00%
2021-11-04	4,22%	0,00%	2,78%	0,00%	-0,15%	0,00%	2,08%	0,00%	6,15%	50,00%	0,33%	0,00%	-0,88%	0,00%
2021-11-05	-3,35%	0,00%	-1,02%	50,00%	-1,94%	0,00%	1,78%	50,00%	-6,77%	0,00%	-1,74%	0,00%	-3,12%	0,00%
2021-11-06	-0,89%	0,00%	4,62%	50,00%	-1,11%	0,00%	-2,01%	0,00%	-1,94%	0,00%	-1,32%	0,00%	4,31%	0,00%
2021-11-07	1,12%	0,00%	4,90%	50,00%	-0,39%	0,00%	-2,65%	0,00%	0,57%	0,00%	-0,19%	0,00%	-0,80%	0,00%
2021-11-08	-1,09%	0,00%	4,34%	0,00%	4,94%	50,00%	0,15%	0,00%	2,04%	0,00%	2,57%	0,00%	0,49%	0,00%

Figure 58: Dual momentum portfolio using linear regression - part 1

DUAL MOMENTUM

LTC		XLM		XRP			50%	50%								
Returns	Weight	Returns	Weight	Returns	Weight	sum of weights	MAX		2e MAX		Portfolio returns without transac. Cost	Number of transactions	Transaction cost	Portfolio returns with transac. cost	1+r	Cumulative return
	10%		10%		10%		asset	returns	asset	returns						
0,41%	50,00%	-5,42%	0,00%	-1,41%	0,00%	100,00%	ETH	0,0082999	LTC	0,0040836	0,62%	10	1,00%	-0,38%	0,996191734	-0,38%
0,09%	0,00%	1,21%	0,00%	-1,72%	0,00%	100,00%	DOGE	0,0639804	BTC	0,0212348	4,26%	4	0,40%	3,86%	1,038607577	3,47%
3,43%	0,00%	10,13%	50,00%	2,31%	0,00%	100,00%	XLM	0,1012644	DASH	0,0534356	7,73%	4	0,40%	7,33%	1,073349991	11,05%
1,87%	0,00%	0,64%	0,00%	0,79%	0,00%	100,00%	BTC	0,0726951	DOGE	0,0463122	5,95%	4	0,40%	5,55%	1,055503652	17,22%
-1,14%	0,00%	3,15%	50,00%	2,70%	0,00%	100,00%	LINK	0,048032	XLM	0,0314768	3,98%	4	0,40%	3,58%	1,035754379	21,41%
-2,05%	0,00%	5,20%	50,00%	3,56%	0,00%	100,00%	XLM	0,0519517	DASH	0,0470232	4,95%	2	0,20%	4,75%	1,047487435	27,17%
-0,33%	0,00%	-2,34%	0,00%	1,00%	0,00%	100,00%	DOGE	0,0335996	DASH	0,0192188	2,64%	2	0,20%	2,44%	1,024409207	30,28%
-1,81%	0,00%	-7,70%	0,00%	-2,16%	0,00%	100,00%	DOGE	-0,0065151	BTC	-0,0136743	-1,01%	2	0,20%	-1,21%	0,987905311	28,70%
3,68%	50,00%	3,08%	0,00%	0,45%	0,00%	100,00%	BTC	0,077835	LTC	0,036829	5,73%	2	0,20%	5,53%	1,055332002	35,82%
-4,19%	0,00%	-3,93%	0,00%	-3,62%	0,00%	100,00%	BNB	0,1136595	ADA	-0,0110179	5,13%	4	0,40%	4,73%	1,047320804	42,25%
2,67%	0,00%	1,53%	0,00%	1,81%	0,00%	100,00%	BNB	0,0463533	ADA	0,0392527	4,28%	0	0,00%	4,28%	1,042802996	48,34%
2,65%	0,00%	0,47%	0,00%	2,36%	0,00%	100,00%	ETH	0,0603579	LINK	0,0508822	5,56%	4	0,40%	5,16%	1,05162005	56,00%
3,56%	0,00%	0,09%	0,00%	3,48%	0,00%	100,00%	BTC	0,0621289	DASH	0,0443958	5,33%	4	0,40%	4,93%	1,049262318	63,68%
-0,57%	0,00%	-2,26%	0,00%	-1,57%	0,00%	100,00%	DOGE	0,0258416	LINK	0,024909	2,54%	4	0,40%	2,14%	1,021375326	67,18%
-2,33%	0,00%	0,38%	0,00%	-4,43%	0,00%	100,00%	BNB	0,0209523	BTC	0,0123488	1,67%	4	0,40%	1,27%	1,012650588	69,30%
2,90%	50,00%	-2,24%	0,00%	-2,66%	0,00%	100,00%	BNB	0,059947	LTC	0,0290143	4,45%	2	0,20%	4,25%	1,04248066	76,49%
1,27%	0,00%	4,33%	50,00%	1,66%	0,00%	100,00%	DASH	0,0477446	XLM	0,0432522	4,55%	4	0,40%	4,15%	1,041498381	83,81%
10,13%	50,00%	-1,77%	0,00%	4,94%	0,00%	100,00%	LTC	0,1012965	LINK	0,0806765	9,10%	4	0,40%	8,70%	1,086986528	99,80%
-5,63%	0,00%	3,35%	50,00%	-2,67%	0,00%	100,00%	LINK	0,0485872	XLM	0,0334751	4,10%	2	0,20%	3,90%	1,039031159	107,60%
-3,22%	0,00%	-1,39%	0,00%	-2,55%	0,00%	100,00%	ADA	0,0055582	LINK	-0,0102844	-0,24%	2	0,20%	-0,44%	0,99563692	106,69%
4,01%	50,00%	0,70%	0,00%	-0,28%	0,00%	100,00%	LINK	0,0671229	LTC	0,0400557	5,36%	2	0,20%	5,16%	1,051589298	117,36%
-3,81%	0,00%	-4,25%	0,00%	0,05%	0,00%	100,00%	DOGE	0,0797139	DASH	0,0353675	5,75%	4	0,40%	5,35%	1,0535407	129,00%
4,93%	0,00%	2,54%	0,00%	4,17%	0,00%	100,00%	LINK	0,0800848	BNB	0,0720169	7,61%	4	0,40%	7,21%	1,072050885	145,49%
-0,87%	0,00%	0,02%	50,00%	-2,34%	0,00%	100,00%	XLM	0,0002469	ADA	-0,0004417	-0,01%	4	0,40%	-0,41%	0,995902593	144,49%
-6,94%	0,00%	-7,15%	0,00%	-7,92%	0,00%	100,00%	BTC	-0,0270515	ETH	-0,0457062	-3,64%	4	0,40%	-4,04%	0,959621142	134,62%
3,91%	0,00%	-1,66%	0,00%	5,43%	0,00%	100,00%	DOGE	0,1714069	BNB	0,0756512	12,35%	4	0,40%	11,95%	1,119529067	162,66%
1,98%	0,00%	9,98%	50,00%	2,42%	0,00%	100,00%	BNB	0,1047516	XLM	0,099823	10,23%	2	0,20%	10,03%	1,100287322	189,00%
-2,46%	0,00%	5,09%	50,00%	-1,23%	0,00%	100,00%	XLM	0,0509069	BNB	0,0186037	3,48%	0	0,00%	3,48%	1,034755309	199,05%
1,42%	0,00%	2,24%	0,00%	3,95%	50,00%	100,00%	DASH	0,057158	XRP	0,039489	4,83%	4	0,40%	4,43%	1,044323492	212,30%
2,60%	50,00%	3,06%	50,00%	-3,71%	0,00%	100,00%	XLM	0,0305553	LTC	0,0259738	2,83%	4	0,40%	2,43%	1,024264555	219,88%
2,14%	0,00%	11,29%	50,00%	4,87%	0,00%	100,00%	XLM	0,1128987	ETH	0,0976809	10,53%	2	0,20%	10,33%	1,103289806	252,92%
3,14%	0,00%	-2,09%	0,00%	8,04%	50,00%	100,00%	XRP	0,0804037	DOGE	0,0615236	7,10%	4	0,40%	6,70%	1,066963663	276,55%
-1,96%	0,00%	-3,06%	0,00%	-1,13%	0,00%	100,00%	DASH	0,0178496	BNB	-0,010188	0,38%	4	0,40%	-0,02%	0,999830784	276,49%
-1,64%	0,00%	8,92%	50,00%	-3,40%	0,00%	100,00%	XLM	0,0891518	BNB	0,046155	6,77%	2	0,20%	6,57%	1,065653399	301,21%
-0,18%	0,00%	1,54%	50,00%	-1,82%	0,00%	100,00%	BNB	0,0490039	XLM	0,0153598	3,22%	0	0,00%	3,22%	1,032181851	314,12%
1,46%	0,00%	-3,59%	0,00%	5,62%	50,00%	100,00%	XRP	0,0561591	BTC	0,0493588	5,28%	4	0,40%	4,88%	1,048758965	334,31%

Portfolio dual momentum	
Avg return	3,353%
Volatility	0,0407807
Sharpe ratio	0,822175

Figure 59: Dual momentum portfolio using linear regression - part 2

2021-11-09	7,78%	0,00%	1,78%	0,00%	6,41%	0,00%	10,11%	50,00%	4,71%	0,00%	5,02%	0,00%	7,55%	0,00%
2021-11-10	6,88%	0,00%	-5,15%	0,00%	-1,18%	0,00%	11,01%	50,00%	0,13%	0,00%	-2,84%	0,00%	-1,63%	0,00%
2021-11-11	-7,35%	0,00%	-2,49%	0,00%	-2,53%	0,00%	-5,82%	0,00%	-7,90%	0,00%	-1,67%	0,00%	3,82%	50,00%
2021-11-12	-0,42%	0,00%	2,65%	0,00%	-2,18%	0,00%	4,06%	50,00%	0,79%	0,00%	0,68%	0,00%	0,21%	0,00%
2021-11-13	-0,87%	0,00%	0,42%	50,00%	-0,73%	0,00%	-4,55%	0,00%	-2,64%	0,00%	-0,55%	50,00%	-5,19%	0,00%
2021-11-14	-3,15%	0,00%	2,68%	0,00%	1,73%	0,00%	3,17%	0,00%	3,80%	50,00%	1,19%	0,00%	2,16%	0,00%
2021-11-15	0,55%	0,00%	1,30%	0,00%	1,76%	0,00%	1,70%	0,00%	5,59%	50,00%	-3,50%	0,00%	-0,35%	0,00%
2021-11-16	-0,77%	50,00%	-1,60%	0,00%	-4,56%	0,00%	-4,40%	0,00%	-2,17%	0,00%	-0,82%	0,00%	-5,11%	0,00%
2021-11-17	-4,22%	0,00%	-7,14%	0,00%	-3,58%	0,00%	-10,58%	0,00%	-12,51%	0,00%	-4,39%	50,00%	-5,50%	0,00%
2021-11-18	-1,90%	0,00%	-5,95%	0,00%	-0,98%	0,00%	-4,87%	0,00%	-0,58%	0,00%	-1,83%	0,00%	-2,41%	0,00%
2021-11-19	-3,07%	50,00%	-6,77%	0,00%	-4,57%	0,00%	-6,11%	0,00%	-3,32%	50,00%	-5,09%	0,00%	-7,31%	0,00%
2021-11-20	3,06%	0,00%	8,19%	50,00%	-0,12%	0,00%	7,88%	50,00%	-1,06%	0,00%	3,36%	0,00%	-0,65%	0,00%
2021-11-21	2,33%	0,00%	5,75%	0,00%	3,14%	0,00%	-0,45%	0,00%	5,78%	50,00%	7,40%	50,00%	3,48%	0,00%
2021-11-22	-4,07%	0,00%	-2,58%	0,00%	0,65%	0,00%	5,88%	50,00%	-5,69%	0,00%	-2,79%	0,00%	3,30%	50,00%
2021-11-23	-3,88%	0,00%	-3,01%	0,00%	-4,72%	0,00%	-4,77%	0,00%	-1,13%	50,00%	-1,90%	0,00%	-5,84%	0,00%
2021-11-24	-3,23%	0,00%	-1,88%	0,00%	0,89%	50,00%	-2,88%	0,00%	-0,29%	0,00%	-0,84%	0,00%	-2,66%	0,00%
2021-11-25	-1,74%	0,00%	2,93%	50,00%	-0,63%	0,00%	4,60%	50,00%	-1,54%	0,00%	1,34%	0,00%	0,05%	0,00%
2021-11-26	0,47%	0,00%	5,41%	50,00%	-0,87%	0,00%	8,22%	50,00%	2,24%	0,00%	0,41%	0,00%	-4,32%	0,00%
2021-11-27	-8,67%	0,00%	-1,77%	50,00%	-3,04%	0,00%	-13,64%	0,00%	-3,76%	0,00%	-3,71%	0,00%	-1,02%	50,00%
2021-11-28	2,00%	0,00%	-0,76%	0,00%	0,48%	0,00%	-0,36%	0,00%	-8,88%	0,00%	-1,56%	0,00%	-3,08%	0,00%
2021-11-29	1,76%	0,00%	2,98%	0,00%	3,69%	50,00%	-0,69%	0,00%	3,14%	0,00%	4,03%	50,00%	-1,35%	0,00%
2021-11-30	-1,43%	0,00%	1,03%	0,00%	1,82%	0,00%	1,37%	0,00%	6,50%	50,00%	3,71%	0,00%	4,17%	50,00%
2021-12-01	-1,47%	0,00%	5,04%	50,00%	-0,53%	0,00%	0,90%	0,00%	0,30%	0,00%	6,97%	50,00%	4,46%	0,00%
2021-12-02	1,20%	50,00%	0,13%	0,00%	-0,43%	0,00%	-4,13%	0,00%	-2,49%	0,00%	-1,69%	0,00%	-4,24%	0,00%
2021-12-03	7,57%	50,00%	-3,03%	0,00%	-1,22%	0,00%	-3,08%	0,00%	0,40%	50,00%	-3,60%	0,00%	-4,59%	0,00%
2021-12-04	-6,88%	0,00%	-5,17%	0,00%	-5,77%	0,00%	-4,22%	0,00%	-4,64%	0,00%	-4,65%	0,00%	-4,17%	0,00%
2021-12-05	-10,22%	0,00%	-4,83%	50,00%	-7,43%	0,00%	-10,98%	0,00%	-8,07%	0,00%	-2,69%	50,00%	-8,64%	0,00%
2021-12-06	0,76%	50,00%	-1,21%	0,00%	-0,48%	0,00%	-5,81%	0,00%	-3,59%	0,00%	3,50%	50,00%	-7,85%	0,00%
2021-12-07	1,04%	0,00%	2,70%	0,00%	3,30%	50,00%	0,26%	0,00%	0,68%	0,00%	1,79%	0,00%	1,85%	0,00%
2021-12-08	-2,78%	0,00%	1,69%	50,00%	-1,20%	0,00%	0,69%	0,00%	1,10%	0,00%	-0,68%	0,00%	7,17%	50,00%
2021-12-09	1,50%	0,00%	3,56%	0,00%	0,26%	0,00%	4,82%	50,00%	-1,64%	0,00%	0,71%	0,00%	5,76%	50,00%
2021-12-10	-5,27%	0,00%	-3,66%	0,00%	-5,60%	0,00%	-6,25%	0,00%	-3,58%	50,00%	-4,22%	0,00%	-7,09%	0,00%
2021-12-11	-9,22%	0,00%	-7,84%	0,00%	1,16%	50,00%	1,01%	50,00%	-5,59%	0,00%	-5,45%	0,00%	-9,35%	0,00%
2021-12-12	12,86%	50,00%	2,57%	0,00%	3,38%	0,00%	7,43%	0,00%	2,21%	0,00%	3,81%	0,00%	-1,05%	0,00%
2021-12-13	-1,12%	0,00%	-0,89%	0,00%	-0,23%	50,00%	-8,10%	0,00%	0,78%	50,00%	-1,45%	0,00%	-0,33%	0,00%
2021-12-14	-8,74%	0,00%	-3,70%	50,00%	-5,28%	0,00%	-5,23%	0,00%	-4,31%	0,00%	-4,12%	0,00%	-3,73%	0,00%
2021-12-15	-3,67%	0,00%	-5,34%	0,00%	-1,43%	0,00%	4,50%	50,00%	9,67%	50,00%	-2,80%	0,00%	-4,55%	0,00%
2021-12-16	7,44%	0,00%	5,83%	0,00%	4,32%	0,00%	1,20%	0,00%	4,57%	0,00%	3,71%	0,00%	7,49%	50,00%
2021-12-17	-5,94%	0,00%	0,27%	0,00%	-0,93%	0,00%	-5,17%	0,00%	-5,15%	0,00%	1,74%	50,00%	4,07%	50,00%
2021-12-18	2,91%	50,00%	2,57%	0,00%	-2,70%	0,00%	-3,79%	0,00%	2,59%	0,00%	0,25%	0,00%	-3,11%	0,00%
2021-12-19	3,40%	50,00%	0,16%	0,00%	-0,41%	0,00%	4,11%	50,00%	-2,17%	0,00%	-1,01%	0,00%	3,30%	0,00%
2021-12-20	-3,19%	0,00%	-4,05%	0,00%	0,68%	0,00%	1,31%	0,00%	-0,41%	0,00%	-0,92%	0,00%	-4,11%	0,00%
2021-12-21	-1,40%	0,00%	-3,07%	0,00%	-1,02%	0,00%	-4,86%	0,00%	2,91%	50,00%	-1,57%	0,00%	-5,24%	0,00%
2021-12-22	6,00%	0,00%	3,02%	0,00%	5,15%	0,00%	5,63%	0,00%	-3,36%	0,00%	4,02%	0,00%	6,07%	0,00%
2021-12-23	3,99%	0,00%	6,28%	50,00%	0,52%	0,00%	2,68%	0,00%	1,69%	0,00%	1,01%	0,00%	4,30%	50,00%

Figure 60: Dual momentum portfolio using linear regression - part 3

13,22%	50,00%	-2,09%	0,00%	6,39%	0,00%	100,00%	LTC	0,1322054	DASH	0,1010791	11,66%	4	0,40%	11,26%	1,112642255	383,23%
14,26%	50,00%	-2,76%	0,00%	-2,39%	0,00%	100,00%	LTC	0,1426492	DASH	0,1100971	12,64%	0	0,00%	12,64%	1,126373141	444,30%
-0,81%	50,00%	-7,59%	0,00%	-5,78%	0,00%	100,00%	LINK	0,0382154	LTC	-0,0081084	1,51%	2	0,20%	1,31%	1,013053478	451,40%
0,50%	0,00%	3,06%	50,00%	1,96%	0,00%	100,00%	DASH	0,0405981	XLM	0,0306254	3,56%	4	0,40%	3,16%	1,031611758	468,83%
-3,47%	0,00%	-5,35%	0,00%	-3,12%	0,00%	100,00%	BNB	0,0042467	ETH	-0,0054744	-0,06%	4	0,40%	-0,46%	0,995386138	466,21%
1,17%	0,00%	4,18%	50,00%	3,13%	0,00%	100,00%	XLM	0,0417504	DOGE	0,0379945	3,99%	4	0,40%	3,59%	1,035872422	486,52%
9,94%	50,00%	-0,04%	0,00%	-1,16%	0,00%	100,00%	LTC	0,0994256	DOGE	0,0558703	7,76%	2	0,20%	7,56%	1,075647974	530,89%
-7,53%	0,00%	0,61%	50,00%	-4,61%	0,00%	100,00%	XLM	0,0061351	ADA	-0,0077333	-0,08%	4	0,40%	-0,48%	0,995200912	527,86%
-10,79%	0,00%	-5,42%	0,00%	-2,82%	50,00%	100,00%	XRP	-0,0282413	ETH	-0,0438943	-3,61%	4	0,40%	-4,01%	0,959932201	502,70%
-1,40%	0,00%	2,73%	50,00%	0,51%	50,00%	100,00%	XLM	0,0273443	XRP	0,0050802	1,62%	2	0,20%	1,42%	1,014212248	511,27%
-11,00%	0,00%	-6,15%	0,00%	-4,23%	0,00%	100,00%	ADA	-0,0307281	DOGE	-0,0331759	-3,20%	4	0,40%	-3,60%	0,96404799	489,29%
3,31%	0,00%	-2,20%	0,00%	0,98%	0,00%	100,00%	BNB	0,0819302	DASH	0,078809	8,04%	4	0,40%	7,64%	1,076369602	534,30%
5,38%	0,00%	4,00%	0,00%	-1,16%	0,00%	100,00%	ETH	0,0740295	DOGE	0,0578399	6,59%	4	0,40%	6,19%	1,061934705	573,58%
-3,57%	0,00%	1,91%	0,00%	-0,01%	0,00%	100,00%	DASH	0,0587873	LINK	0,0329567	4,59%	4	0,40%	4,19%	1,041872008	601,79%
-2,43%	0,00%	-6,77%	0,00%	0,40%	50,00%	100,00%	XRP	0,0039916	DOGE	-0,0112819	-0,36%	4	0,40%	-0,76%	0,992354852	596,42%
0,06%	0,00%	-2,52%	0,00%	2,15%	50,00%	100,00%	XRP	0,0214745	BTC	0,0089425	1,52%	2	0,20%	1,32%	1,013208481	605,62%
-0,70%	0,00%	1,29%	0,00%	-5,56%	0,00%	100,00%	DASH	0,0460377	BNB	0,0293471	3,77%	4	0,40%	3,37%	1,033692424	629,40%
2,16%	0,00%	2,61%	0,00%	-1,02%	0,00%	100,00%	DASH	0,0821968	BNB	0,054078	6,81%	0	0,00%	6,81%	1,068137403	679,09%
-6,28%	0,00%	-8,05%	0,00%	-5,95%	0,00%	100,00%	LINK	-0,0102316	BNB	-0,0177303	-1,40%	2	0,20%	-1,60%	0,984019047	666,64%
-1,19%	0,00%	3,09%	50,00%	2,37%	50,00%	100,00%	XLM	0,0308977	XRP	0,0236652	2,73%	4	0,40%	2,33%	1,023281447	684,49%
1,34%	0,00%	-1,52%	0,00%	-2,24%	0,00%	100,00%	ETH	0,0403203	BTC	0,0368827	3,86%	4	0,40%	3,46%	1,034601488	711,64%
3,17%	0,00%	3,88%	0,00%	2,38%	0,00%	100,00%	DOGE	0,0649669	LINK	0,0417018	5,33%	4	0,40%	4,93%	1,049334335	751,68%
4,96%	0,00%	-2,78%	0,00%	0,69%	0,00%	100,00%	ETH	0,0697355	BNB	0,0504433	6,01%	4	0,40%	5,61%	1,056089425	799,45%
-2,58%	0,00%	1,32%	50,00%	0,66%	0,00%	100,00%	XLM	0,0131539	ADA	0,011964	1,26%	4	0,40%	0,86%	1,008558946	807,15%
-2,04%	0,00%	-3,27%	0,00%	-3,31%	0,00%	100,00%	ADA	0,0756578	DOGE	0,0040061	3,98%	2	0,20%	3,78%	1,037831921	841,47%
-7,44%	0,00%	3,09%	50,00%	-3,23%	50,00%	100,00%	XLM	0,0308566	XRP	-0,032328	-0,07%	4	0,40%	-0,47%	0,995264306	837,01%
-13,19%	0,00%	-18,16%	0,00%	-7,72%	0,00%	100,00%	ETH	-0,0268931	BNB	-0,0482926	-3,76%	4	0,40%	-4,16%	0,958407176	798,03%
-4,75%	0,00%	0,13%	0,00%	-2,63%	0,00%	100,00%	ETH	0,035033	ADA	0,0076246	2,13%	2	0,20%	1,93%	1,019328765	815,39%
2,22%	0,00%	5,34%	50,00%	-0,18%	0,00%	100,00%	XLM	0,0534133	BTC	0,0329911	4,32%	4	0,40%	3,92%	1,039202225	851,28%
-1,65%	0,00%	0,08%	0,00%	-2,21%	0,00%	100,00%	LINK	0,0716811	BNB	0,0168634	4,43%	4	0,40%	4,03%	1,040272238	889,59%
3,24%	0,00%	0,69%	0,00%	4,18%	0,00%	100,00%	LINK	0,0576233	DASH	0,0482406	5,29%	2	0,20%	5,09%	1,050931962	939,99%
-5,37%	0,00%	-7,38%	0,00%	1,61%	50,00%	100,00%	XRP	0,0160937	DOGE	-0,0357953	-0,99%	4	0,40%	-1,39%	0,98614917	925,58%
-2,33%	0,00%	-6,63%	0,00%	-7,91%	0,00%	100,00%	BTC	0,0115698	DASH	0,010129	1,08%	4	0,40%	0,68%	1,006849416	932,61%
9,07%	50,00%	8,56%	0,00%	6,33%	0,00%	100,00%	ADA	0,1285772	LTC	0,0907411	10,97%	4	0,40%	10,57%	1,105659152	1041,71%
-4,57%	0,00%	-0,68%	0,00%	-2,46%	0,00%	100,00%	DOGE	0,0077864	BTC	-0,0023157	0,27%	4	0,40%	-0,13%	0,998735356	1040,27%
-7,53%	0,00%	-4,60%	0,00%	-3,02%	50,00%	100,00%	XRP	-0,0302292	BNB	-0,0370144	-3,36%	4	0,40%	-3,76%	0,962378202	997,37%
0,21%	0,00%	-5,27%	0,00%	1,61%	0,00%	100,00%	DOGE	0,0967053	DASH	0,045024	7,09%	4	0,40%	6,69%	1,066864635	1070,75%
4,55%	0,00%	7,97%	50,00%	2,13%	0,00%	100,00%	XLM	0,079732	LINK	0,0748874	7,73%	4	0,40%	7,33%	1,07330971	1156,57%
-1,98%	0,00%	-4,51%	0,00%	-3,82%	0,00%	100,00%	LINK	0,0407251	ETH	0,0174088	2,91%	2	0,20%	2,71%	1,027066959	1190,59%
-1,47%	0,00%	4,01%	50,00%	1,72%	0,00%	100,00%	XLM	0,0400822	ADA	0,0290552	3,46%	4	0,40%	3,06%	1,030568719	1230,04%
-0,56%	0,00%	-1,57%	0,00%	0,83%	0,00%	100,00%	DASH	0,0410575	ADA	0,0339732	3,75%	2	0,20%	3,55%	1,035515355	1277,27%
3,88%	50,00%	1,55%	50,00%	0,12%	0,00%	100,00%	LTC	0,0388002	XLM	0,015505	2,72%	4	0,40%	2,32%	1,023152591	1309,16%
-2,26%	0,00%	-4,47%	0,00%	4,60%	50,00%	100,00%	XRP	0,0459784	DOGE	0,029106	3,75%	4	0,40%	3,35%	1,033542194	1356,43%
3,01%	0,00%	8,37%	50,00%	11,22%	50,00%	100,00%	XRP	0,1121525	XLM	0,0837217	9,79%	2	0,20%	9,59%	1,095937107	1496,15%
0,99%	0,00%	-1,82%	0,00%	2,30%	0,00%	100,00%	BNB	0,0627614	LINK	0,0430478	5,29%	4	0,40%	4,89%	1,048904612	1574,21%

Figure 61: Dual momentum portfolio using linear regression - part 4

2021-12-24	10,60%	50,00%	2,95%	0,00%	4,33%	0,00%	6,76%	0,00%	5,78%	0,00%	3,45%	0,00%	16,38%	50,00%
2021-12-25	-6,23%	0,00%	-4,02%	0,00%	-1,39%	0,00%	3,34%	50,00%	3,35%	50,00%	-2,65%	0,00%	-3,51%	0,00%
2021-12-26	1,83%	50,00%	1,82%	50,00%	-0,33%	0,00%	0,85%	0,00%	1,70%	0,00%	0,41%	0,00%	-2,89%	0,00%
2021-12-27	2,09%	0,00%	-0,67%	0,00%	0,37%	0,00%	-0,67%	0,00%	-0,25%	0,00%	-1,47%	0,00%	5,83%	50,00%
2021-12-28	3,89%	50,00%	2,51%	0,00%	1,29%	0,00%	4,10%	50,00%	-4,07%	0,00%	2,76%	0,00%	2,57%	0,00%
2021-12-29	-6,56%	0,00%	-4,02%	50,00%	-8,03%	0,00%	-12,16%	0,00%	-4,16%	50,00%	-5,31%	0,00%	-10,14%	0,00%
2021-12-30	-5,50%	0,00%	-4,97%	0,00%	-3,04%	0,00%	-2,53%	50,00%	-3,77%	0,00%	-6,80%	0,00%	-6,30%	0,00%
2021-12-31	1,83%	0,00%	-2,77%	0,00%	3,71%	50,00%	1,63%	0,00%	1,00%	0,00%	1,18%	0,00%	2,20%	0,00%
2022-01-01	-1,15%	0,00%	2,33%	50,00%	-0,50%	0,00%	1,97%	50,00%	-0,96%	0,00%	1,36%	0,00%	0,83%	0,00%
2022-01-02	3,47%	0,00%	3,63%	50,00%	1,04%	0,00%	0,55%	0,00%	2,36%	0,00%	2,65%	0,00%	3,91%	50,00%
2022-01-03	-0,06%	0,00%	0,16%	0,00%	-1,15%	0,00%	1,99%	0,00%	-0,33%	0,00%	2,70%	0,00%	4,27%	50,00%
2022-01-04	-4,74%	0,00%	-4,44%	0,00%	-0,85%	0,00%	0,18%	50,00%	-2,75%	0,00%	-2,05%	0,00%	9,29%	50,00%
2022-01-05	0,93%	50,00%	-1,21%	0,00%	-0,42%	0,00%	-5,69%	0,00%	-1,19%	0,00%	-0,79%	0,00%	1,13%	50,00%
2022-01-06	-5,56%	0,00%	-9,65%	0,00%	-6,84%	0,00%	-9,23%	0,00%	-3,82%	0,00%	-7,52%	0,00%	4,51%	50,00%
2022-01-07	-3,50%	0,00%	-1,05%	0,00%	-1,80%	0,00%	2,54%	50,00%	-0,69%	0,00%	-4,19%	0,00%	0,19%	50,00%
2022-01-08	0,02%	0,00%	-0,53%	0,00%	-1,74%	0,00%	8,88%	50,00%	-1,13%	0,00%	-5,41%	0,00%	1,99%	50,00%
2022-01-09	0,36%	0,00%	-4,31%	0,00%	-1,35%	0,00%	6,15%	50,00%	-1,94%	0,00%	-3,19%	0,00%	2,24%	50,00%
2022-01-10	-2,62%	0,00%	6,05%	50,00%	1,97%	0,00%	9,66%	50,00%	0,39%	0,00%	4,39%	0,00%	5,93%	0,00%
2022-01-11	-3,81%	0,00%	-6,14%	0,00%	-0,79%	0,00%	-3,12%	0,00%	-5,28%	0,00%	-2,68%	0,00%	1,30%	50,00%
2022-01-12	1,69%	0,00%	3,08%	0,00%	2,53%	0,00%	-3,99%	0,00%	2,39%	0,00%	1,99%	0,00%	-4,57%	0,00%
2022-01-13	10,04%	50,00%	9,97%	50,00%	3,47%	0,00%	-0,83%	0,00%	7,73%	0,00%	4,68%	0,00%	2,49%	0,00%
2022-01-14	-3,20%	0,00%	2,49%	50,00%	-1,55%	0,00%	-3,92%	0,00%	2,76%	50,00%	-1,24%	0,00%	-6,76%	0,00%
2022-01-15	5,42%	0,00%	-0,24%	0,00%	-0,96%	0,00%	1,33%	0,00%	8,69%	50,00%	0,11%	0,00%	-0,17%	0,00%
2022-01-16	-1,76%	0,00%	-4,38%	0,00%	-0,10%	0,00%	2,49%	0,00%	2,68%	50,00%	-2,22%	0,00%	1,47%	0,00%
2022-01-17	5,56%	50,00%	5,44%	50,00%	1,01%	0,00%	-4,34%	0,00%	-3,34%	0,00%	1,94%	0,00%	0,06%	0,00%
2022-01-18	18,33%	50,00%	-0,40%	0,00%	-2,31%	0,00%	-1,96%	0,00%	-4,42%	0,00%	-1,39%	0,00%	-5,24%	0,00%
2022-01-19	-8,84%	0,00%	-2,41%	0,00%	-0,61%	50,00%	-3,11%	0,00%	-3,52%	0,00%	-2,36%	0,00%	-6,16%	0,00%
2022-01-20	-10,52%	0,00%	-3,75%	0,00%	-0,63%	50,00%	-3,14%	0,00%	-0,24%	50,00%	-1,71%	0,00%	-4,15%	0,00%
2022-01-21	0,06%	50,00%	-3,56%	0,00%	-2,42%	0,00%	-6,44%	0,00%	-3,01%	0,00%	-3,01%	0,00%	-8,12%	0,00%
2022-01-22	-13,40%	0,00%	-11,99%	0,00%	-9,71%	0,00%	-10,72%	0,00%	-7,45%	50,00%	-12,85%	0,00%	-8,70%	50,00%
2022-01-23	-3,86%	50,00%	-12,01%	0,00%	-4,70%	0,00%	-5,27%	0,00%	-9,22%	0,00%	-10,17%	0,00%	-10,62%	0,00%
2022-01-24	5,19%	0,00%	5,23%	50,00%	2,67%	0,00%	0,22%	0,00%	0,98%	0,00%	4,02%	0,00%	1,97%	0,00%
2022-01-25	-2,60%	0,00%	0,69%	0,00%	1,16%	0,00%	-7,79%	0,00%	-1,42%	0,00%	-0,68%	0,00%	1,81%	50,00%
2022-01-26	-3,13%	0,00%	6,51%	50,00%	0,90%	0,00%	1,39%	0,00%	0,30%	0,00%	6,88%	50,00%	-1,12%	0,00%
2022-01-27	1,54%	0,00%	-3,41%	0,00%	-0,49%	0,00%	0,49%	0,00%	4,90%	50,00%	-2,79%	0,00%	-3,59%	0,00%
2022-01-28	-8,21%	0,00%	-4,15%	0,00%	1,28%	50,00%	-2,18%	0,00%	-1,81%	0,00%	-3,56%	0,00%	-4,41%	0,00%
2022-01-29	4,24%	0,00%	6,36%	50,00%	3,57%	0,00%	5,00%	0,00%	0,30%	0,00%	6,57%	50,00%	6,05%	0,00%
2022-01-30	0,57%	0,00%	-0,93%	0,00%	-0,89%	0,00%	-0,55%	0,00%	2,13%	50,00%	-2,36%	0,00%	-1,31%	0,00%
2022-01-31	-3,91%	0,00%	-3,00%	0,00%	-1,84%	0,00%	-0,04%	0,00%	-2,75%	0,00%	-1,34%	0,00%	7,26%	50,00%
2022-02-01	-2,48%	0,00%	-0,02%	0,00%	3,56%	50,00%	1,57%	0,00%	2,45%	0,00%	5,83%	50,00%	2,14%	0,00%
2022-02-02	7,62%	50,00%	2,37%	0,00%	-0,30%	0,00%	-0,99%	0,00%	1,80%	0,00%	2,60%	0,00%	-2,81%	0,00%
2022-02-03	-1,75%	50,00%	-3,17%	0,00%	-4,09%	0,00%	-4,59%	0,00%	-4,12%	0,00%	-4,62%	0,00%	-7,11%	0,00%
2022-02-04	-1,21%	0,00%	3,87%	50,00%	0,35%	0,00%	0,90%	0,00%	-1,64%	0,00%	-0,13%	0,00%	-1,57%	0,00%
2022-02-05	12,45%	50,00%	6,51%	0,00%	12,27%	0,00%	8,53%	0,00%	7,69%	0,00%	12,29%	0,00%	10,72%	0,00%
2022-02-06	-1,21%	0,00%	0,61%	0,00%	-0,30%	0,00%	2,89%	0,00%	1,23%	0,00%	3,36%	50,00%	-1,08%	0,00%

Figure 62: Dual momentum portfolio using linear regression - part 5

6,67%	0,00%	5,21%	0,00%	3,68%	0,00%	100,00%	LINK	0,1638358	ADA	0,1059546	13,49%	2	0,20%	13,29%	1,132895189	1796,71%
-2,72%	0,00%	-1,78%	0,00%	-9,98%	0,00%	100,00%	DOGE	0,0334971	DASH	0,033425	3,35%	4	0,40%	2,95%	1,029461029	1852,59%
-1,65%	0,00%	0,92%	0,00%	1,74%	0,00%	100,00%	ADA	0,0182539	BNB	0,018164	1,82%	4	0,40%	1,42%	1,014208963	1880,33%
-0,69%	0,00%	3,29%	50,00%	-0,61%	0,00%	100,00%	LINK	0,0582538	XLM	0,0328851	4,56%	4	0,40%	4,16%	1,041569436	1962,65%
0,23%	0,00%	-0,03%	0,00%	3,32%	0,00%	100,00%	DASH	0,0410016	ADA	0,0388697	3,99%	4	0,40%	3,59%	1,035935667	2036,77%
-7,95%	0,00%	-9,33%	0,00%	-9,90%	0,00%	100,00%	BNB	-0,0402341	DOGE	-0,0416145	-4,09%	4	0,40%	-4,49%	0,955075657	1940,78%
-1,26%	50,00%	-2,90%	0,00%	-4,78%	0,00%	100,00%	LTC	-0,0126366	DASH	-0,0252954	-1,90%	4	0,40%	-2,30%	0,977034006	1893,91%
4,64%	50,00%	1,16%	0,00%	2,25%	0,00%	100,00%	LTC	0,0464457	BTC	0,0371151	4,18%	2	0,20%	3,98%	1,03978042	1973,23%
0,02%	0,00%	0,37%	0,00%	-1,15%	0,00%	100,00%	BNB	0,0233356	DASH	0,0197328	2,15%	4	0,40%	1,75%	1,017534172	2009,58%
2,39%	0,00%	0,87%	0,00%	1,59%	0,00%	100,00%	LINK	0,0391389	BNB	0,0362839	3,77%	2	0,20%	3,57%	1,035711419	2084,92%
0,27%	0,00%	5,32%	50,00%	3,00%	0,00%	100,00%	XLM	0,0532264	LINK	0,0427358	4,80%	2	0,20%	4,60%	1,045981095	2185,38%
-3,89%	0,00%	-4,72%	0,00%	-1,57%	0,00%	100,00%	LINK	0,0928616	DASH	0,0018179	4,73%	2	0,20%	4,53%	1,045339752	2289,00%
0,10%	0,00%	-1,58%	0,00%	-0,63%	0,00%	100,00%	LINK	0,0113102	ADA	0,0093334	1,03%	2	0,20%	0,83%	1,008321807	2308,88%
-5,29%	0,00%	2,85%	50,00%	-5,39%	0,00%	100,00%	LINK	0,0450536	XLM	0,0284898	3,68%	2	0,20%	3,48%	1,034771704	2392,65%
-0,95%	0,00%	-3,76%	0,00%	-1,28%	0,00%	100,00%	DASH	0,0254433	LINK	0,0019024	1,37%	2	0,20%	1,17%	1,011672812	2421,74%
-2,43%	0,00%	-8,74%	0,00%	-4,11%	0,00%	100,00%	DASH	0,0887721	LINK	0,0199025	5,43%	0	0,00%	5,43%	1,05433731	2558,77%
-0,82%	0,00%	1,40%	0,00%	-1,03%	0,00%	100,00%	DASH	0,0615124	LINK	0,0224168	4,20%	0	0,00%	4,20%	1,041964619	2670,34%
-1,28%	0,00%	2,22%	0,00%	1,06%	0,00%	100,00%	DASH	0,0965848	BNB	0,0604515	7,85%	2	0,20%	7,65%	1,076518145	2882,32%
-2,30%	0,00%	-4,48%	0,00%	1,22%	50,00%	100,00%	LINK	0,0130307	XRP	0,0121917	1,26%	4	0,40%	0,86%	1,008611187	2908,00%
4,91%	50,00%	4,26%	50,00%	0,05%	0,00%	100,00%	LTC	0,0491449	XLM	0,0425779	4,59%	4	0,40%	4,19%	1,041861422	3033,92%
7,14%	0,00%	-0,23%	0,00%	3,31%	0,00%	100,00%	ADA	0,1003569	BNB	0,0996615	10,00%	4	0,40%	9,60%	1,096009195	3334,81%
-5,45%	0,00%	-2,44%	0,00%	-3,42%	0,00%	100,00%	DOGE	0,0276429	BNB	0,0249112	2,63%	2	0,20%	2,43%	1,024277055	3418,19%
6,78%	50,00%	4,73%	0,00%	2,74%	0,00%	100,00%	DOGE	0,0868805	LTC	0,0677632	7,73%	2	0,20%	7,53%	1,075321873	3683,19%
2,76%	50,00%	0,56%	0,00%	1,03%	0,00%	100,00%	LTC	0,0276201	DOGE	0,0267934	2,72%	0	0,00%	2,72%	1,027206775	3786,12%
-0,41%	0,00%	-3,32%	0,00%	-1,62%	0,00%	100,00%	ADA	0,055614	BNB	0,0543875	5,50%	4	0,40%	5,10%	1,051000781	3984,32%
2,46%	50,00%	-1,60%	0,00%	-0,88%	0,00%	100,00%	ADA	0,1832775	LTC	0,0246304	10,40%	2	0,20%	10,20%	1,101953959	4400,73%
-6,85%	0,00%	0,48%	50,00%	-1,95%	0,00%	100,00%	XLM	0,0047821	BTC	-0,0061449	-0,07%	4	0,40%	-0,47%	0,995318597	4379,66%
-2,88%	0,00%	-3,98%	0,00%	-3,71%	0,00%	100,00%	DOGE	-0,0023773	BTC	-0,0063248	-0,44%	2	0,20%	-0,64%	0,993648972	4351,21%
-3,10%	0,00%	0,66%	50,00%	-2,31%	0,00%	100,00%	XLM	0,006617	ADA	0,0005628	0,36%	4	0,40%	-0,04%	0,99958988	4349,38%
-12,43%	0,00%	-9,25%	0,00%	-9,99%	0,00%	100,00%	DOGE	-0,0744556	LINK	-0,0870295	-8,07%	4	0,40%	-8,47%	0,915257441	3972,33%
-4,93%	0,00%	-6,90%	0,00%	-4,39%	50,00%	100,00%	ADA	-0,0386401	XRP	-0,0438754	-4,13%	4	0,40%	-4,53%	0,95474227	3788,03%
1,29%	0,00%	5,80%	50,00%	2,24%	0,00%	100,00%	XLM	0,0579587	BNB	0,0522945	5,51%	4	0,40%	5,11%	1,051126576	3986,81%
-2,34%	0,00%	2,99%	50,00%	-1,54%	0,00%	100,00%	XLM	0,0299198	LINK	0,0181213	2,40%	2	0,20%	2,20%	1,02202058	4076,80%
-3,58%	0,00%	-3,84%	0,00%	0,30%	0,00%	100,00%	ETH	0,0688459	BNB	0,0651461	6,70%	4	0,40%	6,30%	1,062995955	4339,92%
-1,14%	0,00%	-4,13%	0,00%	3,55%	50,00%	100,00%	DOGE	0,0490176	XRP	0,0354661	4,22%	4	0,40%	3,82%	1,038241843	4509,71%
0,19%	0,00%	2,73%	50,00%	-5,04%	0,00%	100,00%	XLM	0,027338	BTC	0,0127992	2,01%	4	0,40%	1,61%	1,016068608	4583,78%
3,26%	0,00%	3,73%	0,00%	1,51%	0,00%	100,00%	ETH	0,0656713	BNB	0,0636445	6,47%	4	0,40%	6,07%	1,06065792	4867,89%
0,94%	0,00%	2,81%	50,00%	-0,79%	0,00%	100,00%	XLM	0,0281349	DOGE	0,021344	2,47%	4	0,40%	2,07%	1,020739443	4970,92%
-2,05%	0,00%	0,92%	50,00%	-1,79%	0,00%	100,00%	LINK	0,072584	XLM	0,0091827	4,09%	2	0,20%	3,89%	1,038883352	5168,10%
1,10%	0,00%	-3,66%	0,00%	2,20%	0,00%	100,00%	ETH	0,058347	BTC	0,0356277	4,70%	4	0,40%	4,30%	1,042987337	5394,56%
8,46%	50,00%	5,18%	0,00%	1,76%	0,00%	100,00%	LTC	0,0846218	ADA	0,0761745	8,04%	4	0,40%	7,64%	1,076398147	5814,33%
-5,99%	0,00%	-2,05%	50,00%	-3,94%	0,00%	100,00%	ADA	-0,0175051	XLM	-0,0205413	-1,90%	2	0,20%	-2,10%	0,978976805	5690,00%
-1,37%	0,00%	-0,31%	0,00%	1,01%	50,00%	100,00%	BNB	0,038655	XRP	0,0100623	2,44%	4	0,40%	2,04%	1,020358635	5807,87%
13,32%	50,00%	9,65%	0,00%	8,08%	0,00%	100,00%	LTC	0,1331636	ADA	0,1245462	12,89%	4	0,40%	12,49%	1,12485494	6545,50%
-1,03%	0,00%	3,67%	50,00%	0,56%	0,00%	100,00%	XLM	0,0367423	ETH	0,0336384	3,52%	4	0,40%	3,12%	1,031190354	6752,78%

Figure 63: Dual momentum portfolio using linear regression - part 6

2022-02-07	-2,70%	0,00%	3,31%	50,00%	1,63%	0,00%	3,10%	0,00%	4,51%	50,00%	-0,93%	0,00%	-0,93%	0,00%
2022-02-08	8,29%	0,00%	0,67%	0,00%	3,94%	0,00%	9,49%	50,00%	7,33%	0,00%	2,12%	0,00%	5,07%	0,00%
2022-02-09	-2,63%	0,00%	-3,74%	0,00%	-0,08%	0,00%	-0,40%	0,00%	-2,09%	0,00%	2,40%	50,00%	-1,75%	0,00%
2022-02-10	0,01%	0,00%	2,03%	50,00%	0,75%	0,00%	-2,39%	0,00%	-0,17%	0,00%	1,98%	0,00%	-1,45%	0,00%
2022-02-11	-2,68%	0,00%	1,17%	50,00%	-1,67%	50,00%	-3,60%	0,00%	-4,52%	0,00%	-3,34%	0,00%	-1,96%	0,00%
2022-02-12	-6,07%	0,00%	-3,82%	0,00%	-3,32%	50,00%	-5,74%	0,00%	-7,80%	0,00%	-5,18%	0,00%	-8,54%	0,00%
2022-02-13	-3,34%	0,00%	1,26%	0,00%	0,14%	0,00%	-1,37%	0,00%	1,11%	0,00%	-1,40%	0,00%	-2,83%	0,00%
2022-02-14	1,19%	0,00%	-1,58%	0,00%	1,50%	50,00%	1,12%	0,00%	1,98%	50,00%	0,64%	0,00%	-2,62%	0,00%
2022-02-15	-0,28%	0,00%	1,72%	50,00%	-0,53%	0,00%	1,01%	50,00%	-2,18%	0,00%	0,23%	0,00%	-1,68%	0,00%
2022-02-16	6,52%	0,00%	3,98%	0,00%	4,84%	0,00%	4,25%	0,00%	3,18%	0,00%	6,99%	50,00%	12,09%	50,00%
2022-02-17	-4,87%	0,00%	-1,21%	0,00%	-0,72%	0,00%	6,18%	50,00%	-1,94%	0,00%	-1,02%	0,00%	1,81%	50,00%
2022-02-18	-5,04%	50,00%	-3,89%	50,00%	-7,69%	0,00%	-9,11%	0,00%	-8,84%	0,00%	-5,87%	0,00%	-6,93%	0,00%
2022-02-19	-0,69%	0,00%	-5,02%	0,00%	-3,16%	0,00%	-0,17%	0,00%	0,89%	50,00%	-5,99%	0,00%	-6,04%	0,00%
2022-02-20	0,68%	0,00%	-0,02%	0,00%	0,31%	0,00%	-2,77%	0,00%	3,17%	50,00%	-1,62%	0,00%	1,51%	0,00%
2022-02-21	-6,80%	0,00%	-1,92%	0,00%	-2,34%	0,00%	-2,71%	0,00%	-0,56%	50,00%	-0,23%	50,00%	-2,06%	0,00%
2022-02-22	-11,88%	0,00%	-4,05%	0,00%	-3,80%	0,00%	-11,34%	0,00%	-2,06%	50,00%	-2,61%	0,00%	-5,93%	0,00%
2022-02-23	3,94%	50,00%	-1,03%	0,00%	0,90%	0,00%	6,06%	50,00%	-1,52%	0,00%	0,77%	0,00%	-1,58%	0,00%
2022-02-24	-2,71%	0,00%	-4,19%	0,00%	-1,55%	0,00%	-3,92%	0,00%	-4,18%	0,00%	-2,14%	0,00%	-1,45%	50,00%
2022-02-25	0,05%	0,00%	3,33%	50,00%	3,49%	50,00%	-2,17%	0,00%	-2,30%	0,00%	1,98%	0,00%	1,89%	0,00%
2022-02-26	10,40%	50,00%	6,57%	0,00%	3,17%	0,00%	4,38%	0,00%	2,31%	0,00%	6,40%	0,00%	9,04%	0,00%
2022-02-27	-3,36%	0,00%	-1,44%	0,00%	-0,48%	0,00%	3,92%	50,00%	-1,65%	0,00%	-0,50%	0,00%	1,50%	0,00%
2022-02-28	-3,72%	0,00%	-2,51%	50,00%	-3,57%	0,00%	-7,01%	0,00%	-3,44%	0,00%	-4,89%	0,00%	-6,27%	0,00%
2022-03-01	12,63%	0,00%	7,40%	0,00%	12,95%	50,00%	14,84%	50,00%	6,32%	0,00%	8,87%	0,00%	7,38%	0,00%
2022-03-02	-1,13%	0,00%	5,28%	50,00%	4,29%	50,00%	-1,29%	0,00%	2,73%	0,00%	2,96%	0,00%	1,83%	0,00%
2022-03-03	-3,15%	0,00%	1,39%	50,00%	-1,02%	0,00%	-1,16%	0,00%	-0,20%	0,00%	0,73%	0,00%	2,11%	50,00%
2022-03-04	0,17%	0,00%	-0,42%	0,00%	-2,63%	0,00%	-0,11%	0,00%	-0,23%	0,00%	-1,76%	0,00%	3,53%	50,00%
2022-03-05	-9,51%	0,00%	-9,31%	0,00%	-8,83%	0,00%	-5,72%	50,00%	-3,69%	50,00%	-9,26%	0,00%	-8,64%	0,00%

Figure 64: Dual momentum portfolio using linear regression - part 7

1,42%	0,00%	-3,63%	0,00%	2,97%	0,00%	100,00%	DOGE	0,0451073	BNB	0,0331407	3,91%	4	0,40%	3,51%	1,035123977	6993,47%
8,73%	0,00%	8,33%	0,00%	23,95%	50,00%	100,00%	XRP	0,2394607	DASH	0,0948664	16,72%	4	0,40%	16,32%	1,163163567	8150,87%
-2,37%	0,00%	-1,50%	0,00%	4,62%	50,00%	100,00%	XRP	0,0461533	ETH	0,0240186	3,51%	2	0,20%	3,31%	1,033085949	8423,86%
5,24%	50,00%	-1,30%	0,00%	-1,51%	0,00%	100,00%	LTC	0,0524165	BNB	0,0203291	3,64%	4	0,40%	3,24%	1,032372798	8699,80%
-2,94%	0,00%	-5,13%	0,00%	-2,45%	0,00%	100,00%	BNB	0,0116625	BTC	-0,0166577	-0,25%	2	0,20%	-0,45%	0,995502391	8660,22%
-7,70%	0,00%	-3,04%	50,00%	-9,76%	0,00%	100,00%	XLM	-0,0303861	BTC	-0,0332305	-3,18%	2	0,20%	-3,38%	0,966191657	8364,05%
1,76%	50,00%	0,20%	0,00%	6,23%	50,00%	100,00%	XRP	0,0623046	LTC	0,0175798	3,99%	4	0,40%	3,59%	1,035942158	8668,27%
0,30%	0,00%	1,36%	0,00%	1,00%	0,00%	100,00%	DOGE	0,0197519	BTC	0,0150215	1,74%	4	0,40%	1,34%	1,013386674	8785,64%
-2,66%	0,00%	-0,82%	0,00%	-0,76%	0,00%	100,00%	BNB	0,0171972	DASH	0,0101258	1,37%	4	0,40%	0,97%	1,009661486	8871,49%
5,64%	0,00%	6,54%	0,00%	5,99%	0,00%	100,00%	LINK	0,1208557	ETH	0,0699248	9,54%	4	0,40%	9,14%	1,091390252	9691,40%
-2,63%	0,00%	-0,89%	0,00%	-4,40%	0,00%	100,00%	DASH	0,0617544	LINK	0,0181003	3,99%	2	0,20%	3,79%	1,037927341	10062,76%
-8,83%	0,00%	-8,08%	0,00%	-9,07%	0,00%	100,00%	BNB	-0,0389468	ADA	-0,0504241	-4,47%	4	0,40%	-4,87%	0,951314582	9567,98%
-1,48%	0,00%	-2,77%	0,00%	3,73%	50,00%	100,00%	XRP	0,037312	DOGE	0,0089079	2,31%	4	0,40%	1,91%	1,019109977	9752,74%
-0,89%	0,00%	0,17%	0,00%	4,22%	50,00%	100,00%	XRP	0,0421549	DOGE	0,0316946	3,69%	0	0,00%	3,69%	1,036924751	10116,55%
-3,75%	0,00%	-2,53%	0,00%	-5,25%	0,00%	100,00%	ETH	-0,002342	DOGE	-0,0056173	-0,40%	2	0,20%	-0,60%	0,994020353	10055,46%
-6,94%	0,00%	-4,85%	0,00%	-2,56%	50,00%	100,00%	DOGE	-0,0206426	XRP	-0,0256121	-2,31%	2	0,20%	-2,51%	0,974872658	9800,28%
3,67%	0,00%	3,51%	0,00%	0,59%	0,00%	100,00%	DASH	0,0606299	ADA	0,0393552	5,00%	4	0,40%	4,60%	1,045992529	10255,62%
0,55%	50,00%	-2,60%	0,00%	-4,17%	0,00%	100,00%	LTC	0,0054913	LINK	-0,0145427	-0,45%	4	0,40%	-0,85%	0,991474323	10167,33%
-0,58%	0,00%	-7,84%	0,00%	-6,95%	0,00%	100,00%	BTC	0,0348673	BNB	0,0333205	3,41%	4	0,40%	3,01%	1,03009386	10476,31%
6,67%	0,00%	9,45%	0,00%	10,11%	50,00%	100,00%	ADA	0,1039755	XRP	0,1010674	10,25%	4	0,40%	9,85%	1,098521471	11518,31%
-2,54%	0,00%	1,05%	0,00%	2,29%	50,00%	100,00%	DASH	0,0391713	XRP	0,022867	3,10%	2	0,20%	2,90%	1,029019146	11855,46%
-4,57%	0,00%	0,08%	50,00%	-3,36%	0,00%	100,00%	XLM	0,0007821	BNB	-0,0251331	-1,22%	4	0,40%	-1,62%	0,983824512	11662,07%
8,80%	0,00%	8,48%	0,00%	11,03%	0,00%	100,00%	DASH	0,1484316	BTC	0,1295143	13,90%	4	0,40%	13,50%	1,134972936	13249,63%
-0,52%	0,00%	1,43%	0,00%	-3,05%	0,00%	100,00%	BNB	0,0527663	BTC	0,0429162	4,78%	2	0,20%	4,58%	1,045841203	13861,60%
-2,47%	0,00%	-4,28%	0,00%	-1,71%	0,00%	100,00%	LINK	0,0211086	BNB	0,0139237	1,75%	2	0,20%	1,55%	1,015516171	14078,23%
2,12%	50,00%	-0,44%	0,00%	-0,83%	0,00%	100,00%	LINK	0,035275	LTC	0,0211502	2,82%	2	0,20%	2,62%	1,026212571	14449,88%
-9,44%	0,00%	-6,77%	0,00%	-6,60%	0,00%	100,00%	DOGE	-0,0368536	DASH	-0,0571639	-4,70%	4	0,40%	-5,10%	0,948991232	13707,71%

Figure 65: Dual momentum portfolio using linear regression - part 8

1.6.1.3 Naive portfolio

+2% winner & -2% loser

Date	ADA Returns	ADA Weight	BNB Returns	BNB Weight	BTC Returns	BTC Weight	DASH Returns	DASH Weight	DOGE Returns	DOGE Weight
		10%		10%		10%		10%		10%
2021-10-04	-2,87%	8,00%	-0,84%	10,00%	0,30%	10,00%	-0,60%	10,00%	-0,44%	10,00%
2021-10-05	0,98%	8,00%	-0,18%	10,00%	2,12%	12,00%	-0,99%	10,00%	6,40%	12,00%
2021-10-06	1,62%	6,00%	2,13%	10,00%	3,89%	12,00%	5,34%	12,00%	3,98%	12,00%
2021-10-07	-0,59%	6,00%	1,34%	10,00%	7,27%	14,00%	-2,79%	10,00%	4,63%	14,00%
2021-10-08	0,61%	6,00%	0,53%	10,00%	-2,93%	12,00%	1,95%	10,00%	-2,17%	12,00%
2021-10-09	1,27%	6,00%	-0,01%	10,00%	3,37%	12,00%	4,70%	12,00%	-6,87%	10,00%
2021-10-10	0,85%	6,00%	-3,45%	8,00%	-1,48%	12,00%	1,92%	14,00%	3,36%	12,00%
2021-10-11	-5,21%	6,00%	-6,37%	8,00%	-1,37%	14,00%	-6,77%	14,00%	-0,65%	14,00%
2021-10-12	-0,72%	4,00%	1,55%	8,00%	7,78%	16,00%	0,45%	14,00%	-2,81%	12,00%
2021-10-13	-1,10%	6,00%	11,37%	10,00%	-2,38%	16,00%	-1,32%	14,00%	-4,18%	10,00%
2021-10-14	3,93%	8,00%	4,64%	12,00%	1,59%	16,00%	-3,74%	12,00%	0,86%	8,00%
2021-10-15	-0,44%	6,00%	0,54%	12,00%	0,28%	14,00%	3,75%	12,00%	3,20%	8,00%
2021-10-16	1,96%	6,00%	-0,64%	10,00%	6,21%	16,00%	4,44%	14,00%	-0,57%	6,00%
2021-10-17	-3,75%	4,00%	-3,81%	8,00%	-0,09%	16,00%	1,33%	14,00%	2,58%	8,00%
2021-10-18	-0,71%	4,00%	2,10%	10,00%	1,23%	18,00%	-1,58%	14,00%	0,99%	8,00%
2021-10-19	1,84%	4,00%	5,99%	12,00%	-0,05%	18,00%	-3,84%	12,00%	1,90%	8,00%
2021-10-20	-3,05%	2,00%	-1,05%	12,00%	2,14%	18,00%	4,77%	14,00%	2,39%	8,00%
2021-10-21	2,16%	2,00%	2,69%	12,00%	4,88%	18,00%	5,23%	14,00%	1,33%	6,00%
2021-10-22	-0,28%	2,00%	-2,79%	12,00%	-5,29%	16,00%	-0,27%	14,00%	-1,35%	6,00%
2021-10-23	0,56%	4,00%	-1,29%	12,00%	-3,05%	14,00%	-1,17%	14,00%	-2,27%	6,00%
2021-10-24	-1,80%	2,00%	-2,38%	10,00%	-1,63%	14,00%	2,19%	14,00%	3,21%	6,00%
2021-10-25	-3,00%	2,00%	0,89%	10,00%	1,06%	14,00%	3,54%	16,00%	7,97%	8,00%
2021-10-26	5,48%	2,00%	7,20%	12,00%	6,01%	14,00%	1,32%	14,00%	-0,99%	6,00%
2021-10-27	-0,04%	4,00%	-5,45%	10,00%	-5,37%	14,00%	-7,29%	12,00%	-3,37%	6,00%
2021-10-28	-9,28%	4,00%	-7,92%	10,00%	-2,71%	16,00%	-13,39%	10,00%	-9,97%	4,00%
2021-10-29	0,16%	2,00%	7,57%	12,00%	2,60%	16,00%	5,38%	10,00%	17,14%	6,00%
2021-10-30	2,57%	2,00%	10,48%	14,00%	2,61%	16,00%	2,20%	10,00%	7,53%	6,00%
2021-10-31	-2,74%	0,00%	1,86%	16,00%	0,01%	16,00%	-0,30%	10,00%	-4,07%	4,00%
2021-11-01	1,07%	0,00%	-0,65%	16,00%	-1,52%	14,00%	5,72%	12,00%	-0,52%	4,00%
2021-11-02	-3,97%	0,00%	0,60%	16,00%	-1,20%	14,00%	-1,30%	12,00%	-8,79%	2,00%
2021-11-03	3,31%	0,00%	4,52%	16,00%	4,64%	14,00%	1,98%	10,00%	2,17%	2,00%
2021-11-04	4,22%	0,00%	2,78%	16,00%	-0,15%	14,00%	2,08%	10,00%	6,15%	4,00%
2021-11-05	-3,35%	0,00%	-1,02%	18,00%	-1,94%	14,00%	1,78%	12,00%	-6,77%	2,00%
2021-11-06	-0,89%	0,00%	4,62%	20,00%	-1,11%	14,00%	-2,01%	10,00%	-1,94%	2,00%
2021-11-07	1,12%	0,00%	4,90%	22,00%	-0,39%	14,00%	-2,65%	8,00%	0,57%	2,00%
2021-11-08	-1,09%	0,00%	4,34%	22,00%	4,94%	16,00%	0,15%	6,00%	2,04%	2,00%

Date	ETH Returns	ETH Weight	LINK Returns	LINK Weight	LTC Returns	LTC Weight	XLM Returns	XLM Weight	XRP Returns	XRP Weight	sum of weights	MAX asset	MAX returns
		10%		10%		10%		10%		10%		asset	returns
2021-10-04	0,83%	12,00%	-0,81%	10,00%	0,41%	12,00%	-5,42%	8,00%	-1,41%	10,00%	100,00%	ETH	0,0082999
2021-10-05	-0,95%	12,00%	-1,09%	8,00%	0,09%	12,00%	1,21%	8,00%	-1,72%	8,00%	100,00%	DOGE	0,0639804
2021-10-06	3,13%	12,00%	-2,91%	6,00%	3,43%	12,00%	10,13%	10,00%	2,31%	8,00%	100,00%	XLM	0,1012644
2021-10-07	0,80%	12,00%	-2,63%	4,00%	1,87%	12,00%	0,64%	10,00%	0,79%	8,00%	100,00%	BTC	0,0726951
2021-10-08	0,48%	12,00%	4,80%	6,00%	-1,14%	12,00%	3,15%	12,00%	2,70%	8,00%	100,00%	LINK	0,048032
2021-10-09	2,84%	12,00%	4,39%	6,00%	-2,05%	10,00%	5,20%	14,00%	3,56%	8,00%	100,00%	XLM	0,0519517
2021-10-10	-3,07%	12,00%	-4,32%	4,00%	-0,33%	10,00%	-2,34%	14,00%	1,00%	8,00%	100,00%	DOGE	0,0335996
2021-10-11	-3,63%	12,00%	-6,87%	2,00%	-1,81%	10,00%	-7,70%	12,00%	-2,16%	8,00%	100,00%	DOGE	-0,0065151
2021-10-12	2,79%	12,00%	1,16%	2,00%	3,68%	12,00%	3,08%	12,00%	0,45%	8,00%	100,00%	BTC	0,077835
2021-10-13	-1,24%	12,00%	-2,37%	2,00%	-4,19%	10,00%	-3,93%	12,00%	-3,62%	8,00%	100,00%	BNB	0,1136595
2021-10-14	1,92%	12,00%	2,66%	2,00%	2,67%	10,00%	1,53%	12,00%	1,81%	8,00%	100,00%	BNB	0,0463533
2021-10-15	6,04%	14,00%	5,09%	4,00%	2,65%	10,00%	0,47%	12,00%	2,36%	8,00%	100,00%	ETH	0,0603579
2021-10-16	0,53%	14,00%	-0,51%	4,00%	3,56%	10,00%	0,09%	12,00%	3,48%	8,00%	100,00%	BTC	0,0621289
2021-10-17	-0,68%	14,00%	2,49%	6,00%	-0,57%	10,00%	-2,26%	12,00%	-1,57%	8,00%	100,00%	DOGE	0,0258416
2021-10-18	0,98%	14,00%	-2,06%	6,00%	-2,33%	8,00%	0,38%	12,00%	-4,43%	6,00%	100,00%	BNB	0,0209523
2021-10-19	-1,97%	14,00%	-3,55%	4,00%	2,90%	10,00%	-2,24%	12,00%	-2,66%	6,00%	100,00%	BNB	0,059947
2021-10-20	3,44%	14,00%	-1,31%	2,00%	1,27%	10,00%	4,33%	14,00%	1,66%	6,00%	100,00%	DASH	0,0477446
2021-10-21	7,10%	14,00%	8,07%	4,00%	10,13%	12,00%	-1,77%	12,00%	4,94%	6,00%	100,00%	LTC	0,1012965
2021-10-22	0,77%	14,00%	4,86%	6,00%	-5,63%	10,00%	3,35%	14,00%	-2,67%	6,00%	100,00%	LINK	0,0485872
2021-10-23	-2,74%	14,00%	-1,03%	8,00%	-3,22%	8,00%	-1,39%	14,00%	-2,55%	6,00%	100,00%	ADA	0,0055582
2021-10-24	1,47%	14,00%	6,71%	10,00%	4,01%	10,00%	0,70%	14,00%	-0,28%	6,00%	100,00%	LINK	0,0671229
2021-10-25	0,39%	14,00%	0,03%	10,00%	-3,81%	8,00%	-4,25%	12,00%	0,05%	6,00%	100,00%	DOGE	0,0797139
2021-10-26	6,33%	14,00%	8,01%	12,00%	4,93%	8,00%	2,54%	12,00%	4,17%	6,00%	100,00%	LINK	0,0800848
2021-10-27	-4,20%	14,00%	-0,28%	12,00%	-0,87%	8,00%	0,02%	14,00%	-2,34%	6,00%	100,00%	XLM	0,0002469
2021-10-28	-4,57%	16,00%	-7,57%	12,00%	-6,94%	8,00%	-7,15%	14,00%	-7,92%	6,00%	100,00%	BTC	-0,0270515
2021-10-29	6,90%	16,00%	4,78%	12,00%	3,91%	8,00%	-1,66%	12,00%	5,43%	6,00%	100,00%	DOGE	0,1714069
2021-10-30	3,55%	16,00%	0,16%	10,00%	1,98%	6,00%	9,98%	14,00%	2,42%	6,00%	100,00%	BNB	0,1047516
2021-10-31	-0,60%	16,00%	-2,65%	10,00%	-2,46%	6,00%	5,09%	16,00%	-1,23%	6,00%	100,00%	XLM	0,0509069
2021-11-01	-2,35%	14,00%	-0,65%	10,00%	1,42%	6,00%	2,24%	16,00%	3,95%	8,00%	100,00%	DASH	0,057158
2021-11-02	-0,60%	14,00%	1,78%	10,00%	2,60%	8,00%	3,06%	18,00%	-3,71%	6,00%	100,00%	XLM	0,0305553
2021-11-03	9,77%	16,00%	4,03%	10,00%	2,14%	6,00%	11,29%	20,00%	4,87%	6,00%	100,00%	XLM	0,1128987
2021-11-04	0,33%	16,00%	-0,88%	8,00%	3,14%	6,00%	-2,09%	18,00%	8,04%	8,00%	100,00%	XRP	0,0804037
2021-11-05	-1,74%	16,00%	-3,12%	6,00%	-1,96%	6,00%	-3,06%	18,00%	-1,13%	8,00%	100,00%	DASH	0,0178496
2021-11-06	-1,32%	16,00%	4,31%	6,00%	-1,64%	6,00%	8,92%	20,00%	-3,40%	6,00%	100,00%	XLM	0,0891518
2021-11-07	-0,19%	16,00%	-0,80%	6,00%	-0,18%	6,00%	1,54%	22,00%	-1,82%	4,00%	100,00%	BNB	0,0490039
2021-11-08	2,57%	16,00%	0,49%	6,00%	1,46%	6,00%	-3,59%	20,00%	5,62%	6,00%	100,00%	XRP	0,0561591

Figure 66: Naive portfolio using linear regression - part 1

2e MAX asset	2e MAX returns	MIN asset	MIN returns	2e MIN asset	2e MIN returns	3e MIN asset	3e MIN returns	4e MIN asset	4e MIN returns	5e MIN asset	5e MIN returns	Portfolio returns without transac. Cost	Number of transactions	Transaction cost	Portfolio returns with transac. cost	1+r	mulative return
asset	returns	asset	returns	asset	returns	asset	returns	asset	returns	asset	returns						
LTC	0,0040836	XLM	-0,054201	ADA	-0,0287433	XRP	-0,0140999	BNB	-0,0083923	LINK	-0,0081023	-0,90%	4	0,4%	-1,30%	0,99	-1,30%
BTC	0,0212348	XRP	-0,01717	LINK	-0,0108659	DASH	-0,0098759	ETH	-0,0095059	BNB	-0,0017853	0,75%	4	0,4%	0,35%	1,00	-0,95%
DASH	0,0534356	LINK	-0,0290625	ADA	0,0162148	BNB	0,0213387	XRP	0,0230891	ETH	0,0312548	3,71%	4	0,4%	3,31%	1,03	2,33%
DOGE	0,0463122	DASH	-0,0278615	LINK	-0,0262733	ADA	-0,0059109	XLM	0,0064118	XRP	0,0078645	1,83%	4	0,4%	1,43%	1,01	3,79%
XLM	0,0314768	BTC	-0,0292514	DOGE	-0,0216745	LTC	-0,0113667	ETH	0,0048249	BNB	0,0052587	0,48%	4	0,4%	0,08%	1,00	3,87%
DASH	0,0470232	DOGE	-0,0687199	LTC	-0,0205058	BNB	-9,118E-05	ADA	0,012745	ETH	0,028405	1,77%	4	0,4%	1,37%	1,01	5,29%
DASH	0,0192188	LINK	-0,0432327	BNB	-0,0345021	ETH	-0,0307376	XLM	-0,0234107	BTC	-0,0147943	-0,55%	4	0,4%	-0,95%	0,99	4,29%
BTC	-0,0136743	XLM	-0,076987	LINK	-0,0687302	DASH	-0,067732	BNB	-0,0637302	ADA	-0,0521229	-3,90%	4	0,4%	-4,30%	0,96	-0,20%
LTC	0,036829	DOGE	-0,0280735	ADA	-0,007167	DASH	0,0044871	XRP	0,0045359	LINK	0,0116054	2,27%	4	0,4%	1,87%	1,02	1,67%
ADA	-0,0110179	LTC	-0,0418515	DOGE	-0,0417581	XLM	-0,0393098	XRP	-0,0361564	BTC	-0,023761	-1,29%	4	0,4%	-1,69%	0,98	-0,05%
ADA	0,0392527	DASH	-0,0373737	DOGE	0,0086232	XLM	0,0152624	BTC	0,015917	XRP	0,0181426	1,62%	4	0,4%	1,22%	1,01	1,18%
LINK	0,0508822	ADA	-0,0043737	BTC	0,0028328	XLM	0,004731	BNB	0,0054135	XRP	0,0235844	2,34%	4	0,4%	1,94%	1,02	3,14%
DASH	0,0443958	BNB	-0,0063981	DOGE	-0,0057298	LINK	-0,0051296	XLM	0,0008717	ETH	0,0052724	2,33%	4	0,4%	1,93%	1,02	5,14%
LINK	0,024909	BNB	-0,0380775	ADA	-0,0375419	XLM	-0,022642	XRP	-0,0157483	ETH	-0,0068259	-0,48%	4	0,4%	-0,88%	0,99	4,22%
BTC	0,0123488	XRP	-0,0443375	LTC	-0,0233486	LINK	-0,0205825	DASH	-0,0157745	ADA	-0,0070959	-0,13%	4	0,4%	-0,53%	0,99	3,66%
LTC	0,0290143	DASH	-0,0383874	LINK	-0,0355428	XRP	-0,0265811	XLM	-0,0224487	ETH	-0,0197041	-0,08%	4	0,4%	-0,48%	1,00	3,16%
XLM	0,0432522	ADA	-0,0304593	LINK	-0,0130621	BNB	-0,0105217	LTC	0,0126966	XRP	0,0166436	2,35%	4	0,4%	1,95%	1,02	5,17%
LINK	0,0806765	XLM	-0,0176909	DOGE	0,0132787	ADA	0,0215665	BNB	0,026905	BTC	0,0488198	4,67%	4	0,4%	4,27%	1,04	9,66%
XLM	0,0334751	LTC	-0,0563001	BTC	-0,0529474	BNB	-0,0278751	XRP	-0,0266773	DOGE	-0,0134578	-1,16%	4	0,4%	-1,56%	0,98	7,95%
LINK	-0,0102844	LTC	-0,0321551	BTC	-0,0304642	ETH	-0,0273969	XRP	-0,0254763	DOGE	-0,0227446	-1,93%	4	0,4%	-2,33%	0,98	5,43%
LTC	0,0400557	BNB	-0,0237511	ADA	-0,01799	BTC	-0,0162596	XRP	-0,0027982	XLM	0,0070189	1,36%	4	0,4%	0,96%	1,01	6,44%
DASH	0,0353675	XLM	-0,0425433	LTC	-0,0381412	ADA	-0,0299595	LINK	0,0003122	XRP	0,0005357	0,63%	4	0,4%	0,23%	1,00	6,68%
BNB	0,0720169	DOGE	-0,0098837	DASH	0,0132369	XLM	0,0253654	XRP	0,0417046	LTC	0,0493398	4,74%	4	0,4%	4,34%	1,04	11,31%
ADA	-0,0004417	DASH	-0,0728801	BNB	-0,0544565	BTC	-0,0536655	ETH	-0,0420208	DOGE	-0,0337168	-3,20%	4	0,4%	-3,60%	0,96	7,30%
ETH	-0,0457062	DASH	-0,1338536	DOGE	-0,0996889	ADA	-0,0927872	BNB	-0,0792081	XRP	-0,0792054	-7,00%	4	0,4%	-7,40%	0,93	-0,64%
BNB	0,0756512	XLM	-0,0165915	ADA	0,0016002	BTC	0,0260472	LTC	0,0391382	LINK	0,0478258	5,01%	4	0,4%	4,61%	1,05	3,94%
XLM	0,099823	LINK	0,0016358	LTC	0,0198154	DASH	0,0219531	XRP	0,024208	ADA	0,0257369	4,85%	4	0,4%	4,45%	1,04	8,57%
BNB	0,0186037	DOGE	-0,0407317	ADA	-0,0273993	LINK	-0,0264693	LTC	-0,0245899	XRP	-0,0123197	0,34%	4	0,4%	-0,06%	1,00	8,50%
XRP	0,039489	ETH	-0,0234912	BTC	-0,0151837	BNB	-0,0064684	LINK	-0,0064609	DOGE	-0,0051606	0,72%	4	0,4%	0,32%	1,00	8,84%
LTC	0,0259738	DOGE	-0,0879119	ADA	-0,0397491	XRP	-0,0370546	DASH	-0,0130425	BTC	-0,0120014	0,23%	4	0,4%	-0,17%	1,00	8,65%
ETH	0,0976809	DASH	0,0197972	LTC	0,0213813	DOGE	0,0216749	ADA	0,0330596	LINK	0,0403481	6,26%	4	0,4%	5,86%	1,06	15,02%
DOGE	0,0615236	XLM	-0,0208769	LINK	-0,0087931	BTC	-0,0015135	ETH	0,0032901	DASH	0,0208024	1,32%	4	0,4%	0,92%	1,01	16,07%
BNB	-0,010188	DOGE	-0,0676898	ADA	-0,0335137	LINK	-0,0312104	XLM	-0,0305658	LTC	-0,0195569	-1,60%	4	0,4%	-2,00%	0,98	13,75%
BNB	0,046155	XRP	-0,0340134	DASH	-0,0201079	DOGE	-0,0194317	LTC	-0,0163538	ETH	-0,013212	2,06%	4	0,4%	1,66%	1,02	15,64%
XLM	0,0153598	DASH	-0,0265278	XRP	-0,0182121	LINK	-0,007951	BTC	-0,0038559	ETH	-0,0019045	1,00%	4	0,4%	0,60%	1,01	16,33%
BTC	0,0493588	XLM	-0,0359355	ADA	-0,0108689	DASH	0,0014643	LINK	0,0048602	LTC	0,0146081	1,94%	4	0,4%	1,54%	1,02	18,12%

Naive portfolio	
Avg return	-0,382%
Volatility	0,0337707
Sharpe ratio	-0,1132034

Figure 67: Naive portfolio using linear regression - part 2

2021-11-09	7,78%	0,00%	1,78%	20,00%	6,41%	16,00%	10,11%	8,00%	4,71%	2,00%	5,02%	16,00%	7,55%	6,00%	13,22%	8,00%	-2,09%	18,00%	6,39%	6,00%	100,00%	LTC	0,1322054
2021-11-10	6,88%	0,00%	-5,15%	18,00%	-1,18%	16,00%	11,01%	10,00%	0,13%	2,00%	-2,84%	14,00%	-1,63%	6,00%	14,26%	10,00%	-2,76%	18,00%	-2,39%	6,00%	100,00%	LTC	0,1426492
2021-11-11	-7,35%	0,00%	-2,49%	18,00%	-2,53%	16,00%	-5,82%	10,00%	-7,90%	0,00%	-1,67%	14,00%	3,82%	8,00%	-0,81%	12,00%	-7,59%	16,00%	-5,78%	6,00%	100,00%	LINK	0,0382154
2021-11-12	-0,42%	0,00%	2,65%	18,00%	-2,18%	14,00%	4,06%	12,00%	0,79%	0,00%	0,68%	14,00%	0,21%	6,00%	0,50%	12,00%	3,06%	18,00%	1,96%	6,00%	100,00%	DASH	0,0405981
2021-11-13	-0,87%	0,00%	0,42%	20,00%	-0,73%	14,00%	-4,55%	12,00%	-2,64%	0,00%	-0,55%	16,00%	-5,19%	4,00%	-3,47%	12,00%	-5,35%	16,00%	-3,12%	6,00%	100,00%	BNB	0,0042467
2021-11-14	-3,15%	0,00%	2,68%	20,00%	1,73%	14,00%	3,17%	12,00%	3,80%	2,00%	1,19%	14,00%	2,16%	4,00%	1,17%	10,00%	4,18%	18,00%	3,13%	6,00%	100,00%	XLM	0,0417504
2021-11-15	0,55%	0,00%	1,30%	20,00%	1,76%	14,00%	1,70%	12,00%	5,59%	4,00%	-3,50%	12,00%	-0,35%	4,00%	9,94%	12,00%	-0,04%	18,00%	-1,16%	4,00%	100,00%	LTC	0,0994256
2021-11-16	-0,77%	2,00%	-1,60%	20,00%	-4,56%	14,00%	-4,40%	12,00%	-2,17%	4,00%	-0,82%	12,00%	-5,11%	2,00%	-7,53%	10,00%	0,61%	20,00%	-4,61%	4,00%	100,00%	XLM	0,0061351
2021-11-17	-4,22%	2,00%	-7,14%	20,00%	-3,58%	16,00%	-10,58%	12,00%	-12,51%	2,00%	-4,39%	12,00%	-5,50%	2,00%	-10,79%	8,00%	-5,42%	20,00%	-2,82%	6,00%	100,00%	XRP	-0,0282413
2021-11-18	-1,90%	2,00%	-5,95%	18,00%	-0,98%	16,00%	-4,87%	10,00%	-0,58%	2,00%	-1,83%	12,00%	-2,41%	2,00%	-1,40%	8,00%	2,73%	22,00%	0,51%	8,00%	100,00%	XLM	0,0273443
2021-11-19	-3,07%	4,00%	-6,77%	18,00%	-4,57%	16,00%	-6,11%	10,00%	-3,32%	4,00%	-5,09%	12,00%	-7,31%	0,00%	-11,00%	6,00%	-6,15%	22,00%	-4,23%	8,00%	100,00%	ADA	-0,0307281
2021-11-20	3,06%	4,00%	8,19%	20,00%	-0,12%	16,00%	7,88%	12,00%	-1,06%	2,00%	3,36%	12,00%	-0,65%	0,00%	3,31%	6,00%	-2,20%	20,00%	0,98%	8,00%	100,00%	BNB	0,0819302
2021-11-21	2,33%	4,00%	5,75%	20,00%	3,14%	16,00%	-0,45%	10,00%	5,78%	4,00%	7,40%	14,00%	3,48%	0,00%	5,38%	6,00%	4,00%	20,00%	-1,16%	6,00%	100,00%	ETH	0,0740295
2021-11-22	-4,07%	2,00%	-2,58%	20,00%	0,65%	16,00%	5,88%	12,00%	-5,69%	2,00%	-2,79%	14,00%	3,30%	2,00%	-3,57%	6,00%	1,91%	20,00%	-0,01%	6,00%	100,00%	DASH	0,0587873
2021-11-23	-3,88%	2,00%	-3,01%	20,00%	-4,72%	16,00%	-4,77%	12,00%	-1,13%	4,00%	-1,90%	14,00%	-5,84%	0,00%	-2,43%	6,00%	-6,77%	18,00%	0,40%	8,00%	100,00%	XRP	0,0039916
2021-11-24	-3,23%	0,00%	-1,88%	20,00%	0,89%	18,00%	-2,88%	10,00%	-0,29%	4,00%	-0,84%	14,00%	-2,66%	0,00%	0,06%	6,00%	-2,52%	18,00%	2,15%	10,00%	100,00%	XRP	0,0214745
2021-11-25	-1,74%	0,00%	2,93%	22,00%	-0,63%	18,00%	4,60%	12,00%	-1,54%	2,00%	1,34%	14,00%	0,05%	0,00%	-0,70%	6,00%	1,29%	18,00%	-5,56%	8,00%	100,00%	DASH	0,0460377
2021-11-26	0,47%	0,00%	5,41%	24,00%	-0,87%	16,00%	8,22%	14,00%	2,24%	2,00%	0,41%	14,00%	-4,32%	0,00%	2,16%	6,00%	2,61%	18,00%	-1,02%	6,00%	100,00%	DASH	0,0821968
2021-11-27	-8,67%	0,00%	-1,77%	26,00%	-3,04%	16,00%	-13,64%	12,00%	-3,76%	2,00%	-3,71%	14,00%	-1,02%	2,00%	-6,28%	6,00%	-8,05%	16,00%	-5,95%	6,00%	100,00%	LINK	-0,0102316
2021-11-28	2,00%	0,00%	-0,76%	26,00%	0,48%	16,00%	-0,36%	12,00%	-8,88%	0,00%	-1,56%	14,00%	-3,08%	0,00%	-1,19%	6,00%	3,09%	18,00%	2,37%	8,00%	100,00%	XLM	0,0308977
2021-11-29	1,76%	0,00%	2,98%	26,00%	3,69%	18,00%	-0,69%	12,00%	3,14%	0,00%	4,03%	16,00%	-1,35%	0,00%	1,34%	6,00%	-1,52%	16,00%	-2,24%	6,00%	100,00%	ETH	0,0403203
2021-11-30	-1,43%	0,00%	1,03%	24,00%	1,82%	18,00%	1,37%	10,00%	6,50%	2,00%	3,71%	16,00%	4,17%	2,00%	3,17%	6,00%	3,88%	16,00%	2,38%	6,00%	100,00%	DOGE	0,0649669
2021-12-01	-1,47%	0,00%	5,04%	26,00%	-0,53%	16,00%	0,90%	10,00%	0,30%	2,00%	6,97%	18,00%	4,46%	2,00%	4,96%	6,00%	-2,78%	14,00%	0,69%	6,00%	100,00%	ETH	0,0697355
2021-12-02	1,20%	2,00%	0,13%	26,00%	-0,43%	16,00%	-4,13%	8,00%	-2,49%	2,00%	-1,69%	18,00%	-4,24%	0,00%	-2,58%	6,00%	1,32%	16,00%	0,66%	6,00%	100,00%	XLM	0,0131539
2021-12-03	7,57%	4,00%	-3,03%	26,00%	-1,22%	16,00%	-3,08%	8,00%	0,40%	4,00%	-3,60%	16,00%	-4,59%	0,00%	-2,04%	6,00%	-3,27%	16,00%	-3,31%	4,00%	100,00%	ADA	0,0756578
2021-12-04	-6,88%	2,00%	-5,17%	26,00%	-5,77%	16,00%	-4,22%	8,00%	-4,64%	4,00%	-4,65%	16,00%	-4,17%	0,00%	-7,44%	4,00%	3,09%	18,00%	-3,23%	6,00%	100,00%	XLM	0,0308566
2021-12-05	-10,22%	2,00%	-4,83%	28,00%	-7,43%	16,00%	-10,98%	8,00%	-8,07%	4,00%	-2,69%	18,00%	-8,64%	0,00%	-13,19%	2,00%	-18,16%	16,00%	-7,72%	6,00%	100,00%	ETH	-0,0268931
2021-12-06	0,76%	4,00%	-1,21%	28,00%	-0,48%	16,00%	-5,81%	6,00%	-3,59%	4,00%	3,50%	20,00%	-7,85%	0,00%	-4,75%	0,00%	0,13%	16,00%	-2,63%	6,00%	100,00%	ETH	0,035033
2021-12-07	1,04%	4,00%	2,70%	28,00%	3,30%	18,00%	0,26%	4,00%	0,68%	4,00%	1,79%	20,00%	1,85%	0,00%	2,22%	0,00%	5,34%	18,00%	-0,18%	4,00%	100,00%	XLM	0,0534133
2021-12-08	-2,78%	2,00%	1,69%	30,00%	-1,20%	18,00%	0,69%	4,00%	1,10%	4,00%	-0,68%	20,00%	7,17%	2,00%	-1,65%	0,00%	0,08%	18,00%	-2,21%	2,00%	100,00%	LINK	0,0716811
2021-12-09	1,50%	2,00%	3,56%	30,00%	0,26%	16,00%	4,82%	6,00%	-1,64%	2,00%	0,71%	20,00%	5,76%	4,00%	3,24%	0,00%	0,69%	18,00%	4,18%	2,00%	100,00%	LINK	0,0576233
2021-12-10	-5,27%	2,00%	-3,66%	30,00%	-5,60%	16,00%	-6,25%	6,00%	-3,58%	4,00%	-4,22%	20,00%	-7,09%	2,00%	-5,37%	0,00%	-7,38%	16,00%	1,61%	4,00%	100,00%	XRP	0,0160937
2021-12-11	-9,22%	0,00%	-7,84%	30,00%	1,16%	18,00%	1,01%	8,00%	-5,59%	4,00%	-5,45%	20,00%	-9,35%	0,00%	-2,33%	0,00%	-6,63%	16,00%	-7,91%	4,00%	100,00%	BTC	0,0115698
2021-12-12	12,86%	2,00%	2,57%	28,00%	3,38%	18,00%	7,43%	8,00%	2,21%	2,00%	3,81%	20,00%	-1,05%	0,00%	9,07%	2,00%	8,56%	16,00%	6,33%	4,00%	100,00%	ADA	0,1285772
2021-12-13	-1,12%	2,00%	-0,89%	28,00%	-0,23%	20,00%	-8,10%	6,00%	0,78%	4,00%	-1,45%	20,00%	-0,33%	0,00%	-4,57%	0,00%	-0,68%	16,00%	-2,46%	4,00%	100,00%	DOGE	0,0077864
2021-12-14	-8,74%	0,00%	-3,70%	30,00%	-5,28%	18,00%	-5,23%	6,00%	-4,31%	4,00%	-4,12%	20,00%	-3,73%	0,00%	-7,53%	0,00%	-4,60%	16,00%	-3,02%	6,00%	100,00%	XRP	-0,0302292
2021-12-15	-3,67%	0,00%	-5,34%	28,00%	-1,43%	18,00%	4,50%	8,00%	9,67%	6,00%	-2,80%	20,00%	-4,55%	0,00%	0,21%	0,00%	-5,27%	14,00%	1,61%	6,00%	100,00%	DOGE	0,0967053
2021-12-16	7,44%	0,00%	5,83%	28,00%	4,32%	18,00%	1,20%	6,00%	4,57%	6,00%	3,71%	20,00%	7,49%	2,00%	4,55%	0,00%	7,97%	16,00%	2,13%	4,00%	100,00%	XLM	0,079732
2021-12-17	-5,94%	0,00%	0,27%	28,00%	-0,93%	18,00%	-5,17%	4,00%	-5,15%	4,00%	1,74%	22,00%	4,07%	4,00%	-1,98%	0,00%	-4,51%	16,00%	-3,82%	4,00%	100,00%	LINK	0,0407251
2021-12-18	2,91%	2,00%	2,57%	28,00%	-2,70%	18,00%	-3,79%	2,00%	2,59%	4,00%	0,25%	22,00%	-3,11%	2,00%	-1,47%	0,00%	4,01%	18,00%	1,72%	4,00%	100,00%	XLM	0,0400822
2021-12-19	3,40%	4,00%	0,16%	28,00%	-0,41%	18,00%	4,11%	4,00%	-2,17%	2,00%	-1,01%	22,00%	3,30%	2,00%	-0,56%	0,00%	-1,57%	16,00%	0,83%	4,00%	100,00%	DASH	0,0410575
2021-12-20	-3,19%	4,00%	-4,05%	26,00%	0,68%	18,00%	1,31%	4,00%	-0,41%	2,00%	-0,92%	22,00%	-4,11%	0,00%	3,88%	2,00%	1,55%	18,00%	0,12%	4,00%	100,00%	LTC	0,0388002
2021-12-21	-1,40%	4,00%	-3,07%	26,00%	-1,02%	18,00%	-4,86%	2,00%	2,91%	4,00%	-1,57%	22,00%	-5,24%	0,00%	-2,26%	2,00%	-4,47%	16,00%	4,60%	6,00%	100,00%	XRP	0,0459784
2021-12-22	6,00%	4,00%	3,02%	26,00%	5,15%	18,00%	5,63%	2,00%	-3,36%	2,00%	4,02%	22,00%	6,07%	0,00%	3,01%	0,00%	8,37%	18,00%	11,22%	8,00%	100,00%	XRP	0,1121525
2021-12-23	3,99%	4,00%	6,28%	28,00%	0,52%	16,00%	2,68%	2,00%	1,69%	2,00%	1,01%	22,00%	4,30%	2,00%	0,99%	0,00%	-1,82%	16,00%	2,30%	8,00%	100,00%	BNB	0,0627614

Figure 68: Naive portfolio using linear regression - part 3

DASH	0,1010791	XLM	-0,0209234	BNB	0,0177874	DOGE	0,0470718	ETH	0,0501677	XRP	0,0639377		4,60%	4	0,4%	4,20%	1,04	23,09%
DASH	0,1100971	BNB	-0,051523	ETH	-0,02839	XLM	-0,0275844	XRP	-0,0239468	LINK	-0,0162691		0,28%	4	0,4%	-0,12%	1,00	22,94%
LTC	-0,0081084	DOGE	-0,0789578	XLM	-0,0758502	ADA	-0,0734967	DASH	-0,058191	XRP	-0,0577804		-3,02%	4	0,4%	-3,42%	0,97	18,73%
XLM	0,0306254	BTC	-0,0218397	ADA	-0,0041901	LINK	0,0021408	LTC	0,0049805	ETH	0,0067969		1,49%	4	0,4%	1,09%	1,01	20,03%
ETH	-0,0054744	XLM	-0,0534536	LINK	-0,0519136	DASH	-0,0455312	LTC	-0,0347049	XRP	-0,0312366		-2,32%	4	0,4%	-2,72%	0,97	16,77%
DOGE	0,0379945	ADA	-0,0315085	LTC	0,0116617	ETH	0,0119281	BTC	0,017342	LINK	0,0215547		2,55%	4	0,4%	2,15%	1,02	19,27%
DOGE	0,0558703	ETH	-0,0350409	XRP	-0,0115591	LINK	-0,0035391	XLM	-0,0004326	ADA	0,0055488		1,64%	4	0,4%	1,24%	1,01	20,75%
ADA	-0,0077333	LTC	-0,0752966	LINK	-0,0510548	XRP	-0,0460908	BTC	-0,0455713	DASH	-0,0440077		-2,60%	4	0,4%	-3,00%	0,97	17,13%
BTC	-0,0357826	DOGE	-0,1250521	LTC	-0,107872	DASH	-0,105819	BNB	-0,0713601	LINK	-0,0550235		-6,36%	4	0,4%	-6,76%	0,93	9,21%
XRP	0,0050802	BNB	-0,059505	DASH	-0,0486512	LINK	-0,0241099	ADA	-0,0189935	ETH	-0,0183334		-1,50%	4	0,4%	-1,90%	0,98	7,14%
DOGE	-0,0331759	LTC	-0,1099958	LINK	-0,073125	BNB	-0,0677415	XLM	-0,0614591	DASH	-0,0611311		-5,78%	4	0,4%	-6,18%	0,94	0,52%
DASH	0,078809	XLM	-0,0219576	DOGE	-0,0105754	LINK	-0,0065436	BTC	-0,0012145	XRP	0,0097591		2,91%	4	0,4%	2,51%	1,03	3,03%
DOGE	0,0578399	XRP	-0,0116235	DASH	-0,00455	ADA	0,0233146	BTC	0,0314209	LINK	0,0347811		4,02%	4	0,4%	3,62%	1,04	6,77%
LINK	0,0329567	DOGE	-0,0568817	ADA	-0,0407175	LTC	-0,0356634	ETH	-0,0278975	BNB	-0,0257824		-0,06%	4	0,4%	-0,46%	1,00	6,28%
DOGE	-0,0112819	XLM	-0,0676863	LINK	-0,0583565	DASH	-0,0477491	BTC	-0,0471651	ADA	-0,0388461		-3,65%	4	0,4%	-4,05%	0,96	1,97%
BTC	0,0089425	ADA	-0,0322786	DASH	-0,0287666	LINK	-0,0266453	XLM	-0,0251622	BNB	-0,0187596		-0,87%	4	0,4%	-1,27%	0,99	0,68%
BNB	0,0293471	XRP	-0,0555672	ADA	-0,0174255	DOGE	-0,0153703	LTC	-0,0070251	BTC	-0,0063346		0,99%	4	0,4%	0,59%	1,01	1,27%
BNB	0,054078	LINK	-0,0432129	XRP	-0,010203	BTC	-0,0086839	ETH	0,0040615	ADA	0,0046865		2,95%	4	0,4%	2,55%	1,03	3,85%
BNB	-0,0177303	DASH	-0,1363823	ADA	-0,086737	XLM	-0,0804745	LTC	-0,0628353	XRP	-0,0595482		-5,22%	4	0,4%	-5,62%	0,94	-1,99%
XRP	0,0236652	DOGE	-0,0888255	LINK	-0,0308117	ETH	-0,0156089	LTC	-0,01188	BNB	-0,0075901		0,29%	4	0,4%	-0,11%	1,00	-2,09%
BTC	0,0368827	XRP	-0,0223778	XLM	-0,0152485	LINK	-0,0134629	DASH	-0,0068587	LTC	0,0133827		1,70%	4	0,4%	1,30%	1,01	-0,82%
LINK	0,0417018	ADA	-0,0142647	BNB	0,010347	DASH	0,0136897	BTC	0,0181875	XRP	0,0238262		2,47%	4	0,4%	2,07%	1,02	1,24%
BNB	0,0504433	XLM	-0,0278372	ADA	-0,0147184	BTC	-0,0053307	DOGE	0,0029895	XRP	0,0069222		2,62%	4	0,4%	2,22%	1,02	3,49%
ADA	0,011964	LINK	-0,0423541	DASH	-0,0413428	LTC	-0,0258394	DOGE	-0,0248624	ETH	-0,0168916		-0,60%	4	0,4%	-1,00%	0,99	2,45%
DOGE	0,0040061	LINK	-0,0458773	ETH	-0,0360185	XRP	-0,0330766	XLM	-0,0327281	DASH	-0,030813		-2,27%	4	0,4%	-2,67%	0,97	-0,28%
XRP	-0,032328	LTC	-0,0743666	ADA	-0,0688222	BTC	-0,0576539	BNB	-0,0517106	ETH	-0,0464725		-3,61%	4	0,4%	-4,01%	0,96	-4,28%
BNB	-0,0482926	XLM	-0,1816182	LTC	-0,1318568	DASH	-0,109848	ADA	-0,1021567	LINK	-0,0863581		-8,06%	4	0,4%	-8,46%	0,92	-12,38%
ADA	0,0076246	LINK	-0,0784783	DASH	-0,0580788	LTC	-0,0475318	DOGE	-0,0359237	XRP	-0,0263298		-0,31%	4	0,4%	-0,71%	0,99	-13,01%
BTC	0,0329911	XRP	-0,0017873	DASH	0,0025511	DOGE	0,0068078	ADA	0,0103517	ETH	0,0178846		2,74%	4	0,4%	2,34%	1,02	-10,97%
BNB	0,0168634	ADA	-0,0277726	XRP	-0,0220828	LTC	-0,0165227	BTC	-0,0119715	ETH	-0,0067903		0,28%	4	0,4%	-0,12%	1,00	-11,07%
DASH	0,0482406	DOGE	-0,0163984	BTC	0,0026193	XLM	0,0069075	ETH	0,0071329	ADA	0,0149654		1,98%	4	0,4%	1,58%	1,02	-9,67%
DOGE	-0,0357953	XLM	-0,0738348	LINK	-0,0709018	DASH	-0,0625313	BTC	-0,0560367	LTC	-0,053657		-4,72%	4	0,4%	-5,12%	0,95	-14,30%
DASH	0,010129	LINK	-0,0934703	ADA	-0,0922205	XRP	-0,0790986	BNB	-0,0784028	XLM	-0,0662872		-4,75%	4	0,4%	-5,15%	0,95	-18,71%
LTC	0,0907411	LINK	-0,010466	DOGE	0,0221338	BNB	0,0256513	BTC	0,0338473	ETH	0,038103		4,79%	4	0,4%	4,39%	1,04	-15,14%
BTC	-0,0023157	DASH	-0,0810459	LTC	-0,0456595	XRP	-0,0246286	ETH	-0,0144778	ADA	-0,0111958		-1,27%	4	0,4%	-1,67%	0,98	-16,56%
BNB	-0,0370144	ADA	-0,0873881	LTC	-0,0752615	BTC	-0,0528059	DASH	-0,0523375	XLM	-0,0460335		-4,29%	4	0,4%	-4,69%	0,95	-20,47%
DASH	0,045024	BNB	-0,0534101	XLM	-0,0527315	LINK	-0,0454537	ADA	-0,0366698	ETH	-0,0279546		-2,01%	4	0,4%	-2,41%	0,98	-22,39%
LINK	0,0748874	DASH	0,0119797	XRP	0,0213178	ETH	0,0370744	BTC	0,043164	LTC	0,045494		5,01%	4	0,4%	4,61%	1,05	-18,82%
ETH	0,0174088	ADA	-0,0593707	DASH	-0,0517262	DOGE	-0,0514703	XLM	-0,0451285	XRP	-0,0381789		-0,83%	4	0,4%	-1,23%	0,99	-19,82%
ADA	0,0290552	DASH	-0,0379189	LINK	-0,0310954	BTC	-0,0270127	LTC	-0,0146827	ETH	0,0025286		1,10%	4	0,4%	0,70%	1,01	-19,25%
ADA	0,0339732	DOGE	-0,0217013	XLM	-0,0156634	ETH	-0,0100581	LTC	-0,0055546	BTC	-0,0040804		-0,15%	4	0,4%	-0,55%	0,99	-19,69%
XLM	0,015505	LINK	-0,0411249	BNB	-0,040499	ADA	-0,0318607	ETH	-0,0091803	DOGE	-0,0041349		-0,85%	4	0,4%	-1,25%	0,99	-20,70%
DOGE	0,029106	LINK	-0,0523742	DASH	-0,0485522	XLM	-0,0446615	BNB	-0,0307105	LTC	-0,0226409		-1,85%	4	0,4%	-2,25%	0,98	-22,48%
XLM	0,0837217	DOGE	-0,0336086	LTC	0,03006	BNB	0,0301826	ETH	0,0402045	BTC	0,0515161		5,29%	4	0,4%	4,89%	1,05	-18,70%
LINK	0,0430478	XLM	-0,0182407	BTC	0,0051624	LTC	0,0098928	ETH	0,0100873	DOGE	0,0169039		2,29%	4	0,4%	1,89%	1,02	-17,16%

Figure 69: Naive portfolio using linear regression - part 4

2021-12-24	10,60%	6,00%	2,95%	26,00%	4,33%	16,00%	6,76%	2,00%	5,78%	2,00%	3,45%	20,00%	16,38%	4,00%	6,67%	0,00%	5,21%	16,00%	3,68%	8,00%	100,00%	LINK	0,1638358
2021-12-25	-6,23%	4,00%	-4,02%	26,00%	-1,39%	16,00%	3,34%	4,00%	3,35%	4,00%	-2,65%	20,00%	-3,51%	4,00%	-2,72%	0,00%	-1,78%	16,00%	-9,98%	6,00%	100,00%	DOGE	0,0334971
2021-12-26	1,83%	6,00%	1,82%	28,00%	-0,33%	14,00%	0,85%	4,00%	1,70%	4,00%	0,41%	20,00%	-2,89%	2,00%	-1,65%	0,00%	0,92%	16,00%	1,74%	6,00%	100,00%	ADA	0,0182539
2021-12-27	2,09%	6,00%	-0,67%	28,00%	0,37%	14,00%	-0,67%	2,00%	-0,25%	4,00%	-1,47%	18,00%	5,83%	4,00%	-0,69%	0,00%	3,29%	18,00%	-0,61%	6,00%	100,00%	LINK	0,0582538
2021-12-28	3,89%	8,00%	2,51%	28,00%	1,29%	14,00%	4,10%	4,00%	-4,07%	2,00%	2,76%	18,00%	2,57%	4,00%	0,23%	0,00%	-0,03%	16,00%	3,32%	6,00%	100,00%	DASH	0,0410016
2021-12-29	-6,56%	8,00%	-4,02%	30,00%	-8,03%	14,00%	-12,16%	2,00%	-4,16%	4,00%	-5,31%	18,00%	-10,14%	2,00%	-7,95%	0,00%	-9,33%	16,00%	-9,90%	6,00%	100,00%	BNB	-0,0402341
2021-12-30	-5,50%	8,00%	-4,97%	30,00%	-3,04%	14,00%	-2,53%	4,00%	-3,77%	4,00%	-6,80%	16,00%	-6,30%	0,00%	-1,26%	2,00%	-2,90%	16,00%	-4,78%	6,00%	100,00%	LTC	-0,0126366
2021-12-31	1,83%	8,00%	-2,77%	28,00%	3,71%	16,00%	1,63%	4,00%	1,00%	2,00%	1,18%	16,00%	2,20%	0,00%	4,64%	4,00%	1,16%	16,00%	2,25%	6,00%	100,00%	LTC	0,0464457
2022-01-01	-1,15%	6,00%	2,33%	30,00%	-0,50%	16,00%	1,97%	6,00%	-0,96%	2,00%	1,36%	16,00%	0,83%	0,00%	0,02%	4,00%	0,37%	16,00%	-1,15%	4,00%	100,00%	BNB	0,0233356
2022-01-02	3,47%	6,00%	3,63%	32,00%	1,04%	16,00%	0,55%	4,00%	2,36%	2,00%	2,65%	16,00%	3,91%	2,00%	2,39%	4,00%	0,87%	14,00%	1,59%	4,00%	100,00%	LINK	0,0391389
2022-01-03	-0,06%	6,00%	0,16%	32,00%	-1,15%	14,00%	1,99%	4,00%	-0,33%	0,00%	2,70%	16,00%	4,27%	4,00%	0,27%	4,00%	5,32%	16,00%	3,00%	4,00%	100,00%	XLM	0,0532264
2022-01-04	-4,74%	4,00%	-4,44%	32,00%	-0,85%	14,00%	0,18%	6,00%	-2,75%	0,00%	-2,05%	16,00%	9,29%	6,00%	-3,89%	4,00%	-4,72%	14,00%	-1,57%	4,00%	100,00%	LINK	0,0928616
2022-01-05	0,93%	6,00%	-1,21%	32,00%	-0,42%	14,00%	-5,69%	4,00%	-1,19%	0,00%	-0,79%	16,00%	1,13%	8,00%	0,10%	4,00%	-1,58%	12,00%	-0,63%	4,00%	100,00%	LINK	0,0113102
2022-01-06	-5,56%	6,00%	-9,65%	30,00%	-6,84%	14,00%	-9,23%	2,00%	-3,82%	0,00%	-7,52%	16,00%	4,51%	10,00%	-5,29%	4,00%	2,85%	14,00%	-5,39%	4,00%	100,00%	LINK	0,0450536
2022-01-07	-3,50%	6,00%	-1,05%	30,00%	-1,80%	14,00%	2,54%	4,00%	-0,69%	0,00%	-4,19%	14,00%	0,19%	12,00%	-0,95%	4,00%	-3,76%	12,00%	-1,28%	4,00%	100,00%	DASH	0,0254433
2022-01-08	0,02%	6,00%	-0,53%	30,00%	-1,74%	14,00%	8,88%	6,00%	-1,13%	0,00%	-5,41%	12,00%	1,99%	14,00%	-2,43%	4,00%	-8,74%	10,00%	-4,11%	4,00%	100,00%	DASH	0,0887721
2022-01-09	0,36%	6,00%	-4,31%	28,00%	-1,35%	14,00%	6,15%	8,00%	-1,94%	0,00%	-3,19%	10,00%	2,24%	16,00%	-0,82%	4,00%	1,40%	10,00%	-1,03%	4,00%	100,00%	DASH	0,0615124
2022-01-10	-2,62%	4,00%	6,05%	30,00%	1,97%	14,00%	9,66%	10,00%	0,39%	0,00%	4,39%	10,00%	5,93%	16,00%	-1,28%	2,00%	2,22%	10,00%	1,06%	4,00%	100,00%	DASH	0,0965848
2022-01-11	-3,81%	4,00%	-6,14%	28,00%	-0,79%	14,00%	-3,12%	10,00%	-5,28%	0,00%	-2,68%	10,00%	1,30%	18,00%	-2,30%	2,00%	-4,48%	8,00%	1,22%	6,00%	100,00%	LINK	0,0130307
2022-01-12	1,69%	4,00%	3,08%	28,00%	2,53%	14,00%	-3,99%	8,00%	2,39%	0,00%	1,99%	10,00%	-4,57%	16,00%	4,91%	4,00%	4,26%	10,00%	0,05%	6,00%	100,00%	LTC	0,0491449
2022-01-13	10,04%	6,00%	9,97%	30,00%	3,47%	14,00%	-0,83%	6,00%	7,73%	0,00%	4,68%	10,00%	2,49%	16,00%	7,14%	4,00%	-0,23%	8,00%	3,31%	6,00%	100,00%	ADA	0,1003569
2022-01-14	-3,20%	6,00%	2,49%	32,00%	-1,55%	14,00%	-3,92%	6,00%	2,76%	2,00%	-1,24%	10,00%	-6,76%	14,00%	-5,45%	2,00%	-2,44%	8,00%	-3,42%	6,00%	100,00%	DOGE	0,0276429
2022-01-15	5,42%	6,00%	-0,24%	30,00%	-0,96%	12,00%	1,33%	6,00%	8,69%	4,00%	0,11%	10,00%	-0,17%	14,00%	6,78%	4,00%	4,73%	8,00%	2,74%	6,00%	100,00%	DOGE	0,0868805
2022-01-16	-1,76%	6,00%	-4,38%	28,00%	-0,10%	12,00%	2,49%	6,00%	2,68%	6,00%	-2,22%	8,00%	1,47%	14,00%	2,76%	6,00%	0,56%	8,00%	1,03%	6,00%	100,00%	LTC	0,0276201
2022-01-17	5,56%	8,00%	5,44%	30,00%	1,01%	12,00%	-4,34%	4,00%	-3,34%	4,00%	1,94%	8,00%	0,06%	14,00%	-0,41%	6,00%	-3,32%	8,00%	-1,62%	6,00%	100,00%	ADA	0,055614
2022-01-18	18,33%	10,00%	-0,40%	30,00%	-2,31%	12,00%	-1,96%	4,00%	-4,42%	2,00%	-1,39%	8,00%	-5,24%	12,00%	2,46%	8,00%	-1,60%	8,00%	-0,88%	6,00%	100,00%	ADA	0,1832775
2022-01-19	-8,84%	8,00%	-2,41%	30,00%	-0,61%	14,00%	-3,11%	4,00%	-3,52%	2,00%	-2,36%	8,00%	-6,16%	12,00%	-6,85%	6,00%	0,48%	10,00%	-1,95%	6,00%	100,00%	XLM	0,0047821
2022-01-20	-10,52%	6,00%	-3,75%	30,00%	-0,63%	16,00%	-3,14%	4,00%	-0,24%	4,00%	-1,71%	8,00%	-4,15%	10,00%	-2,88%	6,00%	-3,98%	10,00%	-3,71%	6,00%	100,00%	DOGE	-0,0023773
2022-01-21	0,06%	8,00%	-3,56%	30,00%	-2,42%	16,00%	-6,44%	2,00%	-3,01%	4,00%	-3,01%	8,00%	-8,12%	8,00%	-3,10%	6,00%	0,66%	12,00%	-2,31%	6,00%	100,00%	XLM	0,006617
2022-01-22	-13,40%	6,00%	-11,99%	30,00%	-9,71%	16,00%	-10,72%	2,00%	-7,45%	6,00%	-12,85%	6,00%	-8,70%	10,00%	-12,43%	6,00%	-9,25%	12,00%	-9,99%	6,00%	100,00%	DOGE	-0,0744556
2022-01-23	-3,86%	8,00%	-12,01%	28,00%	-4,70%	16,00%	-5,27%	2,00%	-9,22%	6,00%	-10,17%	6,00%	-10,62%	8,00%	-4,93%	6,00%	-6,90%	12,00%	-4,39%	8,00%	100,00%	ADA	-0,0386401
2022-01-24	5,19%	8,00%	5,23%	30,00%	2,67%	16,00%	0,22%	0,00%	0,98%	4,00%	4,02%	6,00%	1,97%	8,00%	1,29%	6,00%	5,80%	14,00%	2,24%	8,00%	100,00%	XLM	0,0579587
2022-01-25	-2,60%	6,00%	0,69%	30,00%	1,16%	16,00%	-7,79%	0,00%	-1,42%	4,00%	-0,68%	6,00%	1,81%	10,00%	-2,34%	4,00%	2,99%	16,00%	-1,54%	8,00%	100,00%	XLM	0,0299198
2022-01-26	-3,13%	6,00%	6,51%	32,00%	0,90%	16,00%	1,39%	0,00%	0,30%	4,00%	6,88%	8,00%	-1,12%	10,00%	-3,58%	2,00%	-3,84%	14,00%	0,30%	8,00%	100,00%	ETH	0,0688459
2022-01-27	1,54%	6,00%	-3,41%	32,00%	-0,49%	16,00%	0,49%	0,00%	4,90%	6,00%	-2,79%	8,00%	-3,59%	8,00%	-1,14%	2,00%	-4,13%	12,00%	3,55%	10,00%	100,00%	DOGE	0,0490176
2022-01-28	-8,21%	4,00%	-4,15%	32,00%	1,28%	18,00%	-2,18%	0,00%	-1,81%	6,00%	-3,56%	8,00%	-4,41%	8,00%	0,19%	2,00%	2,73%	14,00%	-5,04%	8,00%	100,00%	XLM	0,027338
2022-01-29	4,24%	4,00%	6,36%	34,00%	3,57%	18,00%	5,00%	0,00%	0,30%	4,00%	6,57%	10,00%	6,05%	8,00%	3,26%	2,00%	3,73%	14,00%	1,51%	6,00%	100,00%	ETH	0,0656713
2022-01-30	0,57%	4,00%	-0,93%	34,00%	-0,89%	18,00%	-0,55%	0,00%	2,13%	6,00%	-2,36%	8,00%	-1,31%	6,00%	0,94%	2,00%	2,81%	16,00%	-0,79%	6,00%	100,00%	XLM	0,0281349
2022-01-31	-3,91%	2,00%	-3,00%	32,00%	-1,84%	18,00%	-0,04%	0,00%	-2,75%	6,00%	-1,34%	8,00%	7,26%	8,00%	-2,05%	2,00%	0,92%	18,00%	-1,79%	6,00%	100,00%	LINK	0,072584
2022-02-01	-2,48%	0,00%	-0,02%	32,00%	3,56%	20,00%	1,57%	0,00%	2,45%	6,00%	5,83%	10,00%	2,14%	8,00%	1,10%	2,00%	-3,66%	16,00%	2,20%	6,00%	100,00%	ETH	0,058347
2022-02-02	7,62%	2,00%	2,37%	32,00%	-0,30%	18,00%	-0,99%	0,00%	1,80%	6,00%	2,60%	10,00%	-2,81%	6,00%	8,46%	4,00%	5,18%	16,00%	1,76%	6,00%	100,00%	LTC	0,0846218
2022-02-03	-1,75%	4,00%	-3,17%	32,00%	-4,09%	18,00%	-4,59%	0,00%	-4,12%	6,00%	-4,62%	10,00%	-7,11%	4,00%	-5,99%	2,00%	-2,05%	18,00%	-3,94%	6,00%	100,00%	ADA	-0,0175051
2022-02-04	-1,21%	4,00%	3,87%	34,00%	0,35%	18,00%	0,90%	0,00%	-1,64%	4,00%	-0,13%	10,00%	-1,57%	2,00%	-1,37%	2,00%	-0,31%	18,00%	1,01%	8,00%	100,00%	BNB	0,038655
2022-02-05	12,45%	6,00%	6,51%	32,00%	12,27%	18,00%	8,53%	0,00%	7,69%	2,00%	12,29%	10,00%	10,72%	2,00%	13,32%	4,00%	9,65%	18,00%	8,08%	8,00%	100,00%	LTC	0,1331636
2022-02-06	-1,21%	4,00%	0,61%	32,00%	-0,30%	18,00%	2,89%	0,00%	1,23%	2,00%	3,36%	12,00%	-1,08%	0,00%	-1,03%	4,00%	3,67%	20,00%	0,56%	8,00%	100,00%	XLM	0,0367423

Figure 70: Naive portfolio using linear regression - part 5

ADA	0,1059546	BNB	0,0294732	ETH	0,0345138	XRP	0,0368261	BTC	0,0433361	XLM	0,0520631		4,82%	4	0,4%	4,42%	1,04	-13,50%
DASH	0,033425	XRP	-0,0997784	ADA	-0,0622917	BNB	-0,0402185	LINK	-0,0351462	LTC	-0,0271857		-2,80%	4	0,4%	-3,20%	0,97	-16,27%
BNB	0,018164	LINK	-0,0289092	LTC	-0,0165466	BTC	-0,0032629	ETH	0,0040775	DASH	0,0084701		0,95%	4	0,4%	0,55%	1,01	-15,81%
XLM	0,0328851	ETH	-0,0147168	LTC	-0,0069285	DASH	-0,0067226	BNB	-0,0066976	XRP	-0,0060528		0,49%	4	0,4%	0,09%	1,00	-15,73%
ADA	0,0388697	DOGE	-0,0406815	XLM	-0,0002966	LTC	0,0023013	BTC	0,0128642	BNB	0,0251267		2,07%	4	0,4%	1,67%	1,02	-14,33%
DOGE	-0,0416145	DASH	-0,1216014	LINK	-0,1014172	XRP	-0,0989591	XLM	-0,0933409	BTC	-0,0802839		-6,51%	4	0,4%	-6,91%	0,93	-20,25%
DASH	-0,0252954	ETH	-0,067962	LINK	-0,0629997	ADA	-0,0549952	BNB	-0,0496708	XRP	-0,0477578		-4,47%	4	0,4%	-4,87%	0,95	-24,13%
BTC	0,0371151	BNB	-0,0277388	DOGE	0,0100125	XLM	0,0115773	ETH	0,011757	DASH	0,0163359		0,74%	4	0,4%	0,34%	1,00	-23,87%
DASH	0,0197328	ADA	-0,011525	XRP	-0,0115244	DOGE	-0,0096324	BTC	-0,0050373	LTC	0,0001848		0,88%	4	0,4%	0,48%	1,00	-23,51%
BNB	0,0362839	DASH	0,005481	XLM	0,0087016	BTC	0,0104417	XRP	0,0159306	DOGE	0,0235848		2,39%	4	0,4%	1,99%	1,02	-21,98%
LINK	0,0427358	BTC	-0,0115002	DOGE	-0,0032909	ADA	-0,0005926	BNB	0,0016026	LTC	0,0027329		1,55%	4	0,4%	1,15%	1,01	-21,09%
DASH	0,0018179	ADA	-0,0474206	XLM	-0,0471689	BNB	-0,0444252	LTC	-0,0388784	DOGE	-0,0275022		-2,37%	4	0,4%	-2,77%	0,97	-23,27%
ADA	0,0093334	DASH	-0,0568862	XLM	-0,0157685	BNB	-0,0121277	DOGE	-0,0118996	ETH	-0,0079101		-0,87%	4	0,4%	-1,27%	0,99	-24,24%
XLM	0,0284898	BNB	-0,0964852	DASH	-0,0923233	ETH	-0,0751666	BTC	-0,0683931	ADA	-0,0556498		-5,15%	4	0,4%	-5,55%	0,94	-28,45%
LINK	0,0019024	ETH	-0,0419329	XLM	-0,037575	ADA	-0,0350386	BTC	-0,0180179	XRP	-0,012836		-1,78%	4	0,4%	-2,18%	0,98	-30,01%
LINK	0,0199025	XLM	-0,0874333	ETH	-0,0540897	XRP	-0,0410731	LTC	-0,0242771	BTC	-0,0174224		-1,37%	4	0,4%	-1,77%	0,98	-31,25%
LINK	0,0224168	BNB	-0,0431445	ETH	-0,03185	DOGE	-0,0193806	BTC	-0,0134511	XRP	-0,0102834		-0,78%	4	0,4%	-1,18%	0,99	-32,06%
BNB	0,0604515	ADA	-0,0261861	LTC	-0,0127864	DOGE	0,0039099	XRP	0,0105796	BTC	0,0196564		4,58%	4	0,4%	4,18%	1,04	-29,22%
XRP	0,0121917	BNB	-0,061358	DOGE	-0,0528364	XLM	-0,0447514	ADA	-0,0381143	DASH	-0,0311932		-2,66%	4	0,4%	-3,06%	0,97	-31,38%
XLM	0,0425779	LINK	-0,0456739	DASH	-0,0398906	XRP	0,0005486	ADA	0,0168549	ETH	0,0199092		1,06%	4	0,4%	0,66%	1,01	-30,93%
BNB	0,0996615	DASH	-0,0082958	XLM	-0,0022928	LINK	0,0248685	XRP	0,0331093	BTC	0,0346528		5,36%	4	0,4%	4,96%	1,05	-27,51%
BNB	0,0249112	LINK	-0,0675658	LTC	-0,0545317	DASH	-0,0391724	XRP	-0,0342205	ADA	-0,0320364		-1,37%	4	0,4%	-1,77%	0,98	-28,79%
LTC	0,0677632	BTC	-0,0096461	BNB	-0,0023529	LINK	-0,0016974	ETH	0,0011288	DASH	0,0132766		1,37%	4	0,4%	0,97%	1,01	-28,10%
DOGE	0,0267934	BNB	-0,0438308	ETH	-0,0222343	ADA	-0,0176064	BTC	-0,0010053	XLM	0,0056235		-0,73%	4	0,4%	-1,13%	0,99	-28,92%
BNB	0,0543875	DASH	-0,0433883	DOGE	-0,0333778	XLM	-0,0331501	XRP	-0,0162394	LTC	-0,004093		1,67%	4	0,4%	1,27%	1,01	-28,02%
LTC	0,0246304	LINK	-0,0523886	DOGE	-0,0442382	BTC	-0,0230628	DASH	-0,0195814	XLM	-0,0160099		0,55%	4	0,4%	0,15%	1,00	-27,91%
BTC	-0,0061449	ADA	-0,0884247	LTC	-0,0685266	LINK	-0,0615698	DOGE	-0,035242	DASH	-0,0310973		-3,12%	4	0,4%	-3,52%	0,96	-30,45%
BTC	-0,0063248	ADA	-0,1051913	LINK	-0,0414762	XLM	-0,0398439	BNB	-0,0374804	XRP	-0,0371093		-3,34%	4	0,4%	-3,74%	0,96	-33,05%
ADA	0,0005628	LINK	-0,0812003	DASH	-0,0644046	BNB	-0,0355551	LTC	-0,0310364	DOGE	-0,0301479		-2,83%	4	0,4%	-3,23%	0,97	-35,22%
LINK	-0,0870295	ADA	-0,1339953	ETH	-0,1284804	LTC	-0,124267	BNB	-0,1198802	DASH	-0,1072292		-10,71%	4	0,4%	-11,11%	0,89	-42,41%
XRP	-0,0438754	BNB	-0,1201053	LINK	-0,1062334	ETH	-0,1017045	DOGE	-0,0922033	XLM	-0,068991		-8,02%	4	0,4%	-8,42%	0,92	-47,26%
BNB	0,0522945	DASH	0,0021651	DOGE	0,0097749	LTC	0,0128912	LINK	0,0196582	XRP	0,022394		3,92%	4	0,4%	3,52%	1,04	-45,41%
LINK	0,0181213	DASH	-0,0779477	ADA	-0,0259957	LTC	-0,0234307	XRP	-0,0154002	DOGE	-0,0142427		0,58%	4	0,4%	0,18%	1,00	-45,31%
BNB	0,0651461	XLM	-0,038435	LTC	-0,0357554	ADA	-0,0312914	LINK	-0,011184	XRP	0,0030096		1,91%	4	0,4%	1,51%	1,02	-44,48%
XRP	0,0354661	XLM	-0,0413094	LINK	-0,035912	BNB	-0,03407	ETH	-0,0278959	LTC	-0,0114191		-1,46%	4	0,4%	-1,86%	0,98	-45,51%
BTC	0,0127992	ADA	-0,0821325	XRP	-0,0503677	LINK	-0,0441269	BNB	-0,041508	ETH	-0,0356282		-2,19%	4	0,4%	-2,59%	0,97	-46,92%
BNB	0,0636445	DOGE	0,0030081	XRP	0,0150924	LTC	0,0326345	BTC	0,0357391	XLM	0,0372741		4,81%	4	0,4%	4,41%	1,04	-44,59%
DOGE	0,021344	ETH	-0,0236182	LINK	-0,0131413	BNB	-0,0092689	BTC	-0,0088928	XRP	-0,0079232		-0,17%	4	0,4%	-0,57%	0,99	-44,90%
XLM	0,0091827	ADA	-0,0390576	BNB	-0,0300497	DOGE	-0,0275427	LTC	-0,0205008	BTC	-0,0184458		-1,05%	4	0,4%	-1,45%	0,99	-45,70%
BTC	0,0356277	XLM	-0,036643	ADA	-0,0248219	BNB	-0,0002272	LTC	0,0110116	DASH	0,0157393		1,17%	4	0,4%	0,77%	1,01	-45,28%
ADA	0,0761745	LINK	-0,0280624	DASH	-0,0099492	BTC	-0,0030241	XRP	0,0176247	DOGE	0,0179764		2,33%	4	0,4%	1,93%	1,02	-44,22%
XLM	-0,0205413	LINK	-0,0711148	LTC	-0,0599096	ETH	-0,0462341	DASH	-0,0459064	DOGE	-0,0411986		-3,54%	4	0,4%	-3,94%	0,96	-46,42%
XRP	0,0100623	DOGE	-0,0164407	LINK	-0,0157114	LTC	-0,0136728	ADA	-0,0121377	XLM	-0,0030585		1,22%	4	0,4%	0,82%	1,01	-45,98%
ADA	0,1245462	BNB	0,0650898	DOGE	0,0768512	XRP	0,0807869	DASH	0,0853467	XLM	0,0964589		9,55%	4	0,4%	9,15%	1,09	-41,04%
ETH	0,0336384	ADA	-0,0120654	LINK	-0,0108193	LTC	-0,0102785	BTC	-0,0030008	XRP	0,0055971		1,26%	4	0,4%	0,86%	1,01	-40,53%

Figure 71: Naive portfolio using linear regression - part 6

2022-02-07	-2,70%	2,00%	3,31%	34,00%	1,63%	18,00%	3,10%	0,00%	4,51%	4,00%	-0,93%	12,00%	-0,93%	0,00%	1,42%	4,00%	-3,63%	18,00%	2,97%	8,00%	100,00%	DOGE	0,0451073
2022-02-08	8,29%	2,00%	0,67%	32,00%	3,94%	18,00%	9,49%	2,00%	7,33%	4,00%	2,12%	10,00%	5,07%	0,00%	8,73%	4,00%	8,33%	18,00%	23,95%	10,00%	100,00%	XRP	0,2394607
2022-02-09	-2,63%	0,00%	-3,74%	30,00%	-0,08%	18,00%	-0,40%	2,00%	-2,09%	4,00%	2,40%	12,00%	-1,75%	0,00%	-2,37%	4,00%	-1,50%	18,00%	4,62%	12,00%	100,00%	XRP	0,0461533
2022-02-10	0,01%	0,00%	2,03%	32,00%	0,75%	18,00%	-2,39%	0,00%	-0,17%	4,00%	1,98%	12,00%	-1,45%	0,00%	5,24%	6,00%	-1,30%	18,00%	-1,51%	10,00%	100,00%	LTC	0,0524165
2022-02-11	-2,68%	0,00%	1,17%	34,00%	-1,67%	20,00%	-3,60%	0,00%	-4,52%	2,00%	-3,34%	12,00%	-1,96%	0,00%	-2,94%	6,00%	-5,13%	16,00%	-2,45%	10,00%	100,00%	BNB	0,0116625
2022-02-12	-6,07%	0,00%	-3,82%	34,00%	-3,32%	22,00%	-5,74%	0,00%	-7,80%	0,00%	-5,18%	12,00%	-8,54%	0,00%	-7,70%	6,00%	-3,04%	18,00%	-9,76%	8,00%	100,00%	XLM	-0,0303861
2022-02-13	-3,34%	0,00%	1,26%	34,00%	0,14%	20,00%	-1,37%	0,00%	1,11%	0,00%	-1,40%	10,00%	-2,83%	0,00%	1,76%	8,00%	0,20%	18,00%	6,23%	10,00%	100,00%	XRP	0,0623046
2022-02-14	1,19%	0,00%	-1,58%	32,00%	1,50%	22,00%	1,12%	0,00%	1,98%	2,00%	0,64%	10,00%	-2,62%	0,00%	0,30%	6,00%	1,36%	18,00%	1,00%	10,00%	100,00%	DOGE	0,0197519
2022-02-15	-0,28%	0,00%	1,72%	34,00%	-0,53%	22,00%	1,01%	2,00%	-2,18%	0,00%	0,23%	10,00%	-1,68%	0,00%	-2,66%	4,00%	-0,82%	18,00%	-0,76%	10,00%	100,00%	BNB	0,0171972
2022-02-16	6,52%	0,00%	3,98%	32,00%	4,84%	22,00%	4,25%	0,00%	3,18%	0,00%	6,99%	12,00%	12,09%	2,00%	5,64%	4,00%	6,54%	18,00%	5,99%	10,00%	100,00%	LINK	0,1208557
2022-02-17	-4,87%	0,00%	-1,21%	32,00%	-0,72%	22,00%	6,18%	2,00%	-1,94%	0,00%	-1,02%	12,00%	1,81%	4,00%	-2,63%	2,00%	-0,89%	18,00%	-4,40%	8,00%	100,00%	DASH	0,0617544
2022-02-18	-5,04%	2,00%	-3,89%	34,00%	-7,69%	22,00%	-9,11%	0,00%	-8,84%	0,00%	-5,87%	12,00%	-6,93%	4,00%	-8,83%	2,00%	-8,08%	18,00%	-9,07%	6,00%	100,00%	BNB	-0,0389468
2022-02-19	-0,69%	2,00%	-5,02%	34,00%	-3,16%	22,00%	-0,17%	0,00%	0,89%	2,00%	-5,99%	10,00%	-6,04%	2,00%	-1,48%	2,00%	-2,77%	18,00%	3,73%	8,00%	100,00%	XRP	0,037312
2022-02-20	0,68%	2,00%	-0,02%	34,00%	0,31%	22,00%	-2,77%	0,00%	3,17%	4,00%	-1,62%	8,00%	1,51%	2,00%	-0,89%	0,00%	0,17%	18,00%	4,22%	10,00%	100,00%	XRP	0,0421549
2022-02-21	-6,80%	0,00%	-1,92%	34,00%	-2,34%	22,00%	-2,71%	0,00%	-0,56%	6,00%	-0,23%	10,00%	-2,06%	2,00%	-3,75%	0,00%	-2,53%	18,00%	-5,25%	8,00%	100,00%	ETH	-0,002342
2022-02-22	-11,88%	0,00%	-4,05%	34,00%	-3,80%	22,00%	-11,34%	0,00%	-2,06%	8,00%	-2,61%	10,00%	-5,93%	0,00%	-6,94%	0,00%	-4,85%	16,00%	-2,56%	10,00%	100,00%	DOGE	-0,0206426
2022-02-23	3,94%	2,00%	-1,03%	32,00%	0,90%	22,00%	6,06%	2,00%	-1,52%	6,00%	0,77%	10,00%	-1,58%	0,00%	3,67%	0,00%	3,51%	16,00%	0,59%	10,00%	100,00%	DASH	0,0606299
2022-02-24	-2,71%	2,00%	-4,19%	30,00%	-1,55%	22,00%	-3,92%	2,00%	-4,18%	4,00%	-2,14%	10,00%	-1,45%	2,00%	0,55%	2,00%	-2,60%	16,00%	-4,17%	10,00%	100,00%	LTC	0,0054913
2022-02-25	0,05%	2,00%	3,33%	32,00%	3,49%	24,00%	-2,17%	2,00%	-2,30%	4,00%	1,98%	10,00%	1,89%	2,00%	-0,58%	2,00%	-7,84%	14,00%	-6,95%	8,00%	100,00%	BTC	0,0348673
2022-02-26	10,40%	4,00%	6,57%	32,00%	3,17%	22,00%	4,38%	2,00%	2,31%	2,00%	6,40%	10,00%	9,04%	2,00%	6,67%	2,00%	9,45%	14,00%	10,11%	10,00%	100,00%	ADA	0,1039755
2022-02-27	-3,36%	2,00%	-1,44%	32,00%	-0,48%	22,00%	3,92%	4,00%	-1,65%	2,00%	-0,50%	10,00%	1,50%	2,00%	-2,54%	0,00%	1,05%	14,00%	2,29%	12,00%	100,00%	DASH	0,0391713
2022-02-28	-3,72%	2,00%	-2,51%	34,00%	-3,57%	22,00%	-7,01%	2,00%	-3,44%	2,00%	-4,89%	10,00%	-6,27%	0,00%	-4,57%	0,00%	0,08%	16,00%	-3,36%	12,00%	100,00%	XLM	0,0007821
2022-03-01	12,63%	2,00%	7,40%	32,00%	12,95%	24,00%	14,84%	4,00%	6,32%	0,00%	8,87%	10,00%	7,38%	0,00%	8,80%	0,00%	8,48%	16,00%	11,03%	12,00%	100,00%	DASH	0,1484316
2022-03-02	-1,13%	2,00%	5,28%	34,00%	4,29%	26,00%	-1,29%	2,00%	2,73%	0,00%	2,96%	10,00%	1,83%	0,00%	-0,52%	0,00%	1,43%	16,00%	-3,05%	10,00%	100,00%	BNB	0,0527663
2022-03-03	-3,15%	0,00%	1,39%	36,00%	-1,02%	26,00%	-1,16%	2,00%	-0,20%	0,00%	0,73%	10,00%	2,11%	2,00%	-2,47%	0,00%	-4,28%	14,00%	-1,71%	10,00%	100,00%	LINK	0,0211086
2022-03-04	0,17%	0,00%	-0,42%	36,00%	-2,63%	24,00%	-0,11%	2,00%	-0,23%	0,00%	-1,76%	8,00%	3,53%	4,00%	2,12%	2,00%	-0,44%	14,00%	-0,83%	10,00%	100,00%	LINK	0,035275
2022-03-05	-9,51%	0,00%	-9,31%	34,00%	-8,83%	24,00%	-5,72%	4,00%	-3,69%	2,00%	-9,26%	8,00%	-8,64%	4,00%	-9,44%	0,00%	-6,77%	14,00%	-6,60%	10,00%	100,00%	DOGE	-0,0368536

Figure 72: Naive portfolio using linear regression - part 7

BNB	0,0331407	XLM	-0,0362899	ADA	-0,0269701	ETH	-0,0092996	LINK	-0,0092787	LTC	0,0141885		1,08%	4	0,4%	0,68%	1,01	-40,13%
DASH	0,0948664	BNB	0,0067192	ETH	0,0211645	BTC	0,0393727	LINK	0,0506785	DOGE	0,0732555		6,03%	4	0,4%	5,63%	1,06	-36,76%
ETH	0,0240186	BNB	-0,0374186	ADA	-0,0262885	LTC	-0,0237314	DOGE	-0,0209484	LINK	-0,0174891		-0,75%	4	0,4%	-1,15%	0,99	-37,49%
BNB	0,0203291	DASH	-0,0239139	XRP	-0,0151252	LINK	-0,0144655	XLM	-0,0130412	DOGE	-0,0017363		0,94%	4	0,4%	0,54%	1,01	-37,15%
BTC	-0,0166577	XLM	-0,0512658	DOGE	-0,0451665	DASH	-0,0360049	ETH	-0,0333931	LTC	-0,0294057		-1,67%	4	0,4%	-2,07%	0,98	-38,45%
BTC	-0,0332305	XRP	-0,0976283	LINK	-0,0853646	DOGE	-0,0780282	LTC	-0,0769956	ADA	-0,060672		-4,44%	4	0,4%	-4,84%	0,95	-41,43%
LTC	0,0175798	ADA	-0,0334267	LINK	-0,0282829	ETH	-0,0140329	DASH	-0,0136762	BTC	0,0014099		1,12%	4	0,4%	0,72%	1,01	-41,01%
BTC	0,0150215	LINK	-0,0261736	BNB	-0,0157594	LTC	0,0029687	ETH	0,0063901	XRP	0,0100458		0,29%	4	0,4%	-0,11%	1,00	-41,08%
DASH	0,0101258	LTC	-0,0266183	DOGE	-0,0217673	LINK	-0,0167706	XLM	-0,0082366	XRP	-0,0076361		0,18%	4	0,4%	-0,22%	1,00	-41,21%
ETH	0,0699248	DOGE	0,0317816	BNB	0,0398321	DASH	0,0425243	BTC	0,0484375	LTC	0,0564259		5,42%	4	0,4%	5,02%	1,05	-38,25%
LINK	0,0181003	ADA	-0,0486606	XRP	-0,043961	LTC	-0,0262811	DOGE	-0,0194229	BNB	-0,0120696		-1,04%	4	0,4%	-1,44%	0,99	-39,14%
ADA	-0,0504241	DASH	-0,0911203	XRP	-0,0907027	DOGE	-0,0883702	LTC	-0,0882699	XLM	-0,080783		-6,27%	4	0,4%	-6,67%	0,93	-43,20%
DOGE	0,0089079	LINK	-0,060418	ETH	-0,059874	BNB	-0,0502242	BTC	-0,0315519	XLM	-0,0276678		-3,35%	4	0,4%	-3,75%	0,96	-45,33%
DOGE	0,0316946	DASH	-0,0276866	ETH	-0,0161935	LTC	-0,0089394	BNB	-0,000212	XLM	0,0016562		0,55%	4	0,4%	0,15%	1,00	-45,25%
DOGE	-0,0056173	ADA	-0,0680471	XRP	-0,0524708	LTC	-0,0374906	DASH	-0,0270919	XLM	-0,0252975		-2,14%	4	0,4%	-2,54%	0,97	-46,64%
XRP	-0,0256121	ADA	-0,1187597	DASH	-0,1133522	LTC	-0,069351	LINK	-0,0593307	XLM	-0,0484824		-3,67%	4	0,4%	-4,07%	0,96	-48,81%
ADA	0,0393552	LINK	-0,0157502	DOGE	-0,0152102	BNB	-0,0102576	XRP	0,0059443	ETH	0,0077402		0,68%	4	0,4%	0,28%	1,00	-48,67%
LINK	-0,0145427	BNB	-0,041876	DOGE	-0,0417919	XRP	-0,0416846	DASH	-0,039177	ADA	-0,0270677		-2,96%	4	0,4%	-3,36%	0,97	-50,39%
BNB	0,0333205	XLM	-0,0783726	XRP	-0,0695057	DOGE	-0,0229582	DASH	-0,0217224	LTC	-0,005815		0,34%	4	0,4%	-0,06%	1,00	-50,42%
XRP	0,1010674	DOGE	0,0230598	BTC	0,0316846	DASH	0,0438041	ETH	0,0639901	BNB	0,0657025		6,64%	4	0,4%	6,24%	1,06	-47,33%
XRP	0,022867	ADA	-0,0335742	LTC	-0,0254142	DOGE	-0,0165129	BNB	-0,0143984	ETH	-0,0050096		-0,11%	4	0,4%	-0,51%	0,99	-47,60%
BNB	-0,0251331	DASH	-0,0701104	LINK	-0,0627447	ETH	-0,048873	LTC	-0,0456533	ADA	-0,0372024		-2,80%	4	0,4%	-3,20%	0,97	-49,28%
BTC	0,1295143	DOGE	0,0632447	LINK	0,0738093	BNB	0,0740166	XLM	0,0847788	LTC	0,0879661		9,89%	4	0,4%	9,49%	1,09	-44,46%
BTC	0,0429162	XRP	-0,0305394	DASH	-0,0128704	ADA	-0,0113103	LTC	-0,0052193	XLM	0,0143202		3,08%	4	0,4%	2,68%	1,03	-42,98%
BNB	0,0139237	XLM	-0,0428226	ADA	-0,0314853	LTC	-0,0246686	XRP	-0,0170633	DASH	-0,0115939		-0,44%	4	0,4%	-0,84%	0,99	-43,46%
LTC	0,0211502	BTC	-0,026329	ETH	-0,0176492	XRP	-0,008256	XLM	-0,0043596	BNB	-0,0041948		-0,89%	4	0,4%	-1,29%	0,99	-44,18%
DASH	-0,0571639	ADA	-0,095092	LTC	-0,0943822	BNB	-0,0930866	ETH	-0,0926091	BTC	-0,0882574		-8,28%	4	0,4%	-8,68%	0,91	-49,03%

Figure 73: Naive portfolio using linear regression - part 8

1.6.2 Using gradient boosting regression

1.6.2.1 Absolute momentum portfolio

	ADA		BNB		BTC		DASH		DOGE		ETH		LINK	
	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight
		10%		10%		10%		10%		10%		10%		10%
2021-10-04	-3,62%	0,00%	2,52%	50,00%	-0,44%	0,00%	-1,95%	0,00%	-3,41%	0,00%	-0,50%	0,00%	-2,16%	0,00%
2021-10-05	0,00%	0,00%	-5,06%	0,00%	1,94%	50,00%	0,00%	0,00%	7,84%	50,00%	-4,39%	0,00%	-3,98%	0,00%
2021-10-06	-0,36%	0,00%	8,22%	11,11%	5,96%	11,11%	4,62%	11,11%	3,12%	11,11%	7,70%	11,11%	8,12%	11,11%
2021-10-07	0,00%	0,00%	2,15%	14,29%	6,99%	14,29%	0,93%	14,29%	6,31%	14,29%	0,33%	14,29%	-0,09%	0,00%
2021-10-08	1,23%	25,00%	-4,98%	0,00%	-2,80%	0,00%	0,18%	25,00%	-2,73%	0,00%	0,10%	25,00%	0,00%	0,00%
2021-10-09	0,06%	100,00%	-6,13%	0,00%	0,00%	0,00%	0,00%	0,00%	-2,87%	0,00%	-2,30%	0,00%	-4,77%	0,00%
2021-10-10	-1,42%	0,00%	0,63%	14,29%	0,77%	14,29%	4,16%	14,29%	-2,81%	0,00%	0,00%	0,00%	5,01%	14,29%
2021-10-11	-0,38%	0,00%	-1,97%	0,00%	-1,86%	0,00%	-3,99%	0,00%	-0,54%	0,00%	-2,55%	0,00%	-6,52%	0,00%
2021-10-12	0,45%	14,29%	1,85%	14,29%	5,36%	14,29%	0,17%	14,29%	0,00%	0,00%	6,51%	14,29%	-1,56%	0,00%
2021-10-13	-0,92%	0,00%	6,83%	33,33%	0,05%	33,33%	-0,53%	0,00%	0,00%	0,00%	0,13%	33,33%	-1,72%	0,00%
2021-10-14	-0,15%	0,00%	5,00%	33,33%	0,49%	33,33%	-0,11%	0,00%	0,00%	0,00%	-0,92%	0,00%	1,62%	33,33%
2021-10-15	0,06%	14,29%	0,69%	14,29%	-0,20%	0,00%	1,31%	14,29%	0,20%	14,29%	4,24%	14,29%	5,53%	14,29%
2021-10-16	0,60%	14,29%	2,98%	14,29%	3,63%	14,29%	3,16%	14,29%	0,00%	0,00%	0,27%	14,29%	0,27%	14,29%
2021-10-17	-0,87%	0,00%	-0,68%	0,00%	0,82%	25,00%	-1,17%	0,00%	-0,30%	0,00%	0,42%	25,00%	0,09%	25,00%
2021-10-18	-0,13%	0,00%	-1,06%	0,00%	2,65%	25,00%	-3,56%	0,00%	0,56%	25,00%	1,34%	25,00%	-4,03%	0,00%
2021-10-19	-0,86%	0,00%	1,25%	25,00%	-0,84%	0,00%	-0,01%	0,00%	2,97%	25,00%	0,54%	25,00%	-2,91%	0,00%
2021-10-20	0,22%	25,00%	0,23%	25,00%	0,45%	25,00%	4,48%	25,00%	-2,89%	0,00%	-2,60%	0,00%	-0,48%	0,00%
2021-10-21	-0,46%	0,00%	0,78%	14,29%	1,60%	14,29%	5,57%	14,29%	2,97%	14,29%	-2,63%	0,00%	7,90%	14,29%
2021-10-22	0,83%	25,00%	-0,88%	0,00%	-1,79%	0,00%	-1,70%	0,00%	3,39%	25,00%	-7,69%	0,00%	2,05%	25,00%
2021-10-23	0,24%	50,00%	-0,13%	0,00%	-1,23%	0,00%	-0,22%	0,00%	-2,86%	0,00%	-7,99%	0,00%	1,01%	50,00%
2021-10-24	-0,69%	0,00%	0,08%	16,67%	-1,45%	0,00%	0,31%	16,67%	-1,55%	0,00%	-3,17%	0,00%	5,26%	16,67%
2021-10-25	-1,36%	0,00%	0,07%	14,29%	0,93%	14,29%	1,65%	14,29%	8,09%	14,29%	0,17%	14,29%	0,97%	14,29%
2021-10-26	0,62%	12,50%	-4,06%	0,00%	2,16%	12,50%	1,51%	12,50%	3,23%	12,50%	0,59%	12,50%	6,78%	12,50%
2021-10-27	1,13%	20,00%	0,69%	20,00%	-1,28%	0,00%	-1,64%	0,00%	0,90%	20,00%	-1,73%	0,00%	1,71%	20,00%
2021-10-28	-8,46%	0,00%	-3,65%	0,00%	-2,47%	0,00%	-13,09%	0,00%	-1,92%	0,00%	2,69%	100,00%	-10,25%	0,00%
2021-10-29	1,26%	10,00%	0,94%	10,00%	2,40%	10,00%	5,15%	10,00%	3,26%	10,00%	3,45%	10,00%	4,88%	10,00%
2021-10-30	2,34%	16,67%	10,08%	16,67%	-1,18%	0,00%	0,26%	16,67%	-0,43%	0,00%	-4,84%	0,00%	-1,06%	0,00%
2021-10-31	-4,41%	0,00%	0,53%	20,00%	2,26%	20,00%	0,18%	20,00%	-0,17%	0,00%	1,40%	20,00%	-1,35%	0,00%
2021-11-01	-0,40%	0,00%	-0,24%	0,00%	-1,93%	0,00%	4,15%	14,29%	1,57%	14,29%	0,44%	14,29%	1,09%	14,29%
2021-11-02	0,00%	0,00%	3,51%	14,29%	0,48%	14,29%	-5,02%	0,00%	0,42%	14,29%	-1,82%	0,00%	5,05%	14,29%
2021-11-03	-0,74%	0,00%	-1,94%	0,00%	1,56%	16,67%	8,16%	16,67%	0,26%	16,67%	-0,13%	0,00%	0,81%	16,67%
2021-11-04	3,20%	11,11%	6,02%	11,11%	0,35%	11,11%	0,22%	11,11%	0,01%	11,11%	0,55%	11,11%	-0,86%	0,00%
2021-11-05	-3,10%	0,00%	0,99%	16,67%	-1,84%	0,00%	0,01%	16,67%	0,34%	16,67%	0,85%	16,67%	-3,22%	0,00%
2021-11-06	0,00%	0,00%	9,38%	16,67%	0,18%	16,67%	0,89%	16,67%	-0,34%	0,00%	0,00%	0,00%	6,19%	16,67%
2021-11-07	3,20%	25,00%	-0,89%	0,00%	1,01%	25,00%	-4,73%	0,00%	0,09%	25,00%	0,00%	0,00%	-3,43%	0,00%
2021-11-08	1,32%	14,29%	3,38%	14,29%	1,10%	14,29%	1,41%	14,29%	0,00%	0,00%	-0,84%	0,00%	4,28%	14,29%

Figure 74: Absolute momentum portfolio using gradient boosting regression - part 1

LTC		XLM		XRP									
Returns	Weight	Returns	Weight	Returns	Weight	sum of weights	nb assets returns<0	Portfolio returns without transac. Cost	Number of transactions	Transaction cost	Portfolio returns with transac. cost	1+r	Cumulative return
	10%		10%		10%								
-0,16%	0,00%	-1,69%	0,00%	0,93%	50,00%	100,00%	8	1,72%	10	1,0%	0,72%	1,01	0,72%
-0,76%	0,00%	-3,36%	0,00%	-0,93%	0,00%	100,00%	8	4,89%	4	0,4%	4,49%	1,04	5,25%
8,30%	11,11%	7,88%	11,11%	1,57%	11,11%	100,00%	1	6,17%	9	0,9%	5,27%	1,05	10,79%
-3,14%	0,00%	5,57%	14,29%	1,38%	14,29%	100,00%	3	3,38%	9	0,9%	2,48%	1,02	13,53%
0,97%	25,00%	0,00%	0,00%	-1,66%	0,00%	100,00%	6	0,62%	9	0,9%	-0,28%	1,00	13,21%
-2,27%	0,00%	0,00%	0,00%	-3,19%	0,00%	100,00%	9	0,06%	4	0,4%	-0,34%	1,00	12,83%
1,72%	14,29%	1,30%	14,29%	3,27%	14,29%	100,00%	3	2,41%	8	0,8%	1,61%	1,02	14,64%
-1,79%	0,00%	-0,49%	0,00%	3,60%	100,00%	100,00%	9	3,60%	7	0,7%	2,90%	1,03	17,96%
0,95%	14,29%	-0,35%	0,00%	3,28%	14,29%	100,00%	3	2,65%	7	0,7%	1,95%	1,02	20,27%
-1,35%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	7	2,34%	7	0,7%	1,64%	1,02	22,24%
-0,52%	0,00%	0,00%	0,00%	-0,34%	0,00%	100,00%	7	2,37%	2	0,2%	2,17%	1,02	24,89%
1,90%	14,29%	0,00%	0,00%	-3,94%	0,00%	100,00%	3	1,99%	8	0,8%	1,19%	1,01	26,37%
6,55%	14,29%	-0,35%	0,00%	0,00%	0,00%	100,00%	3	2,50%	2	0,2%	2,30%	1,02	29,28%
0,16%	25,00%	-0,33%	0,00%	0,00%	0,00%	100,00%	6	0,37%	7	0,7%	-0,33%	1,00	28,85%
-0,86%	0,00%	-5,34%	0,00%	3,32%	25,00%	100,00%	6	1,97%	4	0,4%	1,57%	1,02	30,87%
0,58%	25,00%	0,00%	0,00%	-6,59%	0,00%	100,00%	6	1,34%	4	0,4%	0,94%	1,01	32,10%
-0,48%	0,00%	0,00%	0,00%	-2,66%	0,00%	100,00%	6	1,34%	6	0,6%	0,74%	1,01	33,08%
9,99%	14,29%	6,01%	14,29%	0,00%	0,00%	100,00%	3	4,97%	8	0,8%	4,17%	1,04	38,63%
-5,26%	0,00%	0,00%	0,00%	2,86%	25,00%	100,00%	6	2,28%	9	0,9%	1,38%	1,01	40,55%
-2,54%	0,00%	-0,13%	0,00%	-3,04%	0,00%	100,00%	8	0,62%	4	0,4%	0,22%	1,00	40,87%
2,87%	16,67%	0,13%	16,67%	0,59%	16,67%	100,00%	4	1,54%	7	0,7%	0,84%	1,01	42,05%
-2,61%	0,00%	1,87%	14,29%	-0,24%	0,00%	100,00%	3	1,96%	9	0,9%	1,06%	1,01	43,56%
3,24%	12,50%	-2,17%	0,00%	0,24%	12,50%	100,00%	2	2,30%	10	1,0%	1,30%	1,01	45,42%
3,87%	20,00%	0,00%	0,00%	0,00%	0,00%	100,00%	5	1,66%	9	0,9%	0,76%	1,01	46,52%
-13,00%	0,00%	-12,01%	0,00%	-5,72%	0,00%	100,00%	9	2,69%	6	0,6%	2,09%	1,02	49,58%
4,99%	10,00%	6,61%	10,00%	4,83%	10,00%	100,00%	0	3,78%	10	1,0%	2,78%	1,03	53,74%
3,96%	16,67%	6,32%	16,67%	0,57%	16,67%	100,00%	4	3,92%	10	1,0%	2,92%	1,03	58,23%
-2,63%	0,00%	1,59%	20,00%	0,00%	0,00%	100,00%	5	1,19%	8	0,8%	0,39%	1,00	58,85%
0,36%	14,29%	6,30%	14,29%	0,59%	14,29%	100,00%	3	2,07%	9	0,9%	1,17%	1,01	60,71%
6,78%	14,29%	3,17%	14,29%	1,43%	14,29%	100,00%	3	2,98%	4	0,4%	2,58%	1,03	64,85%
1,40%	16,67%	6,33%	16,67%	-1,39%	0,00%	100,00%	4	3,09%	8	0,8%	2,29%	1,02	68,62%
0,40%	11,11%	2,38%	11,11%	2,82%	11,11%	100,00%	1	1,77%	10	1,0%	0,77%	1,01	69,92%
0,79%	16,67%	-4,07%	0,00%	0,81%	16,67%	100,00%	4	0,63%	9	0,9%	-0,27%	1,00	69,47%
-2,38%	0,00%	4,78%	16,67%	4,06%	16,67%	100,00%	4	4,25%	6	0,6%	3,65%	1,04	75,65%
-0,37%	0,00%	2,10%	25,00%	0,00%	0,00%	100,00%	6	1,60%	8	0,8%	0,80%	1,01	77,05%
1,10%	14,29%	-0,78%	0,00%	2,35%	14,29%	100,00%	3	2,14%	9	0,9%	1,24%	1,01	79,24%

Portfolio absolute momentum	
Avg return	1,980%
Volatility	0,018854275
Sharpe ratio	1,04997646

Figure 75: Absolute momentum portfolio using gradient boosting regression - part 2

2021-11-09	4,51%	12,50%	3,36%	12,50%	-0,71%	0,00%	8,04%	12,50%	0,00%	0,00%	0,94%	12,50%	0,09%	12,50%
2021-11-10	0,83%	16,67%	3,38%	16,67%	-0,28%	0,00%	12,63%	16,67%	0,00%	0,00%	-0,20%	0,00%	1,14%	16,67%
2021-11-11	-0,88%	0,00%	-1,66%	0,00%	-0,24%	0,00%	-4,61%	0,00%	-1,55%	0,00%	-0,90%	0,00%	2,29%	50,00%
2021-11-12	-5,59%	0,00%	-0,37%	0,00%	-0,03%	0,00%	2,77%	33,33%	0,00%	0,00%	-0,17%	0,00%	-1,23%	0,00%
2021-11-13	1,66%	33,33%	-2,35%	0,00%	-5,17%	0,00%	-2,64%	0,00%	-3,93%	0,00%	0,00%	0,00%	1,47%	33,33%
2021-11-14	-0,26%	0,00%	-0,11%	0,00%	-0,57%	0,00%	3,42%	50,00%	1,34%	50,00%	0,00%	0,00%	-0,30%	0,00%
2021-11-15	1,89%	20,00%	-1,05%	0,00%	3,82%	20,00%	-0,13%	0,00%	0,08%	20,00%	0,00%	0,00%	-0,12%	0,00%
2021-11-16	-0,09%	0,00%	2,41%	25,00%	-1,69%	0,00%	0,13%	25,00%	-0,26%	0,00%	1,60%	25,00%	-3,24%	0,00%
2021-11-17	-6,98%	0,00%	-5,20%	0,00%	-0,96%	0,00%	-10,69%	0,00%	-1,97%	0,00%	-0,24%	0,00%	-9,96%	0,00%
2021-11-18	0,00%	0,00%	-1,61%	0,00%	2,59%	25,00%	-11,18%	0,00%	-8,23%	0,00%	-0,57%	0,00%	3,05%	25,00%
2021-11-19	-9,02%	0,00%	-8,95%	0,00%	-4,11%	0,00%	-4,84%	0,00%	-10,48%	0,00%	0,27%	100,00%	-9,81%	0,00%
2021-11-20	10,37%	11,11%	-0,08%	0,00%	1,54%	11,11%	4,96%	11,11%	10,04%	11,11%	2,77%	11,11%	5,36%	11,11%
2021-11-21	2,63%	20,00%	-0,35%	0,00%	2,82%	20,00%	4,72%	20,00%	0,00%	0,00%	-2,91%	0,00%	0,24%	20,00%
2021-11-22	-3,29%	0,00%	-1,14%	0,00%	-0,63%	0,00%	4,50%	33,33%	-9,26%	0,00%	2,96%	33,33%	-0,30%	0,00%
2021-11-23	-10,72%	0,00%	-3,25%	0,00%	-2,10%	0,00%	-1,57%	0,00%	0,00%	0,00%	-2,18%	0,00%	-0,59%	0,00%
2021-11-24	-0,14%	0,00%	-0,13%	0,00%	-1,75%	0,00%	-7,86%	0,00%	1,23%	33,33%	1,51%	33,33%	-0,12%	0,00%
2021-11-25	1,79%	50,00%	-0,54%	0,00%	-0,88%	0,00%	4,20%	50,00%	-1,21%	0,00%	-2,60%	0,00%	-7,06%	0,00%
2021-11-26	0,00%	0,00%	4,09%	20,00%	3,94%	20,00%	5,81%	20,00%	-0,61%	0,00%	2,29%	20,00%	0,00%	0,00%
2021-11-27	-7,66%	0,00%	-3,52%	0,00%	-4,50%	0,00%	-8,20%	0,00%	-1,18%	0,00%	-0,95%	0,00%	-2,26%	0,00%
2021-11-28	0,97%	20,00%	-3,96%	0,00%	0,08%	20,00%	-0,35%	0,00%	1,37%	20,00%	0,05%	20,00%	-4,34%	0,00%
2021-11-29	5,72%	14,29%	3,50%	14,29%	1,92%	14,29%	-5,76%	0,00%	-0,17%	0,00%	-0,31%	0,00%	2,35%	14,29%
2021-11-30	-1,34%	0,00%	0,00%	0,00%	-1,17%	0,00%	4,96%	25,00%	-0,14%	0,00%	-0,79%	0,00%	-0,07%	0,00%
2021-12-01	0,00%	0,00%	1,52%	25,00%	-0,72%	0,00%	-3,94%	0,00%	0,00%	0,00%	1,62%	25,00%	0,62%	25,00%
2021-12-02	-5,49%	0,00%	4,90%	20,00%	0,18%	20,00%	-0,98%	0,00%	0,00%	0,00%	1,45%	20,00%	0,22%	20,00%
2021-12-03	3,41%	33,33%	2,20%	33,33%	0,19%	33,33%	-0,06%	0,00%	0,00%	0,00%	-1,32%	0,00%	-1,01%	0,00%
2021-12-04	1,84%	100,00%	-8,00%	0,00%	-3,81%	0,00%	-5,86%	0,00%	-4,16%	0,00%	-0,65%	0,00%	-7,70%	0,00%
2021-12-05	-13,65%	0,00%	-4,66%	0,00%	-5,36%	0,00%	-10,72%	0,00%	-7,15%	0,00%	-1,31%	0,00%	-3,35%	0,00%
2021-12-06	-6,20%	0,00%	-6,16%	0,00%	-0,35%	0,00%	-9,56%	0,00%	-5,21%	0,00%	0,41%	100,00%	-9,15%	0,00%
2021-12-07	3,42%	14,29%	0,07%	14,29%	0,80%	14,29%	4,11%	14,29%	4,52%	14,29%	0,59%	14,29%	-0,46%	0,00%
2021-12-08	-4,53%	0,00%	-1,86%	0,00%	0,32%	16,67%	5,41%	16,67%	0,00%	0,00%	0,51%	16,67%	6,66%	16,67%
2021-12-09	5,91%	16,67%	9,87%	16,67%	-0,07%	0,00%	0,00%	0,00%	0,00%	0,00%	0,79%	16,67%	-0,37%	0,00%
2021-12-10	-7,45%	0,00%	-8,34%	0,00%	-3,55%	0,00%	-6,52%	0,00%	-5,42%	0,00%	0,66%	50,00%	-3,04%	0,00%
2021-12-11	-5,76%	0,00%	1,99%	50,00%	-2,85%	0,00%	-1,57%	0,00%	0,70%	50,00%	-2,07%	0,00%	-11,27%	0,00%
2021-12-12	8,51%	14,29%	-2,84%	0,00%	5,43%	14,29%	7,31%	14,29%	0,00%	0,00%	4,45%	14,29%	9,79%	14,29%
2021-12-13	-1,03%	0,00%	-0,01%	0,00%	1,00%	25,00%	1,16%	25,00%	0,00%	0,00%	-4,79%	0,00%	0,53%	25,00%
2021-12-14	-7,47%	0,00%	-8,19%	0,00%	-4,84%	0,00%	-10,85%	0,00%	0,81%	100,00%	-0,41%	0,00%	-9,73%	0,00%
2021-12-15	-0,73%	0,00%	-0,28%	0,00%	-2,06%	0,00%	-1,28%	0,00%	2,35%	33,33%	7,60%	33,33%	-6,79%	0,00%
2021-12-16	8,44%	12,50%	6,92%	12,50%	4,54%	12,50%	2,47%	12,50%	5,59%	12,50%	-3,76%	0,00%	9,53%	12,50%
2021-12-17	-2,88%	0,00%	-3,41%	0,00%	-6,45%	0,00%	-2,77%	0,00%	-9,21%	0,00%	-1,81%	0,00%	-2,07%	0,00%
2021-12-18	-5,20%	0,00%	13,23%	25,00%	-4,50%	0,00%	0,00%	0,00%	-0,36%	0,00%	0,27%	25,00%	0,00%	0,00%
2021-12-19	5,21%	16,67%	-0,71%	0,00%	5,76%	16,67%	0,60%	16,67%	-1,16%	0,00%	4,48%	16,67%	2,23%	16,67%
2021-12-20	0,00%	0,00%	-2,57%	0,00%	-0,02%	0,00%	-0,69%	0,00%	0,00%	0,00%	-6,37%	0,00%	-2,18%	0,00%
2021-12-21	0,00%	0,00%	3,08%	25,00%	-0,42%	0,00%	0,00%	0,00%	0,00%	0,00%	6,30%	25,00%	0,00%	0,00%
2021-12-22	1,62%	14,29%	0,53%	14,29%	5,26%	14,29%	2,62%	14,29%	0,00%	0,00%	-1,32%	0,00%	2,10%	14,29%
2021-12-23	0,40%	14,29%	-0,86%	0,00%	2,20%	14,29%	2,33%	14,29%	-0,68%	0,00%	-5,13%	0,00%	9,77%	14,29%

Figure 76: Absolute momentum portfolio using gradient boosting regression - part 3

8,79%	12,50%	0,10%	12,50%	1,85%	12,50%	100,00%	2	3,46%	9	0,9%	2,56%	1,03	83,83%
14,32%	16,67%	-3,93%	0,00%	2,91%	16,67%	100,00%	4	5,87%	8	0,8%	5,07%	1,05	93,15%
1,61%	50,00%	-4,32%	0,00%	-6,29%	0,00%	100,00%	8	1,95%	6	0,6%	1,35%	1,01	95,76%
1,16%	33,33%	-1,65%	0,00%	7,97%	33,33%	100,00%	7	3,97%	4	0,4%	3,57%	1,04	102,75%
1,85%	33,33%	-1,53%	0,00%	-4,13%	0,00%	100,00%	7	1,66%	4	0,4%	1,26%	1,01	105,30%
-1,48%	0,00%	0,00%	0,00%	-1,24%	0,00%	100,00%	8	2,38%	5	0,5%	1,88%	1,02	109,16%
7,66%	20,00%	0,00%	0,00%	0,60%	20,00%	100,00%	5	2,81%	6	0,6%	2,21%	1,02	113,78%
-8,20%	0,00%	0,71%	25,00%	-1,02%	0,00%	100,00%	6	1,21%	9	0,9%	0,31%	1,00	114,45%
-13,30%	0,00%	-7,95%	0,00%	-2,28%	0,00%	0,00%	10	0,00%	4	0,4%	-0,40%	1,00	113,59%
0,52%	25,00%	5,49%	25,00%	-5,39%	0,00%	100,00%	6	2,91%	4	0,4%	2,51%	1,03	118,96%
-9,32%	0,00%	-10,18%	0,00%	-1,77%	0,00%	100,00%	9	0,27%	5	0,5%	-0,23%	1,00	118,45%
0,46%	11,11%	4,07%	11,11%	2,18%	11,11%	100,00%	1	4,64%	9	0,9%	3,74%	1,04	126,62%
8,26%	20,00%	0,00%	0,00%	0,00%	0,00%	100,00%	5	3,74%	9	0,9%	2,84%	1,03	133,05%
0,68%	33,33%	0,00%	0,00%	-0,85%	0,00%	100,00%	7	2,71%	6	0,6%	2,11%	1,02	137,97%
-6,42%	0,00%	-0,08%	0,00%	-1,06%	0,00%	0,00%	10	0,00%	3	0,3%	-0,30%	1,00	137,25%
-0,28%	0,00%	-0,04%	0,00%	1,48%	33,33%	100,00%	7	1,40%	3	0,3%	1,10%	1,01	139,88%
-0,33%	0,00%	-4,94%	0,00%	-1,46%	0,00%	100,00%	8	2,99%	5	0,5%	2,49%	1,02	145,86%
0,61%	20,00%	0,00%	0,00%	0,00%	0,00%	100,00%	5	3,35%	6	0,6%	2,75%	1,03	152,61%
-7,10%	0,00%	-3,71%	0,00%	-10,18%	0,00%	0,00%	10	0,00%	5	0,5%	-0,50%	1,00	151,35%
-0,10%	0,00%	2,92%	20,00%	-0,58%	0,00%	100,00%	5	1,08%	5	0,5%	0,58%	1,01	152,80%
2,78%	14,29%	0,90%	14,29%	2,55%	14,29%	100,00%	3	2,82%	9	0,9%	1,92%	1,02	157,64%
1,22%	25,00%	5,56%	25,00%	0,29%	25,00%	100,00%	6	3,01%	8	0,8%	2,21%	1,02	163,33%
0,04%	25,00%	0,00%	0,00%	-0,08%	0,00%	100,00%	6	0,95%	6	0,6%	0,35%	1,00	164,25%
2,00%	20,00%	-5,32%	0,00%	-0,12%	0,00%	100,00%	5	1,75%	5	0,5%	1,25%	1,01	167,55%
-1,02%	0,00%	-0,09%	0,00%	-0,29%	0,00%	100,00%	7	1,94%	6	0,6%	1,34%	1,01	171,12%
-10,48%	0,00%	-3,71%	0,00%	-3,88%	0,00%	100,00%	9	1,84%	3	0,3%	1,54%	1,02	175,28%
-9,96%	0,00%	-17,50%	0,00%	-7,57%	0,00%	0,00%	10	0,00%	1	0,1%	-0,10%	1,00	175,01%
-5,34%	0,00%	-0,90%	0,00%	-0,72%	0,00%	100,00%	9	0,41%	1	0,1%	0,31%	1,00	175,86%
4,84%	14,29%	0,00%	0,00%	-1,38%	0,00%	100,00%	3	2,62%	7	0,7%	1,92%	1,02	181,16%
0,69%	16,67%	6,88%	16,67%	-0,14%	0,00%	100,00%	4	3,41%	9	0,9%	2,51%	1,03	188,22%
0,42%	16,67%	0,41%	16,67%	3,83%	16,67%	100,00%	4	3,54%	6	0,6%	2,94%	1,03	196,69%
-1,61%	0,00%	-6,56%	0,00%	0,35%	50,00%	100,00%	8	0,50%	6	0,6%	-0,10%	1,00	196,40%
-5,40%	0,00%	0,00%	0,00%	-4,06%	0,00%	100,00%	8	1,35%	4	0,4%	0,95%	1,01	199,21%
8,71%	14,29%	0,00%	0,00%	0,74%	14,29%	100,00%	3	6,42%	9	0,9%	5,52%	1,06	215,73%
0,15%	25,00%	0,00%	0,00%	-0,36%	0,00%	100,00%	6	0,71%	7	0,7%	0,01%	1,00	215,76%
-10,04%	0,00%	-4,44%	0,00%	-9,07%	0,00%	100,00%	9	0,81%	5	0,5%	0,31%	1,00	216,74%
-1,28%	0,00%	-1,22%	0,00%	9,57%	33,33%	100,00%	7	6,51%	3	0,3%	6,21%	1,06	236,39%
2,48%	12,50%	4,33%	12,50%	-0,92%	0,00%	100,00%	2	5,54%	10	1,0%	4,54%	1,05	251,66%
-1,09%	0,00%	-2,97%	0,00%	-1,83%	0,00%	0,00%	10	0,00%	8	0,8%	-0,80%	0,99	248,85%
-1,35%	0,00%	4,65%	25,00%	0,37%	25,00%	100,00%	6	4,63%	4	0,4%	4,23%	1,04	263,60%
1,49%	16,67%	0,00%	0,00%	0,00%	0,00%	100,00%	4	3,30%	9	0,9%	2,40%	1,02	272,31%
1,33%	50,00%	-0,44%	0,00%	0,76%	50,00%	100,00%	8	1,04%	7	0,7%	0,34%	1,00	273,59%
0,27%	25,00%	-4,46%	0,00%	6,21%	25,00%	100,00%	6	3,97%	4	0,4%	3,57%	1,04	286,92%
-1,31%	0,00%	3,44%	14,29%	2,21%	14,29%	100,00%	3	2,54%	9	0,9%	1,64%	1,02	293,27%
0,90%	14,29%	1,18%	14,29%	4,38%	14,29%	100,00%	3	3,03%	2	0,2%	2,83%	1,03	304,38%

Figure 77: Absolute momentum portfolio using gradient boosting regression - part 4

2021-12-24	12,05%	11,11%	2,73%	11,11%	-1,60%	0,00%	7,69%	11,11%	13,03%	11,11%	1,16%	11,11%	1,48%	11,11%
2021-12-25	-5,14%	0,00%	-1,85%	0,00%	2,10%	20,00%	1,48%	20,00%	-0,19%	0,00%	0,21%	20,00%	1,55%	20,00%
2021-12-26	0,86%	25,00%	-4,57%	0,00%	-1,17%	0,00%	0,14%	25,00%	1,35%	25,00%	-1,21%	0,00%	2,13%	25,00%
2021-12-27	-0,60%	0,00%	-4,89%	0,00%	-0,21%	0,00%	0,00%	0,00%	0,00%	0,00%	0,92%	33,33%	1,80%	33,33%
2021-12-28	6,50%	20,00%	6,17%	20,00%	-0,65%	0,00%	0,00%	0,00%	0,00%	0,00%	-0,21%	0,00%	1,81%	20,00%
2021-12-29	-7,31%	0,00%	-5,91%	0,00%	-2,93%	0,00%	-7,03%	0,00%	-11,69%	0,00%	-0,87%	0,00%	-3,78%	0,00%
2021-12-30	-1,70%	0,00%	-4,13%	0,00%	-5,91%	0,00%	-4,06%	0,00%	0,00%	0,00%	0,89%	100,00%	-11,31%	0,00%
2021-12-31	-0,62%	0,00%	-0,21%	0,00%	2,77%	20,00%	0,00%	0,00%	0,21%	20,00%	1,89%	20,00%	7,58%	20,00%
2022-01-01	-0,82%	0,00%	4,86%	33,33%	-2,75%	0,00%	0,00%	0,00%	-0,21%	0,00%	2,68%	33,33%	-8,21%	0,00%
2022-01-02	0,61%	12,50%	4,77%	12,50%	4,39%	12,50%	6,01%	12,50%	0,00%	0,00%	1,70%	12,50%	8,29%	12,50%
2022-01-03	0,42%	12,50%	0,56%	12,50%	0,09%	12,50%	5,40%	12,50%	0,00%	0,00%	-0,52%	0,00%	1,00%	12,50%
2022-01-04	-0,42%	0,00%	-5,32%	0,00%	-4,29%	0,00%	0,00%	0,00%	0,00%	0,00%	0,30%	50,00%	8,51%	50,00%
2022-01-05	-0,60%	0,00%	2,37%	50,00%	-0,02%	0,00%	-7,06%	0,00%	0,00%	0,00%	-0,98%	0,00%	1,51%	50,00%
2022-01-06	-2,08%	0,00%	-1,27%	0,00%	-1,60%	0,00%	-11,10%	0,00%	0,89%	33,33%	-5,75%	0,00%	6,73%	33,33%
2022-01-07	-0,08%	0,00%	4,09%	25,00%	-5,74%	0,00%	4,05%	25,00%	0,00%	0,00%	-3,52%	0,00%	0,73%	25,00%
2022-01-08	-4,49%	0,00%	0,08%	33,33%	-1,01%	0,00%	4,65%	33,33%	-1,16%	0,00%	-3,63%	0,00%	0,43%	33,33%
2022-01-09	-3,34%	0,00%	-3,84%	0,00%	-0,62%	0,00%	9,75%	25,00%	0,00%	0,00%	0,90%	25,00%	4,02%	25,00%
2022-01-10	0,00%	0,00%	-2,87%	0,00%	0,00%	0,00%	7,60%	25,00%	0,00%	0,00%	1,69%	25,00%	4,56%	25,00%
2022-01-11	-2,16%	0,00%	-5,19%	0,00%	-1,69%	0,00%	-4,85%	0,00%	0,00%	0,00%	8,01%	50,00%	2,12%	50,00%
2022-01-12	1,92%	16,67%	8,89%	16,67%	2,02%	16,67%	-0,72%	0,00%	0,00%	0,00%	3,45%	16,67%	0,46%	16,67%
2022-01-13	8,16%	12,50%	4,38%	12,50%	8,85%	12,50%	-0,20%	0,00%	-0,68%	0,00%	2,38%	12,50%	0,01%	12,50%
2022-01-14	-2,21%	0,00%	1,35%	33,33%	-8,84%	0,00%	-0,02%	0,00%	1,31%	33,33%	0,86%	33,33%	-6,62%	0,00%
2022-01-15	2,26%	14,29%	0,49%	14,29%	1,19%	14,29%	0,00%	0,00%	12,86%	14,29%	0,00%	14,29%	-0,60%	0,00%
2022-01-16	0,88%	20,00%	-0,47%	0,00%	-0,28%	0,00%	0,00%	0,00%	1,10%	20,00%	-0,28%	0,00%	0,35%	20,00%
2022-01-17	7,85%	16,67%	0,17%	16,67%	0,59%	16,67%	-6,58%	0,00%	-6,25%	0,00%	0,36%	16,67%	-0,19%	0,00%
2022-01-18	16,47%	50,00%	-1,54%	0,00%	-0,64%	0,00%	-0,15%	0,00%	-5,43%	0,00%	-0,24%	0,00%	-2,22%	0,00%
2022-01-19	-10,65%	0,00%	0,15%	50,00%	0,17%	50,00%	-6,36%	0,00%	-1,48%	0,00%	-3,61%	0,00%	-8,40%	0,00%
2022-01-20	-7,50%	0,00%	-0,61%	0,00%	0,19%	100,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	-0,98%	0,00%
2022-01-21	-2,96%	0,00%	-3,51%	0,00%	-1,63%	0,00%	-7,12%	0,00%	0,00%	0,00%	-0,12%	0,00%	0,19%	100,00%
2022-01-22	-11,68%	0,00%	-15,75%	0,00%	-5,74%	0,00%	-9,29%	0,00%	0,85%	100,00%	-13,75%	0,00%	-19,19%	0,00%
2022-01-23	2,43%	50,00%	-3,90%	0,00%	-5,10%	0,00%	-8,00%	0,00%	0,21%	50,00%	-5,47%	0,00%	-11,76%	0,00%
2022-01-24	2,00%	20,00%	-0,16%	0,00%	-1,73%	0,00%	-1,21%	0,00%	-1,16%	0,00%	7,42%	20,00%	-2,04%	0,00%
2022-01-25	-0,19%	0,00%	0,21%	50,00%	0,71%	50,00%	-4,56%	0,00%	0,00%	0,00%	-4,78%	0,00%	-6,90%	0,00%
2022-01-26	-1,52%	0,00%	3,83%	16,67%	6,72%	16,67%	-0,15%	0,00%	0,72%	16,67%	-2,79%	0,00%	1,20%	16,67%
2022-01-27	0,00%	0,00%	-0,72%	0,00%	-2,24%	0,00%	-0,87%	0,00%	-0,67%	0,00%	2,22%	100,00%	-3,74%	0,00%
2022-01-28	1,60%	20,00%	3,43%	20,00%	0,29%	20,00%	0,36%	20,00%	1,85%	20,00%	-3,23%	0,00%	-4,23%	0,00%
2022-01-29	0,22%	12,50%	0,00%	0,00%	0,54%	12,50%	3,60%	12,50%	-0,70%	0,00%	5,64%	12,50%	1,99%	12,50%
2022-01-30	-0,77%	0,00%	-0,16%	0,00%	-0,54%	0,00%	0,45%	25,00%	-1,83%	0,00%	0,00%	0,00%	0,00%	0,00%
2022-01-31	0,82%	25,00%	-1,38%	0,00%	0,34%	25,00%	-2,58%	0,00%	0,50%	25,00%	0,00%	0,00%	22,26%	25,00%
2022-02-01	-2,68%	0,00%	-0,59%	0,00%	1,37%	20,00%	3,55%	20,00%	0,50%	20,00%	3,63%	20,00%	-5,11%	0,00%
2022-02-02	-1,76%	0,00%	2,00%	20,00%	-0,55%	0,00%	-1,18%	0,00%	-1,17%	0,00%	4,33%	20,00%	7,83%	20,00%
2022-02-03	-3,95%	0,00%	-4,05%	0,00%	2,39%	50,00%	-2,50%	0,00%	1,87%	50,00%	-5,60%	0,00%	-11,02%	0,00%
2022-02-04	2,70%	20,00%	-2,71%	0,00%	-3,14%	0,00%	3,24%	20,00%	0,00%	0,00%	-1,13%	0,00%	1,97%	20,00%
2022-02-05	1,22%	11,11%	3,25%	11,11%	7,77%	11,11%	8,10%	11,11%	-1,83%	0,00%	15,89%	11,11%	4,68%	11,11%
2022-02-06	-0,28%	0,00%	2,90%	16,67%	1,62%	16,67%	0,60%	16,67%	-0,21%	0,00%	0,60%	16,67%	9,49%	16,67%

Figure 78: Absolute momentum portfolio using gradient boosting regression - part 5

6,50%	11,11%	7,17%	11,11%	2,09%	11,11%	100,00%	1	5,99%	10	1,0%	4,99%	1,05	324,55%
0,92%	20,00%	-6,58%	0,00%	-4,53%	0,00%	100,00%	5	1,25%	10	1,0%	0,25%	1,00	325,62%
-6,53%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	6	1,12%	7	0,7%	0,42%	1,00	327,40%
-0,30%	0,00%	7,05%	33,33%	0,00%	0,00%	100,00%	7	3,26%	6	0,6%	2,66%	1,03	338,75%
0,30%	20,00%	0,00%	0,00%	0,02%	20,00%	100,00%	5	2,96%	7	0,7%	2,26%	1,02	348,66%
-2,76%	0,00%	-10,85%	0,00%	-3,09%	0,00%	0,00%	10	0,00%	5	0,5%	-0,50%	1,00	346,42%
-0,28%	0,00%	0,00%	0,00%	-3,64%	0,00%	100,00%	9	0,89%	1	0,1%	0,79%	1,01	349,93%
1,49%	20,00%	-1,22%	0,00%	-1,03%	0,00%	100,00%	5	2,79%	5	0,5%	2,29%	1,02	360,23%
-1,78%	0,00%	1,24%	33,33%	-0,35%	0,00%	100,00%	7	2,93%	7	0,7%	2,23%	1,02	370,47%
1,44%	12,50%	-1,22%	0,00%	0,35%	12,50%	100,00%	2	3,44%	9	0,9%	2,54%	1,03	382,44%
1,28%	12,50%	5,70%	12,50%	2,99%	12,50%	100,00%	2	2,18%	2	0,2%	1,98%	1,02	391,99%
-2,02%	0,00%	-4,22%	0,00%	-2,53%	0,00%	100,00%	8	4,41%	9	0,9%	3,51%	1,04	409,24%
-1,49%	0,00%	0,00%	0,00%	-0,73%	0,00%	100,00%	8	1,94%	2	0,2%	1,74%	1,02	418,10%
-6,16%	0,00%	3,56%	33,33%	-11,71%	0,00%	100,00%	7	3,72%	4	0,4%	3,32%	1,03	435,32%
-1,36%	0,00%	-3,44%	0,00%	2,81%	25,00%	100,00%	6	2,92%	6	0,6%	2,32%	1,02	447,75%
-1,98%	0,00%	-7,10%	0,00%	-3,26%	0,00%	100,00%	7	1,72%	4	0,4%	1,32%	1,01	454,97%
-3,82%	0,00%	0,00%	0,00%	0,41%	25,00%	100,00%	6	3,77%	5	0,5%	3,27%	1,03	473,13%
1,78%	25,00%	-0,40%	0,00%	0,00%	0,00%	100,00%	6	3,91%	2	0,2%	3,71%	1,04	494,38%
-1,69%	0,00%	-0,72%	0,00%	-2,22%	0,00%	100,00%	8	5,07%	4	0,4%	4,67%	1,05	522,11%
3,37%	16,67%	-0,37%	0,00%	0,00%	0,00%	100,00%	4	3,35%	6	0,6%	2,75%	1,03	539,24%
4,49%	12,50%	1,77%	12,50%	13,13%	12,50%	100,00%	2	5,40%	8	0,8%	4,60%	1,05	568,61%
-3,06%	0,00%	-2,45%	0,00%	-11,58%	0,00%	100,00%	7	1,17%	9	0,9%	0,27%	1,00	570,43%
7,84%	14,29%	3,37%	14,29%	-0,03%	0,00%	100,00%	3	4,00%	7	0,7%	3,30%	1,03	592,56%
0,54%	20,00%	-0,83%	0,00%	5,07%	20,00%	100,00%	5	1,59%	9	0,9%	0,69%	1,01	597,32%
0,82%	16,67%	0,84%	16,67%	0,00%	0,00%	100,00%	4	1,77%	9	0,9%	0,87%	1,01	603,40%
3,62%	50,00%	-2,55%	0,00%	-3,27%	0,00%	100,00%	8	10,05%	6	0,6%	9,45%	1,09	669,84%
-6,85%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	8	0,16%	4	0,4%	-0,24%	1,00	668,01%
-1,10%	0,00%	-0,73%	0,00%	0,00%	0,00%	100,00%	9	0,19%	2	0,2%	-0,01%	1,00	667,96%
-7,71%	0,00%	-2,62%	0,00%	0,00%	0,00%	100,00%	9	0,19%	2	0,2%	-0,01%	1,00	667,91%
-9,25%	0,00%	-12,91%	0,00%	-13,45%	0,00%	100,00%	9	0,85%	2	0,2%	0,65%	1,01	672,90%
-6,92%	0,00%	-2,64%	0,00%	-2,38%	0,00%	100,00%	8	1,32%	2	0,2%	1,12%	1,01	681,54%
4,96%	20,00%	2,34%	20,00%	3,59%	20,00%	100,00%	5	4,06%	6	0,6%	3,46%	1,03	708,60%
-0,33%	0,00%	0,00%	0,00%	-2,31%	0,00%	100,00%	8	0,46%	7	0,7%	-0,24%	1,00	706,65%
-6,03%	0,00%	0,36%	16,67%	0,94%	16,67%	100,00%	4	2,29%	6	0,6%	1,69%	1,02	720,31%
0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	9	2,22%	7	0,7%	1,52%	1,02	732,74%
0,00%	0,00%	-0,36%	0,00%	-3,22%	0,00%	100,00%	5	1,51%	6	0,6%	0,91%	1,01	740,28%
7,78%	12,50%	5,35%	12,50%	1,86%	12,50%	100,00%	2	3,37%	10	1,0%	2,37%	1,02	760,22%
0,13%	25,00%	4,23%	25,00%	1,47%	25,00%	100,00%	6	1,57%	8	0,8%	0,77%	1,01	766,84%
0,00%	0,00%	-1,95%	0,00%	-3,70%	0,00%	100,00%	6	5,98%	8	0,8%	5,18%	1,05	811,74%
-0,37%	0,00%	0,00%	0,00%	3,65%	20,00%	100,00%	5	2,54%	7	0,7%	1,84%	1,02	828,51%
0,52%	20,00%	1,99%	20,00%	-0,52%	0,00%	100,00%	5	3,33%	8	0,8%	2,53%	1,03	852,03%
-6,92%	0,00%	-1,95%	0,00%	-3,73%	0,00%	100,00%	8	2,13%	7	0,7%	1,43%	1,01	865,61%
6,08%	20,00%	0,00%	0,00%	0,47%	20,00%	100,00%	5	2,89%	7	0,7%	2,19%	1,02	886,78%
5,01%	11,11%	7,77%	11,11%	10,12%	11,11%	100,00%	1	7,09%	9	0,9%	6,19%	1,06	947,87%
0,00%	0,00%	2,67%	16,67%	0,00%	0,00%	100,00%	4	2,98%	9	0,9%	2,08%	1,02	969,67%

Figure 79: Absolute momentum portfolio using gradient boosting regression - part 6

2022-02-07	3,80%	11,11%	4,25%	11,11%	0,17%	11,11%	3,29%	11,11%	2,71%	11,11%	0,87%	11,11%	0,53%	11,11%
2022-02-08	-0,08%	0,00%	8,09%	14,29%	10,71%	14,29%	8,42%	14,29%	0,00%	0,00%	2,76%	14,29%	-0,62%	0,00%
2022-02-09	-2,20%	0,00%	-4,44%	0,00%	0,16%	50,00%	-3,73%	0,00%	0,00%	0,00%	-0,84%	0,00%	0,00%	0,00%
2022-02-10	2,13%	20,00%	-0,30%	0,00%	0,95%	20,00%	0,29%	20,00%	0,00%	0,00%	-0,16%	0,00%	-0,52%	0,00%
2022-02-11	-1,32%	0,00%	-2,44%	0,00%	-1,77%	0,00%	1,30%	100,00%	0,00%	0,00%	-4,70%	0,00%	-7,64%	0,00%
2022-02-12	-2,82%	0,00%	0,20%	100,00%	-8,78%	0,00%	-6,89%	0,00%	-1,48%	0,00%	-2,11%	0,00%	-10,02%	0,00%
2022-02-13	-0,49%	0,00%	0,19%	50,00%	0,00%	0,00%	-0,71%	0,00%	0,00%	0,00%	-1,15%	0,00%	0,00%	0,00%
2022-02-14	0,10%	33,33%	-1,44%	0,00%	-0,54%	0,00%	-0,62%	0,00%	1,51%	33,33%	-5,29%	0,00%	-0,25%	0,00%
2022-02-15	0,72%	20,00%	1,00%	20,00%	0,27%	20,00%	-0,11%	0,00%	-1,48%	0,00%	4,20%	20,00%	0,63%	20,00%
2022-02-16	-1,13%	0,00%	6,98%	11,11%	10,59%	11,11%	2,58%	11,11%	1,51%	11,11%	8,20%	11,11%	10,46%	11,11%
2022-02-17	-3,02%	0,00%	-5,06%	0,00%	-0,24%	0,00%	4,39%	50,00%	0,00%	0,00%	-3,23%	0,00%	0,24%	50,00%
2022-02-18	-3,99%	0,00%	-10,03%	0,00%	-11,28%	0,00%	-6,43%	0,00%	-1,48%	0,00%	-7,70%	0,00%	-8,87%	0,00%
2022-02-19	-2,73%	0,00%	-1,27%	0,00%	-0,23%	0,00%	1,25%	50,00%	0,00%	0,00%	-1,16%	0,00%	-3,30%	0,00%
2022-02-20	0,00%	0,00%	-3,09%	0,00%	-0,65%	0,00%	-1,32%	0,00%	0,00%	0,00%	0,00%	0,00%	1,85%	50,00%
2022-02-21	0,00%	0,00%	6,15%	100,00%	-5,42%	0,00%	-8,44%	0,00%	0,00%	0,00%	-6,08%	0,00%	-4,79%	0,00%
2022-02-22	-14,67%	0,00%	-2,95%	0,00%	-1,57%	0,00%	-8,60%	0,00%	0,67%	100,00%	-1,18%	0,00%	-2,15%	0,00%
2022-02-23	3,93%	12,50%	4,46%	12,50%	0,27%	12,50%	5,31%	12,50%	-0,46%	0,00%	3,67%	12,50%	2,98%	12,50%
2022-02-24	-4,00%	0,00%	-1,77%	0,00%	0,26%	100,00%	-1,35%	0,00%	-0,50%	0,00%	-7,58%	0,00%	-4,92%	0,00%
2022-02-25	1,83%	25,00%	-1,76%	0,00%	-1,07%	0,00%	-4,71%	0,00%	1,18%	25,00%	-0,56%	0,00%	0,74%	25,00%
2022-02-26	2,34%	11,11%	4,28%	11,11%	5,35%	11,11%	5,61%	11,11%	-1,16%	0,00%	9,60%	11,11%	0,57%	11,11%
2022-02-27	0,00%	0,00%	0,00%	0,00%	1,59%	20,00%	0,43%	20,00%	0,00%	0,00%	1,29%	20,00%	0,58%	20,00%
2022-02-28	-7,09%	0,00%	-5,22%	0,00%	-4,04%	0,00%	-6,47%	0,00%	0,00%	0,00%	-3,59%	0,00%	-0,90%	0,00%
2022-03-01	17,79%	11,11%	6,61%	11,11%	9,25%	11,11%	13,61%	11,11%	-0,68%	0,00%	12,91%	11,11%	5,85%	11,11%
2022-03-02	-2,16%	0,00%	4,80%	16,67%	10,60%	16,67%	0,21%	16,67%	-0,21%	0,00%	3,13%	16,67%	3,73%	16,67%
2022-03-03	0,00%	0,00%	3,47%	25,00%	-0,22%	0,00%	0,59%	25,00%	1,19%	25,00%	-0,70%	0,00%	0,81%	25,00%
2022-03-04	-13,78%	0,00%	-1,92%	0,00%	-8,42%	0,00%	-3,17%	0,00%	0,00%	0,00%	-5,65%	0,00%	-6,39%	0,00%
2022-03-05	-4,15%	0,00%	-7,40%	0,00%	-4,85%	0,00%	-4,83%	0,00%	0,67%	100,00%	-10,08%	0,00%	-0,28%	0,00%

Figure 80: Absolute momentum portfolio using gradient boosting regression - part 7

3,49%	11,11%	0,00%	0,00%	3,35%	11,11%	100,00%	1	2,50%	10	1,0%	1,50%	1,01	985,68%
10,11%	14,29%	2,50%	14,29%	23,49%	14,29%	100,00%	3	9,44%	10	1,0%	8,44%	1,08	1077,32%
-2,43%	0,00%	-1,41%	0,00%	6,09%	50,00%	100,00%	8	3,13%	7	0,7%	2,43%	1,02	1105,90%
4,71%	20,00%	2,68%	20,00%	-2,35%	0,00%	100,00%	5	2,15%	6	0,6%	1,55%	1,02	1124,63%
-3,16%	0,00%	-1,91%	0,00%	-3,62%	0,00%	100,00%	9	1,30%	5	0,5%	0,80%	1,01	1134,47%
-4,92%	0,00%	-4,11%	0,00%	-12,01%	0,00%	100,00%	9	0,20%	2	0,2%	0,00%	1,00	1134,50%
-0,31%	0,00%	-0,75%	0,00%	12,57%	50,00%	100,00%	8	6,38%	2	0,2%	6,18%	1,06	1210,81%
0,00%	0,00%	0,00%	0,00%	0,38%	33,33%	100,00%	7	0,66%	4	0,4%	0,26%	1,00	1214,24%
-1,97%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	5	1,36%	7	0,7%	0,66%	1,01	1222,95%
5,77%	11,11%	3,23%	11,11%	4,39%	11,11%	100,00%	1	5,97%	10	1,0%	4,97%	1,05	1288,68%
-3,36%	0,00%	0,00%	0,00%	-3,47%	0,00%	100,00%	8	2,31%	9	0,9%	1,41%	1,01	1308,31%
-8,97%	0,00%	-7,82%	0,00%	-11,81%	0,00%	0,00%	10	0,00%	2	0,2%	-0,20%	1,00	1305,49%
-0,99%	0,00%	-1,16%	0,00%	3,28%	50,00%	100,00%	8	2,27%	2	0,2%	2,07%	1,02	1334,55%
-1,96%	0,00%	-0,80%	0,00%	8,83%	50,00%	100,00%	8	5,34%	2	0,2%	5,14%	1,05	1408,35%
-0,82%	0,00%	-6,78%	0,00%	-8,79%	0,00%	100,00%	9	6,15%	3	0,3%	5,85%	1,06	1496,61%
-5,82%	0,00%	-2,64%	0,00%	-9,66%	0,00%	100,00%	9	0,67%	2	0,2%	0,47%	1,00	1504,19%
0,00%	0,00%	2,71%	12,50%	6,09%	12,50%	100,00%	2	3,68%	9	0,9%	2,78%	1,03	1548,74%
0,00%	0,00%	-2,99%	0,00%	-5,26%	0,00%	100,00%	9	0,26%	8	0,8%	-0,54%	0,99	1539,77%
0,00%	0,00%	0,37%	25,00%	0,00%	0,00%	100,00%	6	1,03%	5	0,5%	0,53%	1,01	1548,46%
6,20%	11,11%	2,34%	11,11%	7,24%	11,11%	100,00%	1	4,84%	10	1,0%	3,84%	1,04	1611,70%
-5,83%	0,00%	7,45%	20,00%	0,00%	0,00%	100,00%	5	2,27%	9	0,9%	1,37%	1,01	1635,12%
0,00%	0,00%	-1,82%	0,00%	-1,58%	0,00%	0,00%	10	0,00%	5	0,5%	-0,50%	1,00	1626,44%
6,72%	11,11%	4,82%	11,11%	4,94%	11,11%	100,00%	1	9,17%	9	0,9%	8,27%	1,08	1769,18%
0,00%	0,00%	4,92%	16,67%	-0,58%	0,00%	100,00%	4	4,57%	9	0,9%	3,67%	1,04	1837,69%
-0,24%	0,00%	-5,23%	0,00%	-3,20%	0,00%	100,00%	6	1,51%	7	0,7%	0,81%	1,01	1853,45%
0,18%	100,00%	-1,95%	0,00%	-1,03%	0,00%	100,00%	9	0,18%	5	0,5%	-0,32%	1,00	1847,11%
-13,64%	0,00%	-6,91%	0,00%	-3,49%	0,00%	100,00%	9	0,67%	2	0,2%	0,47%	1,00	1856,36%

Figure 81: Absolute momentum portfolio using gradient boosting regression - part 8

1.6.2.2 Dual momentum portfolio

	ADA		BNB		BTC		DASH		DOGE		ETH		LINK	
	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight
		10%		10%		10%		10%		10%		10%		10%
2021-10-04	-3,62%	0,00%	2,52%	50,00%	-0,44%	0,00%	-1,95%	0,00%	-3,41%	0,00%	-0,50%	0,00%	-2,16%	0,00%
2021-10-05	0,00%	0,00%	-5,06%	0,00%	1,94%	50,00%	0,00%	0,00%	7,84%	50,00%	-4,39%	0,00%	-3,98%	0,00%
2021-10-06	-0,36%	0,00%	8,22%	50,00%	5,96%	0,00%	4,62%	0,00%	3,12%	0,00%	7,70%	0,00%	8,12%	0,00%
2021-10-07	0,00%	0,00%	2,15%	0,00%	6,99%	50,00%	0,93%	0,00%	6,31%	50,00%	0,33%	0,00%	-0,09%	0,00%
2021-10-08	1,23%	50,00%	-4,98%	0,00%	-2,80%	0,00%	0,18%	0,00%	-2,73%	0,00%	0,10%	0,00%	0,00%	0,00%
2021-10-09	0,06%	50,00%	-6,13%	0,00%	0,00%	50,00%	0,00%	0,00%	-2,87%	0,00%	-2,30%	0,00%	-4,77%	0,00%
2021-10-10	-1,42%	0,00%	0,63%	0,00%	0,77%	0,00%	4,16%	50,00%	-2,81%	0,00%	0,00%	0,00%	5,01%	50,00%
2021-10-11	-0,38%	50,00%	-1,97%	0,00%	-1,86%	0,00%	-3,99%	0,00%	-0,54%	0,00%	-2,55%	0,00%	-6,52%	0,00%
2021-10-12	0,45%	0,00%	1,85%	0,00%	5,36%	50,00%	0,17%	0,00%	0,00%	0,00%	6,51%	50,00%	-1,56%	0,00%
2021-10-13	-0,92%	0,00%	6,83%	50,00%	0,05%	0,00%	-0,53%	0,00%	0,00%	0,00%	0,13%	50,00%	-1,72%	0,00%
2021-10-14	-0,15%	0,00%	5,00%	50,00%	0,49%	0,00%	-0,11%	0,00%	0,00%	0,00%	-0,92%	0,00%	1,62%	50,00%
2021-10-15	0,06%	0,00%	0,69%	0,00%	-0,20%	0,00%	1,31%	0,00%	0,20%	0,00%	4,24%	50,00%	5,53%	50,00%
2021-10-16	0,60%	0,00%	2,98%	0,00%	3,63%	50,00%	3,16%	0,00%	0,00%	0,00%	0,27%	0,00%	0,27%	0,00%
2021-10-17	-0,87%	0,00%	-0,68%	0,00%	0,82%	50,00%	-1,17%	0,00%	-0,30%	0,00%	0,42%	50,00%	0,09%	0,00%
2021-10-18	-0,13%	0,00%	-1,06%	0,00%	2,65%	50,00%	-3,56%	0,00%	0,56%	0,00%	1,34%	0,00%	-4,03%	0,00%
2021-10-19	-0,86%	0,00%	1,25%	50,00%	-0,84%	0,00%	-0,01%	0,00%	2,97%	50,00%	0,54%	0,00%	-2,91%	0,00%
2021-10-20	0,22%	0,00%	0,23%	0,00%	0,45%	50,00%	4,48%	50,00%	-2,89%	0,00%	-2,60%	0,00%	-0,48%	0,00%
2021-10-21	-0,46%	0,00%	0,78%	0,00%	1,60%	0,00%	5,57%	0,00%	2,97%	0,00%	-2,63%	0,00%	7,90%	50,00%
2021-10-22	0,83%	0,00%	-0,88%	0,00%	-1,79%	0,00%	-1,70%	0,00%	3,39%	50,00%	-7,69%	0,00%	2,05%	0,00%
2021-10-23	0,24%	50,00%	-0,13%	0,00%	-1,23%	0,00%	-0,22%	0,00%	-2,86%	0,00%	-7,99%	0,00%	1,01%	50,00%
2021-10-24	-0,69%	0,00%	0,08%	0,00%	-1,45%	0,00%	0,31%	0,00%	-1,55%	0,00%	-3,17%	0,00%	5,26%	50,00%
2021-10-25	-1,36%	0,00%	0,07%	0,00%	0,93%	0,00%	1,65%	0,00%	8,09%	50,00%	0,17%	0,00%	0,97%	0,00%
2021-10-26	0,62%	0,00%	-4,06%	0,00%	2,16%	0,00%	1,51%	0,00%	3,23%	0,00%	0,59%	0,00%	6,78%	50,00%
2021-10-27	1,13%	0,00%	0,69%	0,00%	-1,28%	0,00%	-1,64%	0,00%	0,90%	0,00%	-1,73%	0,00%	1,71%	50,00%
2021-10-28	-8,46%	0,00%	-3,65%	0,00%	-2,47%	0,00%	-13,09%	0,00%	-1,92%	50,00%	2,69%	50,00%	-10,25%	0,00%
2021-10-29	1,26%	0,00%	0,94%	0,00%	2,40%	0,00%	5,15%	50,00%	3,26%	0,00%	3,45%	0,00%	4,88%	0,00%
2021-10-30	2,34%	0,00%	10,08%	50,00%	-1,18%	0,00%	0,26%	0,00%	-0,43%	0,00%	-4,84%	0,00%	-1,06%	0,00%
2021-10-31	-4,41%	0,00%	0,53%	0,00%	2,26%	50,00%	0,18%	0,00%	-0,17%	0,00%	1,40%	0,00%	-1,35%	0,00%
2021-11-01	-0,40%	0,00%	-0,24%	0,00%	-1,93%	0,00%	4,15%	50,00%	1,57%	0,00%	0,44%	0,00%	1,09%	0,00%
2021-11-02	0,00%	0,00%	3,51%	0,00%	0,48%	0,00%	-5,02%	0,00%	0,42%	0,00%	-1,82%	0,00%	5,05%	50,00%
2021-11-03	-0,74%	0,00%	-1,94%	0,00%	1,56%	0,00%	8,16%	50,00%	0,26%	0,00%	-0,13%	0,00%	0,81%	0,00%
2021-11-04	3,20%	50,00%	6,02%	50,00%	0,35%	0,00%	0,22%	0,00%	0,01%	0,00%	0,55%	0,00%	-0,86%	0,00%
2021-11-05	-3,10%	0,00%	0,99%	50,00%	-1,84%	0,00%	0,01%	0,00%	0,34%	0,00%	0,85%	50,00%	-3,22%	0,00%
2021-11-06	0,00%	0,00%	9,38%	50,00%	0,18%	0,00%	0,89%	0,00%	-0,34%	0,00%	0,00%	0,00%	6,19%	50,00%
2021-11-07	3,20%	50,00%	-0,89%	0,00%	1,01%	0,00%	-4,73%	0,00%	0,09%	0,00%	0,00%	0,00%	-3,43%	0,00%
2021-11-08	1,32%	0,00%	3,38%	50,00%	1,10%	0,00%	1,41%	0,00%	0,00%	0,00%	-0,84%	0,00%	4,28%	50,00%

Figure 82: Dual momentum portfolio using gradient boosting regression - part 1

DUAL MOMENTUM

LTC		XLM		XRP			50%	50%								
Returns	Weight	Returns	Weight	Returns	Weight	sum of weights	MAX		2e MAX		Portfolio returns without transac. Cost	Number of transactions	Transaction cost	Portfolio returns with transac. cost	1+r	Cumulative return
	10%		10%		10%		asset	returns	asset	returns						
-0,16%	0,00%	-1,69%	0,00%	0,93%	50,00%	100,00%	BNB	0,0251865	XRP	0,0092988	1,72%	10	1,00%	0,72%	1,007242638	0,72%
-0,76%	0,00%	-3,36%	0,00%	-0,93%	0,00%	100,00%	DOGE	0,0784221	BTC	0,019355	4,89%	4	0,40%	4,49%	1,044888568	5,25%
8,30%	50,00%	7,88%	0,00%	1,57%	0,00%	100,00%	LTC	0,0829685	BNB	0,0821884	8,26%	4	0,40%	7,86%	1,078578417	13,52%
-3,14%	0,00%	5,57%	0,00%	1,38%	0,00%	100,00%	BTC	0,0698878	DOGE	0,0630564	6,65%	4	0,40%	6,25%	1,062472093	20,61%
0,97%	50,00%	0,00%	0,00%	-1,66%	0,00%	100,00%	ADA	0,0122744	LTC	0,0096714	1,10%	4	0,40%	0,70%	1,0069729	21,45%
-2,27%	0,00%	0,00%	0,00%	-3,19%	0,00%	100,00%	ADA	0,0005739	BTC	0	0,03%	2	0,20%	-0,17%	0,998286965	21,24%
1,72%	0,00%	1,30%	0,00%	3,27%	0,00%	100,00%	LINK	0,050096	DASH	0,0415545	4,58%	4	0,40%	4,18%	1,041825258	26,31%
-1,79%	0,00%	-0,49%	0,00%	3,60%	50,00%	100,00%	XRP	0,0359969	ADA	-0,0038174	1,61%	4	0,40%	1,21%	1,012089748	27,84%
0,95%	0,00%	-0,35%	0,00%	3,28%	0,00%	100,00%	ETH	0,065119	BTC	0,053626	5,94%	4	0,40%	5,54%	1,055372528	34,92%
-1,35%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	BNB	0,0682586	ETH	0,0013343	3,48%	2	0,20%	3,28%	1,03279649	39,34%
-0,52%	0,00%	0,00%	0,00%	-0,34%	0,00%	100,00%	BNB	0,0499565	LINK	0,0162456	3,31%	2	0,20%	3,11%	1,031101049	43,68%
1,90%	0,00%	0,00%	0,00%	-3,94%	0,00%	100,00%	LINK	0,055272	ETH	0,0423745	4,88%	2	0,20%	4,68%	1,046823272	50,40%
6,55%	50,00%	-0,35%	0,00%	0,00%	0,00%	100,00%	LTC	0,0655045	BTC	0,036349	5,09%	4	0,40%	4,69%	1,04692673	57,46%
0,16%	0,00%	-0,33%	0,00%	0,00%	0,00%	100,00%	BTC	0,0081837	ETH	0,0042433	0,62%	2	0,20%	0,42%	1,004213538	58,12%
-0,86%	0,00%	-5,34%	0,00%	3,32%	50,00%	100,00%	XRP	0,0332097	BTC	0,0264927	2,99%	2	0,20%	2,79%	1,027851209	62,53%
0,58%	0,00%	0,00%	0,00%	-6,59%	0,00%	100,00%	DOGE	0,0297087	BNB	0,0125039	2,11%	4	0,40%	1,71%	1,017106327	65,31%
-0,48%	0,00%	0,00%	0,00%	-2,66%	0,00%	100,00%	DASH	0,0447569	BTC	0,0044813	2,46%	4	0,40%	2,06%	1,020619083	68,72%
9,99%	50,00%	6,01%	0,00%	0,00%	0,00%	100,00%	LTC	0,0999294	LINK	0,0789508	8,94%	4	0,40%	8,54%	1,08544009	83,13%
-5,26%	0,00%	0,00%	0,00%	2,86%	50,00%	100,00%	DOGE	0,0339448	XRP	0,0286214	3,13%	4	0,40%	2,73%	1,027283076	88,13%
-2,54%	0,00%	-0,13%	0,00%	-3,04%	0,00%	100,00%	LINK	0,0100698	ADA	0,0023965	0,62%	4	0,40%	0,22%	1,002233179	88,55%
2,87%	50,00%	0,13%	0,00%	0,59%	0,00%	100,00%	LINK	0,0526285	LTC	0,0286919	4,07%	2	0,20%	3,87%	1,038660203	95,84%
-2,61%	0,00%	1,87%	50,00%	-0,24%	0,00%	100,00%	DOGE	0,0808613	XLM	0,0186579	4,98%	4	0,40%	4,58%	1,04575962	104,80%
3,24%	50,00%	-2,17%	0,00%	0,24%	0,00%	100,00%	LINK	0,0677792	LTC	0,0323762	5,01%	4	0,40%	4,61%	1,046077675	114,24%
3,87%	50,00%	0,00%	0,00%	0,00%	0,00%	100,00%	LTC	0,0386944	LINK	0,0170854	2,79%	-	0,00%	2,79%	1,027889896	120,21%
-13,00%	0,00%	-12,01%	0,00%	-5,72%	0,00%	100,00%	ETH	0,0268954	DOGE	-0,0192005	0,38%	4	0,40%	-0,02%	0,999847432	120,18%
4,99%	0,00%	6,61%	50,00%	4,83%	0,00%	100,00%	XLM	0,0661355	DASH	0,0514849	5,88%	4	0,40%	5,48%	1,054810205	132,25%
3,96%	0,00%	6,32%	50,00%	0,57%	0,00%	100,00%	BNB	0,100766	XLM	0,0631591	8,20%	2	0,20%	8,00%	1,079962577	150,82%
-2,63%	0,00%	1,59%	50,00%	0,00%	0,00%	100,00%	BTC	0,0225762	XLM	0,0159366	1,93%	2	0,20%	1,73%	1,017256421	155,14%
0,36%	0,00%	6,30%	50,00%	0,59%	0,00%	100,00%	XLM	0,0630081	DASH	0,0414655	5,22%	2	0,20%	5,02%	1,050236827	167,96%
6,78%	50,00%	3,17%	0,00%	1,43%	0,00%	100,00%	LTC	0,0678126	LINK	0,0504776	5,91%	4	0,40%	5,51%	1,055145112	182,74%
1,40%	0,00%	6,33%	50,00%	-1,39%	0,00%	100,00%	DASH	0,0816293	XLM	0,0632636	7,24%	4	0,40%	6,84%	1,068446478	202,09%
0,40%	0,00%	2,38%	0,00%	2,82%	0,00%	100,00%	BNB	0,0602316	ADA	0,0320273	4,61%	4	0,40%	4,21%	1,042129452	214,82%
0,79%	0,00%	-4,07%	0,00%	0,81%	0,00%	100,00%	BNB	0,0099067	ETH	0,0085009	0,92%	2	0,20%	0,72%	1,007203766	217,09%
-2,38%	0,00%	4,78%	0,00%	4,06%	0,00%	100,00%	BNB	0,0938345	LINK	0,0619128	7,79%	2	0,20%	7,59%	1,075873665	241,14%
-0,37%	0,00%	2,10%	50,00%	0,00%	0,00%	100,00%	ADA	0,0320273	XLM	0,0210262	2,65%	4	0,40%	2,25%	1,022526732	248,83%
1,10%	0,00%	-0,78%	0,00%	2,35%	0,00%	100,00%	LINK	0,0427971	BNB	0,0338066	3,83%	4	0,40%	3,43%	1,034301843	260,80%

Portfolio dual momentum	
Avg return	3,743%
Volatility	0,035755647
Sharpe ratio	1,046916118

Figure 83: Dual momentum portfolio using gradient boosting regression - part 2

2021-11-09	4,51%	0,00%	3,36%	0,00%	-0,71%	0,00%	8,04%	50,00%	0,00%	0,00%	0,94%	0,00%	0,09%	0,00%
2021-11-10	0,83%	0,00%	3,38%	0,00%	-0,28%	0,00%	12,63%	50,00%	0,00%	0,00%	-0,20%	0,00%	1,14%	0,00%
2021-11-11	-0,88%	0,00%	-1,66%	0,00%	-0,24%	0,00%	-4,61%	0,00%	-1,55%	0,00%	-0,90%	0,00%	2,29%	50,00%
2021-11-12	-5,59%	0,00%	-0,37%	0,00%	-0,03%	0,00%	2,77%	50,00%	0,00%	0,00%	-0,17%	0,00%	-1,23%	0,00%
2021-11-13	1,66%	50,00%	-2,35%	0,00%	-5,17%	0,00%	-2,64%	0,00%	-3,93%	0,00%	0,00%	0,00%	1,47%	0,00%
2021-11-14	-0,26%	0,00%	-0,11%	0,00%	-0,57%	0,00%	3,42%	50,00%	1,34%	50,00%	0,00%	0,00%	-0,30%	0,00%
2021-11-15	1,89%	0,00%	-1,05%	0,00%	3,82%	50,00%	-0,13%	0,00%	0,08%	0,00%	0,00%	0,00%	-0,12%	0,00%
2021-11-16	-0,09%	0,00%	2,41%	50,00%	-1,69%	0,00%	0,13%	0,00%	-0,26%	0,00%	1,60%	50,00%	-3,24%	0,00%
2021-11-17	-6,98%	0,00%	-5,20%	0,00%	-0,96%	0,00%	-10,69%	0,00%	-1,97%	0,00%	-0,24%	50,00%	-9,96%	0,00%
2021-11-18	0,00%	0,00%	-1,61%	0,00%	2,59%	0,00%	-11,18%	0,00%	-8,23%	0,00%	-0,57%	0,00%	3,05%	50,00%
2021-11-19	-9,02%	0,00%	-8,95%	0,00%	-4,11%	0,00%	-4,84%	0,00%	-10,48%	0,00%	0,27%	50,00%	-9,81%	0,00%
2021-11-20	10,37%	50,00%	-0,08%	0,00%	1,54%	0,00%	4,96%	0,00%	10,04%	50,00%	2,77%	0,00%	5,36%	0,00%
2021-11-21	2,63%	0,00%	-0,35%	0,00%	2,82%	0,00%	4,72%	50,00%	0,00%	0,00%	-2,91%	0,00%	0,24%	0,00%
2021-11-22	-3,29%	0,00%	-1,14%	0,00%	-0,63%	0,00%	4,50%	50,00%	-9,26%	0,00%	2,96%	50,00%	-0,30%	0,00%
2021-11-23	-10,72%	0,00%	-3,25%	0,00%	-2,10%	0,00%	-1,57%	0,00%	0,00%	50,00%	-2,18%	0,00%	-0,59%	0,00%
2021-11-24	-0,14%	0,00%	-0,13%	0,00%	-1,75%	0,00%	-7,86%	0,00%	1,23%	0,00%	1,51%	50,00%	-0,12%	0,00%
2021-11-25	1,79%	50,00%	-0,54%	0,00%	-0,88%	0,00%	4,20%	50,00%	-1,21%	0,00%	-2,60%	0,00%	-7,06%	0,00%
2021-11-26	0,00%	0,00%	4,09%	50,00%	3,94%	0,00%	5,81%	50,00%	-0,61%	0,00%	2,29%	0,00%	0,00%	0,00%
2021-11-27	-7,66%	0,00%	-3,52%	0,00%	-4,50%	0,00%	-8,20%	0,00%	-1,18%	50,00%	-0,95%	50,00%	-2,26%	0,00%
2021-11-28	0,97%	0,00%	-3,96%	0,00%	0,08%	0,00%	-0,35%	0,00%	1,37%	50,00%	0,05%	0,00%	-4,34%	0,00%
2021-11-29	5,72%	50,00%	3,50%	50,00%	1,92%	0,00%	-5,76%	0,00%	-0,17%	0,00%	-0,31%	0,00%	2,35%	0,00%
2021-11-30	-1,34%	0,00%	0,00%	0,00%	-1,17%	0,00%	4,96%	50,00%	-0,14%	0,00%	-0,79%	0,00%	-0,07%	0,00%
2021-12-01	0,00%	0,00%	1,52%	50,00%	-0,72%	0,00%	-3,94%	0,00%	0,00%	0,00%	1,62%	50,00%	0,62%	0,00%
2021-12-02	-5,49%	0,00%	4,90%	50,00%	0,18%	0,00%	-0,98%	0,00%	0,00%	0,00%	1,45%	0,00%	0,22%	0,00%
2021-12-03	3,41%	50,00%	2,20%	50,00%	0,19%	0,00%	-0,06%	0,00%	0,00%	0,00%	-1,32%	0,00%	-1,01%	0,00%
2021-12-04	1,84%	50,00%	-8,00%	0,00%	-3,81%	0,00%	-5,86%	0,00%	-4,16%	0,00%	-0,65%	50,00%	-7,70%	0,00%
2021-12-05	-13,65%	0,00%	-4,66%	0,00%	-5,36%	0,00%	-10,72%	0,00%	-7,15%	0,00%	-1,31%	50,00%	-3,35%	50,00%
2021-12-06	-6,20%	0,00%	-6,16%	0,00%	-0,35%	50,00%	-9,56%	0,00%	-5,21%	0,00%	0,41%	50,00%	-9,15%	0,00%
2021-12-07	3,42%	0,00%	0,07%	0,00%	0,80%	0,00%	4,11%	0,00%	4,52%	50,00%	0,59%	0,00%	-0,46%	0,00%
2021-12-08	-4,53%	0,00%	-1,86%	0,00%	0,32%	0,00%	5,41%	0,00%	0,00%	0,00%	0,51%	0,00%	6,66%	50,00%
2021-12-09	5,91%	50,00%	9,87%	50,00%	-0,07%	0,00%	0,00%	0,00%	0,00%	0,00%	0,79%	0,00%	-0,37%	0,00%
2021-12-10	-7,45%	0,00%	-8,34%	0,00%	-3,55%	0,00%	-6,52%	0,00%	-5,42%	0,00%	0,66%	50,00%	-3,04%	0,00%
2021-12-11	-5,76%	0,00%	1,99%	50,00%	-2,85%	0,00%	-1,57%	0,00%	0,70%	50,00%	-2,07%	0,00%	-11,27%	0,00%
2021-12-12	8,51%	0,00%	-2,84%	0,00%	5,43%	0,00%	7,31%	0,00%	0,00%	0,00%	4,45%	0,00%	9,79%	50,00%
2021-12-13	-1,03%	0,00%	-0,01%	0,00%	1,00%	50,00%	1,16%	50,00%	0,00%	0,00%	-4,79%	0,00%	0,53%	0,00%
2021-12-14	-7,47%	0,00%	-8,19%	0,00%	-4,84%	0,00%	-10,85%	0,00%	0,81%	50,00%	-0,41%	50,00%	-9,73%	0,00%
2021-12-15	-0,73%	0,00%	-0,28%	0,00%	-2,06%	0,00%	-1,28%	0,00%	2,35%	0,00%	7,60%	50,00%	-6,79%	0,00%
2021-12-16	8,44%	50,00%	6,92%	0,00%	4,54%	0,00%	2,47%	0,00%	5,59%	0,00%	-3,76%	0,00%	9,53%	50,00%
2021-12-17	-2,88%	0,00%	-3,41%	0,00%	-6,45%	0,00%	-2,77%	0,00%	-9,21%	0,00%	-1,81%	50,00%	-2,07%	0,00%
2021-12-18	-5,20%	0,00%	13,23%	50,00%	-4,50%	0,00%	0,00%	0,00%	-0,36%	0,00%	0,27%	0,00%	0,00%	0,00%
2021-12-19	5,21%	50,00%	-0,71%	0,00%	5,76%	50,00%	0,60%	0,00%	-1,16%	0,00%	4,48%	0,00%	2,23%	0,00%
2021-12-20	0,00%	0,00%	-2,57%	0,00%	-0,02%	0,00%	-0,69%	0,00%	0,00%	0,00%	-6,37%	0,00%	-2,18%	0,00%
2021-12-21	0,00%	0,00%	3,08%	0,00%	-0,42%	0,00%	0,00%	0,00%	0,00%	0,00%	6,30%	50,00%	0,00%	0,00%
2021-12-22	1,62%	0,00%	0,53%	0,00%	5,26%	50,00%	2,62%	0,00%	0,00%	0,00%	-1,32%	0,00%	2,10%	0,00%
2021-12-23	0,40%	0,00%	-0,86%	0,00%	2,20%	0,00%	2,33%	0,00%	-0,68%	0,00%	-5,13%	0,00%	9,77%	50,00%

Figure 84: Dual momentum portfolio using gradient boosting regression - part 3

8,79%	50,00%	0,10%	0,00%	1,85%	0,00%	100,00%	LTC	0,0878976	DASH	0,0804087	8,42%	4	0,40%	8,02%	1,080153121	289,71%
14,32%	50,00%	-3,93%	0,00%	2,91%	0,00%	100,00%	LTC	0,1432043	DASH	0,1263044	13,48%	-	0,00%	13,48%	1,134754373	342,23%
1,61%	50,00%	-4,32%	0,00%	-6,29%	0,00%	100,00%	LINK	0,0229357	LTC	0,0161376	1,95%	2	0,20%	1,75%	1,017536653	349,98%
1,16%	0,00%	-1,65%	0,00%	7,97%	50,00%	100,00%	XRP	0,0797065	DASH	0,0276771	5,37%	4	0,40%	4,97%	1,049691788	372,35%
1,85%	50,00%	-1,53%	0,00%	-4,13%	0,00%	100,00%	LTC	0,0184682	ADA	0,0166104	1,75%	4	0,40%	1,35%	1,013539264	378,74%
-1,48%	0,00%	0,00%	0,00%	-1,24%	0,00%	100,00%	DASH	0,0342173	DOGE	0,0134011	2,38%	4	0,40%	1,98%	1,019809197	388,22%
7,66%	50,00%	0,00%	0,00%	0,60%	0,00%	100,00%	LTC	0,0765849	BTC	0,0381986	5,74%	4	0,40%	5,34%	1,053391723	414,29%
-8,20%	0,00%	0,71%	0,00%	-1,02%	0,00%	100,00%	BNB	0,024089	ETH	0,0159803	2,00%	4	0,40%	1,60%	1,01603465	422,54%
-13,30%	0,00%	-7,95%	0,00%	-2,28%	0,00%	50,00%	ETH	-0,0023955	ETH	-0,0023955	-0,24%	1	0,10%	-0,34%	0,996604474	420,76%
0,52%	0,00%	5,49%	50,00%	-5,39%	0,00%	100,00%	XLM	0,0548639	LINK	0,0304924	4,27%	3	0,30%	3,97%	1,039678173	441,43%
-9,32%	0,00%	-10,18%	0,00%	-1,77%	50,00%	100,00%	ETH	0,0026942	XRP	-0,0176992	-0,75%	4	0,40%	-1,15%	0,988497501	435,20%
0,46%	0,00%	4,07%	0,00%	2,18%	0,00%	100,00%	ADA	0,1036619	DOGE	0,1003749	10,20%	4	0,40%	9,80%	1,098018432	487,66%
8,26%	50,00%	0,00%	0,00%	0,00%	0,00%	100,00%	LTC	0,0825935	DASH	0,0472257	6,49%	4	0,40%	6,09%	1,060909613	523,45%
0,68%	0,00%	0,00%	0,00%	-0,85%	0,00%	100,00%	DASH	0,0450294	ETH	0,0296015	3,73%	2	0,20%	3,53%	1,035315449	545,47%
-6,42%	0,00%	-0,08%	50,00%	-1,06%	0,00%	100,00%	DOGE	0	XLM	-0,000812	-0,04%	4	0,40%	-0,44%	0,995594024	542,63%
-0,28%	0,00%	-0,04%	0,00%	1,48%	50,00%	100,00%	ETH	0,0150523	XRP	0,0148354	1,49%	4	0,40%	1,09%	1,01094385	549,66%
-0,33%	0,00%	-4,94%	0,00%	-1,46%	0,00%	100,00%	DASH	0,0419938	ADA	0,0178668	2,99%	4	0,40%	2,59%	1,025930332	566,50%
0,61%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	DASH	0,0581296	BNB	0,0408693	4,95%	2	0,20%	4,75%	1,047499477	598,16%
-7,10%	0,00%	-3,71%	0,00%	-10,18%	0,00%	100,00%	ETH	-0,0095222	DOGE	-0,0117795	-1,07%	4	0,40%	-1,47%	0,98534914	587,93%
-0,10%	0,00%	2,92%	50,00%	-0,58%	0,00%	100,00%	XLM	0,0292192	DOGE	0,0136737	2,14%	2	0,20%	1,94%	1,019446473	601,31%
2,78%	0,00%	0,90%	0,00%	2,55%	0,00%	100,00%	ADA	0,0572479	BNB	0,0349603	4,61%	4	0,40%	4,21%	1,042104118	630,84%
1,22%	0,00%	5,56%	50,00%	0,29%	0,00%	100,00%	XLM	0,0556349	DASH	0,0495507	5,26%	4	0,40%	4,86%	1,048592776	666,35%
0,04%	0,00%	0,00%	0,00%	-0,08%	0,00%	100,00%	ETH	0,0161552	BNB	0,0151584	1,57%	4	0,40%	1,17%	1,011656814	675,29%
2,00%	50,00%	-5,32%	0,00%	-0,12%	0,00%	100,00%	BNB	0,0489925	LTC	0,0199873	3,45%	2	0,20%	3,25%	1,032489871	700,48%
-1,02%	0,00%	-0,09%	0,00%	-0,29%	0,00%	100,00%	ADA	0,0341331	BNB	0,0220436	2,81%	2	0,20%	2,61%	1,026088329	721,36%
-10,48%	0,00%	-3,71%	0,00%	-3,88%	0,00%	100,00%	ADA	0,0183669	ETH	-0,0065285	0,59%	2	0,20%	0,39%	1,003919186	724,58%
-9,96%	0,00%	-17,50%	0,00%	-7,57%	0,00%	100,00%	ETH	-0,0131364	LINK	-0,0335179	-2,33%	2	0,20%	-2,53%	0,974672842	703,69%
-5,34%	0,00%	-0,90%	0,00%	-0,72%	0,00%	100,00%	ETH	0,0041112	BTC	-0,003522	0,03%	2	0,20%	-0,17%	0,998294593	702,32%
4,84%	50,00%	0,00%	0,00%	-1,38%	0,00%	100,00%	LTC	0,0484026	DOGE	0,0452343	4,68%	4	0,40%	4,28%	1,042818445	736,68%
0,69%	0,00%	6,88%	50,00%	-0,14%	0,00%	100,00%	XLM	0,0687555	LINK	0,0665591	6,77%	4	0,40%	6,37%	1,063657326	789,94%
0,42%	0,00%	0,41%	0,00%	3,83%	0,00%	100,00%	BNB	0,0987473	ADA	0,0590741	7,89%	4	0,40%	7,49%	1,074910745	856,60%
-1,61%	0,00%	-6,56%	0,00%	0,35%	50,00%	100,00%	ETH	0,0065554	XRP	0,0034933	0,50%	4	0,40%	0,10%	1,001024358	857,58%
-5,40%	0,00%	0,00%	0,00%	-4,06%	0,00%	100,00%	BNB	0,0199357	DOGE	0,0070434	1,35%	4	0,40%	0,95%	1,009489556	866,67%
8,71%	50,00%	0,00%	0,00%	0,74%	0,00%	100,00%	LINK	0,0978517	LTC	0,0870994	9,25%	4	0,40%	8,85%	1,088475511	952,20%
0,15%	0,00%	0,00%	0,00%	-0,36%	0,00%	100,00%	DASH	0,0115611	BTC	0,009964	1,08%	4	0,40%	0,68%	1,006762523	959,31%
-10,04%	0,00%	-4,44%	0,00%	-9,07%	0,00%	100,00%	DOGE	0,008097	ETH	-0,0041228	0,20%	4	0,40%	-0,20%	0,997987133	957,18%
-1,28%	0,00%	-1,22%	0,00%	9,57%	50,00%	100,00%	XRP	0,0956859	ETH	0,0760241	8,59%	2	0,20%	8,39%	1,083854977	1045,83%
2,48%	0,00%	4,33%	0,00%	-0,92%	0,00%	100,00%	LINK	0,0953116	ADA	0,084449	8,99%	4	0,40%	8,59%	1,085880296	1144,23%
-1,09%	50,00%	-2,97%	0,00%	-1,83%	0,00%	100,00%	LTC	-0,0108878	ETH	-0,0181417	-1,45%	4	0,40%	-1,85%	0,98148524	1121,20%
-1,35%	0,00%	4,65%	50,00%	0,37%	0,00%	100,00%	BNB	0,1322746	XLM	0,0464537	8,94%	4	0,40%	8,54%	1,08536412	1225,44%
1,49%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	BTC	0,0576196	ADA	0,0521074	5,49%	4	0,40%	5,09%	1,050863485	1292,86%
1,33%	50,00%	-0,44%	0,00%	0,76%	50,00%	100,00%	LTC	0,0132894	XRP	0,0075665	1,04%	4	0,40%	0,64%	1,006427978	1301,81%
0,27%	0,00%	-4,46%	0,00%	6,21%	50,00%	100,00%	ETH	0,0630289	XRP	0,0621357	6,26%	2	0,20%	6,06%	1,060582306	1386,74%
-1,31%	0,00%	3,44%	50,00%	2,21%	0,00%	100,00%	BTC	0,0525686	XLM	0,0344456	4,35%	4	0,40%	3,95%	1,039507108	1445,48%
0,90%	0,00%	1,18%	0,00%	4,38%	50,00%	100,00%	LINK	0,0977331	XRP	0,0438401	7,08%	4	0,40%	6,68%	1,06678662	1548,69%

Figure 85: Dual momentum portfolio using gradient boosting regression - part 4

2021-12-24	12,05%	50,00%	2,73%	0,00%	-1,60%	0,00%	7,69%	0,00%	13,03%	50,00%	1,16%	0,00%	1,48%	0,00%
2021-12-25	-5,14%	0,00%	-1,85%	0,00%	2,10%	50,00%	1,48%	0,00%	-0,19%	0,00%	0,21%	0,00%	1,55%	50,00%
2021-12-26	0,86%	0,00%	-4,57%	0,00%	-1,17%	0,00%	0,14%	0,00%	1,35%	50,00%	-1,21%	0,00%	2,13%	50,00%
2021-12-27	-0,60%	0,00%	-4,89%	0,00%	-0,21%	0,00%	0,00%	0,00%	0,00%	0,00%	0,92%	0,00%	1,80%	50,00%
2021-12-28	6,50%	50,00%	6,17%	50,00%	-0,65%	0,00%	0,00%	0,00%	0,00%	0,00%	-0,21%	0,00%	1,81%	0,00%
2021-12-29	-7,31%	0,00%	-5,91%	0,00%	-2,93%	0,00%	-7,03%	0,00%	-11,69%	0,00%	-0,87%	50,00%	-3,78%	0,00%
2021-12-30	-1,70%	0,00%	-4,13%	0,00%	-5,91%	0,00%	-4,06%	0,00%	0,00%	50,00%	0,89%	50,00%	-11,31%	0,00%
2021-12-31	-0,62%	0,00%	-0,21%	0,00%	2,77%	50,00%	0,00%	0,00%	0,21%	0,00%	1,89%	0,00%	7,58%	50,00%
2022-01-01	-0,82%	0,00%	4,86%	50,00%	-2,75%	0,00%	0,00%	0,00%	-0,21%	0,00%	2,68%	50,00%	-8,21%	0,00%
2022-01-02	0,61%	0,00%	4,77%	0,00%	4,39%	0,00%	6,01%	50,00%	0,00%	0,00%	1,70%	0,00%	8,29%	50,00%
2022-01-03	0,42%	0,00%	0,56%	0,00%	0,09%	0,00%	5,40%	50,00%	0,00%	0,00%	-0,52%	0,00%	1,00%	0,00%
2022-01-04	-0,42%	0,00%	-5,32%	0,00%	-4,29%	0,00%	0,00%	0,00%	0,00%	0,00%	0,30%	50,00%	8,51%	50,00%
2022-01-05	-0,60%	0,00%	2,37%	50,00%	-0,02%	0,00%	-7,06%	0,00%	0,00%	0,00%	-0,98%	0,00%	1,51%	50,00%
2022-01-06	-2,08%	0,00%	-1,27%	0,00%	-1,60%	0,00%	-11,10%	0,00%	0,89%	0,00%	-5,75%	0,00%	6,73%	50,00%
2022-01-07	-0,08%	0,00%	4,09%	50,00%	-5,74%	0,00%	4,05%	50,00%	0,00%	0,00%	-3,52%	0,00%	0,73%	0,00%
2022-01-08	-4,49%	0,00%	0,08%	0,00%	-1,01%	0,00%	4,65%	50,00%	-1,16%	0,00%	-3,63%	0,00%	0,43%	50,00%
2022-01-09	-3,34%	0,00%	-3,84%	0,00%	-0,62%	0,00%	9,75%	50,00%	0,00%	0,00%	0,90%	0,00%	4,02%	50,00%
2022-01-10	0,00%	0,00%	-2,87%	0,00%	0,00%	0,00%	7,60%	50,00%	0,00%	0,00%	1,69%	0,00%	4,56%	50,00%
2022-01-11	-2,16%	0,00%	-5,19%	0,00%	-1,69%	0,00%	-4,85%	0,00%	0,00%	0,00%	8,01%	50,00%	2,12%	50,00%
2022-01-12	1,92%	0,00%	8,89%	50,00%	2,02%	0,00%	-0,72%	0,00%	0,00%	0,00%	3,45%	50,00%	0,46%	0,00%
2022-01-13	8,16%	0,00%	4,38%	0,00%	8,85%	50,00%	-0,20%	0,00%	-0,68%	0,00%	2,38%	0,00%	0,01%	0,00%
2022-01-14	-2,21%	0,00%	1,35%	50,00%	-8,84%	0,00%	-0,02%	0,00%	1,31%	50,00%	0,86%	0,00%	-6,62%	0,00%
2022-01-15	2,26%	0,00%	0,49%	0,00%	1,19%	0,00%	0,00%	0,00%	12,86%	50,00%	0,00%	0,00%	-0,60%	0,00%
2022-01-16	0,88%	0,00%	-0,47%	0,00%	-0,28%	0,00%	0,00%	0,00%	1,10%	50,00%	-0,28%	0,00%	0,35%	0,00%
2022-01-17	7,85%	50,00%	0,17%	0,00%	0,59%	0,00%	-6,58%	0,00%	-6,25%	0,00%	0,36%	0,00%	-0,19%	0,00%
2022-01-18	16,47%	50,00%	-1,54%	0,00%	-0,64%	0,00%	-0,15%	0,00%	-5,43%	0,00%	-0,24%	0,00%	-2,22%	0,00%
2022-01-19	-10,65%	0,00%	0,15%	50,00%	0,17%	50,00%	-6,36%	0,00%	-1,48%	0,00%	-3,61%	0,00%	-8,40%	0,00%
2022-01-20	-7,50%	0,00%	-0,61%	0,00%	0,19%	50,00%	0,00%	50,00%	0,00%	0,00%	0,00%	0,00%	-0,98%	0,00%
2022-01-21	-2,96%	0,00%	-3,51%	0,00%	-1,63%	0,00%	-7,12%	0,00%	0,00%	50,00%	-0,12%	0,00%	0,19%	50,00%
2022-01-22	-11,68%	0,00%	-15,75%	0,00%	-5,74%	50,00%	-9,29%	0,00%	0,85%	50,00%	-13,75%	0,00%	-19,19%	0,00%
2022-01-23	2,43%	50,00%	-3,90%	0,00%	-5,10%	0,00%	-8,00%	0,00%	0,21%	50,00%	-5,47%	0,00%	-11,76%	0,00%
2022-01-24	2,00%	0,00%	-0,16%	0,00%	-1,73%	0,00%	-1,21%	0,00%	-1,16%	0,00%	7,42%	50,00%	-2,04%	0,00%
2022-01-25	-0,19%	0,00%	0,21%	50,00%	0,71%	50,00%	-4,56%	0,00%	0,00%	0,00%	-4,78%	0,00%	-6,90%	0,00%
2022-01-26	-1,52%	0,00%	3,83%	50,00%	6,72%	50,00%	-0,15%	0,00%	0,72%	0,00%	-2,79%	0,00%	1,20%	0,00%
2022-01-27	0,00%	50,00%	-0,72%	0,00%	-2,24%	0,00%	-0,87%	0,00%	-0,67%	0,00%	2,22%	50,00%	-3,74%	0,00%
2022-01-28	1,60%	0,00%	3,43%	50,00%	0,29%	0,00%	0,36%	0,00%	1,85%	50,00%	-3,23%	0,00%	-4,23%	0,00%
2022-01-29	0,22%	0,00%	0,00%	0,00%	0,54%	0,00%	3,60%	0,00%	-0,70%	0,00%	5,64%	50,00%	1,99%	0,00%
2022-01-30	-0,77%	0,00%	-0,16%	0,00%	-0,54%	0,00%	0,45%	0,00%	-1,83%	0,00%	0,00%	0,00%	0,00%	0,00%
2022-01-31	0,82%	50,00%	-1,38%	0,00%	0,34%	0,00%	-2,58%	0,00%	0,50%	0,00%	0,00%	0,00%	22,26%	50,00%
2022-02-01	-2,68%	0,00%	-0,59%	0,00%	1,37%	0,00%	3,55%	0,00%	0,50%	0,00%	3,63%	50,00%	-5,11%	0,00%
2022-02-02	-1,76%	0,00%	2,00%	0,00%	-0,55%	0,00%	-1,18%	0,00%	-1,17%	0,00%	4,33%	50,00%	7,83%	50,00%
2022-02-03	-3,95%	0,00%	-4,05%	0,00%	2,39%	50,00%	-2,50%	0,00%	1,87%	50,00%	-5,60%	0,00%	-11,02%	0,00%
2022-02-04	2,70%	0,00%	-2,71%	0,00%	-3,14%	0,00%	3,24%	50,00%	0,00%	0,00%	-1,13%	0,00%	1,97%	0,00%
2022-02-05	1,22%	0,00%	3,25%	0,00%	7,77%	0,00%	8,10%	0,00%	-1,83%	0,00%	15,89%	50,00%	4,68%	0,00%
2022-02-06	-0,28%	0,00%	2,90%	50,00%	1,62%	0,00%	0,60%	0,00%	-0,21%	0,00%	0,60%	0,00%	9,49%	50,00%

Figure 86: Dual momentum portfolio using gradient boosting regression - part 5

6,50%	0,00%	7,17%	0,00%	2,09%	0,00%	100,00%	DOGE	0,1302577	ADA	0,1205298	12,54%	4	0,40%	12,14%	1,121393761	1748,83%
0,92%	0,00%	-6,58%	0,00%	-4,53%	0,00%	100,00%	BTC	0,0209735	LINK	0,0155453	1,83%	4	0,40%	1,43%	1,014259401	1775,20%
-6,53%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	LINK	0,0212756	DOGE	0,0134794	1,74%	2	0,20%	1,54%	1,01537747	1804,03%
-0,30%	0,00%	7,05%	50,00%	0,00%	0,00%	100,00%	XLM	0,0704873	LINK	0,0179931	4,42%	2	0,20%	4,22%	1,042240185	1884,46%
0,30%	0,00%	0,00%	0,00%	0,02%	0,00%	100,00%	ADA	0,0649652	BNB	0,0617379	6,34%	4	0,40%	5,94%	1,059351539	2002,24%
-2,76%	50,00%	-10,85%	0,00%	-3,09%	0,00%	100,00%	ETH	-0,0087173	LTC	-0,0275833	-1,82%	4	0,40%	-2,22%	0,97784972	1955,68%
-0,28%	0,00%	0,00%	0,00%	-3,64%	0,00%	100,00%	ETH	0,0088629	DOGE	0	0,44%	2	0,20%	0,24%	1,002431456	1960,67%
1,49%	0,00%	-1,22%	0,00%	-1,03%	0,00%	100,00%	LINK	0,0757571	BTC	0,0277256	5,17%	4	0,40%	4,77%	1,047741363	2059,05%
-1,78%	0,00%	1,24%	0,00%	-0,35%	0,00%	100,00%	BNB	0,0486108	ETH	0,0267789	3,77%	4	0,40%	3,37%	1,033694869	2131,80%
1,44%	0,00%	-1,22%	0,00%	0,35%	0,00%	100,00%	LINK	0,0829344	DASH	0,0600972	7,15%	4	0,40%	6,75%	1,067515816	2282,48%
1,28%	0,00%	5,70%	50,00%	2,99%	0,00%	100,00%	XLM	0,0569866	DASH	0,0539611	5,55%	2	0,20%	5,35%	1,053473824	2409,89%
-2,02%	0,00%	-4,22%	0,00%	-2,53%	0,00%	100,00%	LINK	0,0851303	ETH	0,0029729	4,41%	4	0,40%	4,01%	1,040051599	2510,41%
-1,49%	0,00%	0,00%	0,00%	-0,73%	0,00%	100,00%	BNB	0,0237355	LINK	0,0150765	1,94%	2	0,20%	1,74%	1,017406014	2555,85%
-6,16%	0,00%	3,56%	50,00%	-11,71%	0,00%	100,00%	LINK	0,0672538	XLM	0,035586	5,14%	2	0,20%	4,94%	1,049419907	2687,10%
-1,36%	0,00%	-3,44%	0,00%	2,81%	0,00%	100,00%	BNB	0,0409094	DASH	0,0405105	4,07%	4	0,40%	3,67%	1,036709976	2789,41%
-1,98%	0,00%	-7,10%	0,00%	-3,26%	0,00%	100,00%	DASH	0,0464885	LINK	0,0043156	2,54%	2	0,20%	2,34%	1,023402071	2857,03%
-3,82%	0,00%	0,00%	0,00%	0,41%	0,00%	100,00%	DASH	0,0975449	LINK	0,0402296	6,89%	-	0,00%	6,89%	1,068887249	3060,73%
1,78%	0,00%	-0,40%	0,00%	0,00%	0,00%	100,00%	DASH	0,0760039	LINK	0,0456413	6,08%	-	0,00%	6,08%	1,060822596	3252,98%
-1,69%	0,00%	-0,72%	0,00%	-2,22%	0,00%	100,00%	ETH	0,0801256	LINK	0,0211864	5,07%	2	0,20%	4,87%	1,048656005	3416,12%
3,37%	0,00%	-0,37%	0,00%	0,00%	0,00%	100,00%	BNB	0,088933	ETH	0,0344921	6,17%	2	0,20%	5,97%	1,059712555	3626,08%
4,49%	0,00%	1,77%	0,00%	13,13%	50,00%	100,00%	XRP	0,1313142	BTC	0,0884725	10,99%	4	0,40%	10,59%	1,105893362	4020,64%
-3,06%	0,00%	-2,45%	0,00%	-11,58%	0,00%	100,00%	BNB	0,0134988	DOGE	0,0130701	1,33%	4	0,40%	0,93%	1,009284474	4058,90%
7,84%	50,00%	3,37%	0,00%	-0,03%	0,00%	100,00%	DOGE	0,1285772	LTC	0,0783879	10,35%	2	0,20%	10,15%	1,101482571	4480,96%
0,54%	0,00%	-0,83%	0,00%	5,07%	50,00%	100,00%	XRP	0,0507487	DOGE	0,0110007	3,09%	2	0,20%	2,89%	1,028874681	4613,23%
0,82%	0,00%	0,84%	50,00%	0,00%	0,00%	100,00%	ADA	0,0785198	XLM	0,0083832	4,35%	4	0,40%	3,95%	1,039451509	4799,17%
3,62%	50,00%	-2,55%	0,00%	-3,27%	0,00%	100,00%	ADA	0,1646886	LTC	0,0362311	10,05%	2	0,20%	9,85%	1,098459836	5281,55%
-6,85%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	BTC	0,0017261	BNB	0,001499	0,16%	4	0,40%	-0,24%	0,997612513	5268,70%
-1,10%	0,00%	-0,73%	0,00%	0,00%	0,00%	100,00%	BTC	0,001946	DASH	0	0,10%	2	0,20%	-0,10%	0,998973016	5263,18%
-7,71%	0,00%	-2,62%	0,00%	0,00%	0,00%	100,00%	LINK	0,0019288	DOGE	0	0,10%	4	0,40%	-0,30%	0,996964389	5246,90%
-9,25%	0,00%	-12,91%	0,00%	-13,45%	0,00%	100,00%	DOGE	0,0085006	BTC	-0,0573519	-2,44%	2	0,20%	-2,64%	0,973574347	5105,61%
-6,92%	0,00%	-2,64%	0,00%	-2,38%	0,00%	100,00%	ADA	0,0242552	DOGE	0,0020979	1,32%	2	0,20%	1,12%	1,011176524	5163,79%
4,96%	50,00%	2,34%	0,00%	3,59%	0,00%	100,00%	ETH	0,0741983	LTC	0,0495945	6,19%	4	0,40%	5,79%	1,057896415	5468,54%
-0,33%	0,00%	0,00%	0,00%	-2,31%	0,00%	100,00%	BTC	0,0070748	BNB	0,002087	0,46%	4	0,40%	0,06%	1,000580907	5471,78%
-6,03%	0,00%	0,36%	0,00%	0,94%	0,00%	100,00%	BTC	0,0672017	BNB	0,0382691	5,27%	-	0,00%	5,27%	1,052735401	5765,61%
0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	ETH	0,0221593	ADA	0	1,11%	4	0,40%	0,71%	1,007079659	5807,13%
0,00%	0,00%	-0,36%	0,00%	-3,22%	0,00%	100,00%	BNB	0,034308	DOGE	0,0184897	2,64%	4	0,40%	2,24%	1,022398841	5939,45%
7,78%	50,00%	5,35%	0,00%	1,86%	0,00%	100,00%	LTC	0,0778397	ETH	0,0563653	6,71%	4	0,40%	6,31%	1,06310249	6320,55%
0,13%	0,00%	4,23%	50,00%	1,47%	50,00%	100,00%	XLM	0,0422534	XRP	0,0147311	2,85%	4	0,40%	2,45%	1,024492218	6477,81%
0,00%	0,00%	-1,95%	0,00%	-3,70%	0,00%	100,00%	LINK	0,2225549	ADA	0,0082317	11,54%	4	0,40%	11,14%	1,11139331	7210,53%
-0,37%	0,00%	0,00%	0,00%	3,65%	50,00%	100,00%	XRP	0,0364546	ETH	0,03633	3,64%	4	0,40%	3,24%	1,032392299	7447,33%
0,52%	0,00%	1,99%	0,00%	-0,52%	0,00%	100,00%	LINK	0,0783065	ETH	0,0433231	6,08%	2	0,20%	5,88%	1,058814795	7891,23%
-6,92%	0,00%	-1,95%	0,00%	-3,73%	0,00%	100,00%	BTC	0,0238735	DOGE	0,0186561	2,13%	4	0,40%	1,73%	1,017264788	8029,20%
6,08%	50,00%	0,00%	0,00%	0,47%	0,00%	100,00%	LTC	0,0607901	DASH	0,0323981	4,66%	4	0,40%	4,26%	1,042594126	8375,45%
5,01%	0,00%	7,77%	0,00%	10,12%	50,00%	100,00%	ETH	0,1588812	XRP	0,1012364	13,01%	4	0,40%	12,61%	1,126058799	9443,86%
0,00%	0,00%	2,67%	0,00%	0,00%	0,00%	100,00%	LINK	0,0949255	BNB	0,0290159	6,20%	4	0,40%	5,80%	1,057970712	9997,12%

Figure 87: Dual momentum portfolio using gradient boosting regression - part 6

2022-02-07	3,80%	50,00%	4,25%	50,00%	0,17%	0,00%	3,29%	0,00%	2,71%	0,00%	0,87%	0,00%	0,53%	0,00%
2022-02-08	-0,08%	0,00%	8,09%	0,00%	10,71%	50,00%	8,42%	0,00%	0,00%	0,00%	2,76%	0,00%	-0,62%	0,00%
2022-02-09	-2,20%	0,00%	-4,44%	0,00%	0,16%	50,00%	-3,73%	0,00%	0,00%	0,00%	-0,84%	0,00%	0,00%	0,00%
2022-02-10	2,13%	0,00%	-0,30%	0,00%	0,95%	0,00%	0,29%	0,00%	0,00%	0,00%	-0,16%	0,00%	-0,52%	0,00%
2022-02-11	-1,32%	0,00%	-2,44%	0,00%	-1,77%	0,00%	1,30%	50,00%	0,00%	50,00%	-4,70%	0,00%	-7,64%	0,00%
2022-02-12	-2,82%	0,00%	0,20%	50,00%	-8,78%	0,00%	-6,89%	0,00%	-1,48%	50,00%	-2,11%	0,00%	-10,02%	0,00%
2022-02-13	-0,49%	0,00%	0,19%	50,00%	0,00%	0,00%	-0,71%	0,00%	0,00%	0,00%	-1,15%	0,00%	0,00%	0,00%
2022-02-14	0,10%	0,00%	-1,44%	0,00%	-0,54%	0,00%	-0,62%	0,00%	1,51%	50,00%	-5,29%	0,00%	-0,25%	0,00%
2022-02-15	0,72%	0,00%	1,00%	50,00%	0,27%	0,00%	-0,11%	0,00%	-1,48%	0,00%	4,20%	50,00%	0,63%	0,00%
2022-02-16	-1,13%	0,00%	6,98%	0,00%	10,59%	50,00%	2,58%	0,00%	1,51%	0,00%	8,20%	0,00%	10,46%	50,00%
2022-02-17	-3,02%	0,00%	-5,06%	0,00%	-0,24%	0,00%	4,39%	50,00%	0,00%	0,00%	-3,23%	0,00%	0,24%	50,00%
2022-02-18	-3,99%	50,00%	-10,03%	0,00%	-11,28%	0,00%	-6,43%	0,00%	-1,48%	50,00%	-7,70%	0,00%	-8,87%	0,00%
2022-02-19	-2,73%	0,00%	-1,27%	0,00%	-0,23%	0,00%	1,25%	50,00%	0,00%	0,00%	-1,16%	0,00%	-3,30%	0,00%
2022-02-20	0,00%	0,00%	-3,09%	0,00%	-0,65%	0,00%	-1,32%	0,00%	0,00%	0,00%	0,00%	0,00%	1,85%	50,00%
2022-02-21	0,00%	50,00%	6,15%	50,00%	-5,42%	0,00%	-8,44%	0,00%	0,00%	0,00%	-6,08%	0,00%	-4,79%	0,00%
2022-02-22	-14,67%	0,00%	-2,95%	0,00%	-1,57%	0,00%	-8,60%	0,00%	0,67%	50,00%	-1,18%	50,00%	-2,15%	0,00%
2022-02-23	3,93%	0,00%	4,46%	0,00%	0,27%	0,00%	5,31%	50,00%	-0,46%	0,00%	3,67%	0,00%	2,98%	0,00%
2022-02-24	-4,00%	0,00%	-1,77%	0,00%	0,26%	50,00%	-1,35%	0,00%	-0,50%	0,00%	-7,58%	0,00%	-4,92%	0,00%
2022-02-25	1,83%	50,00%	-1,76%	0,00%	-1,07%	0,00%	-4,71%	0,00%	1,18%	50,00%	-0,56%	0,00%	0,74%	0,00%
2022-02-26	2,34%	0,00%	4,28%	0,00%	5,35%	0,00%	5,61%	0,00%	-1,16%	0,00%	9,60%	50,00%	0,57%	0,00%
2022-02-27	0,00%	0,00%	0,00%	0,00%	1,59%	50,00%	0,43%	0,00%	0,00%	0,00%	1,29%	0,00%	0,58%	0,00%
2022-02-28	-7,09%	0,00%	-5,22%	0,00%	-4,04%	0,00%	-6,47%	0,00%	0,00%	50,00%	-3,59%	0,00%	-0,90%	0,00%
2022-03-01	17,79%	50,00%	6,61%	0,00%	9,25%	0,00%	13,61%	50,00%	-0,68%	0,00%	12,91%	0,00%	5,85%	0,00%
2022-03-02	-2,16%	0,00%	4,80%	0,00%	10,60%	50,00%	0,21%	0,00%	-0,21%	0,00%	3,13%	0,00%	3,73%	0,00%
2022-03-03	0,00%	0,00%	3,47%	50,00%	-0,22%	0,00%	0,59%	0,00%	1,19%	50,00%	-0,70%	0,00%	0,81%	0,00%
2022-03-04	-13,78%	0,00%	-1,92%	0,00%	-8,42%	0,00%	-3,17%	0,00%	0,00%	50,00%	-5,65%	0,00%	-6,39%	0,00%
2022-03-05	-4,15%	0,00%	-7,40%	0,00%	-4,85%	0,00%	-4,83%	0,00%	0,67%	50,00%	-10,08%	0,00%	-0,28%	50,00%

Figure 88: Dual momentum portfolio using gradient boosting regression - part 7

3,49%	0,00%	0,00%	0,00%	3,35%	0,00%	100,00%	BNB	0,0425299	ADA	0,0380428		4,03%	2	0,20%	3,83%	1,038286371	10383,70%
10,11%	0,00%	2,50%	0,00%	23,49%	50,00%	100,00%	XRP	0,2348768	BTC	0,1071059		17,10%	4	0,40%	16,70%	1,166991323	12134,39%
-2,43%	0,00%	-1,41%	0,00%	6,09%	50,00%	100,00%	XRP	0,0609458	BTC	0,0016076		3,13%	-	0,00%	3,13%	1,0312767	12517,04%
4,71%	50,00%	2,68%	50,00%	-2,35%	0,00%	100,00%	LTC	0,0471027	XLM	0,0268288		3,70%	4	0,40%	3,30%	1,032965766	12932,97%
-3,16%	0,00%	-1,91%	0,00%	-3,62%	0,00%	100,00%	DASH	0,0130299	DOGE	0		0,65%	4	0,40%	0,25%	1,002514974	12965,75%
-4,92%	0,00%	-4,11%	0,00%	-12,01%	0,00%	100,00%	BNB	0,0020265	DOGE	-0,0148367		-0,64%	2	0,20%	-0,84%	0,991594881	12855,93%
-0,31%	0,00%	-0,75%	0,00%	12,57%	50,00%	100,00%	XRP	0,1256922	BNB	0,0019393		6,38%	2	0,20%	6,18%	1,061815747	13656,81%
0,00%	0,00%	0,00%	0,00%	0,38%	50,00%	100,00%	DOGE	0,0150602	XRP	0,0037504		0,94%	2	0,20%	0,74%	1,007405313	13758,68%
-1,97%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	ETH	0,0420365	BNB	0,0099899		2,60%	4	0,40%	2,20%	1,022013232	14063,76%
5,77%	0,00%	3,23%	0,00%	4,39%	0,00%	100,00%	BTC	0,1059361	LINK	0,1045967		10,53%	4	0,40%	10,13%	1,101266358	15498,07%
-3,36%	0,00%	0,00%	0,00%	-3,47%	0,00%	100,00%	DASH	0,0438822	LINK	0,0023791		2,31%	2	0,20%	2,11%	1,02113069	15827,67%
-8,97%	0,00%	-7,82%	0,00%	-11,81%	0,00%	100,00%	DOGE	-0,0148367	ADA	-0,0399212		-2,74%	4	0,40%	-3,14%	0,968621046	15327,88%
-0,99%	0,00%	-1,16%	0,00%	3,28%	50,00%	100,00%	XRP	0,0328459	DASH	0,0125133		2,27%	4	0,40%	1,87%	1,018679626	15616,06%
-1,96%	0,00%	-0,80%	0,00%	8,83%	50,00%	100,00%	XRP	0,08833	LINK	0,0185491		5,34%	2	0,20%	5,14%	1,051439572	16424,49%
-0,82%	0,00%	-6,78%	0,00%	-8,79%	0,00%	100,00%	BNB	0,0615163	ADA	0		3,08%	4	0,40%	2,68%	1,026758149	16866,66%
-5,82%	0,00%	-2,64%	0,00%	-9,66%	0,00%	100,00%	DOGE	0,0067477	ETH	-0,0118117		-0,25%	4	0,40%	-0,65%	0,993467986	16755,83%
0,00%	0,00%	2,71%	0,00%	6,09%	50,00%	100,00%	XRP	0,0609159	DASH	0,0531404		5,70%	4	0,40%	5,30%	1,053028172	17649,66%
0,00%	50,00%	-2,99%	0,00%	-5,26%	0,00%	100,00%	BTC	0,0025579	LTC	0		0,13%	4	0,40%	-0,27%	0,997278962	17601,36%
0,00%	0,00%	0,37%	0,00%	0,00%	0,00%	100,00%	ADA	0,0183372	DOGE	0,0117628		1,50%	4	0,40%	1,10%	1,011049984	17796,96%
6,20%	0,00%	2,34%	0,00%	7,24%	50,00%	100,00%	ETH	0,0960257	XRP	0,072379		8,42%	4	0,40%	8,02%	1,080202354	19232,34%
-5,83%	0,00%	7,45%	50,00%	0,00%	0,00%	100,00%	XLM	0,0744773	BTC	0,0159306		4,52%	4	0,40%	4,12%	1,041203952	20028,91%
0,00%	0,00%	-1,82%	0,00%	-1,58%	0,00%	50,00%	DOGE	0	DOGE	0		0,00%	3	0,30%	-0,30%	0,997	19968,53%
6,72%	0,00%	4,82%	0,00%	4,94%	0,00%	100,00%	ADA	0,1779467	DASH	0,1360668		15,70%	3	0,30%	15,40%	1,154006762	23059,21%
0,00%	0,00%	4,92%	50,00%	-0,58%	0,00%	100,00%	BTC	0,1059837	XLM	0,0491515		7,76%	4	0,40%	7,36%	1,073567594	24762,98%
-0,24%	0,00%	-5,23%	0,00%	-3,20%	0,00%	100,00%	BNB	0,0346856	DOGE	0,0118683		2,33%	4	0,40%	1,93%	1,019276945	25242,26%
0,18%	50,00%	-1,95%	0,00%	-1,03%	0,00%	100,00%	LTC	0,001757	DOGE	0		0,09%	2	0,20%	-0,11%	0,998878491	25213,84%
-13,64%	0,00%	-6,91%	0,00%	-3,49%	0,00%	100,00%	DOGE	0,0067477	LINK	-0,0027705		0,20%	2	0,20%	0,00%	0,999988597	25213,55%

Figure 89: Dual momentum portfolio using gradient boosting regression - part 8

1.6.2.3 Naive portfolio

+2% winner & -2% loser

	ADA Returns	ADA Weight	BNB Returns	BNB Weight	BTC Returns	BTC Weight	DASH Returns	DASH Weight	DOGE Returns	DOGE Weight	ETH Returns	ETH Weight
		10%		10%		10%		10%		10%		10%
2021-10-04	-3,62%	8,00%	2,52%	12,00%	-0,44%	10,00%	-1,95%	10,00%	-3,41%	8,00%	-0,50%	10,00%
2021-10-05	0,00%	8,00%	-5,06%	10,00%	1,94%	12,00%	0,00%	10,00%	7,84%	10,00%	-4,39%	8,00%
2021-10-06	-0,36%	6,00%	8,22%	12,00%	5,96%	12,00%	4,62%	10,00%	3,12%	10,00%	7,70%	8,00%
2021-10-07	0,00%	6,00%	2,15%	12,00%	6,99%	14,00%	0,93%	10,00%	6,31%	12,00%	0,33%	8,00%
2021-10-08	1,23%	8,00%	-4,98%	10,00%	-2,80%	12,00%	0,18%	10,00%	-2,73%	12,00%	0,10%	8,00%
2021-10-09	0,06%	10,00%	-6,13%	8,00%	0,00%	14,00%	0,00%	10,00%	-2,87%	12,00%	-2,30%	8,00%
2021-10-10	-1,42%	8,00%	0,63%	8,00%	0,77%	14,00%	4,16%	12,00%	-2,81%	10,00%	0,00%	8,00%
2021-10-11	-0,38%	10,00%	-1,97%	8,00%	-1,86%	14,00%	-3,99%	10,00%	-0,54%	10,00%	-2,55%	8,00%
2021-10-12	0,45%	10,00%	1,85%	8,00%	5,36%	16,00%	0,17%	10,00%	0,00%	10,00%	6,51%	10,00%
2021-10-13	-0,92%	10,00%	6,83%	10,00%	0,05%	16,00%	-0,53%	10,00%	0,00%	10,00%	0,13%	12,00%
2021-10-14	-0,15%	10,00%	5,00%	12,00%	0,49%	16,00%	-0,11%	10,00%	0,00%	10,00%	-0,92%	10,00%
2021-10-15	0,06%	10,00%	0,69%	12,00%	-0,20%	14,00%	1,31%	10,00%	0,20%	10,00%	4,24%	12,00%
2021-10-16	0,60%	10,00%	2,98%	12,00%	3,63%	16,00%	3,16%	10,00%	0,00%	8,00%	0,27%	12,00%
2021-10-17	-0,87%	8,00%	-0,68%	12,00%	0,82%	18,00%	-1,17%	8,00%	-0,30%	8,00%	0,42%	14,00%
2021-10-18	-0,13%	8,00%	-1,06%	12,00%	2,65%	20,00%	-3,56%	8,00%	0,56%	8,00%	1,34%	14,00%
2021-10-19	-0,86%	8,00%	1,25%	14,00%	-0,84%	20,00%	-0,01%	8,00%	2,97%	10,00%	0,54%	14,00%
2021-10-20	0,22%	8,00%	0,23%	14,00%	0,45%	22,00%	4,48%	10,00%	-2,89%	8,00%	-2,60%	14,00%
2021-10-21	-0,46%	6,00%	0,78%	14,00%	1,60%	22,00%	5,57%	10,00%	2,97%	8,00%	-2,63%	12,00%
2021-10-22	0,83%	6,00%	-0,88%	14,00%	-1,79%	22,00%	-1,70%	10,00%	3,39%	10,00%	-7,69%	10,00%
2021-10-23	0,24%	8,00%	-0,13%	14,00%	-1,23%	22,00%	-0,22%	10,00%	-2,86%	10,00%	-7,99%	8,00%
2021-10-24	-0,69%	8,00%	0,08%	14,00%	-1,45%	22,00%	0,31%	10,00%	-1,55%	8,00%	-3,17%	6,00%
2021-10-25	-1,36%	6,00%	0,07%	14,00%	0,93%	22,00%	1,65%	10,00%	8,09%	10,00%	0,17%	6,00%
2021-10-26	0,62%	6,00%	-4,06%	12,00%	2,16%	22,00%	1,51%	10,00%	3,23%	10,00%	0,59%	6,00%
2021-10-27	1,13%	6,00%	0,69%	12,00%	-1,28%	22,00%	-1,64%	8,00%	0,90%	10,00%	-1,73%	4,00%
2021-10-28	-8,46%	6,00%	-3,65%	12,00%	-2,47%	22,00%	-13,09%	6,00%	-1,92%	12,00%	2,69%	6,00%
2021-10-29	1,26%	4,00%	0,94%	10,00%	2,40%	22,00%	5,15%	8,00%	3,26%	12,00%	3,45%	6,00%
2021-10-30	2,34%	4,00%	10,08%	12,00%	-1,18%	20,00%	0,26%	8,00%	-0,43%	12,00%	-4,84%	4,00%
2021-10-31	-4,41%	2,00%	0,53%	12,00%	2,26%	22,00%	0,18%	8,00%	-0,17%	12,00%	1,40%	4,00%
2021-11-01	-0,40%	0,00%	-0,24%	12,00%	-1,93%	20,00%	4,15%	10,00%	1,57%	12,00%	0,44%	4,00%
2021-11-02	0,00%	0,00%	3,51%	12,00%	0,48%	20,00%	-5,02%	8,00%	0,42%	12,00%	-1,82%	2,00%
2021-11-03	-0,74%	0,00%	-1,94%	10,00%	1,56%	20,00%	8,16%	10,00%	0,26%	12,00%	-0,13%	2,00%
2021-11-04	3,20%	2,00%	6,02%	12,00%	0,35%	20,00%	0,22%	10,00%	0,01%	10,00%	0,55%	2,00%
2021-11-05	-3,10%	2,00%	0,99%	14,00%	-1,84%	20,00%	0,01%	10,00%	0,34%	10,00%	0,85%	4,00%
2021-11-06	0,00%	2,00%	9,38%	16,00%	0,18%	20,00%	0,89%	10,00%	-0,34%	8,00%	0,00%	4,00%
2021-11-07	3,20%	4,00%	-0,89%	16,00%	1,01%	20,00%	-4,73%	8,00%	0,09%	8,00%	0,00%	4,00%
2021-11-08	1,32%	4,00%	3,38%	18,00%	1,10%	20,00%	1,41%	8,00%	0,00%	8,00%	-0,84%	2,00%

	LINK Returns	LINK Weight	LTC Returns	LTC Weight	XLM Returns	XLM Weight	XRP Returns	XRP Weight	sum of weights	MAX asset	MAX returns
		10%		10%		10%		10%		asset	returns
2021-10-04	-2,16%	10,00%	-0,16%	10,00%	-1,69%	10,00%	0,93%	12,00%	100,00%	BNB	0,0251865
2021-10-05	-3,98%	10,00%	-0,76%	10,00%	-3,36%	10,00%	-0,93%	12,00%	100,00%	DOGE	0,0784221
2021-10-06	8,12%	10,00%	8,30%	12,00%	7,88%	10,00%	1,57%	10,00%	100,00%	LTC	0,0829685
2021-10-07	-0,09%	8,00%	-3,14%	10,00%	5,57%	10,00%	1,38%	10,00%	100,00%	BTC	0,0698878
2021-10-08	0,00%	8,00%	0,97%	12,00%	0,00%	10,00%	-1,66%	10,00%	100,00%	ADA	0,0122744
2021-10-09	-4,77%	6,00%	-2,27%	12,00%	0,00%	10,00%	-3,19%	10,00%	100,00%	ADA	0,0005739
2021-10-10	5,01%	8,00%	1,72%	12,00%	1,30%	10,00%	3,27%	10,00%	100,00%	LINK	0,050096
2021-10-11	-6,52%	6,00%	-1,79%	12,00%	-0,49%	10,00%	3,60%	12,00%	100,00%	XRP	0,0359969
2021-10-12	-1,56%	4,00%	0,95%	12,00%	-0,35%	8,00%	3,28%	12,00%	100,00%	ETH	0,065119
2021-10-13	-1,72%	2,00%	-1,35%	10,00%	0,00%	8,00%	0,00%	12,00%	100,00%	BNB	0,0682586
2021-10-14	1,62%	4,00%	-0,52%	8,00%	0,00%	8,00%	-0,34%	12,00%	100,00%	BNB	0,0499565
2021-10-15	5,53%	6,00%	1,90%	8,00%	0,00%	8,00%	-3,94%	10,00%	100,00%	LINK	0,055272
2021-10-16	0,27%	6,00%	6,55%	10,00%	-0,35%	6,00%	0,00%	10,00%	100,00%	LTC	0,0655045
2021-10-17	0,09%	6,00%	0,16%	10,00%	-0,33%	6,00%	0,00%	10,00%	100,00%	BTC	0,0081837
2021-10-18	-4,03%	4,00%	-0,86%	10,00%	-5,34%	4,00%	3,32%	12,00%	100,00%	XRP	0,0332097
2021-10-19	-2,91%	2,00%	0,58%	10,00%	0,00%	4,00%	-6,59%	10,00%	100,00%	DOGE	0,0297087
2021-10-20	-0,48%	2,00%	-0,48%	10,00%	0,00%	4,00%	-2,66%	8,00%	100,00%	DASH	0,0447569
2021-10-21	7,90%	4,00%	9,99%	12,00%	6,01%	4,00%	0,00%	8,00%	100,00%	LTC	0,0999294
2021-10-22	2,05%	4,00%	-5,26%	10,00%	0,00%	4,00%	2,86%	10,00%	100,00%	DOGE	0,0339448
2021-10-23	1,01%	6,00%	-2,54%	10,00%	-0,13%	4,00%	-3,04%	8,00%	100,00%	LINK	0,0100698
2021-10-24	5,26%	8,00%	2,87%	12,00%	0,13%	4,00%	0,59%	8,00%	100,00%	LINK	0,0526285
2021-10-25	0,97%	8,00%	-2,61%	10,00%	1,87%	6,00%	-0,24%	8,00%	100,00%	DOGE	0,0808613
2021-10-26	6,78%	10,00%	3,24%	12,00%	-2,17%	4,00%	0,24%	8,00%	100,00%	LINK	0,0677792
2021-10-27	1,71%	12,00%	3,87%	14,00%	0,00%	4,00%	0,00%	8,00%	100,00%	LTC	0,0386944
2021-10-28	-10,25%	12,00%	-13,00%	12,00%	-12,01%	4,00%	-5,72%	8,00%	100,00%	ETH	0,0268954
2021-10-29	4,88%	12,00%	4,99%	12,00%	6,61%	6,00%	4,83%	8,00%	100,00%	XLM	0,0661355
2021-10-30	-1,06%	12,00%	3,96%	12,00%	6,32%	8,00%	0,57%	8,00%	100,00%	BNB	0,100766
2021-10-31	-1,35%	12,00%	-2,63%	10,00%	1,59%	10,00%	0,00%	8,00%	100,00%	BTC	0,0225762
2021-11-01	1,09%	12,00%	0,36%	10,00%	6,30%	12,00%	0,59%	8,00%	100,00%	XLM	0,0630081
2021-11-02	5,05%	14,00%	6,78%	12,00%	3,17%	12,00%	1,43%	8,00%	100,00%	LTC	0,0678126
2021-11-03	0,81%	14,00%	1,40%	12,00%	6,33%	14,00%	-1,39%	6,00%	100,00%	DASH	0,0816293
2021-11-04	-0,86%	12,00%	0,40%	12,00%	2,38%	14,00%	2,82%	6,00%	100,00%	BNB	0,0602316
2021-11-05	-3,22%	10,00%	0,79%	12,00%	-4,07%	12,00%	0,81%	6,00%	100,00%	BNB	0,0099067
2021-11-06	6,19%	12,00%	-2,38%	10,00%	4,78%	12,00%	4,06%	6,00%	100,00%	BNB	0,0938345
2021-11-07	-3,43%	10,00%	-0,37%	10,00%	2,10%	14,00%	0,00%	6,00%	100,00%	ADA	0,0320273
2021-11-08	4,28%	12,00%	1,10%	10,00%	-0,78%	12,00%	2,35%	6,00%	100,00%	LINK	0,0427971

Figure 90: Naive portfolio using gradient boosting regression - part 1

2e MAX asset	2e MAX returns	MIN asset	MIN returns	2e MIN asset	2e MIN returns	3e MIN asset	3e MIN returns	4e MIN asset	4e MIN returns	5e MIN asset	5e MIN returns	Portfolio returns without transac. Cost	Number of transactions	Transaction cost	Portfolio returns with transac. cost	1+r	Cumulative return
asset	returns	asset	returns	asset	returns	asset	returns	asset	returns	asset	returns						
XRP	0,0092988	ADA	-0,0361937	DOGE	-0,0340547	LINK	-0,0215548	DASH	-0,0194604	XLM	-0,0169214	-0,0083701	4	0,4%	-1,2%	0,9876299	-1,24%
BTC	0,019355	BNB	-0,050643	ETH	-0,0439039	LINK	-0,039823	XLM	-0,0335779	XRP	-0,0093060	-0,0076244	4	0,4%	-1,2%	0,9883756	-2,39%
BNB	0,0821884	ADA	-0,0036108	XRP	0,0156706	DOGE	0,0311783	DASH	0,0462108	BTC	0,0596247	0,0582262	4	0,4%	5,4%	1,0542262	2,91%
DOGE	0,0630564	LTC	-0,0314342	LINK	-0,0008621	ADA	0	ETH	0,0033236	DASH	0,0093434	0,0248639	4	0,4%	2,1%	1,0208639	5,06%
LTC	0,0096714	BNB	-0,0497638	BTC	-0,0279937	DOGE	-0,0272526	XRP	-0,0166133	LINK	0,0000000	-0,0108665	4	0,4%	-1,5%	0,9851335	3,49%
BTC	0	BNB	-0,0612578	LINK	-0,0477061	XRP	-0,0318777	DOGE	-0,0287446	ETH	-0,0229595	-0,0189078	4	0,4%	-2,3%	0,9770922	1,12%
DASH	0,0415545	DOGE	-0,0281474	ADA	-0,0142471	ETH	0	BNB	0,0063299	BTC	0,0077447	0,0132566	4	0,4%	0,9%	1,0092566	2,06%
ADA	-0,0038174	LINK	-0,0651506	DASH	-0,0398966	ETH	-0,0255348	BNB	-0,0196758	BTC	-0,0186463	-0,0133655	4	0,4%	-1,7%	0,9826345	0,29%
BTC	0,053626	LINK	-0,0156034	XLM	-0,0034709	DOGE	0	DASH	0,0016896	ADA	0,0044804	0,0213629	4	0,4%	1,7%	1,0173629	2,03%
ETH	0,0013343	LINK	-0,0171726	LTC	-0,0135372	ADA	-0,0091734	DASH	-0,0052737	DOGE	0,0000000	0,003926	4	0,4%	0,0%	0,999926	2,02%
LINK	0,0162456	ETH	-0,0092	LTC	-0,0051676	XRP	-0,0034365	ADA	-0,0014882	DASH	-0,0011271	0,0054241	4	0,4%	0,1%	1,0014241	2,17%
ETH	0,0423745	XRP	-0,0394218	BTC	-0,0020223	XLM	0	ADA	0,0005885	DOGE	0,0019798	0,0080911	4	0,4%	0,4%	1,0040911	2,58%
BTC	0,036349	XLM	-0,0034626	DOGE	0	DOGE	0	ETH	0,0026766	LINK	0,0027436	0,0199815	4	0,4%	1,6%	1,0159815	4,22%
ETH	0,0042433	DASH	-0,0116842	ADA	-0,0087155	BNB	-0,0068374	XLM	-0,0032662	DOGE	-0,0030450	-0,0006151	4	0,4%	-0,5%	0,9953849	3,74%
BTC	0,0264927	XLM	-0,0534447	LINK	-0,0402738	DASH	-0,0355506	BNB	-0,0105764	LTC	-0,0085865	0,0027888	4	0,4%	-0,1%	0,9987888	3,62%
BNB	0,0125039	XRP	-0,0659072	LINK	-0,0290865	ADA	-0,0085914	BTC	-0,0083801	DASH	-0,0001247	-0,0034869	4	0,4%	-0,7%	0,9925131	2,84%
BTC	0,0044813	DOGE	-0,0288516	XRP	-0,0265592	ETH	-0,025968	LINK	-0,004807	LTC	-0,0047805	-0,0026853	4	0,4%	-0,7%	0,9933147	2,15%
LINK	0,0789508	ETH	-0,0262835	ADA	-0,004556	XRP	0	BNB	0,007818	BTC	0,0159657	0,0266782	4	0,4%	2,3%	1,0226782	4,47%
XRP	0,0286214	ETH	-0,0768987	LTC	-0,0526479	BTC	-0,017935	DASH	-0,0170188	BNB	-0,0088447	-0,0122659	4	0,4%	-1,6%	0,9837341	2,77%
ADA	0,0023965	ETH	-0,0798545	XRP	-0,030412	DOGE	-0,0286299	LTC	-0,0253845	BTC	-0,0123279	-0,0165956	4	0,4%	-2,1%	0,9794044	0,65%
LTC	0,0286919	ETH	-0,0317454	DOGE	-0,015526	BTC	-0,0144959	ADA	-0,0069191	BNB	0,0008039	0,0017057	4	0,4%	-0,2%	0,9977057	0,42%
XLM	0,0186579	LTC	-0,0260711	ADA	-0,0136426	XRP	-0,0024203	BNB	0,0007014	ETH	0,0016678	0,0102576	4	0,4%	0,6%	1,0062576	1,05%
LTC	0,0323762	BNB	-0,0406168	XLM	-0,0217264	XRP	0,0024262	ETH	0,0058877	ADA	0,0061979	0,0153297	4	0,4%	1,1%	1,0113297	2,20%
LINK	0,0170854	ETH	-0,0172783	DASH	-0,016386	BTC	-0,0128208	XLM	0	XLM	0,0000000	0,005054	4	0,4%	0,1%	1,001054	2,30%
DOGE	-0,0192005	DASH	-0,130872	LTC	-0,130032	XLM	-0,120138	LINK	-0,1024981	ADA	-0,0846152	-0,0607212	4	0,4%	-6,5%	0,9352788	-4,32%
DASH	0,0514849	BNB	0,0094416	ADA	0,0126138	BTC	0,0239531	DOGE	0,0325895	ETH	0,0344532	0,0364941	4	0,4%	3,2%	1,0324941	-1,21%
XLM	0,0631591	ETH	-0,0483615	BTC	-0,0118071	LINK	-0,010643	DOGE	-0,0043166	DASH	0,0025937	0,0174065	4	0,4%	1,3%	1,0134065	0,12%
XLM	0,0159366	ADA	-0,0441445	LTC	-0,0263099	LINK	-0,0135335	DOGE	-0,0017036	XRP	0,0000000	0,0025566	4	0,4%	-0,1%	0,9985566	-0,03%
DASH	0,0414655	BTC	-0,0193241	ADA	-0,0039795	BNB	-0,002449	LTC	0,0036382	ETH	0,0043835	0,0117585	4	0,4%	0,8%	1,0077585	0,75%
LINK	0,0504776	DASH	-0,0501623	ETH	-0,0182457	ADA	0	DOGE	0,004176	BTC	0,0048367	0,0214516	4	0,4%	1,7%	1,0174516	2,51%
XLM	0,0632636	BNB	-0,0193993	XRP	-0,013938	ADA	-0,0074192	ETH	-0,0013172	DOGE	0,0025807	0,0204674	4	0,4%	1,6%	1,0164674	4,19%
ADA	0,0320273	LINK	-0,0085906	DOGE	6,208E-05	DASH	0,0022094	BTC	0,003461	LTC	0,0039677	0,0133642	4	0,4%	0,9%	1,0093642	5,17%
ETH	0,0085009	XLM	-0,0407251	LINK	-0,0321551	ADA	-0,0310334	BTC	-0,0184112	DASH	0,0001150	-0,0088928	4	0,4%	-1,3%	0,9871072	3,81%
LINK	0,0619128	LTC	-0,0237861	DOGE	-0,0034294	ADA	0	ADA	0	BTC	0,0017590	0,0292052	4	0,4%	2,5%	1,0252052	6,43%
XLM	0,0210262	DASH	-0,0473029	LINK	-0,0343461	BNB	-0,008873	LTC	-0,0037152	ETH	0,0000000	-0,0026959	4	0,4%	-0,7%	0,9933041	5,72%
BNB	0,0338066	ETH	-0,0084292	XLM	-0,007841	DOGE	0	LTC	0,011039	BTC	0,0110427	0,0164919	4	0,4%	1,2%	1,0124919	7,04%

Naive portfolio	
Avg return	-0,407%
Volatility	0,0297128
Sharpe ratio	-0,1370858

Figure 91: Naive portfolio using gradient boosting regression - part 2

2021-11-09	4,51%	4,00%	3,36%	18,00%	-0,71%	18,00%	8,04%	10,00%	0,00%	6,00%	0,94%	2,00%	0,09%	12,00%	8,79%	12,00%	0,10%	12,00%	1,85%	6,00%	100,00%	LTC	0,0878976
2021-11-10	0,83%	4,00%	3,38%	18,00%	-0,28%	16,00%	12,63%	12,00%	0,00%	6,00%	-0,20%	2,00%	1,14%	12,00%	14,32%	14,00%	-3,93%	10,00%	2,91%	6,00%	100,00%	LTC	0,1432043
2021-11-11	-0,88%	4,00%	-1,66%	18,00%	-0,24%	16,00%	-4,61%	10,00%	-1,55%	6,00%	-0,90%	2,00%	2,29%	14,00%	1,61%	16,00%	-4,32%	10,00%	-6,29%	4,00%	100,00%	LINK	0,0229357
2021-11-12	-5,59%	2,00%	-0,37%	18,00%	-0,03%	16,00%	2,77%	12,00%	0,00%	6,00%	-0,17%	2,00%	-1,23%	14,00%	1,16%	16,00%	-1,65%	8,00%	7,97%	6,00%	100,00%	XRP	0,0797065
2021-11-13	1,66%	4,00%	-2,35%	18,00%	-5,17%	14,00%	-2,64%	12,00%	-3,93%	6,00%	0,00%	2,00%	1,47%	14,00%	1,85%	18,00%	-1,53%	8,00%	-4,13%	4,00%	100,00%	LTC	0,0184682
2021-11-14	-0,26%	4,00%	-0,11%	18,00%	-0,57%	14,00%	3,42%	14,00%	1,34%	8,00%	0,00%	2,00%	-0,30%	14,00%	-1,48%	16,00%	0,00%	8,00%	-1,24%	2,00%	100,00%	DASH	0,0342173
2021-11-15	1,89%	4,00%	-1,05%	16,00%	3,82%	16,00%	-0,13%	12,00%	0,08%	8,00%	0,00%	2,00%	-0,12%	14,00%	7,66%	18,00%	0,00%	8,00%	0,60%	2,00%	100,00%	LTC	0,0765849
2021-11-16	-0,09%	4,00%	2,41%	18,00%	-1,69%	16,00%	0,13%	12,00%	-0,26%	8,00%	1,60%	4,00%	-3,24%	12,00%	-8,20%	16,00%	0,71%	8,00%	-1,02%	2,00%	100,00%	BNB	0,024089
2021-11-17	-6,98%	4,00%	-5,20%	18,00%	-0,96%	18,00%	-10,69%	10,00%	-1,97%	8,00%	-0,24%	6,00%	-9,96%	12,00%	-13,30%	14,00%	-7,95%	8,00%	-2,28%	2,00%	100,00%	ETH	-0,0023955
2021-11-18	0,00%	4,00%	-1,61%	18,00%	2,59%	18,00%	-11,18%	8,00%	-8,23%	6,00%	-0,57%	6,00%	3,05%	14,00%	0,52%	14,00%	5,49%	10,00%	-5,39%	2,00%	100,00%	XLM	0,0548639
2021-11-19	-9,02%	4,00%	-8,95%	18,00%	-4,11%	18,00%	-4,84%	8,00%	-10,48%	4,00%	0,27%	8,00%	-9,81%	14,00%	-9,32%	14,00%	-10,18%	8,00%	-1,77%	4,00%	100,00%	ETH	0,0026942
2021-11-20	10,37%	6,00%	-0,08%	16,00%	1,54%	18,00%	4,96%	8,00%	10,04%	6,00%	2,77%	8,00%	5,36%	14,00%	0,46%	12,00%	4,07%	8,00%	2,18%	4,00%	100,00%	ADA	0,1036619
2021-11-21	2,63%	6,00%	-0,35%	14,00%	2,82%	18,00%	4,72%	10,00%	0,00%	6,00%	-2,91%	6,00%	0,24%	14,00%	8,26%	14,00%	0,00%	8,00%	0,00%	4,00%	100,00%	LTC	0,0825935
2021-11-22	-3,29%	4,00%	-1,14%	14,00%	-0,63%	18,00%	4,50%	12,00%	-9,26%	4,00%	2,96%	8,00%	-0,30%	14,00%	0,68%	14,00%	0,00%	8,00%	-0,85%	4,00%	100,00%	DASH	0,0450294
2021-11-23	-10,72%	2,00%	-3,25%	14,00%	-2,10%	18,00%	-1,57%	12,00%	0,00%	6,00%	-2,18%	8,00%	-0,59%	14,00%	-6,42%	12,00%	-0,08%	10,00%	-1,06%	4,00%	100,00%	DOGE	0
2021-11-24	-0,14%	2,00%	-0,13%	14,00%	-1,75%	16,00%	-7,86%	10,00%	1,23%	6,00%	1,51%	10,00%	-0,12%	14,00%	-0,28%	12,00%	-0,04%	10,00%	1,48%	6,00%	100,00%	ETH	0,0150523
2021-11-25	1,79%	4,00%	-0,54%	14,00%	-0,88%	16,00%	4,20%	12,00%	-1,21%	6,00%	-2,60%	10,00%	-7,06%	12,00%	-0,33%	12,00%	-4,94%	8,00%	-1,46%	6,00%	100,00%	DASH	0,0419938
2021-11-26	0,00%	2,00%	4,09%	16,00%	3,94%	16,00%	5,81%	14,00%	-0,61%	4,00%	2,29%	10,00%	0,00%	12,00%	0,61%	12,00%	0,00%	8,00%	0,00%	6,00%	100,00%	DASH	0,0581296
2021-11-27	-7,66%	2,00%	-3,52%	16,00%	-4,50%	16,00%	-8,20%	12,00%	-1,18%	6,00%	-0,95%	12,00%	-2,26%	12,00%	-7,10%	12,00%	-3,71%	8,00%	-10,18%	4,00%	100,00%	ETH	-0,0095222
2021-11-28	0,97%	2,00%	-3,96%	14,00%	0,08%	16,00%	-0,35%	12,00%	1,37%	8,00%	0,05%	12,00%	-4,34%	10,00%	-0,10%	12,00%	2,92%	10,00%	-0,58%	4,00%	100,00%	XLM	0,0292192
2021-11-29	5,72%	4,00%	3,50%	16,00%	1,92%	16,00%	-5,76%	10,00%	-0,17%	8,00%	-0,31%	10,00%	2,35%	10,00%	2,78%	12,00%	0,90%	10,00%	2,55%	4,00%	100,00%	ADA	0,0572479
2021-11-30	-1,34%	2,00%	0,00%	16,00%	-1,17%	14,00%	4,96%	12,00%	-0,14%	8,00%	-0,79%	10,00%	-0,07%	10,00%	1,22%	12,00%	5,56%	12,00%	0,29%	4,00%	100,00%	XLM	0,0556349
2021-12-01	0,00%	2,00%	1,52%	18,00%	-0,72%	12,00%	-3,94%	10,00%	0,00%	8,00%	1,62%	12,00%	0,62%	10,00%	0,04%	12,00%	0,00%	12,00%	-0,08%	4,00%	100,00%	ETH	0,0161552
2021-12-02	-5,49%	0,00%	4,90%	20,00%	0,18%	12,00%	-0,98%	10,00%	0,00%	8,00%	1,45%	12,00%	0,22%	10,00%	2,00%	14,00%	-5,32%	10,00%	-0,12%	4,00%	100,00%	BNB	0,0489925
2021-12-03	3,41%	2,00%	2,20%	22,00%	0,19%	12,00%	-0,06%	10,00%	0,00%	8,00%	-1,32%	10,00%	-1,01%	10,00%	-1,02%	12,00%	-0,09%	10,00%	-0,29%	4,00%	100,00%	ADA	0,0341331
2021-12-04	1,84%	4,00%	-8,00%	20,00%	-3,81%	12,00%	-5,86%	10,00%	-4,16%	8,00%	-0,65%	12,00%	-7,70%	10,00%	-10,48%	10,00%	-3,71%	10,00%	-3,88%	4,00%	100,00%	ADA	0,0183669
2021-12-05	-13,65%	2,00%	-4,66%	20,00%	-5,36%	12,00%	-10,72%	10,00%	-7,15%	8,00%	-1,31%	14,00%	-3,35%	12,00%	-9,96%	10,00%	-17,50%	8,00%	-7,57%	4,00%	100,00%	ETH	-0,0131364
2021-12-06	-6,20%	2,00%	-6,16%	20,00%	-0,35%	14,00%	-9,56%	8,00%	-5,21%	8,00%	0,41%	16,00%	-9,15%	10,00%	-5,34%	10,00%	-0,90%	8,00%	-0,72%	4,00%	100,00%	ETH	0,0041112
2021-12-07	3,42%	2,00%	0,07%	20,00%	0,80%	14,00%	4,11%	8,00%	4,52%	10,00%	0,59%	16,00%	-0,46%	8,00%	4,84%	12,00%	0,00%	8,00%	-1,38%	2,00%	100,00%	LTC	0,0484026
2021-12-08	-4,53%	0,00%	-1,86%	18,00%	0,32%	14,00%	5,41%	8,00%	0,00%	10,00%	0,51%	16,00%	6,66%	10,00%	0,69%	12,00%	6,88%	10,00%	-0,14%	2,00%	100,00%	XLM	0,0687555
2021-12-09	5,91%	2,00%	9,87%	20,00%	-0,07%	12,00%	0,00%	8,00%	0,00%	10,00%	0,79%	16,00%	-0,37%	8,00%	0,42%	12,00%	0,41%	10,00%	3,83%	2,00%	100,00%	BNB	0,0987473
2021-12-10	-7,45%	0,00%	-8,34%	18,00%	-3,55%	12,00%	-6,52%	8,00%	-5,42%	10,00%	0,66%	18,00%	-3,04%	8,00%	-1,61%	12,00%	-6,56%	10,00%	0,35%	4,00%	100,00%	ETH	0,0065554
2021-12-11	-5,76%	0,00%	1,99%	20,00%	-2,85%	12,00%	-1,57%	8,00%	0,70%	12,00%	-2,07%	18,00%	-11,27%	6,00%	-5,40%	12,00%	0,00%	10,00%	-4,06%	4,00%	102,00%	BNB	0,0199357
2021-12-12	8,51%	0,00%	-2,84%	18,00%	5,43%	12,00%	7,31%	8,00%	0,00%	10,00%	4,45%	18,00%	9,79%	8,00%	8,71%	14,00%	0,00%	8,00%	0,74%	4,00%	100,00%	LINK	0,0978517
2021-12-13	-1,03%	0,00%	-0,01%	18,00%	1,00%	14,00%	1,16%	10,00%	0,00%	10,00%	-4,79%	16,00%	0,53%	8,00%	0,15%	14,00%	0,00%	8,00%	-0,36%	2,00%	100,00%	DASH	0,0115611
2021-12-14	-7,47%	0,00%	-8,19%	18,00%	-4,84%	14,00%	-10,85%	8,00%	0,81%	12,00%	-0,41%	18,00%	-9,73%	8,00%	-10,04%	12,00%	-4,44%	8,00%	-9,07%	2,00%	100,00%	DOGE	0,008097
2021-12-15	-0,73%	0,00%	-0,28%	18,00%	-2,06%	12,00%	-1,28%	8,00%	2,35%	12,00%	7,60%	20,00%	-6,79%	6,00%	-1,28%	12,00%	-1,22%	8,00%	9,57%	4,00%	100,00%	XRP	0,0956859
2021-12-16	8,44%	2,00%	6,92%	18,00%	4,54%	12,00%	2,47%	8,00%	5,59%	12,00%	-3,76%	18,00%	9,53%	8,00%	2,48%	12,00%	4,33%	8,00%	-0,92%	2,00%	100,00%	LINK	0,0953116
2021-12-17	-2,88%	2,00%	-3,41%	18,00%	-6,45%	10,00%	-2,77%	8,00%	-9,21%	10,00%	-1,81%	20,00%	-2,07%	8,00%	-1,09%	14,00%	-2,97%	8,00%	-1,83%	2,00%	100,00%	LTC	-0,0108878
2021-12-18	-5,20%	0,00%	13,23%	20,00%	-4,50%	8,00%	0,00%	8,00%	-0,36%	10,00%	0,27%	20,00%	0,00%	8,00%	-1,35%	14,00%	4,65%	10,00%	0,37%	2,00%	100,00%	BNB	0,1322746
2021-12-19	5,21%	2,00%	-0,71%	18,00%	5,76%	10,00%	0,60%	8,00%	-1,16%	8,00%	4,48%	20,00%	2,23%	8,00%	1,49%	14,00%	0,00%	10,00%	0,00%	2,00%	100,00%	BTC	0,0576196
2021-12-20	0,00%	2,00%	-2,57%	16,00%	-0,02%	10,00%	-0,69%	8,00%	0,00%	8,00%	-6,37%	18,00%	-2,18%	8,00%	1,33%	16,00%	-0,44%	10,00%	0,76%	4,00%	100,00%	LTC	0,0132894
2021-12-21	0,00%	2,00%	3,08%	16,00%	-0,42%	8,00%	0,00%	8,00%	0,00%	8,00%	6,30%	20,00%	0,00%	8,00%	0,27%	16,00%	-4,46%	8,00%	6,21%	6,00%	100,00%	ETH	0,0630289
2021-12-22	1,62%	2,00%	0,53%	16,00%	5,26%	10,00%	2,62%	8,00%	0,00%	8,00%	-1,32%	18,00%	2,10%	8,00%	-1,31%	14,00%	3,44%	10,00%	2,21%	6,00%	100,00%	BTC	0,0525686
2021-12-23	0,40%	2,00%	-0,86%	14,00%	2,20%	10,00%	2,33%	8,00%	-0,68%	8,00%	-5,13%	16,00%	9,77%	10,00%	0,90%	14,00%	1,18%	10,00%	4,38%	8,00%	100,00%	LINK	0,0977331

Figure 92: Naive portfolio using gradient boosting regression - part 3

DASH	0,0804087	BTC	-0,007114	DOGE	0	LINK	0,0008958	XLM	0,001045	ETH	0,0094318		0,0266822	4	0,4%	2,3%	1,0226822	9,47%
DASH	0,1263044	XLM	-0,0393091	BTC	-0,0028008	ETH	-0,0020162	DOGE	0	ADA	0,0082751		0,0403121	4	0,4%	3,6%	1,0363121	13,44%
LTC	0,0161376	XRP	-0,0628934	DASH	-0,0460727	XLM	-0,0432223	BNB	-0,0166453	DOGE	-0,0155374		-0,0104912	4	0,4%	-1,4%	0,9855088	11,80%
DASH	0,0276771	ADA	-0,0558709	XLM	-0,0164653	LINK	-0,0123362	BNB	-0,0037183	ETH	-0,0016605		0,0050525	4	0,4%	0,1%	1,0010525	11,91%
ADA	0,0166104	BTC	-0,051657	XRP	-0,0412786	DOGE	-0,0393323	DASH	-0,026446	BNB	-0,0235000		-0,0138268	4	0,4%	-1,8%	0,9821732	9,92%
DOGE	0,0134011	LTC	-0,0148181	XRP	-0,0124326	BTC	-0,0056644	LINK	-0,0030092	ADA	-0,0025523		0,0017282	4	0,4%	-0,2%	0,9977282	9,67%
BTC	0,0381986	BNB	-0,0105404	DASH	-0,0013246	LINK	-0,0011896	ETH	0	ETH	0,0000000		0,0188238	4	0,4%	1,5%	1,0148238	11,30%
ETH	0,0159803	LTC	-0,0820284	LINK	-0,0324249	BTC	-0,0169463	XRP	-0,010212	DOGE	-0,0025901		-0,0144729	4	0,4%	-1,8%	0,9815271	9,24%
BTC	-0,0096315	LTC	-0,1330034	DASH	-0,1069287	LINK	-0,0996284	XLM	-0,0794933	ADA	-0,0697962		-0,0636973	4	0,4%	-6,8%	0,9323027	1,84%
LINK	0,0304924	DASH	-0,1117727	DOGE	-0,0822582	XRP	-0,053885	BNB	-0,01611	ETH	-0,0056957		-0,0030463	4	0,4%	-0,7%	0,9929537	1,13%
XRP	-0,0176992	DOGE	-0,1048098	XLM	-0,1018044	LINK	-0,0981184	LTC	-0,0932001	ADA	-0,0902203		-0,070606	4	0,4%	-7,5%	0,925394	-6,42%
DOGE	0,1003749	BNB	-0,0007973	LTC	0,0046472	BTC	0,0153598	XRP	0,0218184	ETH	0,0277264		0,0332535	4	0,4%	2,9%	1,0292535	-3,68%
DASH	0,0472257	ETH	-0,0290764	BNB	-0,0035156	DOGE	0	DOGE	0	DOGE	0,0000000		0,021048	4	0,4%	1,7%	1,017048	-2,04%
ETH	0,0296015	DOGE	-0,0925527	ADA	-0,0328761	BNB	-0,0114339	XRP	-0,0084514	BTC	-0,0062693		0,000219	4	0,4%	-0,4%	0,996219	-2,41%
XLM	-0,000812	ADA	-0,1072013	LTC	-0,0641625	BNB	-0,0325419	ETH	-0,0218201	BTC	-0,0209862		-0,023134	4	0,4%	-2,7%	0,972866	-5,06%
XRP	0,0148354	DASH	-0,0786021	BTC	-0,0174735	LTC	-0,0027964	ADA	-0,0014043	BNB	-0,0012564		-0,0082782	4	0,4%	-1,2%	0,9877218	-6,22%
ADA	0,0178668	LINK	-0,0706169	XLM	-0,0493777	ETH	-0,0260119	XRP	-0,0146186	DOGE	-0,0121133		-0,0134397	4	0,4%	-1,7%	0,9825603	-7,86%
BNB	0,0408693	DOGE	-0,0061006	ADA	0	ADA	0	ADA	0	ADA	0,0000000		0,0237575	4	0,4%	2,0%	1,0197575	-6,04%
DOGE	-0,0117795	XRP	-0,1018077	DASH	-0,0820148	ADA	-0,0765722	LTC	-0,0710132	BTC	-0,0450076		-0,0443247	4	0,4%	-4,8%	0,9516753	-10,58%
DOGE	0,0136737	LINK	-0,0433707	BNB	-0,0396033	XRP	-0,0057602	DASH	-0,0034867	LTC	-0,0009993		-0,0062609	4	0,4%	-1,0%	0,9897391	-11,50%
BNB	0,0349603	DASH	-0,0576046	ETH	-0,0030787	DOGE	-0,0017302	XLM	0,0090073	BTC	0,0191643		0,0123485	4	0,4%	0,8%	1,0083485	-10,76%
DASH	0,0495507	ADA	-0,0133768	BTC	-0,0116897	ETH	-0,0078766	DOGE	-0,001436	LINK	-0,0006567		0,0113302	4	0,4%	0,7%	1,0073302	-10,10%
BNB	0,0151584	DASH	-0,039424	BTC	-0,0072013	XRP	-0,0007608	ADA	0	ADA	0,0000000		0,0004998	4	0,4%	-0,4%	0,9964998	-10,42%
LTC	0,0199873	ADA	-0,0548822	XLM	-0,0531508	DASH	-0,0097941	XRP	-0,0012251	DOGE	0,0000000		0,0084194	4	0,4%	0,4%	1,0044194	-10,02%
BNB	0,0220436	ETH	-0,0131504	LTC	-0,0102053	LINK	-0,0101417	XRP	-0,0029392	XLM	-0,0008556		0,0019355	4	0,4%	-0,2%	0,9979355	-10,21%
ETH	-0,0065285	LTC	-0,1047733	BNB	-0,0799962	LINK	-0,0770044	DASH	-0,058629	DOGE	-0,0416490		-0,0532509	4	0,4%	-5,7%	0,9427491	-15,35%
LINK	-0,0335179	XLM	-0,1749619	ADA	-0,1364653	DASH	-0,1072077	LTC	-0,0995917	XRP	-0,0757355		-0,0677713	4	0,4%	-7,2%	0,9282287	-21,42%
BTC	-0,003522	DASH	-0,0955616	LINK	-0,0914509	ADA	-0,06197	BNB	-0,0616407	LTC	-0,0533729		-0,0407042	4	0,4%	-4,5%	0,9552958	-24,94%
DOGE	0,0452343	XRP	-0,0137615	LINK	-0,0045706	XLM	0	BNB	0,0007072	ETH	0,0058605		0,0158577	4	0,4%	1,2%	1,0118577	-24,05%
LINK	0,0665591	ADA	-0,0453111	BNB	-0,0185752	XRP	-0,0014143	DOGE	0	BTC	0,0031914		0,0165795	4	0,4%	1,3%	1,0125795	-23,09%
ADA	0,0590741	LINK	-0,0036836	BTC	-0,0007438	DASH	0	DASH	0	XLM	0,0040940		0,0234868	4	0,4%	1,9%	1,0194868	-21,59%
XRP	0,0034933	BNB	-0,0834434	ADA	-0,0745212	XLM	-0,0656442	DASH	-0,0651777	DOGE	-0,0541904		-0,0395137	4	0,4%	-4,4%	0,9564863	-25,00%
DOGE	0,0070434	LINK	-0,1126883	ADA	-0,0576442	LTC	-0,0539867	XRP	-0,0406147	BTC	-0,0284946		-0,0184449	3	0,3%	-2,1%	0,9785551	-26,61%
LTC	0,0870994	BNB	-0,0284134	DOGE	0	DOGE	0	XRP	0,0073871	ETH	0,0444926		0,0355784	5	0,5%	3,1%	1,0305784	-24,37%
BTC	0,009964	ETH	-0,0479496	ADA	-0,0103051	XRP	-0,003602	BNB	-0,0001441	DOGE	0,0000000		-0,0045782	4	0,4%	-0,9%	0,9914218	-25,02%
ETH	-0,0041228	DASH	-0,1084595	LTC	-0,1004201	LINK	-0,0973445	XRP	-0,0907471	BNB	-0,0818907		-0,0551722	4	0,4%	-5,9%	0,9408278	-29,45%
ETH	0,0760241	LINK	-0,0678804	BTC	-0,0206135	DASH	-0,0128193	LTC	-0,0127734	XLM	-0,0121653		0,0112716	4	0,4%	0,7%	1,0072716	-28,94%
ADA	0,084449	ETH	-0,0376182	XRP	-0,0092022	DASH	0,0247472	LTC	0,0248047	XLM	0,0432588		0,035385	4	0,4%	3,1%	1,031385	-26,71%
ETH	-0,0181417	DOGE	-0,0920641	BTC	-0,0644898	BNB	-0,034146	XLM	-0,0296606	ADA	-0,0288086		-0,0341408	4	0,4%	-3,8%	0,9618592	-29,51%
XLM	0,0464537	ADA	-0,0520434	BTC	-0,0450105	LTC	-0,0134632	DOGE	-0,0036055	DASH	0,0000000		0,0258763	4	0,4%	2,2%	1,0218763	-27,96%
ADA	0,0521074	DOGE	-0,011626	BNB	-0,0070867	XLM	0	XLM	0	DASH	0,0060145		0,0179119	4	0,4%	1,4%	1,0139119	-26,96%
XRP	0,0075665	ETH	-0,0636567	BNB	-0,0256767	LINK	-0,0217734	DASH	-0,0068586	XLM	-0,0043638		-0,0158814	4	0,4%	-2,0%	0,9801186	-28,41%
XRP	0,0621357	XLM	-0,0445861	BTC	-0,0042253	ADA	0	ADA	0	ADA	0,0000000		0,0177945	4	0,4%	1,4%	1,0137945	-27,43%
XLM	0,0344456	ETH	-0,013169	LTC	-0,0131157	DOGE	0	BNB	0,0053291	ADA	0,0162249		0,0107732	4	0,4%	0,7%	1,0067732	-26,93%
XRP	0,0438401	ETH	-0,0512711	BNB	-0,0086054	DOGE	-0,0067671	ADA	0,0040397	LTC	0,0090435		0,0099218	4	0,4%	0,6%	1,0059218	-26,50%

Figure 93: Naive portfolio using gradient boosting regression - part 4

2021-12-24	12,05%	4,00%	2,73%	14,00%	-1,60%	8,00%	7,69%	8,00%	13,03%	10,00%	1,16%	14,00%	1,48%	10,00%	6,50%	14,00%	7,17%	10,00%	2,09%	8,00%	100,00%	DOGE	0,1302577
2021-12-25	-5,14%	2,00%	-1,85%	14,00%	2,10%	10,00%	1,48%	8,00%	-0,19%	10,00%	0,21%	14,00%	1,55%	12,00%	0,92%	14,00%	-6,58%	8,00%	-4,53%	8,00%	100,00%	BTC	0,0209735
2021-12-26	0,86%	2,00%	-4,57%	12,00%	-1,17%	10,00%	0,14%	8,00%	1,35%	12,00%	-1,21%	14,00%	2,13%	14,00%	-6,53%	12,00%	0,00%	8,00%	0,00%	8,00%	100,00%	LINK	0,0212756
2021-12-27	-0,60%	0,00%	-4,89%	10,00%	-0,21%	10,00%	0,00%	8,00%	0,00%	12,00%	0,92%	14,00%	1,80%	16,00%	-0,30%	12,00%	7,05%	10,00%	0,00%	8,00%	100,00%	XLM	0,0704873
2021-12-28	6,50%	2,00%	6,17%	12,00%	-0,65%	8,00%	0,00%	8,00%	0,00%	12,00%	-0,21%	12,00%	1,81%	16,00%	0,30%	12,00%	0,00%	10,00%	0,02%	8,00%	100,00%	ADA	0,0649652
2021-12-29	-7,31%	2,00%	-5,91%	12,00%	-2,93%	8,00%	-7,03%	8,00%	-11,69%	10,00%	-0,87%	14,00%	-3,78%	16,00%	-2,76%	14,00%	-10,85%	8,00%	-3,09%	8,00%	100,00%	ETH	-0,0087173
2021-12-30	-1,70%	2,00%	-4,13%	12,00%	-5,91%	6,00%	-4,06%	8,00%	0,00%	12,00%	0,89%	16,00%	-11,31%	14,00%	-0,28%	14,00%	0,00%	8,00%	-3,64%	8,00%	100,00%	ETH	0,0088629
2021-12-31	-0,62%	2,00%	-0,21%	12,00%	2,77%	8,00%	0,00%	8,00%	0,21%	12,00%	1,89%	16,00%	7,58%	16,00%	1,49%	14,00%	-1,22%	6,00%	-1,03%	6,00%	100,00%	LINK	0,0757571
2022-01-01	-0,82%	2,00%	4,86%	14,00%	-2,75%	6,00%	0,00%	8,00%	-0,21%	12,00%	2,68%	18,00%	-8,21%	14,00%	-1,78%	14,00%	1,24%	6,00%	-0,35%	6,00%	100,00%	BNB	0,0486108
2022-01-02	0,61%	2,00%	4,77%	14,00%	4,39%	6,00%	6,01%	10,00%	0,00%	10,00%	1,70%	18,00%	8,29%	16,00%	1,44%	14,00%	-1,22%	4,00%	0,35%	6,00%	100,00%	LINK	0,0829344
2022-01-03	0,42%	2,00%	0,56%	14,00%	0,09%	6,00%	5,40%	12,00%	0,00%	8,00%	-0,52%	16,00%	1,00%	16,00%	1,28%	14,00%	5,70%	6,00%	2,99%	6,00%	100,00%	XLM	0,0569866
2022-01-04	-0,42%	2,00%	-5,32%	12,00%	-4,29%	4,00%	0,00%	12,00%	0,00%	8,00%	0,30%	18,00%	8,51%	18,00%	-2,02%	14,00%	-4,22%	6,00%	-2,53%	6,00%	100,00%	LINK	0,0851303
2022-01-05	-0,60%	2,00%	2,37%	14,00%	-0,02%	4,00%	-7,06%	10,00%	0,00%	8,00%	-0,98%	18,00%	1,51%	20,00%	-1,49%	12,00%	0,00%	6,00%	-0,73%	6,00%	100,00%	BNB	0,0237355
2022-01-06	-2,08%	2,00%	-1,27%	14,00%	-1,60%	4,00%	-11,10%	8,00%	0,89%	8,00%	-5,75%	18,00%	6,73%	22,00%	-6,16%	12,00%	3,56%	8,00%	-11,71%	4,00%	100,00%	LINK	0,0672538
2022-01-07	-0,08%	2,00%	4,09%	16,00%	-5,74%	2,00%	4,05%	10,00%	0,00%	8,00%	-3,52%	16,00%	0,73%	22,00%	-1,36%	12,00%	-3,44%	8,00%	2,81%	4,00%	100,00%	BNB	0,0409094
2022-01-08	-4,49%	0,00%	0,08%	16,00%	-1,01%	2,00%	4,65%	12,00%	-1,16%	8,00%	-3,63%	16,00%	0,43%	24,00%	-1,98%	12,00%	-7,10%	6,00%	-3,26%	4,00%	100,00%	DASH	0,0464885
2022-01-09	-3,34%	0,00%	-3,84%	14,00%	-0,62%	2,00%	9,75%	14,00%	0,00%	8,00%	0,90%	16,00%	4,02%	26,00%	-3,82%	10,00%	0,00%	6,00%	0,41%	4,00%	100,00%	DASH	0,0975449
2022-01-10	0,00%	0,00%	-2,87%	12,00%	0,00%	2,00%	7,60%	16,00%	0,00%	8,00%	1,69%	16,00%	4,56%	28,00%	1,78%	10,00%	-0,40%	4,00%	0,00%	4,00%	100,00%	DASH	0,0760039
2022-01-11	-2,16%	0,00%	-5,19%	10,00%	-1,69%	2,00%	-4,85%	14,00%	0,00%	8,00%	8,01%	18,00%	2,12%	30,00%	-1,69%	10,00%	-0,72%	4,00%	-2,22%	4,00%	100,00%	ETH	0,0801256
2022-01-12	1,92%	0,00%	8,89%	12,00%	2,02%	2,00%	-0,72%	12,00%	0,00%	8,00%	3,45%	20,00%	0,46%	30,00%	3,37%	10,00%	-0,37%	2,00%	0,00%	4,00%	100,00%	BNB	0,088933
2022-01-13	8,16%	0,00%	4,38%	12,00%	8,85%	4,00%	-0,20%	10,00%	-0,68%	6,00%	2,38%	20,00%	0,01%	30,00%	4,49%	10,00%	1,77%	2,00%	13,13%	6,00%	100,00%	XRP	0,1313142
2022-01-14	-2,21%	0,00%	1,35%	14,00%	-8,84%	2,00%	-0,02%	10,00%	1,31%	8,00%	0,86%	20,00%	-6,62%	30,00%	-3,06%	10,00%	-2,45%	2,00%	-11,58%	4,00%	100,00%	BNB	0,0134988
2022-01-15	2,26%	0,00%	0,49%	14,00%	1,19%	2,00%	0,00%	10,00%	12,86%	10,00%	0,00%	20,00%	-0,60%	28,00%	7,84%	12,00%	3,37%	2,00%	-0,03%	2,00%	100,00%	DOGE	0,1285772
2022-01-16	0,88%	0,00%	-0,47%	12,00%	-0,28%	2,00%	0,00%	10,00%	1,10%	12,00%	-0,28%	20,00%	0,35%	28,00%	0,54%	12,00%	-0,83%	0,00%	5,07%	4,00%	100,00%	XRP	0,0507487
2022-01-17	7,85%	2,00%	0,17%	12,00%	0,59%	2,00%	-6,58%	8,00%	-6,25%	10,00%	0,36%	20,00%	-0,19%	28,00%	0,82%	12,00%	0,84%	2,00%	0,00%	4,00%	100,00%	ADA	0,0785198
2022-01-18	16,47%	4,00%	-1,54%	12,00%	-0,64%	2,00%	-0,15%	8,00%	-5,43%	8,00%	-0,24%	20,00%	-2,22%	28,00%	3,62%	14,00%	-2,55%	2,00%	-3,27%	2,00%	100,00%	ADA	0,1646886
2022-01-19	-10,65%	2,00%	0,15%	14,00%	0,17%	4,00%	-6,36%	8,00%	-1,48%	8,00%	-3,61%	20,00%	-8,40%	26,00%	-6,85%	14,00%	0,00%	2,00%	0,00%	2,00%	100,00%	BTC	0,0017261
2022-01-20	-7,50%	0,00%	-0,61%	14,00%	0,19%	6,00%	0,00%	10,00%	0,00%	8,00%	0,00%	20,00%	-0,98%	26,00%	-1,10%	12,00%	-0,73%	2,00%	0,00%	2,00%	100,00%	BTC	0,001946
2022-01-21	-2,96%	0,00%	-3,51%	14,00%	-1,63%	6,00%	-7,12%	8,00%	0,00%	10,00%	-0,12%	20,00%	0,19%	28,00%	-7,71%	10,00%	-2,62%	2,00%	0,00%	2,00%	100,00%	LINK	0,0019288
2022-01-22	-11,68%	0,00%	-15,75%	12,00%	-5,74%	8,00%	-9,29%	8,00%	0,85%	12,00%	-13,75%	20,00%	-19,19%	26,00%	-9,25%	10,00%	-12,91%	2,00%	-13,45%	2,00%	100,00%	DOGE	0,0085006
2022-01-23	2,43%	2,00%	-3,90%	12,00%	-5,10%	8,00%	-8,00%	6,00%	0,21%	14,00%	-5,47%	20,00%	-11,76%	24,00%	-6,92%	10,00%	-2,64%	2,00%	-2,38%	2,00%	100,00%	ADA	0,0242552
2022-01-24	2,00%	2,00%	-0,16%	12,00%	-1,73%	6,00%	-1,21%	6,00%	-1,16%	14,00%	7,42%	22,00%	-2,04%	22,00%	4,96%	12,00%	2,34%	2,00%	3,59%	2,00%	100,00%	ETH	0,0741983
2022-01-25	-0,19%	2,00%	0,21%	14,00%	0,71%	8,00%	-4,56%	6,00%	0,00%	14,00%	-4,78%	20,00%	-6,90%	20,00%	-0,33%	12,00%	0,00%	2,00%	-2,31%	2,00%	100,00%	BTC	0,0070748
2022-01-26	-1,52%	2,00%	3,83%	16,00%	6,72%	10,00%	-0,15%	6,00%	0,72%	14,00%	-2,79%	18,00%	1,20%	20,00%	-6,03%	10,00%	0,36%	2,00%	0,94%	2,00%	100,00%	BTC	0,0672017
2022-01-27	0,00%	4,00%	-0,72%	16,00%	-2,24%	8,00%	-0,87%	6,00%	-0,67%	14,00%	2,22%	20,00%	-3,74%	18,00%	0,00%	10,00%	0,00%	2,00%	0,00%	2,00%	100,00%	ETH	0,0221593
2022-01-28	1,60%	4,00%	3,43%	18,00%	0,29%	8,00%	0,36%	6,00%	1,85%	16,00%	-3,23%	18,00%	-4,23%	16,00%	0,00%	10,00%	-0,36%	2,00%	-3,22%	2,00%	100,00%	BNB	0,034308
2022-01-29	0,22%	4,00%	0,00%	16,00%	0,54%	8,00%	3,60%	6,00%	-0,70%	14,00%	5,64%	20,00%	1,99%	16,00%	7,78%	12,00%	5,35%	2,00%	1,86%	2,00%	100,00%	LTC	0,0778397
2022-01-30	-0,77%	2,00%	-0,16%	16,00%	-0,54%	8,00%	0,45%	6,00%	-1,83%	12,00%	0,00%	20,00%	0,00%	16,00%	0,13%	12,00%	4,23%	4,00%	1,47%	4,00%	100,00%	XLM	0,0422534
2022-01-31	0,82%	4,00%	-1,38%	16,00%	0,34%	8,00%	-2,58%	4,00%	0,50%	12,00%	0,00%	20,00%	22,26%	18,00%	0,00%	12,00%	-1,95%	4,00%	-3,70%	2,00%	100,00%	LINK	0,2225549
2022-02-01	-2,68%	2,00%	-0,59%	16,00%	1,37%	8,00%	3,55%	4,00%	0,50%	12,00%	3,63%	22,00%	-5,11%	16,00%	-0,37%	12,00%	0,00%	4,00%	3,65%	4,00%	100,00%	XRP	0,0364546
2022-02-02	-1,76%	0,00%	2,00%	16,00%	-0,55%	8,00%	-1,18%	2,00%	-1,17%	12,00%	4,33%	24,00%	7,83%	18,00%	0,52%	12,00%	1,99%	4,00%	-0,52%	4,00%	100,00%	LINK	0,0783065
2022-02-03	-3,95%	0,00%	-4,05%	16,00%	2,39%	10,00%	-2,50%	2,00%	1,87%	14,00%	-5,60%	24,00%	-11,02%	16,00%	-6,92%	10,00%	-1,95%	4,00%	-3,73%	4,00%	100,00%	BTC	0,0238735
2022-02-04	2,70%	0,00%	-2,71%	14,00%	-3,14%	8,00%	3,24%	4,00%	0,00%	14,00%	-1,13%	24,00%	1,97%	16,00%	6,08%	12,00%	0,00%	4,00%	0,47%	4,00%	100,00%	LTC	0,0607901
2022-02-05	1,22%	0,00%	3,25%	12,00%	7,77%	8,00%	8,10%	4,00%	-1,83%	12,00%	15,89%	26,00%	4,68%	16,00%	5,01%	12,00%	7,77%	4,00%	10,12%	6,00%	100,00%	ETH	0,1588812
2022-02-06	-0,28%	0,00%	2,90%	14,00%	1,62%	8,00%	0,60%	4,00%	-0,21%	10,00%	0,60%	26,00%	9,49%	18,00%	0,00%	10,00%	2,67%	4,00%	0,00%	6,00%	100,00%	LINK	0,0949255

Figure 94: Naive portfolio using gradient boosting regression - part 5

ADA	0,1205298	BTC	-0,0159575	ETH	0,0115547	LINK	0,0148041	XRP	0,0209281	BNB	0,0272569		0,0475733	4	0,4%	4,4%	1,0435733	-23,30%
LINK	0,0155453	XLM	-0,065846	ADA	-0,0513891	XRP	-0,0452843	BNB	-0,0185277	DOGE	-0,0018900		-0,005971	4	0,4%	-1,0%	0,990029	-24,06%
DOGE	0,0134794	LTC	-0,0653214	BNB	-0,0457383	ETH	-0,0120919	BTC	-0,0117027	XLM	0,0000000		-0,0113089	4	0,4%	-1,5%	0,9846911	-25,23%
LINK	0,0179931	BNB	-0,0488591	ADA	-0,0059623	LTC	-0,0030061	BTC	-0,0020893	DASH	0,0000000		0,0057574	4	0,4%	0,2%	1,0017574	-25,10%
BNB	0,0617379	BTC	-0,006466	ETH	-0,0021396	DASH	0	DASH	0	DASH	0,0000000		0,0112079	4	0,4%	0,7%	1,0072079	-24,56%
LTC	-0,0275833	DOGE	-0,1168704	XLM	-0,1084676	ADA	-0,0730765	DASH	-0,0703082	BNB	-0,0591104		-0,0504845	4	0,4%	-5,4%	0,9455155	-28,67%
DOGE	0	LINK	-0,1130704	BTC	-0,0590555	BNB	-0,0413189	DASH	-0,0406181	XRP	-0,0364087		-0,0298015	4	0,4%	-3,4%	0,9661985	-31,08%
BTC	0,0277256	XLM	-0,0122211	XRP	-0,010334	ADA	-0,0061814	BNB	-0,0020691	DASH	0,0000000		0,0179848	4	0,4%	1,4%	1,0139848	-30,11%
ETH	0,0267789	LINK	-0,082131	BTC	-0,0274765	LTC	-0,0177677	ADA	-0,0081811	XRP	-0,0034755		-0,0038918	4	0,4%	-0,8%	0,9921082	-30,66%
DASH	0,0600972	XLM	-0,0122211	DOGE	0	XRP	0,0034876	ADA	0,0060579	LTC	0,0143987		0,0334969	4	0,4%	2,9%	1,0294969	-28,62%
DASH	0,0539611	ETH	-0,0052335	DOGE	0	BTC	0,0009168	ADA	0,0042053	BNB	0,0055649		0,0151732	4	0,4%	1,1%	1,0111732	-27,82%
ETH	0,0029729	BNB	-0,053168	BTC	-0,0428902	XLM	-0,0422089	XRP	-0,0253099	LTC	-0,0201683		0,0008044	4	0,4%	-0,3%	0,9968044	-28,05%
LINK	0,0150765	DASH	-0,0705513	LTC	-0,0148801	ETH	-0,009843	XRP	-0,0073265	ADA	-0,0060214		-0,0048413	4	0,4%	-0,9%	0,9911587	-28,69%
XLM	0,035586	XRP	-0,1171124	DASH	-0,1110423	LTC	-0,0615791	ETH	-0,05753	ADA	-0,0207716		-0,0158019	4	0,4%	-2,0%	0,9801981	-30,10%
DASH	0,0405105	BTC	-0,0573562	ETH	-0,0352148	XLM	-0,0343632	LTC	-0,0136374	ADA	-0,0007935		0,0021472	4	0,4%	-0,2%	0,9981472	-30,23%
LINK	0,0043156	XLM	-0,0709933	ADA	-0,0449091	ETH	-0,036251	XRP	-0,0326015	LTC	-0,0197956		-0,0081326	4	0,4%	-1,2%	0,9878674	-31,08%
LINK	0,0402296	BNB	-0,0383762	LTC	-0,0381952	ADA	-0,0334203	BTC	-0,0061679	DOGE	0,0000000		0,016403	4	0,4%	1,2%	1,012403	-30,22%
LINK	0,0456413	BNB	-0,0286903	XLM	-0,0040238	ADA	0	ADA	0	ADA	0,0000000		0,0258126	4	0,4%	2,2%	1,0218126	-28,70%
LINK	0,0211864	BNB	-0,0519258	DASH	-0,0485405	XRP	-0,0221582	ADA	-0,0216115	LTC	-0,0169265		0,0055847	4	0,4%	0,2%	1,0015847	-28,59%
ETH	0,0344921	DASH	-0,0072188	XLM	-0,0036886	DOGE	0	DOGE	0	LINK	0,0046470		0,0218012	4	0,4%	1,8%	1,0178012	-27,32%
BTC	0,0884725	DOGE	-0,0067671	DASH	-0,0020191	LINK	0,0001444	XLM	0,017651	ETH	0,0237974		0,0257107	4	0,4%	2,2%	1,0217107	-25,74%
DOGE	0,0130701	XRP	-0,1157979	BTC	-0,0884489	LINK	-0,066219	LTC	-0,0306256	XLM	-0,0245036		-0,0251824	4	0,4%	-2,9%	0,9708176	-27,90%
LTC	0,0783879	LINK	-0,0060122	XRP	-0,0003103	DASH	0	ETH	1,667E-07	BNB	0,0048686		0,0221693	4	0,4%	1,8%	1,0181693	-26,60%
DOGE	0,0110007	XLM	-0,0083135	BNB	-0,0047213	BTC	-0,0028467	ETH	-0,0027533	DASH	0,0000000		0,0037922	4	0,4%	0,0%	0,9997922	-26,61%
XLM	0,0083832	DASH	-0,0657922	DOGE	-0,0624513	LINK	-0,0019338	XRP	0	BNB	0,0017224		-0,0082808	4	0,4%	-1,2%	0,9877192	-27,51%
LTC	0,0362311	DOGE	-0,0542618	XRP	-0,0326644	XLM	-0,0255141	LINK	-0,0221983	BNB	-0,0154133		-0,0026476	4	0,4%	-0,7%	0,9933524	-27,99%
BNB	0,001499	ADA	-0,1065236	LINK	-0,084021	LTC	-0,06854	DASH	-0,0636229	ETH	-0,0361340		-0,0467962	4	0,4%	-5,1%	0,9492038	-31,65%
DASH	0	ADA	-0,0750458	LTC	-0,0109857	LINK	-0,0098033	XLM	-0,0072851	BNB	-0,0061109		-0,0047516	4	0,4%	-0,9%	0,9912484	-32,25%
DOGE	0	LTC	-0,0771439	DASH	-0,0712172	BNB	-0,0351301	ADA	-0,0296092	XLM	-0,0261645		-0,0195262	4	0,4%	-2,4%	0,9764738	-33,84%
BTC	-0,0573519	LINK	-0,1919135	BNB	-0,1574511	ETH	-0,1375137	XRP	-0,1345483	XLM	-0,1290913		-0,1218121	4	0,4%	-12,6%	0,8741879	-42,17%
DOGE	0,0020979	LINK	-0,1176453	DASH	-0,0800178	LTC	-0,0692078	ETH	-0,0546983	BTC	-0,0509531		-0,0598731	4	0,4%	-6,4%	0,9361269	-45,86%
LTC	0,0495945	LINK	-0,0203983	BTC	-0,0172795	DASH	-0,0120999	DOGE	-0,0116058	BNB	-0,0015952		0,0157955	4	0,4%	1,2%	1,0117955	-45,22%
BNB	0,002087	LINK	-0,0690448	ETH	-0,0478338	DASH	-0,0456362	XRP	-0,0230948	LTC	-0,0033350		-0,0261563	4	0,4%	-3,0%	0,9698437	-46,87%
BNB	0,0382691	LTC	-0,0603151	ETH	-0,0278791	ADA	-0,0152356	DASH	-0,001523	XLM	0,0035721		0,00506	4	0,4%	0,1%	1,00106	-46,82%
ADA	0	LINK	-0,0374229	BTC	-0,0223755	DASH	-0,0087254	BNB	-0,0071642	DOGE	-0,0067071		-0,0067031	4	0,4%	-1,1%	0,9892969	-47,39%
DOGE	0,0184897	LINK	-0,0422579	ETH	-0,0322862	XRP	-0,0321623	XLM	-0,0035594	LTC	0,0000000		-0,0030666	4	0,4%	-0,7%	0,9929334	-47,76%
ETH	0,0563653	DOGE	-0,0070344	BNB	0	ADA	0,0021977	BTC	0,0053876	XRP	0,0185513		0,026941	4	0,4%	2,3%	1,022941	-46,56%
XRP	0,0147311	DOGE	-0,0182827	ADA	-0,0077396	BTC	-0,0053587	BNB	-0,0015927	ETH	0,0000000		-0,0003281	4	0,4%	-0,4%	0,9956719	-46,79%
ADA	0,0082317	XRP	-0,0369986	DASH	-0,0258279	XLM	-0,0195003	BNB	-0,0138095	ETH	0,0000000		0,0365016	4	0,4%	3,3%	1,0325016	-45,06%
ETH	0,03633	LINK	-0,0511066	ADA	-0,0267803	BNB	-0,0058687	LTC	-0,0037161	XLM	0,0000000		0,0024667	4	0,4%	-0,2%	0,9984667	-45,15%
ETH	0,0433231	ADA	-0,0175741	DASH	-0,0117712	DOGE	-0,0117043	BTC	-0,005477	XRP	-0,0052435		0,0268173	4	0,4%	2,3%	1,0228173	-43,89%
DOGE	0,0186561	LINK	-0,1101807	LTC	-0,0691972	ETH	-0,056022	BNB	-0,0405379	ADA	-0,0395062		-0,0422509	4	0,4%	-4,6%	0,9537491	-46,49%
DASH	0,0323981	BTC	-0,0313662	BNB	-0,0270696	ETH	-0,0113129	DOGE	0	DOGE	0,0000000		0,0029171	4	0,4%	-0,1%	0,9989171	-46,55%
XRP	0,1012364	DOGE	-0,0183144	ADA	0,0122335	BNB	0,0324526	LINK	0,0468267	LTC	0,0501498		0,0751516	4	0,4%	7,1%	1,0711516	-42,74%
BNB	0,0290159	ADA	-0,0027588	DOGE	-0,0021362	LTC	0	LTC	0	ETH	0,0060212		0,0251035	4	0,4%	2,1%	1,0211035	-41,54%

Figure 95: Naive portfolio using gradient boosting regression - part 6

2022-02-07	3,80%	2,00%	4,25%	16,00%	0,17%	6,00%	3,29%	4,00%	2,71%	10,00%	0,87%	26,00%	0,53%	18,00%	3,49%	10,00%	0,00%	2,00%	3,35%	6,00%	100,00%	BNB	0,0425299
2022-02-08	-0,08%	0,00%	8,09%	16,00%	10,71%	8,00%	8,42%	4,00%	0,00%	10,00%	2,76%	26,00%	-0,62%	16,00%	10,11%	10,00%	2,50%	2,00%	23,49%	8,00%	100,00%	XRP	0,2348768
2022-02-09	-2,20%	0,00%	-4,44%	14,00%	0,16%	10,00%	-3,73%	2,00%	0,00%	10,00%	-0,84%	26,00%	0,00%	16,00%	-2,43%	10,00%	-1,41%	2,00%	6,09%	10,00%	100,00%	XRP	0,0609458
2022-02-10	2,13%	0,00%	-0,30%	14,00%	0,95%	10,00%	0,29%	2,00%	0,00%	10,00%	-0,16%	26,00%	-0,52%	14,00%	4,71%	12,00%	2,68%	4,00%	-2,35%	8,00%	100,00%	LTC	0,0471027
2022-02-11	-1,32%	0,00%	-2,44%	14,00%	-1,77%	10,00%	1,30%	4,00%	0,00%	12,00%	-4,70%	24,00%	-7,64%	12,00%	-3,16%	12,00%	-1,91%	4,00%	-3,62%	8,00%	100,00%	DASH	0,0130299
2022-02-12	-2,82%	0,00%	0,20%	16,00%	-8,78%	10,00%	-6,89%	4,00%	-1,48%	14,00%	-2,11%	24,00%	-10,02%	10,00%	-4,92%	12,00%	-4,11%	4,00%	-12,01%	6,00%	100,00%	BNB	0,0020265
2022-02-13	-0,49%	0,00%	0,19%	18,00%	0,00%	10,00%	-0,71%	4,00%	0,00%	14,00%	-1,15%	22,00%	0,00%	10,00%	-0,31%	12,00%	-0,75%	2,00%	12,57%	8,00%	100,00%	XRP	0,1256922
2022-02-14	0,10%	0,00%	-1,44%	16,00%	-0,54%	10,00%	-0,62%	4,00%	1,51%	16,00%	-5,29%	20,00%	-0,25%	10,00%	0,00%	12,00%	0,00%	2,00%	0,38%	10,00%	100,00%	DOGE	0,0150602
2022-02-15	0,72%	0,00%	1,00%	18,00%	0,27%	10,00%	-0,11%	4,00%	-1,48%	14,00%	4,20%	22,00%	0,63%	10,00%	-1,97%	10,00%	0,00%	2,00%	0,00%	10,00%	100,00%	ETH	0,0420365
2022-02-16	-1,13%	0,00%	6,98%	18,00%	10,59%	12,00%	2,58%	2,00%	1,51%	12,00%	8,20%	22,00%	10,46%	12,00%	5,77%	10,00%	3,23%	2,00%	4,39%	10,00%	100,00%	BTC	0,1059361
2022-02-17	-3,02%	0,00%	-5,06%	16,00%	-0,24%	12,00%	4,39%	4,00%	0,00%	12,00%	-3,23%	22,00%	0,24%	14,00%	-3,36%	10,00%	0,00%	2,00%	-3,47%	8,00%	100,00%	DASH	0,0438822
2022-02-18	-3,99%	2,00%	-10,03%	16,00%	-11,28%	10,00%	-6,43%	4,00%	-1,48%	14,00%	-7,70%	22,00%	-8,87%	14,00%	-8,97%	10,00%	-7,82%	2,00%	-11,81%	6,00%	100,00%	DOGE	-0,0148367
2022-02-19	-2,73%	0,00%	-1,27%	16,00%	-0,23%	10,00%	1,25%	6,00%	0,00%	14,00%	-1,16%	22,00%	-3,30%	12,00%	-0,99%	10,00%	-1,16%	2,00%	3,28%	8,00%	100,00%	XRP	0,0328459
2022-02-20	0,00%	0,00%	-3,09%	14,00%	-0,65%	10,00%	-1,32%	6,00%	0,00%	14,00%	0,00%	22,00%	1,85%	14,00%	-1,96%	8,00%	-0,80%	2,00%	8,83%	10,00%	100,00%	XRP	0,08833
2022-02-21	0,00%	2,00%	6,15%	16,00%	-5,42%	10,00%	-8,44%	4,00%	0,00%	14,00%	-6,08%	22,00%	-4,79%	14,00%	-0,82%	8,00%	-6,78%	2,00%	-8,79%	8,00%	100,00%	BNB	0,0615163
2022-02-22	-14,67%	0,00%	-2,95%	16,00%	-1,57%	10,00%	-8,60%	4,00%	0,67%	16,00%	-1,18%	24,00%	-2,15%	14,00%	-5,82%	8,00%	-2,64%	2,00%	-9,66%	6,00%	100,00%	DOGE	0,0067477
2022-02-23	3,93%	0,00%	4,46%	16,00%	0,27%	10,00%	5,31%	6,00%	-0,46%	14,00%	3,67%	24,00%	2,98%	14,00%	0,00%	6,00%	2,71%	2,00%	6,09%	8,00%	100,00%	XRP	0,0609159
2022-02-24	-4,00%	0,00%	-1,77%	16,00%	0,26%	12,00%	-1,35%	6,00%	-0,50%	14,00%	-7,58%	22,00%	-4,92%	14,00%	0,00%	8,00%	-2,99%	2,00%	-5,26%	6,00%	100,00%	BTC	0,0025579
2022-02-25	1,83%	2,00%	-1,76%	14,00%	-1,07%	12,00%	-4,71%	4,00%	1,18%	16,00%	-0,56%	22,00%	0,74%	14,00%	0,00%	8,00%	0,37%	2,00%	0,00%	6,00%	100,00%	ADA	0,0183372
2022-02-26	2,34%	2,00%	4,28%	14,00%	5,35%	12,00%	5,61%	4,00%	-1,16%	14,00%	9,60%	24,00%	0,57%	12,00%	6,20%	8,00%	2,34%	2,00%	7,24%	8,00%	100,00%	ETH	0,0960257
2022-02-27	0,00%	0,00%	0,00%	14,00%	1,59%	14,00%	0,43%	4,00%	0,00%	14,00%	1,29%	24,00%	0,58%	12,00%	-5,83%	6,00%	7,45%	4,00%	0,00%	8,00%	100,00%	XLM	0,0744773
2022-02-28	-7,09%	0,00%	-5,22%	12,00%	-4,04%	14,00%	-6,47%	2,00%	0,00%	16,00%	-3,59%	24,00%	-0,90%	12,00%	0,00%	8,00%	-1,82%	4,00%	-1,58%	8,00%	100,00%	DOGE	0
2022-03-01	17,79%	2,00%	6,61%	12,00%	9,25%	14,00%	13,61%	4,00%	-0,68%	14,00%	12,91%	24,00%	5,85%	12,00%	6,72%	8,00%	4,82%	2,00%	4,94%	8,00%	100,00%	ADA	0,1779467
2022-03-02	-2,16%	0,00%	4,80%	12,00%	10,60%	16,00%	0,21%	4,00%	-0,21%	14,00%	3,13%	24,00%	3,73%	12,00%	0,00%	8,00%	4,92%	4,00%	-0,58%	6,00%	100,00%	BTC	0,1059837
2022-03-03	0,00%	0,00%	3,47%	14,00%	-0,22%	16,00%	0,59%	4,00%	1,19%	16,00%	-0,70%	24,00%	0,81%	12,00%	-0,24%	8,00%	-5,23%	2,00%	-3,20%	4,00%	100,00%	BNB	0,0346856
2022-03-04	-13,78%	0,00%	-1,92%	14,00%	-8,42%	14,00%	-3,17%	4,00%	0,00%	18,00%	-5,65%	24,00%	-6,39%	10,00%	0,18%	10,00%	-1,95%	2,00%	-1,03%	4,00%	100,00%	LTC	0,001757
2022-03-05	-4,15%	0,00%	-7,40%	14,00%	-4,85%	14,00%	-4,83%	4,00%	0,67%	20,00%	-10,08%	22,00%	-0,28%	12,00%	-13,64%	8,00%	-6,91%	2,00%	-3,49%	4,00%	100,00%	DOGE	0,0067477

Figure 96: Naive portfolio using gradient boosting regression - part 7

ADA	0,0380428	XLM	0	BTC	0,0017495	LINK	0,005308	ETH	0,0086759	DOGE	0,0271072		0,020408	4	0,4%	1,6%	1,016408	-40,58%
BTC	0,1071059	LINK	-0,0062236	ADA	-0,0008355	DOGE	0	XLM	0,0249537	ETH	0,0276069		0,0604674	4	0,4%	5,6%	1,0564674	-37,22%
BTC	0,0016076	BNB	-0,0443522	DASH	-0,0372911	LTC	-0,0242605	ADA	-0,0219866	XLM	-0,0141009		-0,0055934	4	0,4%	-1,0%	0,9904066	-37,82%
XLM	0,0268288	XRP	-0,0235228	LINK	-0,0051549	BNB	-0,0030109	ETH	-0,001627	DOGE	0,0000000		0,0042902	4	0,4%	0,0%	1,0002902	-37,81%
DOGE	0	LINK	-0,0763671	ETH	-0,0470424	XRP	-0,0361827	LTC	-0,0316363	BNB	-0,0243726		-0,0325723	4	0,4%	-3,7%	0,9634277	-40,08%
DOGE	-0,0148367	XRP	-0,120112	LINK	-0,100184	BTC	-0,0878171	DASH	-0,0689059	LTC	-0,0491809		-0,0431328	4	0,4%	-4,7%	0,9528672	-42,90%
BNB	0,0019393	ETH	-0,0115169	XLM	-0,0074698	DASH	-0,0071231	ADA	-0,0049066	LTC	-0,0030637		0,0070688	4	0,4%	0,3%	1,0030688	-42,73%
XRP	0,0037504	ETH	-0,0528852	BNB	-0,0144358	DASH	-0,0062356	BTC	-0,0053508	LINK	-0,0025044		-0,011137	4	0,4%	-1,5%	0,984863	-43,60%
BNB	0,0099899	LTC	-0,0196565	DOGE	-0,0148367	DASH	-0,0011485	XLM	0	XLM	0,0000000		0,0078479	4	0,4%	0,4%	1,0038479	-43,38%
LINK	0,1045967	ADA	-0,0112666	DOGE	0,0150602	DASH	0,0258312	XLM	0,0323415	XRP	0,0439206		0,0689984	4	0,4%	6,5%	1,0649984	-39,70%
LINK	0,0023791	BNB	-0,050558	XRP	-0,0346704	LTC	-0,0336279	ETH	-0,0322709	ADA	-0,0301867		-0,0195267	4	0,4%	-2,4%	0,9764733	-41,12%
ADA	-0,0399212	XRP	-0,1180557	BTC	-0,1127835	BNB	-0,1003287	LTC	-0,0897386	LINK	-0,0886854		-0,0797631	4	0,4%	-8,4%	0,9162369	-46,05%
DASH	0,0125133	LINK	-0,0330413	ADA	-0,0272584	BNB	-0,0127017	ETH	-0,01165	XLM	-0,0115916		-0,0066402	4	0,4%	-1,1%	0,9893598	-46,62%
LINK	0,0185491	BNB	-0,0308592	LTC	-0,0196402	DASH	-0,013172	XLM	-0,0080015	BTC	-0,0065275		0,0039353	4	0,4%	0,0%	0,9999353	-46,63%
ADA	0	XRP	-0,0878819	DASH	-0,084388	XLM	-0,0678009	ETH	-0,0607603	BTC	-0,0541751		-0,0280667	4	0,4%	-3,2%	0,9679333	-48,34%
ETH	-0,0118117	ADA	-0,1466966	XRP	-0,0965905	DASH	-0,0859656	LTC	-0,0581505	BNB	-0,0294727		-0,0254649	4	0,4%	-2,9%	0,9705351	-49,86%
DASH	0,0531404	DOGE	-0,004601	LTC	0	BTC	0,0026509	XLM	0,0270871	LINK	0,0297974		0,0283346	4	0,4%	2,4%	1,0243346	-48,64%
LTC	0	ETH	-0,0757746	XRP	-0,0525679	LINK	-0,0491787	ADA	-0,0400296	XLM	-0,0299321		-0,0313454	4	0,4%	-3,5%	0,9646546	-50,46%
DOGE	0,0117628	DASH	-0,0471127	BNB	-0,0175627	BTC	-0,0106653	ETH	-0,0055552	LTC	0,0000000		-0,0034842	4	0,4%	-0,7%	0,9925158	-50,83%
XRP	0,072379	DOGE	-0,011626	LINK	0,0056851	XLM	0,0234313	ADA	0,0234493	BNB	0,0427978		0,0484399	4	0,4%	4,4%	1,0444399	-48,64%
BTC	0,0159306	LTC	-0,0583396	ADA	0	ADA	0	ADA	0	ADA	0,0000000		0,0056794	4	0,4%	0,2%	1,0016794	-48,56%
LTC	0	ADA	-0,0709058	DASH	-0,0646913	BNB	-0,0521704	BTC	-0,040366	ETH	-0,0358552		-0,0248746	4	0,4%	-2,9%	0,9711254	-50,04%
DASH	0,1360668	DOGE	-0,0067671	XLM	0,0482188	XRP	0,0494311	LINK	0,0584801	BNB	0,0661410		0,0772378	4	0,4%	7,3%	1,0732378	-46,38%
XLM	0,0491515	ADA	-0,0215538	XRP	-0,0057847	DOGE	-0,0021362	LTC	0	DASH	0,0021128		0,0361171	4	0,4%	3,2%	1,0321171	-44,66%
DOGE	0,0118683	XLM	-0,0523273	XRP	-0,0320357	ETH	-0,007045	LTC	-0,0024027	BTC	-0,0022144		0,0033934	4	0,4%	-0,1%	0,9993934	-44,69%
DOGE	0	ADA	-0,1378039	BTC	-0,0842173	LINK	-0,063893	ETH	-0,0565256	DASH	-0,0317271		-0,0363257	4	0,4%	-4,0%	0,9596743	-46,92%
LINK	-0,0027705	LTC	-0,1364098	ETH	-0,1007646	BNB	-0,0740017	XLM	-0,0690853	BTC	-0,0484590		-0,0539166	4	0,4%	-5,8%	0,9420834	-50,00%

Figure 97: Naive portfolio using gradient boosting regression - part 8

1.6.3 Using random forest

1.6.3.1 Absolute momentum portfolio

	ADA		BNB		BTC		DASH		DOGE		ETH		LINK	
	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight
		10%		10%		10%		10%		10%		10%		10%
2021-10-04	-1,58%	0,00%	-0,29%	0,00%	-0,56%	0,00%	-0,77%	0,00%	-1,28%	0,00%	-0,42%	0,00%	1,34%	33,33%
2021-10-05	-0,51%	0,00%	-4,82%	0,00%	2,58%	33,33%	-2,26%	0,00%	11,84%	33,33%	-3,33%	0,00%	-4,75%	0,00%
2021-10-06	-2,41%	0,00%	8,43%	11,11%	5,82%	11,11%	5,92%	11,11%	4,87%	11,11%	7,37%	11,11%	5,95%	11,11%
2021-10-07	0,22%	12,50%	-4,28%	0,00%	8,72%	12,50%	1,35%	12,50%	2,61%	12,50%	0,35%	12,50%	-0,11%	0,00%
2021-10-08	0,88%	16,67%	1,38%	16,67%	-2,27%	0,00%	-0,48%	0,00%	-0,09%	0,00%	0,10%	16,67%	1,86%	16,67%
2021-10-09	1,31%	25,00%	-4,76%	0,00%	0,90%	25,00%	1,86%	25,00%	-2,12%	0,00%	0,41%	25,00%	-5,96%	0,00%
2021-10-10	-1,56%	0,00%	0,54%	14,29%	1,17%	14,29%	3,58%	14,29%	-0,46%	0,00%	-0,29%	0,00%	5,30%	14,29%
2021-10-11	-0,17%	0,00%	-1,81%	0,00%	-0,51%	0,00%	-4,74%	0,00%	-2,69%	0,00%	-4,19%	0,00%	-6,92%	0,00%
2021-10-12	-0,08%	0,00%	0,97%	14,29%	1,53%	14,29%	0,92%	14,29%	-1,84%	0,00%	3,80%	14,29%	-0,96%	0,00%
2021-10-13	-0,58%	0,00%	11,04%	20,00%	0,04%	20,00%	-0,67%	0,00%	-3,18%	0,00%	0,22%	20,00%	-1,06%	0,00%
2021-10-14	0,98%	11,11%	0,93%	11,11%	0,11%	11,11%	0,45%	11,11%	1,16%	11,11%	0,71%	11,11%	0,00%	11,11%
2021-10-15	1,52%	16,67%	-0,87%	0,00%	-0,33%	0,00%	-0,17%	0,00%	0,19%	16,67%	1,08%	16,67%	7,68%	16,67%
2021-10-16	0,59%	11,11%	0,73%	11,11%	1,07%	11,11%	6,93%	11,11%	0,27%	11,11%	-0,89%	0,00%	0,91%	11,11%
2021-10-17	-0,07%	0,00%	-0,12%	0,00%	-0,12%	0,00%	-2,70%	0,00%	1,93%	25,00%	1,05%	25,00%	-0,16%	0,00%
2021-10-18	-2,41%	0,00%	-0,84%	0,00%	0,08%	33,33%	-3,63%	0,00%	0,58%	33,33%	-0,66%	0,00%	-4,78%	0,00%
2021-10-19	1,08%	25,00%	-1,46%	0,00%	0,12%	25,00%	-0,82%	0,00%	1,36%	25,00%	-0,45%	0,00%	-2,86%	0,00%
2021-10-20	-1,29%	0,00%	1,70%	20,00%	0,12%	20,00%	7,08%	20,00%	0,30%	20,00%	0,48%	20,00%	-0,44%	0,00%
2021-10-21	1,25%	12,50%	-0,19%	0,00%	-0,01%	0,00%	2,28%	12,50%	1,83%	12,50%	0,05%	12,50%	9,17%	12,50%
2021-10-22	1,66%	16,67%	0,80%	16,67%	-0,28%	0,00%	0,50%	16,67%	1,30%	16,67%	-0,28%	0,00%	0,10%	16,67%
2021-10-23	-0,15%	0,00%	-1,26%	0,00%	-0,25%	0,00%	-0,59%	0,00%	-2,25%	0,00%	-1,03%	0,00%	0,27%	50,00%
2021-10-24	-0,32%	0,00%	0,37%	20,00%	-0,11%	0,00%	-1,30%	0,00%	1,48%	20,00%	-0,20%	0,00%	8,33%	20,00%
2021-10-25	-2,54%	0,00%	-0,65%	0,00%	0,07%	25,00%	0,47%	25,00%	5,22%	25,00%	0,04%	25,00%	-2,50%	0,00%
2021-10-26	2,35%	12,50%	-0,23%	0,00%	0,12%	12,50%	0,99%	12,50%	0,70%	12,50%	-0,23%	0,00%	9,56%	12,50%
2021-10-27	-0,90%	0,00%	2,29%	16,67%	0,09%	16,67%	-0,47%	0,00%	-2,57%	0,00%	0,02%	16,67%	-1,50%	0,00%
2021-10-28	-7,47%	0,00%	-1,69%	0,00%	-0,75%	0,00%	-12,29%	0,00%	-1,80%	0,00%	-0,59%	0,00%	-14,30%	0,00%
2021-10-29	1,79%	10,00%	0,34%	10,00%	0,87%	10,00%	2,81%	10,00%	5,61%	10,00%	0,63%	10,00%	10,12%	10,00%
2021-10-30	3,28%	11,11%	4,97%	11,11%	0,86%	11,11%	0,82%	11,11%	1,81%	11,11%	-0,12%	0,00%	0,94%	11,11%
2021-10-31	-2,62%	0,00%	0,21%	16,67%	0,43%	16,67%	0,08%	16,67%	-0,68%	0,00%	0,14%	16,67%	-7,21%	0,00%
2021-11-01	0,32%	11,11%	1,54%	11,11%	0,60%	11,11%	6,45%	11,11%	2,00%	11,11%	-0,11%	0,00%	4,37%	11,11%
2021-11-02	-0,66%	0,00%	5,37%	16,67%	1,30%	16,67%	-4,51%	0,00%	-0,22%	0,00%	-0,07%	0,00%	4,38%	16,67%
2021-11-03	-0,19%	0,00%	0,26%	12,50%	0,83%	12,50%	7,44%	12,50%	-1,00%	0,00%	0,69%	12,50%	1,74%	12,50%
2021-11-04	5,92%	11,11%	8,07%	11,11%	-0,18%	0,00%	0,85%	11,11%	0,02%	11,11%	0,17%	11,11%	0,32%	11,11%
2021-11-05	-4,85%	0,00%	-3,88%	0,00%	-0,87%	0,00%	-0,65%	0,00%	-2,67%	0,00%	-0,39%	0,00%	-1,88%	0,00%
2021-11-06	-0,97%	0,00%	9,45%	20,00%	1,29%	20,00%	-0,20%	0,00%	-0,47%	0,00%	-0,19%	0,00%	4,32%	20,00%
2021-11-07	3,56%	25,00%	3,89%	25,00%	1,71%	25,00%	-4,34%	0,00%	-0,59%	0,00%	-0,23%	0,00%	-0,95%	0,00%
2021-11-08	0,63%	11,11%	1,37%	11,11%	0,83%	11,11%	2,37%	11,11%	1,14%	11,11%	0,40%	11,11%	2,64%	11,11%

Figure 98: Absolute momentum portfolio using random forest - part 1

Absolute momentum

LTC		XLM		XRP									
Returns	Weight	Returns	Weight	Returns	Weight	sum of weights	nb assets returns<0	Portfolio returns without transac. Cost	Number of transactions	Transaction cost	Portfolio returns with transac. cost	1+r	Cumulative return
	10%		10%		10%								
-0,52%	0,00%	0,67%	33,33%	0,32%	33,33%	100,00%	7	0,78%	10	1,0%	-0,22%	1,00	-0,22%
-0,15%	0,00%	-5,42%	0,00%	0,79%	33,33%	100,00%	7	5,07%	4	0,4%	4,67%	1,05	4,44%
1,07%	11,11%	12,40%	11,11%	1,62%	11,11%	100,00%	1	5,94%	9	0,9%	5,04%	1,05	9,70%
3,05%	12,50%	0,24%	12,50%	1,02%	12,50%	100,00%	2	2,20%	10	1,0%	1,20%	1,01	11,01%
0,32%	16,67%	1,38%	16,67%	-0,91%	0,00%	100,00%	4	0,99%	10	1,0%	-0,01%	1,00	11,00%
-2,68%	0,00%	-0,92%	0,00%	-0,43%	0,00%	100,00%	6	1,12%	8	0,8%	0,32%	1,00	11,35%
4,47%	14,29%	2,10%	14,29%	1,99%	14,29%	100,00%	3	2,74%	9	0,9%	1,84%	1,02	13,39%
-4,52%	0,00%	-2,65%	0,00%	2,98%	100,00%	100,00%	9	2,98%	7	0,7%	2,28%	1,02	15,98%
4,26%	14,29%	0,83%	14,29%	0,38%	14,29%	100,00%	3	1,81%	7	0,7%	1,11%	1,01	17,27%
-3,33%	0,00%	0,70%	20,00%	0,03%	20,00%	100,00%	5	2,41%	7	0,7%	1,71%	1,02	19,27%
0,09%	11,11%	1,53%	11,11%	-1,68%	0,00%	100,00%	1	0,66%	10	1,0%	-0,34%	1,00	18,87%
4,73%	16,67%	0,05%	16,67%	-0,22%	0,00%	100,00%	4	2,54%	9	0,9%	1,64%	1,02	20,82%
5,95%	11,11%	0,02%	11,11%	1,08%	11,11%	100,00%	1	1,95%	10	1,0%	0,95%	1,01	21,97%
0,97%	25,00%	-2,68%	0,00%	2,13%	25,00%	100,00%	6	1,52%	10	1,0%	0,52%	1,01	22,60%
1,47%	33,33%	-0,78%	0,00%	-1,13%	0,00%	100,00%	7	0,71%	5	0,5%	0,21%	1,00	22,86%
0,59%	25,00%	-1,29%	0,00%	-4,04%	0,00%	100,00%	6	0,79%	4	0,4%	0,39%	1,00	23,33%
-0,08%	0,00%	-0,08%	0,00%	-0,35%	0,00%	100,00%	5	1,94%	7	0,7%	1,24%	1,01	24,86%
7,32%	12,50%	2,86%	12,50%	2,01%	12,50%	100,00%	2	3,35%	10	1,0%	2,35%	1,02	27,79%
-2,93%	0,00%	-0,87%	0,00%	1,55%	16,67%	100,00%	4	0,98%	9	0,9%	0,08%	1,00	27,89%
-6,72%	0,00%	0,73%	50,00%	-2,70%	0,00%	100,00%	8	0,50%	7	0,7%	-0,20%	1,00	27,64%
4,55%	20,00%	-0,47%	0,00%	0,13%	20,00%	100,00%	5	2,97%	6	0,6%	2,37%	1,02	30,67%
-6,06%	0,00%	-1,83%	0,00%	-1,88%	0,00%	100,00%	6	1,45%	8	0,8%	0,65%	1,01	31,52%
5,74%	12,50%	2,19%	12,50%	0,67%	12,50%	100,00%	2	2,79%	9	0,9%	1,89%	1,02	34,01%
4,45%	16,67%	0,24%	16,67%	1,35%	16,67%	100,00%	4	1,41%	10	1,0%	0,41%	1,00	34,55%
-13,79%	0,00%	-12,21%	0,00%	-13,00%	0,00%	0,00%	10	0,00%	6	0,6%	-0,60%	0,99	33,75%
5,51%	10,00%	7,77%	10,00%	8,62%	10,00%	100,00%	0	4,41%	10	1,0%	3,41%	1,03	38,30%
5,12%	11,11%	3,69%	11,11%	2,08%	11,11%	100,00%	1	2,62%	10	1,0%	1,62%	1,02	40,54%
-4,31%	0,00%	5,27%	16,67%	1,42%	16,67%	100,00%	4	1,26%	10	1,0%	0,26%	1,00	40,91%
2,65%	11,11%	7,88%	11,11%	2,17%	11,11%	100,00%	1	3,11%	10	1,0%	2,11%	1,02	43,87%
5,45%	16,67%	2,92%	16,67%	0,85%	16,67%	100,00%	4	3,38%	9	0,9%	2,48%	1,02	47,44%
0,12%	12,50%	6,88%	12,50%	0,55%	12,50%	100,00%	2	2,31%	8	0,8%	1,51%	1,02	49,67%
0,89%	11,11%	0,72%	11,11%	3,88%	11,11%	100,00%	1	2,32%	10	1,0%	1,32%	1,01	51,64%
-1,12%	0,00%	-4,11%	0,00%	1,51%	100,00%	100,00%	9	1,51%	9	0,9%	0,61%	1,01	52,56%
0,01%	20,00%	2,72%	20,00%	-0,75%	0,00%	100,00%	5	3,56%	6	0,6%	2,96%	1,03	57,07%
-0,41%	0,00%	2,83%	25,00%	-0,60%	0,00%	100,00%	6	3,00%	6	0,6%	2,40%	1,02	60,84%
0,05%	11,11%	-2,77%	0,00%	4,79%	11,11%	100,00%	1	1,58%	10	1,0%	0,58%	1,01	61,77%

Portfolio absolute momentum	
Avg return	1,489%
Volatility	0,019150683
Sharpe ratio	0,777753675

Figure 99: Absolute momentum portfolio using random forest - part 2

2021-11-09	3,63%	14,29%	2,19%	14,29%	-0,22%	0,00%	5,86%	14,29%	3,01%	14,29%	0,13%	14,29%	-0,61%	0,00%
2021-11-10	0,49%	11,11%	-0,23%	0,00%	0,42%	11,11%	12,14%	11,11%	0,51%	11,11%	0,14%	11,11%	0,19%	11,11%
2021-11-11	-1,58%	0,00%	0,78%	33,33%	-2,01%	0,00%	-5,29%	0,00%	-5,66%	0,00%	-0,47%	0,00%	0,35%	33,33%
2021-11-12	-1,71%	0,00%	1,19%	16,67%	-2,32%	0,00%	9,02%	16,67%	-1,95%	0,00%	0,56%	16,67%	-1,18%	0,00%
2021-11-13	-1,27%	0,00%	-0,57%	0,00%	-1,04%	0,00%	-5,46%	0,00%	0,70%	50,00%	-0,80%	0,00%	1,06%	50,00%
2021-11-14	-0,13%	0,00%	0,68%	16,67%	-0,24%	0,00%	4,38%	16,67%	-0,40%	0,00%	0,20%	16,67%	0,53%	16,67%
2021-11-15	1,12%	14,29%	-1,12%	0,00%	0,23%	14,29%	1,04%	14,29%	0,80%	14,29%	-0,32%	0,00%	0,10%	14,29%
2021-11-16	-2,01%	0,00%	-0,63%	0,00%	0,01%	33,33%	-1,47%	0,00%	-0,57%	0,00%	0,01%	33,33%	-2,20%	0,00%
2021-11-17	-8,91%	0,00%	-6,08%	0,00%	-0,44%	0,00%	-13,10%	0,00%	-4,34%	0,00%	-0,09%	0,00%	-16,04%	0,00%
2021-11-18	-0,40%	0,00%	-0,47%	0,00%	0,31%	33,33%	-9,49%	0,00%	-4,10%	0,00%	0,21%	33,33%	-1,98%	0,00%
2021-11-19	-16,36%	0,00%	-10,61%	0,00%	-4,67%	0,00%	-4,69%	0,00%	-7,35%	0,00%	0,16%	100,00%	-1,28%	0,00%
2021-11-20	18,16%	10,00%	5,58%	10,00%	1,65%	10,00%	5,21%	10,00%	4,53%	10,00%	0,37%	10,00%	2,37%	10,00%
2021-11-21	9,38%	11,11%	4,86%	11,11%	0,27%	11,11%	4,98%	11,11%	-0,20%	0,00%	0,39%	11,11%	1,93%	11,11%
2021-11-22	-8,36%	0,00%	-3,87%	0,00%	0,15%	25,00%	3,56%	25,00%	-7,10%	0,00%	-0,50%	0,00%	1,73%	25,00%
2021-11-23	-15,76%	0,00%	-5,13%	0,00%	-3,91%	0,00%	-1,18%	0,00%	-4,06%	0,00%	-0,15%	0,00%	-1,36%	0,00%
2021-11-24	-1,60%	0,00%	2,91%	16,67%	1,74%	16,67%	-8,89%	0,00%	2,74%	16,67%	-0,37%	0,00%	-0,23%	0,00%
2021-11-25	-0,48%	0,00%	1,09%	50,00%	-1,81%	0,00%	1,71%	50,00%	-2,16%	0,00%	-0,24%	0,00%	-6,52%	0,00%
2021-11-26	-0,26%	0,00%	2,94%	12,50%	1,37%	12,50%	8,20%	12,50%	0,65%	12,50%	0,29%	12,50%	-0,29%	0,00%
2021-11-27	-5,52%	0,00%	-1,80%	0,00%	-3,12%	0,00%	-8,94%	0,00%	-3,87%	0,00%	0,10%	100,00%	-2,54%	0,00%
2021-11-28	2,26%	11,11%	2,36%	11,11%	1,14%	11,11%	-0,20%	0,00%	3,44%	11,11%	0,03%	11,11%	0,55%	11,11%
2021-11-29	2,41%	12,50%	1,95%	12,50%	0,78%	12,50%	-2,41%	0,00%	0,03%	12,50%	0,04%	12,50%	-0,39%	0,00%
2021-11-30	-0,58%	0,00%	0,33%	12,50%	2,17%	12,50%	1,45%	12,50%	2,02%	12,50%	-0,14%	0,00%	1,29%	12,50%
2021-12-01	-0,40%	0,00%	0,38%	25,00%	-1,97%	0,00%	-2,80%	0,00%	-0,62%	0,00%	0,15%	25,00%	1,33%	25,00%
2021-12-02	-2,91%	0,00%	0,73%	20,00%	0,23%	20,00%	-0,82%	0,00%	-2,01%	0,00%	0,09%	20,00%	0,17%	20,00%
2021-12-03	4,17%	33,33%	-0,25%	0,00%	-1,67%	0,00%	0,22%	33,33%	-0,30%	0,00%	0,03%	33,33%	-1,12%	0,00%
2021-12-04	-0,66%	0,00%	-3,86%	0,00%	0,23%	100,00%	-5,86%	0,00%	-3,48%	0,00%	-0,06%	0,00%	-10,37%	0,00%
2021-12-05	-9,73%	0,00%	-2,78%	0,00%	-7,05%	0,00%	-10,94%	0,00%	-6,85%	0,00%	-0,24%	0,00%	-2,06%	0,00%
2021-12-06	-1,97%	0,00%	-7,42%	0,00%	-0,64%	0,00%	-9,46%	0,00%	1,25%	33,33%	0,19%	33,33%	-13,61%	0,00%
2021-12-07	-1,62%	0,00%	4,44%	25,00%	0,43%	25,00%	6,56%	25,00%	-0,08%	0,00%	-0,07%	0,00%	-1,31%	0,00%
2021-12-08	0,28%	16,67%	2,12%	16,67%	0,86%	16,67%	0,05%	16,67%	-0,92%	0,00%	-0,05%	0,00%	5,46%	16,67%
2021-12-09	-1,04%	0,00%	3,85%	14,29%	-0,57%	0,00%	3,24%	14,29%	-0,40%	0,00%	0,04%	14,29%	6,72%	14,29%
2021-12-10	0,83%	33,33%	-2,63%	0,00%	-5,53%	0,00%	-6,96%	0,00%	-0,04%	0,00%	-0,06%	0,00%	0,07%	33,33%
2021-12-11	-12,81%	0,00%	-11,98%	0,00%	-2,95%	0,00%	-2,60%	0,00%	-0,43%	0,00%	0,23%	33,33%	-11,82%	0,00%
2021-12-12	12,10%	14,29%	7,55%	14,29%	8,41%	14,29%	6,73%	14,29%	-0,02%	0,00%	-0,05%	0,00%	4,51%	14,29%
2021-12-13	-0,47%	0,00%	1,46%	25,00%	1,39%	25,00%	-1,24%	0,00%	-0,96%	0,00%	-0,31%	0,00%	0,06%	25,00%
2021-12-14	-6,73%	0,00%	-16,61%	0,00%	-8,88%	0,00%	-6,36%	0,00%	-0,35%	0,00%	0,33%	100,00%	-7,49%	0,00%
2021-12-15	-0,95%	0,00%	-7,08%	0,00%	-1,31%	0,00%	-0,86%	0,00%	2,71%	33,33%	-0,23%	0,00%	-2,82%	0,00%
2021-12-16	9,52%	12,50%	9,68%	12,50%	9,02%	12,50%	2,65%	12,50%	-0,73%	0,00%	-0,01%	0,00%	5,85%	12,50%
2021-12-17	-0,66%	0,00%	-1,76%	0,00%	-4,99%	0,00%	-1,25%	0,00%	1,23%	50,00%	0,60%	50,00%	-1,76%	0,00%
2021-12-18	-7,08%	0,00%	0,77%	25,00%	-4,11%	0,00%	-2,26%	0,00%	1,23%	25,00%	-0,09%	0,00%	2,03%	25,00%
2021-12-19	7,49%	14,29%	3,04%	14,29%	1,21%	14,29%	1,72%	14,29%	-0,16%	0,00%	-0,27%	0,00%	-0,02%	0,00%
2021-12-20	0,18%	16,67%	1,90%	16,67%	-0,53%	0,00%	0,82%	16,67%	0,64%	16,67%	-0,01%	0,00%	-1,52%	0,00%
2021-12-21	-0,47%	0,00%	-1,05%	0,00%	0,61%	20,00%	-0,82%	0,00%	0,69%	20,00%	0,57%	20,00%	0,84%	20,00%
2021-12-22	-0,20%	0,00%	0,91%	14,29%	7,50%	14,29%	0,00%	14,29%	-0,16%	0,00%	-0,49%	0,00%	0,65%	14,29%
2021-12-23	-0,61%	0,00%	-0,56%	0,00%	-0,42%	0,00%	1,82%	16,67%	0,06%	16,67%	-0,16%	0,00%	0,86%	16,67%

Figure 100: Absolute momentum portfolio using random forest - part 3

8,12%	14,29%	-1,31%	0,00%	3,69%	14,29%	100,00%	3	3,80%	9	0,9%	2,90%	1,03	66,47%
15,45%	11,11%	1,51%	11,11%	0,23%	11,11%	100,00%	1	3,45%	10	1,0%	2,45%	1,02	70,55%
0,74%	33,33%	-5,98%	0,00%	-8,01%	0,00%	100,00%	7	0,62%	10	1,0%	-0,38%	1,00	69,91%
1,22%	16,67%	0,95%	16,67%	5,09%	16,67%	100,00%	4	3,00%	7	0,7%	2,30%	1,02	73,82%
-0,41%	0,00%	-1,46%	0,00%	-5,07%	0,00%	100,00%	8	0,88%	8	0,8%	0,08%	1,00	73,96%
0,97%	16,67%	0,29%	16,67%	-0,86%	0,00%	100,00%	4	1,18%	7	0,7%	0,48%	1,00	74,79%
7,40%	14,29%	-0,33%	0,00%	1,14%	14,29%	100,00%	3	1,69%	10	1,0%	0,69%	1,01	75,99%
-8,74%	0,00%	0,45%	33,33%	-0,63%	0,00%	100,00%	7	0,16%	9	0,9%	-0,74%	0,99	74,68%
-11,42%	0,00%	-13,18%	0,00%	-4,87%	0,00%	0,00%	10	0,00%	3	0,3%	-0,30%	1,00	74,16%
-0,21%	0,00%	13,40%	33,33%	-4,77%	0,00%	100,00%	7	4,64%	3	0,3%	4,34%	1,04	81,72%
-11,83%	0,00%	-15,91%	0,00%	-5,01%	0,00%	100,00%	9	0,16%	3	0,3%	-0,14%	1,00	81,45%
3,42%	10,00%	5,58%	10,00%	3,61%	10,00%	100,00%	0	5,05%	10	1,0%	4,05%	1,04	88,80%
9,00%	11,11%	0,95%	11,11%	2,90%	11,11%	100,00%	1	3,85%	10	1,0%	2,85%	1,03	94,18%
-0,57%	0,00%	1,94%	25,00%	-3,85%	0,00%	100,00%	6	1,84%	9	0,9%	0,94%	1,01	96,01%
-10,02%	0,00%	-5,87%	0,00%	-3,09%	0,00%	0,00%	10	0,00%	4	0,4%	-0,40%	1,00	95,23%
3,69%	16,67%	1,42%	16,67%	2,25%	16,67%	100,00%	4	2,46%	6	0,6%	1,86%	1,02	98,85%
-3,16%	0,00%	-3,19%	0,00%	-2,38%	0,00%	100,00%	8	1,40%	7	0,7%	0,70%	1,01	100,24%
3,05%	12,50%	0,34%	12,50%	0,46%	12,50%	100,00%	2	2,16%	8	0,8%	1,36%	1,01	102,97%
-8,49%	0,00%	-4,07%	0,00%	-8,39%	0,00%	100,00%	9	0,10%	8	0,8%	-0,70%	0,99	101,55%
0,67%	11,11%	2,49%	11,11%	2,38%	11,11%	100,00%	1	1,70%	9	0,9%	0,80%	1,01	103,17%
4,31%	12,50%	1,05%	12,50%	4,25%	12,50%	100,00%	2	1,85%	9	0,9%	0,95%	1,01	105,10%
0,98%	12,50%	1,58%	12,50%	0,73%	12,50%	100,00%	2	1,32%	4	0,4%	0,92%	1,01	106,98%
-0,65%	0,00%	-0,54%	0,00%	0,92%	25,00%	100,00%	6	0,69%	9	0,9%	-0,21%	1,00	106,56%
0,64%	20,00%	-0,51%	0,00%	-1,68%	0,00%	100,00%	5	0,37%	6	0,6%	-0,23%	1,00	106,08%
-0,56%	0,00%	-0,37%	0,00%	-0,69%	0,00%	100,00%	7	1,47%	7	0,7%	0,77%	1,01	107,68%
-10,57%	0,00%	-4,79%	0,00%	-4,64%	0,00%	100,00%	9	0,23%	4	0,4%	-0,17%	1,00	107,33%
-10,59%	0,00%	-17,79%	0,00%	-6,27%	0,00%	0,00%	10	0,00%	1	0,1%	-0,10%	1,00	107,12%
-5,20%	0,00%	0,01%	33,33%	-1,73%	0,00%	100,00%	7	0,48%	3	0,3%	0,18%	1,00	107,50%
5,74%	25,00%	-0,70%	0,00%	-0,87%	0,00%	100,00%	6	4,29%	7	0,7%	3,59%	1,04	114,96%
-0,57%	0,00%	8,78%	16,67%	-1,75%	0,00%	100,00%	4	2,93%	7	0,7%	2,23%	1,02	119,75%
0,94%	14,29%	1,63%	14,29%	1,23%	14,29%	100,00%	3	2,52%	9	0,9%	1,62%	1,02	123,31%
-7,22%	0,00%	-8,67%	0,00%	1,71%	33,33%	100,00%	7	0,87%	8	0,8%	0,07%	1,00	123,47%
1,30%	33,33%	0,15%	33,33%	-2,29%	0,00%	100,00%	7	0,56%	6	0,6%	-0,04%	1,00	123,38%
10,47%	14,29%	-0,55%	0,00%	1,68%	14,29%	100,00%	3	7,35%	9	0,9%	6,45%	1,06	137,79%
3,19%	25,00%	-0,75%	0,00%	-0,90%	0,00%	100,00%	6	1,53%	7	0,7%	0,83%	1,01	139,75%
-16,29%	0,00%	-4,74%	0,00%	-10,08%	0,00%	100,00%	9	0,33%	5	0,5%	-0,17%	1,00	139,36%
2,35%	33,33%	-0,07%	0,00%	8,72%	33,33%	100,00%	7	4,59%	4	0,4%	4,19%	1,04	149,39%
1,03%	12,50%	5,47%	12,50%	2,52%	12,50%	100,00%	2	5,72%	9	0,9%	4,82%	1,05	161,41%
-3,53%	0,00%	-4,99%	0,00%	-3,61%	0,00%	100,00%	8	0,92%	10	1,0%	-0,08%	1,00	161,19%
-1,51%	0,00%	3,25%	25,00%	-1,27%	0,00%	100,00%	6	1,82%	5	0,5%	1,32%	1,01	164,63%
1,10%	14,29%	1,05%	14,29%	0,67%	14,29%	100,00%	3	2,33%	9	0,9%	1,43%	1,01	168,40%
3,54%	16,67%	0,94%	16,67%	-0,20%	0,00%	100,00%	4	1,34%	8	0,8%	0,54%	1,01	169,85%
-3,19%	0,00%	-3,34%	0,00%	6,90%	20,00%	100,00%	5	1,92%	10	1,0%	0,92%	1,01	172,34%
2,96%	14,29%	3,14%	14,29%	7,67%	14,29%	100,00%	3	3,26%	9	0,9%	2,36%	1,02	178,78%
0,95%	16,67%	0,60%	16,67%	4,36%	16,67%	100,00%	4	1,44%	8	0,8%	0,64%	1,01	180,57%

Figure 101: Absolute momentum portfolio using random forest - part 4

2021-12-24	11,03%	10,00%	3,31%	10,00%	1,18%	10,00%	4,21%	10,00%	0,03%	10,00%	0,42%	10,00%	8,49%	10,00%
2021-12-25	-5,84%	0,00%	-2,48%	0,00%	0,58%	25,00%	3,71%	25,00%	-0,63%	0,00%	-0,28%	0,00%	4,87%	25,00%
2021-12-26	1,12%	14,29%	2,40%	14,29%	-0,49%	0,00%	2,82%	14,29%	5,97%	14,29%	0,25%	14,29%	2,35%	14,29%
2021-12-27	1,85%	20,00%	-3,65%	0,00%	-0,02%	0,00%	-0,21%	0,00%	-0,04%	0,00%	0,18%	20,00%	2,86%	20,00%
2021-12-28	4,36%	20,00%	9,78%	20,00%	-0,11%	0,00%	0,81%	20,00%	-3,36%	0,00%	-0,14%	0,00%	-0,19%	0,00%
2021-12-29	-5,42%	0,00%	-9,29%	0,00%	-5,97%	0,00%	-8,65%	0,00%	-2,20%	0,00%	0,14%	100,00%	-3,02%	0,00%
2021-12-30	-3,03%	0,00%	-9,29%	0,00%	-3,85%	0,00%	-3,16%	0,00%	1,04%	50,00%	-1,51%	0,00%	-9,16%	0,00%
2021-12-31	-1,80%	0,00%	2,97%	16,67%	1,45%	16,67%	-1,47%	0,00%	0,41%	16,67%	1,04%	16,67%	0,22%	16,67%
2022-01-01	0,60%	50,00%	-3,87%	0,00%	-1,58%	0,00%	0,08%	50,00%	-0,53%	0,00%	-0,36%	0,00%	-4,01%	0,00%
2022-01-02	0,39%	11,11%	7,82%	11,11%	3,70%	11,11%	5,43%	11,11%	-0,29%	0,00%	1,36%	11,11%	3,80%	11,11%
2022-01-03	0,82%	10,00%	3,77%	10,00%	0,26%	10,00%	3,30%	10,00%	0,08%	10,00%	0,53%	10,00%	5,49%	10,00%
2022-01-04	-0,98%	0,00%	-8,12%	0,00%	-2,77%	0,00%	-1,32%	0,00%	-0,49%	0,00%	-0,22%	0,00%	7,44%	50,00%
2022-01-05	-1,83%	0,00%	-1,37%	0,00%	0,13%	50,00%	-5,79%	0,00%	-0,01%	0,00%	-0,11%	0,00%	0,61%	50,00%
2022-01-06	-1,28%	0,00%	-0,90%	0,00%	-3,35%	0,00%	-9,36%	0,00%	0,15%	33,33%	-4,24%	0,00%	9,03%	33,33%
2022-01-07	0,15%	16,67%	0,11%	16,67%	-6,49%	0,00%	5,61%	16,67%	-0,43%	0,00%	-8,84%	0,00%	0,30%	16,67%
2022-01-08	-8,61%	0,00%	-0,18%	0,00%	-0,45%	0,00%	2,45%	33,33%	0,15%	33,33%	-5,36%	0,00%	0,84%	33,33%
2022-01-09	-0,19%	0,00%	-2,74%	0,00%	-0,35%	0,00%	8,76%	25,00%	0,35%	25,00%	-0,88%	0,00%	1,95%	25,00%
2022-01-10	-1,22%	0,00%	0,44%	20,00%	-0,47%	0,00%	10,24%	20,00%	-0,03%	0,00%	-0,48%	0,00%	8,00%	20,00%
2022-01-11	-3,62%	0,00%	-4,18%	0,00%	0,23%	33,33%	-6,20%	0,00%	-0,04%	0,00%	1,34%	33,33%	0,65%	33,33%
2022-01-12	2,98%	14,29%	7,91%	14,29%	-0,04%	0,00%	-2,19%	0,00%	-0,24%	0,00%	2,63%	14,29%	0,24%	14,29%
2022-01-13	12,26%	11,11%	0,56%	11,11%	12,87%	11,11%	0,19%	11,11%	-0,68%	0,00%	2,35%	11,11%	0,35%	11,11%
2022-01-14	-3,38%	0,00%	4,48%	33,33%	-11,41%	0,00%	-0,03%	0,00%	2,02%	33,33%	1,87%	33,33%	-7,04%	0,00%
2022-01-15	3,38%	12,50%	0,31%	12,50%	-0,06%	0,00%	1,07%	12,50%	1,15%	12,50%	0,43%	12,50%	0,39%	12,50%
2022-01-16	0,20%	14,29%	0,96%	14,29%	0,25%	14,29%	0,07%	14,29%	2,72%	14,29%	-0,37%	0,00%	-0,01%	0,00%
2022-01-17	7,68%	33,33%	-0,08%	0,00%	-0,05%	0,00%	-5,07%	0,00%	-0,58%	0,00%	-0,02%	0,00%	-0,55%	0,00%
2022-01-18	17,36%	50,00%	-0,13%	0,00%	-0,15%	0,00%	-1,67%	0,00%	-1,34%	0,00%	-0,50%	0,00%	-0,83%	0,00%
2022-01-19	-11,19%	0,00%	-0,46%	0,00%	-0,10%	0,00%	-4,03%	0,00%	-3,61%	0,00%	-2,35%	0,00%	-10,89%	0,00%
2022-01-20	-5,97%	0,00%	0,00%	0,00%	0,04%	25,00%	-1,45%	0,00%	0,87%	25,00%	-0,03%	0,00%	0,99%	25,00%
2022-01-21	-4,74%	0,00%	-5,19%	0,00%	-1,13%	0,00%	-6,66%	0,00%	-0,35%	0,00%	-0,17%	0,00%	-1,28%	0,00%
2022-01-22	-9,78%	0,00%	-12,30%	0,00%	-10,16%	0,00%	-9,46%	0,00%	-0,08%	0,00%	-16,47%	0,00%	-22,61%	0,00%
2022-01-23	-0,62%	0,00%	-2,53%	0,00%	-1,70%	0,00%	-7,54%	0,00%	0,12%	100,00%	-4,14%	0,00%	-8,80%	0,00%
2022-01-24	-2,53%	0,00%	2,81%	11,11%	0,76%	11,11%	0,76%	11,11%	0,52%	11,11%	2,26%	11,11%	3,62%	11,11%
2022-01-25	-0,70%	0,00%	0,10%	33,33%	5,31%	33,33%	-7,32%	0,00%	-1,38%	0,00%	-1,12%	0,00%	-5,06%	0,00%
2022-01-26	0,77%	16,67%	1,22%	16,67%	2,81%	16,67%	-0,48%	0,00%	-0,32%	0,00%	1,38%	16,67%	0,38%	16,67%
2022-01-27	-1,03%	0,00%	-0,67%	0,00%	-2,47%	0,00%	-0,01%	0,00%	-0,20%	0,00%	-0,17%	0,00%	-0,58%	0,00%
2022-01-28	0,20%	25,00%	1,48%	25,00%	-0,29%	0,00%	-0,29%	0,00%	0,01%	25,00%	-2,36%	0,00%	-2,19%	0,00%
2022-01-29	-0,11%	0,00%	1,07%	11,11%	0,62%	11,11%	2,34%	11,11%	0,75%	11,11%	3,98%	11,11%	2,81%	11,11%
2022-01-30	0,17%	14,29%	-0,51%	0,00%	0,08%	14,29%	2,14%	14,29%	-0,05%	0,00%	-0,12%	0,00%	0,36%	14,29%
2022-01-31	-0,12%	0,00%	-1,82%	0,00%	-1,02%	0,00%	-4,56%	0,00%	0,32%	33,33%	0,01%	33,33%	14,82%	33,33%
2022-02-01	0,18%	12,50%	-0,50%	0,00%	0,14%	12,50%	2,20%	12,50%	0,34%	12,50%	5,74%	12,50%	-4,75%	0,00%
2022-02-02	1,50%	10,00%	3,21%	10,00%	1,40%	10,00%	0,56%	10,00%	0,13%	10,00%	1,84%	10,00%	0,61%	10,00%
2022-02-03	-1,03%	0,00%	-3,62%	0,00%	-2,00%	0,00%	-3,68%	0,00%	-0,09%	0,00%	-1,72%	0,00%	-9,31%	0,00%
2022-02-04	0,73%	14,29%	-3,31%	0,00%	0,22%	14,29%	5,52%	14,29%	0,09%	14,29%	-0,40%	0,00%	-2,48%	0,00%
2022-02-05	0,08%	10,00%	8,37%	10,00%	7,03%	10,00%	7,70%	10,00%	1,53%	10,00%	15,60%	10,00%	13,35%	10,00%
2022-02-06	0,05%	12,50%	1,45%	12,50%	0,81%	12,50%	2,14%	12,50%	-0,44%	0,00%	1,66%	12,50%	4,65%	12,50%

Figure 102: Absolute momentum portfolio using random forest - part 5

10,37%	10,00%	9,20%	10,00%	1,55%	10,00%	100,00%	0	4,98%	10	1,0%	3,98%	1,04	191,73%
1,43%	25,00%	-8,42%	0,00%	-10,06%	0,00%	100,00%	6	2,65%	10	1,0%	1,65%	1,02	196,55%
-9,69%	0,00%	0,22%	14,29%	-0,53%	0,00%	100,00%	3	2,16%	9	0,9%	1,26%	1,01	200,29%
-1,93%	0,00%	8,37%	20,00%	0,93%	20,00%	100,00%	5	2,84%	8	0,8%	2,04%	1,02	206,40%
2,22%	20,00%	-0,79%	0,00%	0,87%	20,00%	100,00%	5	3,61%	6	0,6%	3,01%	1,03	215,62%
-3,91%	0,00%	-9,43%	0,00%	-4,94%	0,00%	100,00%	9	0,14%	6	0,6%	-0,46%	1,00	214,16%
0,18%	50,00%	-1,17%	0,00%	-2,69%	0,00%	100,00%	8	0,61%	3	0,3%	0,31%	1,00	215,13%
-3,06%	0,00%	0,50%	16,67%	-0,23%	0,00%	100,00%	4	1,10%	7	0,7%	0,40%	1,00	216,39%
-2,22%	0,00%	-3,00%	0,00%	-0,73%	0,00%	100,00%	8	0,34%	8	0,8%	-0,46%	1,00	214,94%
2,09%	11,11%	2,56%	11,11%	0,18%	11,11%	100,00%	1	3,04%	9	0,9%	2,14%	1,02	221,67%
0,43%	10,00%	4,67%	10,00%	3,26%	10,00%	100,00%	0	2,26%	10	1,0%	1,26%	1,01	225,72%
2,89%	50,00%	-1,96%	0,00%	-0,92%	0,00%	100,00%	8	5,16%	10	1,0%	4,16%	1,04	239,29%
-0,22%	0,00%	-2,59%	0,00%	-1,44%	0,00%	100,00%	8	0,37%	2	0,2%	0,17%	1,00	239,87%
-9,79%	0,00%	4,81%	33,33%	-15,59%	0,00%	100,00%	7	4,66%	4	0,4%	4,26%	1,04	254,35%
0,31%	16,67%	-4,55%	0,00%	3,65%	16,67%	100,00%	4	1,69%	8	0,8%	0,89%	1,01	257,50%
-2,64%	0,00%	-5,61%	0,00%	-3,54%	0,00%	100,00%	7	1,15%	7	0,7%	0,45%	1,00	259,10%
-0,73%	0,00%	-0,35%	0,00%	0,17%	25,00%	100,00%	6	2,81%	4	0,4%	2,41%	1,02	267,75%
0,09%	20,00%	0,24%	20,00%	-0,14%	0,00%	100,00%	5	3,80%	7	0,7%	3,10%	1,03	279,15%
-0,21%	0,00%	-4,60%	0,00%	-0,45%	0,00%	100,00%	7	0,74%	7	0,7%	0,04%	1,00	279,31%
0,51%	14,29%	3,30%	14,29%	0,44%	14,29%	100,00%	3	2,57%	8	0,8%	1,77%	1,02	286,03%
10,62%	11,11%	4,04%	11,11%	14,44%	11,11%	100,00%	1	6,41%	9	0,9%	5,51%	1,06	307,29%
-6,34%	0,00%	-2,62%	0,00%	-13,09%	0,00%	100,00%	7	2,79%	10	1,0%	1,79%	1,02	314,59%
8,43%	12,50%	1,79%	12,50%	-0,72%	0,00%	100,00%	2	2,12%	8	0,8%	1,32%	1,01	320,05%
-0,82%	0,00%	1,43%	14,29%	3,05%	14,29%	100,00%	3	1,24%	10	1,0%	0,24%	1,00	321,05%
2,45%	33,33%	-0,98%	0,00%	0,83%	33,33%	100,00%	7	3,65%	8	0,8%	2,85%	1,03	333,07%
3,67%	50,00%	-2,22%	0,00%	-3,36%	0,00%	100,00%	8	10,52%	3	0,3%	10,22%	1,10	377,31%
-7,81%	0,00%	0,08%	100,00%	-1,00%	0,00%	100,00%	9	0,08%	3	0,3%	-0,22%	1,00	376,24%
-2,47%	0,00%	-3,71%	0,00%	0,78%	25,00%	100,00%	6	0,67%	5	0,5%	0,17%	1,00	377,04%
-5,67%	0,00%	-3,68%	0,00%	-0,48%	0,00%	0,00%	10	0,00%	4	0,4%	-0,40%	1,00	375,13%
-9,40%	0,00%	-10,57%	0,00%	-8,67%	0,00%	0,00%	10	0,00%	0	0,0%	0,00%	1,00	375,13%
-6,03%	0,00%	-3,64%	0,00%	-5,22%	0,00%	100,00%	9	0,12%	1	0,1%	0,02%	1,00	375,23%
4,82%	11,11%	0,91%	11,11%	5,71%	11,11%	100,00%	1	2,46%	9	0,9%	1,56%	1,02	382,65%
-0,38%	0,00%	0,44%	33,33%	-2,28%	0,00%	100,00%	7	1,95%	9	0,9%	1,05%	1,01	387,71%
-5,41%	0,00%	-0,89%	0,00%	1,10%	16,67%	100,00%	4	1,28%	7	0,7%	0,58%	1,01	390,53%
0,72%	33,33%	0,99%	33,33%	0,76%	33,33%	100,00%	7	0,82%	8	0,8%	0,02%	1,00	390,63%
-0,22%	0,00%	1,85%	25,00%	-2,82%	0,00%	100,00%	6	0,88%	6	0,6%	0,28%	1,00	392,02%
5,75%	11,11%	0,46%	11,11%	2,17%	11,11%	100,00%	1	2,22%	10	1,0%	1,22%	1,01	398,01%
0,95%	14,29%	7,15%	14,29%	1,07%	14,29%	100,00%	3	1,70%	10	1,0%	0,70%	1,01	401,51%
-2,77%	0,00%	-2,74%	0,00%	-3,26%	0,00%	100,00%	7	5,05%	9	0,9%	4,15%	1,04	422,32%
1,48%	12,50%	0,84%	12,50%	2,27%	12,50%	100,00%	2	1,65%	9	0,9%	0,75%	1,01	426,22%
3,27%	10,00%	2,37%	10,00%	0,86%	10,00%	100,00%	0	1,58%	10	1,0%	0,58%	1,01	429,25%
-8,19%	0,00%	-1,91%	0,00%	-3,54%	0,00%	0,00%	10	0,00%	10	1,0%	-1,00%	0,99	423,96%
6,90%	14,29%	1,62%	14,29%	0,54%	14,29%	100,00%	3	2,23%	7	0,7%	1,53%	1,02	431,99%
5,93%	10,00%	4,34%	10,00%	10,57%	10,00%	100,00%	0	7,45%	10	1,0%	6,45%	1,06	466,30%
-1,08%	0,00%	4,65%	12,50%	0,20%	12,50%	100,00%	2	1,95%	10	1,0%	0,95%	1,01	471,69%

Figure 103: Absolute momentum portfolio using random forest - part 6

2022-02-07	2,15%	12,50%	2,14%	12,50%	0,95%	12,50%	3,47%	12,50%	1,81%	12,50%	1,74%	12,50%	3,21%	12,50%
2022-02-08	3,92%	12,50%	4,77%	12,50%	13,85%	12,50%	8,90%	12,50%	0,77%	12,50%	-0,32%	0,00%	-0,21%	0,00%
2022-02-09	-1,28%	0,00%	-6,80%	0,00%	-0,06%	0,00%	-1,64%	0,00%	0,52%	33,33%	-0,09%	0,00%	-0,63%	0,00%
2022-02-10	0,33%	20,00%	1,06%	20,00%	-0,88%	0,00%	-0,98%	0,00%	-1,23%	0,00%	3,22%	20,00%	-0,46%	0,00%
2022-02-11	-0,81%	0,00%	-2,43%	0,00%	-2,38%	0,00%	-0,01%	0,00%	-1,35%	0,00%	-3,13%	0,00%	-10,36%	0,00%
2022-02-12	-1,85%	0,00%	-0,24%	0,00%	-5,71%	0,00%	-9,83%	0,00%	-0,93%	0,00%	-5,99%	0,00%	-7,39%	0,00%
2022-02-13	0,64%	12,50%	0,20%	12,50%	0,18%	12,50%	1,30%	12,50%	0,24%	12,50%	0,19%	12,50%	-1,23%	0,00%
2022-02-14	0,65%	25,00%	-0,15%	0,00%	-0,38%	0,00%	-1,44%	0,00%	1,70%	25,00%	-2,16%	0,00%	-0,08%	0,00%
2022-02-15	-0,62%	0,00%	-0,05%	0,00%	-0,16%	0,00%	2,29%	50,00%	-1,82%	0,00%	2,23%	50,00%	-0,54%	0,00%
2022-02-16	-0,22%	0,00%	9,79%	11,11%	8,20%	11,11%	1,66%	11,11%	1,93%	11,11%	8,45%	11,11%	11,64%	11,11%
2022-02-17	-1,06%	0,00%	-5,13%	0,00%	0,56%	25,00%	6,35%	25,00%	-0,12%	0,00%	-1,98%	0,00%	-0,64%	0,00%
2022-02-18	0,57%	100,00%	-4,85%	0,00%	-10,57%	0,00%	-8,36%	0,00%	-2,69%	0,00%	-8,38%	0,00%	-9,44%	0,00%
2022-02-19	-0,73%	0,00%	-0,51%	0,00%	-0,59%	0,00%	-0,58%	0,00%	0,05%	33,33%	-2,49%	0,00%	-0,73%	0,00%
2022-02-20	-0,93%	0,00%	-0,39%	0,00%	-0,57%	0,00%	-3,06%	0,00%	0,05%	25,00%	-0,49%	0,00%	1,10%	25,00%
2022-02-21	0,36%	100,00%	-2,61%	0,00%	-4,23%	0,00%	-5,02%	0,00%	-0,10%	0,00%	-5,21%	0,00%	-5,82%	0,00%
2022-02-22	-20,79%	0,00%	-3,24%	0,00%	-2,26%	0,00%	-14,81%	0,00%	0,88%	100,00%	-6,42%	0,00%	-5,13%	0,00%
2022-02-23	10,43%	11,11%	2,72%	11,11%	3,73%	11,11%	12,84%	11,11%	0,15%	11,11%	4,32%	11,11%	3,38%	11,11%
2022-02-24	-9,00%	0,00%	-0,87%	0,00%	-1,04%	0,00%	-2,77%	0,00%	-0,69%	0,00%	-4,54%	0,00%	-3,68%	0,00%
2022-02-25	-0,39%	0,00%	-0,63%	0,00%	-1,68%	0,00%	-5,82%	0,00%	-0,93%	0,00%	-0,80%	0,00%	0,60%	100,00%
2022-02-26	11,72%	10,00%	3,00%	10,00%	0,14%	10,00%	10,04%	10,00%	0,17%	10,00%	10,80%	10,00%	2,28%	10,00%
2022-02-27	-1,59%	0,00%	0,12%	16,67%	1,30%	16,67%	-2,53%	0,00%	0,78%	16,67%	3,04%	16,67%	2,52%	16,67%
2022-02-28	-9,12%	0,00%	-3,29%	0,00%	-4,46%	0,00%	-8,39%	0,00%	-0,69%	0,00%	-6,20%	0,00%	-4,42%	0,00%
2022-03-01	24,92%	10,00%	7,24%	10,00%	10,51%	10,00%	19,00%	10,00%	0,09%	10,00%	9,99%	10,00%	12,70%	10,00%
2022-03-02	-0,80%	0,00%	2,92%	14,29%	12,45%	14,29%	-1,31%	0,00%	0,14%	14,29%	4,82%	14,29%	0,82%	14,29%
2022-03-03	1,01%	25,00%	-0,33%	0,00%	0,42%	25,00%	-0,23%	0,00%	0,04%	25,00%	0,18%	25,00%	-2,66%	0,00%
2022-03-04	-11,91%	0,00%	-0,66%	0,00%	-9,48%	0,00%	0,13%	33,33%	0,12%	33,33%	-5,46%	0,00%	-6,11%	0,00%
2022-03-05	-11,88%	0,00%	-6,01%	0,00%	-5,05%	0,00%	-7,78%	0,00%	0,09%	100,00%	-12,66%	0,00%	-4,33%	0,00%

Figure 104: Absolute momentum portfolio using random forest - part 7

4,47%	12,50%	-2,36%	0,00%	-0,17%	0,00%	100,00%	2	2,49%	4	0,4%	2,09%	1,02	483,64%
10,37%	12,50%	5,18%	12,50%	23,81%	12,50%	100,00%	2	8,95%	4	0,4%	8,55%	1,09	533,52%
-4,67%	0,00%	0,75%	33,33%	6,70%	33,33%	100,00%	7	2,66%	8	0,8%	1,86%	1,02	545,30%
6,58%	20,00%	2,17%	20,00%	-2,66%	0,00%	100,00%	5	2,67%	7	0,7%	1,97%	1,02	558,03%
-4,09%	0,00%	-1,39%	0,00%	-0,46%	0,00%	0,00%	10	0,00%	5	0,5%	-0,50%	1,00	554,74%
-4,83%	0,00%	-9,33%	0,00%	-15,30%	0,00%	0,00%	10	0,00%	0	0,0%	0,00%	1,00	554,74%
2,58%	12,50%	-0,98%	0,00%	17,24%	12,50%	100,00%	2	2,82%	8	0,8%	2,02%	1,02	567,98%
-1,87%	0,00%	1,01%	25,00%	0,43%	25,00%	100,00%	6	0,95%	9	0,9%	0,05%	1,00	568,31%
-3,74%	0,00%	-0,97%	0,00%	-1,65%	0,00%	100,00%	8	2,26%	6	0,6%	1,66%	1,02	579,40%
6,29%	11,11%	6,92%	11,11%	2,57%	11,11%	100,00%	1	6,38%	9	0,9%	5,48%	1,05	616,65%
-1,78%	0,00%	1,27%	25,00%	0,84%	25,00%	100,00%	6	2,26%	9	0,9%	1,36%	1,01	626,36%
-11,25%	0,00%	-9,21%	0,00%	-14,98%	0,00%	100,00%	9	0,57%	5	0,5%	0,07%	1,00	626,85%
0,45%	33,33%	-2,64%	0,00%	5,11%	33,33%	100,00%	7	1,87%	4	0,4%	1,47%	1,01	637,55%
0,11%	25,00%	-0,89%	0,00%	10,77%	25,00%	100,00%	6	3,01%	4	0,4%	2,61%	1,03	656,78%
-1,66%	0,00%	-5,80%	0,00%	-10,79%	0,00%	100,00%	9	0,36%	5	0,5%	-0,14%	1,00	655,71%
-7,98%	0,00%	-3,72%	0,00%	-10,28%	0,00%	100,00%	9	0,88%	2	0,2%	0,68%	1,01	660,84%
-0,05%	0,00%	0,29%	11,11%	3,12%	11,11%	100,00%	1	4,55%	9	0,9%	3,65%	1,04	688,64%
0,34%	50,00%	2,92%	50,00%	-4,13%	0,00%	100,00%	8	1,63%	10	1,0%	0,63%	1,01	693,61%
-0,71%	0,00%	-1,42%	0,00%	-0,84%	0,00%	100,00%	9	0,60%	3	0,3%	0,30%	1,00	696,01%
7,01%	10,00%	1,42%	10,00%	6,26%	10,00%	100,00%	0	5,28%	10	1,0%	4,28%	1,04	730,12%
-4,37%	0,00%	10,56%	16,67%	-0,76%	0,00%	100,00%	4	3,05%	10	1,0%	2,05%	1,02	747,15%
-1,88%	0,00%	-6,05%	0,00%	-0,53%	0,00%	0,00%	10	0,00%	6	0,6%	-0,60%	0,99	742,07%
8,84%	10,00%	6,61%	10,00%	5,14%	10,00%	100,00%	0	10,51%	10	1,0%	9,51%	1,10	822,11%
-0,11%	0,00%	1,84%	14,29%	1,53%	14,29%	100,00%	3	3,50%	10	1,0%	2,50%	1,03	845,21%
-0,06%	0,00%	-3,11%	0,00%	-5,70%	0,00%	100,00%	6	0,41%	8	0,8%	-0,39%	1,00	841,54%
0,14%	33,33%	-0,86%	0,00%	-1,11%	0,00%	100,00%	7	0,13%	6	0,6%	-0,47%	1,00	837,13%
-15,79%	0,00%	-6,00%	0,00%	-3,53%	0,00%	100,00%	9	0,09%	3	0,3%	-0,21%	1,00	835,20%

Figure 105: Absolute momentum portfolio using random forest - part 8

1.6.3.2 Dual momentum portfolio

	ADA		BNB		BTC		DASH		DOGE		ETH		LINK	
	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight
		10%		10%		10%		10%		10%		10%		10%
2021-10-04	-1,58%	0,00%	-0,29%	0,00%	-0,56%	0,00%	-0,77%	0,00%	-1,28%	0,00%	-0,42%	0,00%	1,34%	50,00%
2021-10-05	-0,51%	0,00%	-4,82%	0,00%	2,58%	50,00%	-2,26%	0,00%	11,84%	50,00%	-3,33%	0,00%	-4,75%	0,00%
2021-10-06	-2,41%	0,00%	8,43%	50,00%	5,82%	0,00%	5,92%	0,00%	4,87%	0,00%	7,37%	0,00%	5,95%	0,00%
2021-10-07	0,22%	0,00%	-4,28%	0,00%	8,72%	50,00%	1,35%	0,00%	2,61%	0,00%	0,35%	0,00%	-0,11%	0,00%
2021-10-08	0,88%	0,00%	1,38%	50,00%	-2,27%	0,00%	-0,48%	0,00%	-0,09%	0,00%	0,10%	0,00%	1,86%	50,00%
2021-10-09	1,31%	50,00%	-4,76%	0,00%	0,90%	0,00%	1,86%	50,00%	-2,12%	0,00%	0,41%	0,00%	-5,96%	0,00%
2021-10-10	-1,56%	0,00%	0,54%	0,00%	1,17%	0,00%	3,58%	0,00%	-0,46%	0,00%	-0,29%	0,00%	5,30%	50,00%
2021-10-11	-0,17%	50,00%	-1,81%	0,00%	-0,51%	0,00%	-4,74%	0,00%	-2,69%	0,00%	-4,19%	0,00%	-6,92%	0,00%
2021-10-12	-0,08%	0,00%	0,97%	0,00%	1,53%	0,00%	0,92%	0,00%	-1,84%	0,00%	3,80%	50,00%	-0,96%	0,00%
2021-10-13	-0,58%	0,00%	11,04%	50,00%	0,04%	0,00%	-0,67%	0,00%	-3,18%	0,00%	0,22%	0,00%	-1,06%	0,00%
2021-10-14	0,98%	0,00%	0,93%	0,00%	0,11%	0,00%	0,45%	0,00%	1,16%	50,00%	0,71%	0,00%	0,00%	0,00%
2021-10-15	1,52%	0,00%	-0,87%	0,00%	-0,33%	0,00%	-0,17%	0,00%	0,19%	0,00%	1,08%	0,00%	7,68%	50,00%
2021-10-16	0,59%	0,00%	0,73%	0,00%	1,07%	0,00%	6,93%	50,00%	0,27%	0,00%	-0,89%	0,00%	0,91%	0,00%
2021-10-17	-0,07%	0,00%	-0,12%	0,00%	-0,12%	0,00%	-2,70%	0,00%	1,93%	50,00%	1,05%	0,00%	-0,16%	0,00%
2021-10-18	-2,41%	0,00%	-0,84%	0,00%	0,08%	0,00%	-3,63%	0,00%	0,58%	50,00%	-0,66%	0,00%	-4,78%	0,00%
2021-10-19	1,08%	50,00%	-1,46%	0,00%	0,12%	0,00%	-0,82%	0,00%	1,36%	50,00%	-0,45%	0,00%	-2,86%	0,00%
2021-10-20	-1,29%	0,00%	1,70%	50,00%	0,12%	0,00%	7,08%	50,00%	0,30%	0,00%	0,48%	0,00%	-0,44%	0,00%
2021-10-21	1,25%	0,00%	-0,19%	0,00%	-0,01%	0,00%	2,28%	0,00%	1,83%	0,00%	0,05%	0,00%	9,17%	50,00%
2021-10-22	1,66%	50,00%	0,80%	0,00%	-0,28%	0,00%	0,50%	0,00%	1,30%	0,00%	-0,28%	0,00%	0,10%	0,00%
2021-10-23	-0,15%	0,00%	-1,26%	0,00%	-0,25%	0,00%	-0,59%	0,00%	-2,25%	0,00%	-1,03%	0,00%	0,27%	50,00%
2021-10-24	-0,32%	0,00%	0,37%	0,00%	-0,11%	0,00%	-1,30%	0,00%	1,48%	0,00%	-0,20%	0,00%	8,33%	50,00%
2021-10-25	-2,54%	0,00%	-0,65%	0,00%	0,07%	0,00%	0,47%	50,00%	5,22%	50,00%	0,04%	0,00%	-2,50%	0,00%
2021-10-26	2,35%	0,00%	-0,23%	0,00%	0,12%	0,00%	0,99%	0,00%	0,70%	0,00%	-0,23%	0,00%	9,56%	50,00%
2021-10-27	-0,90%	0,00%	2,29%	50,00%	0,09%	0,00%	-0,47%	0,00%	-2,57%	0,00%	0,02%	0,00%	-1,50%	0,00%
2021-10-28	-7,47%	0,00%	-1,69%	0,00%	-0,75%	50,00%	-12,29%	0,00%	-1,80%	0,00%	-0,59%	50,00%	-14,30%	0,00%
2021-10-29	1,79%	0,00%	0,34%	0,00%	0,87%	0,00%	2,81%	0,00%	5,61%	0,00%	0,63%	0,00%	10,12%	50,00%
2021-10-30	3,28%	0,00%	4,97%	50,00%	0,86%	0,00%	0,82%	0,00%	1,81%	0,00%	-0,12%	0,00%	0,94%	0,00%
2021-10-31	-2,62%	0,00%	0,21%	0,00%	0,43%	0,00%	0,08%	0,00%	-0,68%	0,00%	0,14%	0,00%	-7,21%	0,00%
2021-11-01	0,32%	0,00%	1,54%	0,00%	0,60%	0,00%	6,45%	50,00%	2,00%	0,00%	-0,11%	0,00%	4,37%	0,00%
2021-11-02	-0,66%	0,00%	5,37%	50,00%	1,30%	0,00%	-4,51%	0,00%	-0,22%	0,00%	-0,07%	0,00%	4,38%	0,00%
2021-11-03	-0,19%	0,00%	0,26%	0,00%	0,83%	0,00%	7,44%	50,00%	-1,00%	0,00%	0,69%	0,00%	1,74%	0,00%
2021-11-04	5,92%	50,00%	8,07%	50,00%	-0,18%	0,00%	0,85%	0,00%	0,02%	0,00%	0,17%	0,00%	0,32%	0,00%
2021-11-05	-4,85%	0,00%	-3,88%	0,00%	-0,87%	0,00%	-0,65%	0,00%	-2,67%	0,00%	-0,39%	50,00%	-1,88%	0,00%
2021-11-06	-0,97%	0,00%	9,45%	50,00%	1,29%	0,00%	-0,20%	0,00%	-0,47%	0,00%	-0,19%	0,00%	4,32%	50,00%
2021-11-07	3,56%	50,00%	3,89%	50,00%	1,71%	0,00%	-4,34%	0,00%	-0,59%	0,00%	-0,23%	0,00%	-0,95%	0,00%
2021-11-08	0,63%	0,00%	1,37%	0,00%	0,83%	0,00%	2,37%	0,00%	1,14%	0,00%	0,40%	0,00%	2,64%	50,00%

Figure 106: Dual momentum portfolio using random forest - part 1

MENTUM

XLM		XRP			50%		50%							
Returns	Weight	Returns	Weight	sum of weights	MAX		2e MAX		Portfolio returns without transac. Cost	Number of transactions	Transaction cost	Portfolio returns with transac. cost	1+r	Cumulative return
	10%		10%		asset	returns	asset	returns						
0,67%	50,00%	0,32%	0,00%	100,00%	LINK	0,013445	XLM	0,0066881	1,01%	10	1,00%	0,01%	1,000066593	0,01%
-5,42%	0,00%	0,79%	0,00%	100,00%	DOGE	0,118423	BTC	0,0257601	7,21%	4	0,40%	6,81%	1,068091573	6,82%
12,40%	50,00%	1,62%	0,00%	100,00%	XLM	0,1239762	BNB	0,0843014	10,41%	4	0,40%	10,01%	1,100138764	17,51%
0,24%	0,00%	1,02%	0,00%	100,00%	BTC	0,0872413	LTC	0,0304865	5,89%	4	0,40%	5,49%	1,054863939	23,96%
1,38%	0,00%	-0,91%	0,00%	100,00%	LINK	0,0186136	BNB	0,013787	1,62%	4	0,40%	1,22%	1,01220029	25,47%
-0,92%	0,00%	-0,43%	0,00%	100,00%	DASH	0,0185504	ADA	0,0131312	1,58%	4	0,40%	1,18%	1,011840819	26,96%
2,10%	0,00%	1,99%	0,00%	100,00%	LINK	0,0530104	LTC	0,0447295	4,89%	4	0,40%	4,49%	1,04486994	32,65%
-2,65%	0,00%	2,98%	50,00%	100,00%	XRP	0,0298246	ADA	-0,0017302	1,40%	4	0,40%	1,00%	1,010047207	33,99%
0,83%	0,00%	0,38%	0,00%	100,00%	LTC	0,0426264	ETH	0,0380096	4,03%	4	0,40%	3,63%	1,036317971	38,85%
0,70%	50,00%	0,03%	0,00%	100,00%	BNB	0,1104105	XLM	0,0070461	5,87%	4	0,40%	5,47%	1,054728302	46,45%
1,53%	50,00%	-1,68%	0,00%	100,00%	XLM	0,0152762	DOGE	0,0115805	1,34%	2	0,20%	1,14%	1,01142836	48,13%
0,05%	0,00%	-0,22%	0,00%	100,00%	LINK	0,0767617	LTC	0,0473086	6,20%	4	0,40%	5,80%	1,058035184	56,72%
0,02%	0,00%	1,08%	0,00%	100,00%	DASH	0,0693391	LTC	0,0595236	6,44%	2	0,20%	6,24%	1,062431355	66,51%
-2,68%	0,00%	2,13%	50,00%	100,00%	XRP	0,0212849	DOGE	0,019256	2,03%	4	0,40%	1,63%	1,016270423	69,22%
-0,78%	0,00%	-1,13%	0,00%	100,00%	LTC	0,0146672	DOGE	0,0058454	1,03%	2	0,20%	0,83%	1,008256273	70,61%
-1,29%	0,00%	-4,04%	0,00%	100,00%	DOGE	0,0135923	ADA	0,0107594	1,22%	2	0,20%	1,02%	1,010175867	72,35%
-0,08%	0,00%	-0,35%	0,00%	100,00%	DASH	0,0707915	BNB	0,0170462	4,39%	4	0,40%	3,99%	1,039918853	79,23%
2,86%	0,00%	2,01%	0,00%	100,00%	LINK	0,0917263	LTC	0,0732253	8,25%	4	0,40%	7,85%	1,07847584	93,30%
-0,87%	0,00%	1,55%	50,00%	100,00%	ADA	0,0165567	XRP	0,0154667	1,60%	4	0,40%	1,20%	1,012011686	95,62%
0,73%	50,00%	-2,70%	0,00%	100,00%	XLM	0,0072695	LINK	0,0027464	0,50%	4	0,40%	0,10%	1,001007954	95,81%
-0,47%	0,00%	0,13%	0,00%	100,00%	LINK	0,0833432	LTC	0,0454889	6,44%	2	0,20%	6,24%	1,062416053	108,04%
-1,83%	0,00%	-1,88%	0,00%	100,00%	DOGE	0,0521867	DASH	0,0047478	2,85%	4	0,40%	2,45%	1,024467293	113,13%
2,19%	0,00%	0,67%	0,00%	100,00%	LINK	0,0956423	LTC	0,0574051	7,65%	4	0,40%	7,25%	1,072523721	128,58%
0,24%	0,00%	1,35%	0,00%	100,00%	LTC	0,0444675	BNB	0,0229131	3,37%	2	0,20%	3,17%	1,031690292	135,83%
-12,21%	0,00%	-13,00%	0,00%	100,00%	ETH	-0,0059052	BTC	-0,0074979	-0,67%	4	0,40%	-1,07%	0,989298464	133,30%
7,77%	0,00%	8,62%	50,00%	100,00%	LINK	0,101217	XRP	0,0861865	9,37%	4	0,40%	8,97%	1,089701755	154,23%
3,69%	0,00%	2,08%	0,00%	100,00%	LTC	0,0511625	BNB	0,0497416	5,05%	4	0,40%	4,65%	1,046452076	166,04%
5,27%	50,00%	1,42%	50,00%	100,00%	XLM	0,052712	XRP	0,0142157	3,35%	4	0,40%	2,95%	1,02946382	173,88%
7,88%	50,00%	2,17%	0,00%	100,00%	XLM	0,0787508	DASH	0,06446	7,16%	2	0,20%	6,96%	1,069605405	192,94%
2,92%	0,00%	0,85%	0,00%	100,00%	LTC	0,0544798	BNB	0,0537054	5,41%	4	0,40%	5,01%	1,050092592	207,62%
6,88%	50,00%	0,55%	0,00%	100,00%	DASH	0,0743636	XLM	0,068765	7,16%	4	0,40%	6,76%	1,067564317	228,40%
0,72%	0,00%	3,88%	0,00%	100,00%	BNB	0,0807091	ADA	0,0592218	7,00%	4	0,40%	6,60%	1,065965448	250,06%
-4,11%	0,00%	1,51%	50,00%	100,00%	XRP	0,0150812	ETH	-0,0039419	0,56%	4	0,40%	0,16%	1,001569654	250,61%
2,72%	0,00%	-0,75%	0,00%	100,00%	BNB	0,0944631	LINK	0,0431887	6,88%	4	0,40%	6,48%	1,064825919	273,34%
2,83%	0,00%	-0,60%	0,00%	100,00%	BNB	0,0389329	ADA	0,0356002	3,73%	2	0,20%	3,53%	1,03526654	286,51%
-2,77%	0,00%	4,79%	50,00%	100,00%	XRP	0,0478795	LINK	0,0264113	3,71%	4	0,40%	3,31%	1,033145399	299,32%

Portfolio dual momentum	
Avg return	3,790%
Volatility	0,04055665
Sharpe ratio	0,93441936

Figure 107: Dual momentum portfolio using random forest - part 2

2021-11-09	3,63%	0,00%	2,19%	0,00%	-0,22%	0,00%	5,86%	50,00%	3,01%	0,00%	0,13%	0,00%	-0,61%	0,00%
2021-11-10	0,49%	0,00%	-0,23%	0,00%	0,42%	0,00%	12,14%	50,00%	0,51%	0,00%	0,14%	0,00%	0,19%	0,00%
2021-11-11	-1,58%	0,00%	0,78%	50,00%	-2,01%	0,00%	-5,29%	0,00%	-5,66%	0,00%	-0,47%	0,00%	0,35%	0,00%
2021-11-12	-1,71%	0,00%	1,19%	0,00%	-2,32%	0,00%	9,02%	50,00%	-1,95%	0,00%	0,56%	0,00%	-1,18%	0,00%
2021-11-13	-1,27%	0,00%	-0,57%	0,00%	-1,04%	0,00%	-5,46%	0,00%	0,70%	50,00%	-0,80%	0,00%	1,06%	50,00%
2021-11-14	-0,13%	0,00%	0,68%	0,00%	-0,24%	0,00%	4,38%	50,00%	-0,40%	0,00%	0,20%	0,00%	0,53%	0,00%
2021-11-15	1,12%	0,00%	-1,12%	0,00%	0,23%	0,00%	1,04%	0,00%	0,80%	0,00%	-0,32%	0,00%	0,10%	0,00%
2021-11-16	-2,01%	0,00%	-0,63%	0,00%	0,01%	50,00%	-1,47%	0,00%	-0,57%	0,00%	0,01%	0,00%	-2,20%	0,00%
2021-11-17	-8,91%	0,00%	-6,08%	0,00%	-0,44%	50,00%	-13,10%	0,00%	-4,34%	0,00%	-0,09%	50,00%	-16,04%	0,00%
2021-11-18	-0,40%	0,00%	-0,47%	0,00%	0,31%	50,00%	-9,49%	0,00%	-4,10%	0,00%	0,21%	0,00%	-1,98%	0,00%
2021-11-19	-16,36%	0,00%	-10,61%	0,00%	-4,67%	0,00%	-4,69%	0,00%	-7,35%	0,00%	0,16%	50,00%	-1,28%	50,00%
2021-11-20	18,16%	50,00%	5,58%	50,00%	1,65%	0,00%	5,21%	0,00%	4,53%	0,00%	0,37%	0,00%	2,37%	0,00%
2021-11-21	9,38%	50,00%	4,86%	0,00%	0,27%	0,00%	4,98%	0,00%	-0,20%	0,00%	0,39%	0,00%	1,93%	0,00%
2021-11-22	-8,36%	0,00%	-3,87%	0,00%	0,15%	0,00%	3,56%	50,00%	-7,10%	0,00%	-0,50%	0,00%	1,73%	0,00%
2021-11-23	-15,76%	0,00%	-5,13%	0,00%	-3,91%	0,00%	-1,18%	50,00%	-4,06%	0,00%	-0,15%	50,00%	-1,36%	0,00%
2021-11-24	-1,60%	0,00%	2,91%	50,00%	1,74%	0,00%	-8,89%	0,00%	2,74%	0,00%	-0,37%	0,00%	-0,23%	0,00%
2021-11-25	-0,48%	0,00%	1,09%	50,00%	-1,81%	0,00%	1,71%	50,00%	-2,16%	0,00%	-0,24%	0,00%	-6,52%	0,00%
2021-11-26	-0,26%	0,00%	2,94%	0,00%	1,37%	0,00%	8,20%	50,00%	0,65%	0,00%	0,29%	0,00%	-0,29%	0,00%
2021-11-27	-5,52%	0,00%	-1,80%	50,00%	-3,12%	0,00%	-8,94%	0,00%	-3,87%	0,00%	0,10%	50,00%	-2,54%	0,00%
2021-11-28	2,26%	0,00%	2,36%	0,00%	1,14%	0,00%	-0,20%	0,00%	3,44%	50,00%	0,03%	0,00%	0,55%	0,00%
2021-11-29	2,41%	0,00%	1,95%	0,00%	0,78%	0,00%	-2,41%	0,00%	0,03%	0,00%	0,04%	0,00%	-0,39%	0,00%
2021-11-30	-0,58%	0,00%	0,33%	0,00%	2,17%	50,00%	1,45%	0,00%	2,02%	50,00%	-0,14%	0,00%	1,29%	0,00%
2021-12-01	-0,40%	0,00%	0,38%	0,00%	-1,97%	0,00%	-2,80%	0,00%	-0,62%	0,00%	0,15%	0,00%	1,33%	50,00%
2021-12-02	-2,91%	0,00%	0,73%	50,00%	0,23%	0,00%	-0,82%	0,00%	-2,01%	0,00%	0,09%	0,00%	0,17%	0,00%
2021-12-03	4,17%	50,00%	-0,25%	0,00%	-1,67%	0,00%	0,22%	50,00%	-0,30%	0,00%	0,03%	0,00%	-1,12%	0,00%
2021-12-04	-0,66%	0,00%	-3,86%	0,00%	0,23%	50,00%	-5,86%	0,00%	-3,48%	0,00%	-0,06%	50,00%	-10,37%	0,00%
2021-12-05	-9,73%	0,00%	-2,78%	0,00%	-7,05%	0,00%	-10,94%	0,00%	-6,85%	0,00%	-0,24%	50,00%	-2,06%	50,00%
2021-12-06	-1,97%	0,00%	-7,42%	0,00%	-0,64%	0,00%	-9,46%	0,00%	1,25%	50,00%	0,19%	50,00%	-13,61%	0,00%
2021-12-07	-1,62%	0,00%	4,44%	0,00%	0,43%	0,00%	6,56%	50,00%	-0,08%	0,00%	-0,07%	0,00%	-1,31%	0,00%
2021-12-08	0,28%	0,00%	2,12%	0,00%	0,86%	0,00%	0,05%	0,00%	-0,92%	0,00%	-0,05%	0,00%	5,46%	50,00%
2021-12-09	-1,04%	0,00%	3,85%	50,00%	-0,57%	0,00%	3,24%	0,00%	-0,40%	0,00%	0,04%	0,00%	6,72%	50,00%
2021-12-10	0,83%	50,00%	-2,63%	0,00%	-5,53%	0,00%	-6,96%	0,00%	-0,04%	0,00%	-0,06%	0,00%	0,07%	0,00%
2021-12-11	-12,81%	0,00%	-11,98%	0,00%	-2,95%	0,00%	-2,60%	0,00%	-0,43%	0,00%	0,23%	50,00%	-11,82%	0,00%
2021-12-12	12,10%	50,00%	7,55%	0,00%	8,41%	0,00%	6,73%	0,00%	-0,02%	0,00%	-0,05%	0,00%	4,51%	0,00%
2021-12-13	-0,47%	0,00%	1,46%	50,00%	1,39%	0,00%	-1,24%	0,00%	-0,96%	0,00%	-0,31%	0,00%	0,06%	0,00%
2021-12-14	-6,73%	0,00%	-16,61%	0,00%	-8,88%	0,00%	-6,36%	0,00%	-0,35%	50,00%	0,33%	50,00%	-7,49%	0,00%
2021-12-15	-0,95%	0,00%	-7,08%	0,00%	-1,31%	0,00%	-0,86%	0,00%	2,71%	50,00%	-0,23%	0,00%	-2,82%	0,00%
2021-12-16	9,52%	50,00%	9,68%	50,00%	9,02%	0,00%	2,65%	0,00%	-0,73%	0,00%	-0,01%	0,00%	5,85%	0,00%
2021-12-17	-0,66%	0,00%	-1,76%	0,00%	-4,99%	0,00%	-1,25%	0,00%	1,23%	50,00%	0,60%	50,00%	-1,76%	0,00%
2021-12-18	-7,08%	0,00%	0,77%	0,00%	-4,11%	0,00%	-2,26%	0,00%	1,23%	0,00%	-0,09%	0,00%	2,03%	50,00%
2021-12-19	7,49%	50,00%	3,04%	50,00%	1,21%	0,00%	1,72%	0,00%	-0,16%	0,00%	-0,27%	0,00%	-0,02%	0,00%
2021-12-20	0,18%	0,00%	1,90%	50,00%	-0,53%	0,00%	0,82%	0,00%	0,64%	0,00%	-0,01%	0,00%	-1,52%	0,00%
2021-12-21	-0,47%	0,00%	-1,05%	0,00%	0,61%	0,00%	-0,82%	0,00%	0,69%	0,00%	0,57%	0,00%	0,84%	50,00%
2021-12-22	-0,20%	0,00%	0,91%	0,00%	7,50%	50,00%	0,00%	0,00%	-0,16%	0,00%	-0,49%	0,00%	0,65%	0,00%
2021-12-23	-0,61%	0,00%	-0,56%	0,00%	-0,42%	0,00%	1,82%	50,00%	0,06%	0,00%	-0,16%	0,00%	0,86%	0,00%

Figure 108: Dual momentum portfolio using random forest - part 3

50,00%	-1,31%	0,00%	3,69%	0,00%	100,00%	LTC	0,081178	DASH	0,0585686	6,99%	4	0,40%	6,59%	1,065873283	325,62%
50,00%	1,51%	0,00%	0,23%	0,00%	100,00%	LTC	0,1545124	DASH	0,1214481	13,80%	0	0,00%	13,80%	1,137980232	384,35%
50,00%	-5,98%	0,00%	-8,01%	0,00%	100,00%	BNB	0,0078302	LTC	0,0073717	0,76%	2	0,20%	0,56%	1,00560099	387,06%
0,00%	0,95%	0,00%	5,09%	50,00%	100,00%	DASH	0,0901705	XRP	0,0508584	7,05%	4	0,40%	6,65%	1,066514481	419,46%
0,00%	-1,46%	0,00%	-5,07%	0,00%	100,00%	LINK	0,0106161	DOGE	0,0069895	0,88%	4	0,40%	0,48%	1,00480281	421,96%
50,00%	0,29%	0,00%	-0,86%	0,00%	100,00%	DASH	0,0437871	LTC	0,0097377	2,68%	4	0,40%	2,28%	1,022762397	433,84%
50,00%	-0,33%	0,00%	1,14%	50,00%	100,00%	LTC	0,073964	XRP	0,0113715	4,27%	2	0,20%	4,07%	1,040667763	455,55%
0,00%	0,45%	50,00%	-0,63%	0,00%	100,00%	XLM	0,0044518	BTC	0,000143	0,23%	4	0,40%	-0,17%	0,998297387	454,60%
0,00%	-13,18%	0,00%	-4,87%	0,00%	100,00%	ETH	-0,0009311	BTC	-0,0044412	-0,27%	2	0,20%	-0,47%	0,995313839	452,00%
0,00%	13,40%	50,00%	-4,77%	0,00%	100,00%	XLM	0,1340427	BTC	0,003054	6,85%	2	0,20%	6,65%	1,066548321	488,74%
0,00%	-15,91%	0,00%	-5,01%	0,00%	100,00%	ETH	0,0015523	LINK	-0,0128212	-0,56%	4	0,40%	-0,96%	0,990365519	483,06%
0,00%	5,58%	0,00%	3,61%	0,00%	100,00%	ADA	0,1815622	BNB	0,0558441	11,87%	4	0,40%	11,47%	1,114703181	549,94%
50,00%	0,95%	0,00%	2,90%	0,00%	100,00%	ADA	0,0937542	LTC	0,0899896	9,19%	2	0,20%	8,99%	1,0898719	608,36%
0,00%	1,94%	50,00%	-3,85%	0,00%	100,00%	DASH	0,0355874	XLM	0,0194233	2,75%	4	0,40%	2,35%	1,023505308	625,01%
0,00%	-5,87%	0,00%	-3,09%	0,00%	100,00%	ETH	-0,0014511	DASH	-0,0117873	-0,66%	2	0,20%	-0,86%	0,991380799	618,76%
50,00%	1,42%	0,00%	2,25%	0,00%	100,00%	LTC	0,0369267	BNB	0,0290935	3,30%	4	0,40%	2,90%	1,029010121	639,61%
0,00%	-3,19%	0,00%	-2,38%	0,00%	100,00%	DASH	0,017098	BNB	0,0108665	1,40%	2	0,20%	1,20%	1,011982272	648,47%
50,00%	0,34%	0,00%	0,46%	0,00%	100,00%	DASH	0,0820315	LTC	0,0305375	5,63%	2	0,20%	5,43%	1,05428446	689,10%
0,00%	-4,07%	0,00%	-8,39%	0,00%	100,00%	ETH	0,000993	BNB	-0,0179683	-0,85%	4	0,40%	-1,25%	0,987512367	679,25%
0,00%	2,49%	50,00%	2,38%	0,00%	100,00%	DOGE	0,0343779	XLM	0,0248855	2,96%	4	0,40%	2,56%	1,025631703	699,22%
50,00%	1,05%	0,00%	4,25%	50,00%	100,00%	LTC	0,0431103	XRP	0,0425051	4,28%	4	0,40%	3,88%	1,03880767	730,24%
0,00%	1,58%	0,00%	0,73%	0,00%	100,00%	BTC	0,0216608	DOGE	0,0202047	2,09%	4	0,40%	1,69%	1,01693275	744,29%
0,00%	-0,54%	0,00%	0,92%	50,00%	100,00%	LINK	0,0133041	XRP	0,0092085	1,13%	4	0,40%	0,73%	1,00725634	750,42%
50,00%	-0,51%	0,00%	-1,68%	0,00%	100,00%	BNB	0,0072621	LTC	0,0064341	0,68%	4	0,40%	0,28%	1,00284813	752,84%
0,00%	-0,37%	0,00%	-0,69%	0,00%	100,00%	ADA	0,0416559	DASH	0,0021827	2,19%	4	0,40%	1,79%	1,01791929	768,12%
0,00%	-4,79%	0,00%	-4,64%	0,00%	100,00%	BTC	0,0023254	ETH	-0,0005584	0,09%	4	0,40%	-0,31%	0,996883516	765,42%
0,00%	-17,79%	0,00%	-6,27%	0,00%	100,00%	ETH	-0,0023664	LINK	-0,0205739	-1,15%	2	0,20%	-1,35%	0,986529886	753,76%
0,00%	0,01%	0,00%	-1,73%	0,00%	100,00%	DOGE	0,0125368	ETH	0,0018719	0,72%	2	0,20%	0,52%	1,005204322	758,20%
50,00%	-0,70%	0,00%	-0,87%	0,00%	100,00%	DASH	0,0656039	LTC	0,0574473	6,15%	4	0,40%	5,75%	1,05752557	807,57%
0,00%	8,78%	50,00%	-1,75%	0,00%	100,00%	XLM	0,0878421	LINK	0,0546317	7,12%	4	0,40%	6,72%	1,067236924	868,60%
0,00%	1,63%	0,00%	1,23%	0,00%	100,00%	LINK	0,0672223	BNB	0,0385013	5,29%	2	0,20%	5,09%	1,050861842	917,86%
0,00%	-8,67%	0,00%	1,71%	50,00%	100,00%	XRP	0,0171145	ADA	0,0082598	1,27%	4	0,40%	0,87%	1,008687149	926,70%
50,00%	0,15%	0,00%	-2,29%	0,00%	100,00%	LTC	0,0130149	ETH	0,0023492	0,77%	4	0,40%	0,37%	1,003682026	930,48%
50,00%	-0,55%	0,00%	1,68%	0,00%	100,00%	ADA	0,1210477	LTC	0,1047064	11,29%	2	0,20%	11,09%	1,110877094	1044,74%
50,00%	-0,75%	0,00%	-0,90%	0,00%	100,00%	LTC	0,0319374	BNB	0,0145651	2,33%	2	0,20%	2,13%	1,021251229	1069,07%
0,00%	-4,74%	0,00%	-10,08%	0,00%	100,00%	ETH	0,0033332	DOGE	-0,0035025	-0,01%	4	0,40%	-0,41%	0,995915384	1064,29%
0,00%	-0,07%	0,00%	8,72%	50,00%	100,00%	XRP	0,0871846	DOGE	0,027089	5,71%	2	0,20%	5,51%	1,055136806	1128,49%
0,00%	5,47%	0,00%	2,52%	0,00%	100,00%	BNB	0,0968332	ADA	0,0951941	9,60%	4	0,40%	9,20%	1,09201365	1241,53%
0,00%	-4,99%	0,00%	-3,61%	0,00%	100,00%	DOGE	0,0123432	ETH	0,0059705	0,92%	4	0,40%	0,52%	1,005156831	1248,44%
0,00%	3,25%	50,00%	-1,27%	0,00%	100,00%	XLM	0,0324547	LINK	0,0203374	2,64%	4	0,40%	2,24%	1,022396013	1278,64%
0,00%	1,05%	0,00%	0,67%	0,00%	100,00%	ADA	0,0749058	BNB	0,0303962	5,27%	4	0,40%	4,87%	1,048650985	1345,72%
50,00%	0,94%	0,00%	-0,20%	0,00%	100,00%	LTC	0,035418	BNB	0,0190422	2,72%	2	0,20%	2,52%	1,025230097	1382,19%
0,00%	-3,34%	0,00%	6,90%	50,00%	100,00%	XRP	0,0690158	LINK	0,0084227	3,87%	4	0,40%	3,47%	1,034719253	1433,65%
0,00%	3,14%	0,00%	7,67%	50,00%	100,00%	XRP	0,0767098	BTC	0,0750236	7,59%	2	0,20%	7,39%	1,073866691	1546,94%
0,00%	0,60%	0,00%	4,36%	50,00%	100,00%	XRP	0,0435951	DASH	0,0182426	3,09%	2	0,20%	2,89%	1,028918865	1594,56%

Figure 109: Dual momentum portfolio using random forest - part 4

2021-12-24	11,03%	50,00%	3,31%	0,00%	1,18%	0,00%	4,21%	0,00%	0,03%	0,00%	0,42%	0,00%	8,49%	0,00%
2021-12-25	-5,84%	0,00%	-2,48%	0,00%	0,58%	0,00%	3,71%	50,00%	-0,63%	0,00%	-0,28%	0,00%	4,87%	50,00%
2021-12-26	1,12%	0,00%	2,40%	0,00%	-0,49%	0,00%	2,82%	50,00%	5,97%	50,00%	0,25%	0,00%	2,35%	0,00%
2021-12-27	1,85%	0,00%	-3,65%	0,00%	-0,02%	0,00%	-0,21%	0,00%	-0,04%	0,00%	0,18%	0,00%	2,86%	50,00%
2021-12-28	4,36%	50,00%	9,78%	50,00%	-0,11%	0,00%	0,81%	0,00%	-3,36%	0,00%	-0,14%	0,00%	-0,19%	0,00%
2021-12-29	-5,42%	0,00%	-9,29%	0,00%	-5,97%	0,00%	-8,65%	0,00%	-2,20%	50,00%	0,14%	50,00%	-3,02%	0,00%
2021-12-30	-3,03%	0,00%	-9,29%	0,00%	-3,85%	0,00%	-3,16%	0,00%	1,04%	50,00%	-1,51%	0,00%	-9,16%	0,00%
2021-12-31	-1,80%	0,00%	2,97%	50,00%	1,45%	50,00%	-1,47%	0,00%	0,41%	0,00%	1,04%	0,00%	0,22%	0,00%
2022-01-01	0,60%	50,00%	-3,87%	0,00%	-1,58%	0,00%	0,08%	50,00%	-0,53%	0,00%	-0,36%	0,00%	-4,01%	0,00%
2022-01-02	0,39%	0,00%	7,82%	50,00%	3,70%	0,00%	5,43%	50,00%	-0,29%	0,00%	1,36%	0,00%	3,80%	0,00%
2022-01-03	0,82%	0,00%	3,77%	0,00%	0,26%	0,00%	3,30%	0,00%	0,08%	0,00%	0,53%	0,00%	5,49%	50,00%
2022-01-04	-0,98%	0,00%	-8,12%	0,00%	-2,77%	0,00%	-1,32%	0,00%	-0,49%	0,00%	-0,22%	0,00%	7,44%	50,00%
2022-01-05	-1,83%	0,00%	-1,37%	0,00%	0,13%	50,00%	-5,79%	0,00%	-0,01%	0,00%	-0,11%	0,00%	0,61%	50,00%
2022-01-06	-1,28%	0,00%	-0,90%	0,00%	-3,35%	0,00%	-9,36%	0,00%	0,15%	0,00%	-4,24%	0,00%	9,03%	50,00%
2022-01-07	0,15%	0,00%	0,11%	0,00%	-6,49%	0,00%	5,61%	50,00%	-0,43%	0,00%	-8,84%	0,00%	0,30%	0,00%
2022-01-08	-8,61%	0,00%	-0,18%	0,00%	-0,45%	0,00%	2,45%	50,00%	0,15%	0,00%	-5,36%	0,00%	0,84%	50,00%
2022-01-09	-0,19%	0,00%	-2,74%	0,00%	-0,35%	0,00%	8,76%	50,00%	0,35%	0,00%	-0,88%	0,00%	1,95%	50,00%
2022-01-10	-1,22%	0,00%	0,44%	0,00%	-0,47%	0,00%	10,24%	50,00%	-0,03%	0,00%	-0,48%	0,00%	8,00%	50,00%
2022-01-11	-3,62%	0,00%	-4,18%	0,00%	0,23%	0,00%	-6,20%	0,00%	-0,04%	0,00%	1,34%	50,00%	0,65%	50,00%
2022-01-12	2,98%	0,00%	7,91%	50,00%	-0,04%	0,00%	-2,19%	0,00%	-0,24%	0,00%	2,63%	0,00%	0,24%	0,00%
2022-01-13	12,26%	0,00%	0,56%	0,00%	12,87%	50,00%	0,19%	0,00%	-0,68%	0,00%	2,35%	0,00%	0,35%	0,00%
2022-01-14	-3,38%	0,00%	4,48%	50,00%	-11,41%	0,00%	-0,03%	0,00%	2,02%	50,00%	1,87%	0,00%	-7,04%	0,00%
2022-01-15	3,38%	50,00%	0,31%	0,00%	-0,06%	0,00%	1,07%	0,00%	1,15%	0,00%	0,43%	0,00%	0,39%	0,00%
2022-01-16	0,20%	0,00%	0,96%	0,00%	0,25%	0,00%	0,07%	0,00%	2,72%	50,00%	-0,37%	0,00%	-0,01%	0,00%
2022-01-17	7,68%	50,00%	-0,08%	0,00%	-0,05%	0,00%	-5,07%	0,00%	-0,58%	0,00%	-0,02%	0,00%	-0,55%	0,00%
2022-01-18	17,36%	50,00%	-0,13%	0,00%	-0,15%	0,00%	-1,67%	0,00%	-1,34%	0,00%	-0,50%	0,00%	-0,83%	0,00%
2022-01-19	-11,19%	0,00%	-0,46%	0,00%	-0,10%	50,00%	-4,03%	0,00%	-3,61%	0,00%	-2,35%	0,00%	-10,89%	0,00%
2022-01-20	-5,97%	0,00%	0,00%	0,00%	0,04%	0,00%	-1,45%	0,00%	0,87%	50,00%	-0,03%	0,00%	0,99%	50,00%
2022-01-21	-4,74%	0,00%	-5,19%	0,00%	-1,13%	0,00%	-6,66%	0,00%	-0,35%	50,00%	-0,17%	50,00%	-1,28%	0,00%
2022-01-22	-9,78%	0,00%	-12,30%	0,00%	-10,16%	0,00%	-9,46%	0,00%	-0,08%	50,00%	-16,47%	0,00%	-22,61%	0,00%
2022-01-23	-0,62%	50,00%	-2,53%	0,00%	-1,70%	0,00%	-7,54%	0,00%	0,12%	50,00%	-4,14%	0,00%	-8,80%	0,00%
2022-01-24	-2,53%	0,00%	2,81%	0,00%	0,76%	0,00%	0,76%	0,00%	0,52%	0,00%	2,26%	0,00%	3,62%	0,00%
2022-01-25	-0,70%	0,00%	0,10%	0,00%	5,31%	50,00%	-7,32%	0,00%	-1,38%	0,00%	-1,12%	0,00%	-5,06%	0,00%
2022-01-26	0,77%	0,00%	1,22%	0,00%	2,81%	50,00%	-0,48%	0,00%	-0,32%	0,00%	1,38%	50,00%	0,38%	0,00%
2022-01-27	-1,03%	0,00%	-0,67%	0,00%	-2,47%	0,00%	-0,01%	0,00%	-0,20%	0,00%	-0,17%	0,00%	-0,58%	0,00%
2022-01-28	0,20%	0,00%	1,48%	50,00%	-0,29%	0,00%	-0,29%	0,00%	0,01%	0,00%	-2,36%	0,00%	-2,19%	0,00%
2022-01-29	-0,11%	0,00%	1,07%	0,00%	0,62%	0,00%	2,34%	0,00%	0,75%	0,00%	3,98%	50,00%	2,81%	0,00%
2022-01-30	0,17%	0,00%	-0,51%	0,00%	0,08%	0,00%	2,14%	50,00%	-0,05%	0,00%	-0,12%	0,00%	0,36%	0,00%
2022-01-31	-0,12%	0,00%	-1,82%	0,00%	-1,02%	0,00%	-4,56%	0,00%	0,32%	50,00%	0,01%	0,00%	14,82%	50,00%
2022-02-01	0,18%	0,00%	-0,50%	0,00%	0,14%	0,00%	2,20%	0,00%	0,34%	0,00%	5,74%	50,00%	-4,75%	0,00%
2022-02-02	1,50%	0,00%	3,21%	50,00%	1,40%	0,00%	0,56%	0,00%	0,13%	0,00%	1,84%	0,00%	0,61%	0,00%
2022-02-03	-1,03%	50,00%	-3,62%	0,00%	-2,00%	0,00%	-3,68%	0,00%	-0,09%	50,00%	-1,72%	0,00%	-9,31%	0,00%
2022-02-04	0,73%	0,00%	-3,31%	0,00%	0,22%	0,00%	5,52%	50,00%	0,09%	0,00%	-0,40%	0,00%	-2,48%	0,00%
2022-02-05	0,08%	0,00%	8,37%	0,00%	7,03%	0,00%	7,70%	0,00%	1,53%	0,00%	15,60%	50,00%	13,35%	50,00%
2022-02-06	0,05%	0,00%	1,45%	0,00%	0,81%	0,00%	2,14%	0,00%	-0,44%	0,00%	1,66%	0,00%	4,65%	50,00%

Figure 110: Dual momentum portfolio using random forest - part 5

10,37%	50,00%	9,20%	0,00%	1,55%	0,00%	100,00%	ADA	0,1103378	LTC	0,1036729	10,70%	4	0,40%	10,30%	1,103005346	1769,11%
1,43%	0,00%	-8,42%	0,00%	-10,06%	0,00%	100,00%	LINK	0,0486788	DASH	0,0371478	4,29%	4	0,40%	3,89%	1,038913345	1841,85%
-9,69%	0,00%	0,22%	0,00%	-0,53%	0,00%	100,00%	DOGE	0,059674	DASH	0,0282245	4,39%	2	0,20%	4,19%	1,041949246	1923,31%
-1,93%	0,00%	8,37%	50,00%	0,93%	0,00%	100,00%	XLM	0,0836814	LINK	0,028551	5,61%	4	0,40%	5,21%	1,052116197	2028,75%
2,22%	0,00%	-0,79%	0,00%	0,87%	0,00%	100,00%	BNB	0,0978495	ADA	0,0436004	7,07%	4	0,40%	6,67%	1,066724906	2170,79%
-3,91%	0,00%	-9,43%	0,00%	-4,94%	0,00%	100,00%	ETH	0,0013784	DOGE	-0,021962	-1,03%	4	0,40%	-1,43%	0,985708202	2138,34%
0,18%	50,00%	-1,17%	0,00%	-2,69%	0,00%	100,00%	DOGE	0,0103982	LTC	0,0017711	0,61%	2	0,20%	0,41%	1,004084626	2147,48%
-3,06%	0,00%	0,50%	0,00%	-0,23%	0,00%	100,00%	BNB	0,0297321	BTC	0,0145483	2,21%	4	0,40%	1,81%	1,01814022	2188,25%
-2,22%	0,00%	-3,00%	0,00%	-0,73%	0,00%	100,00%	ADA	0,005989	DASH	0,0008481	0,34%	4	0,40%	-0,06%	0,999418552	2186,92%
2,09%	0,00%	2,56%	0,00%	0,18%	0,00%	100,00%	BNB	0,0781943	DASH	0,0543378	6,63%	2	0,20%	6,43%	1,064266046	2333,89%
0,43%	0,00%	4,67%	50,00%	3,26%	0,00%	100,00%	LINK	0,0549497	XLM	0,046693	5,08%	4	0,40%	4,68%	1,046821365	2447,85%
2,89%	50,00%	-1,96%	0,00%	-0,92%	0,00%	100,00%	LINK	0,0743866	LTC	0,028904	5,16%	2	0,20%	4,96%	1,049645258	2574,34%
-0,22%	0,00%	-2,59%	0,00%	-1,44%	0,00%	100,00%	LINK	0,0060725	BTC	0,0013364	0,37%	2	0,20%	0,17%	1,001704488	2578,90%
-9,79%	0,00%	4,81%	50,00%	-15,59%	0,00%	100,00%	LINK	0,0902979	XLM	0,0480512	6,92%	2	0,20%	6,72%	1,067174554	2758,85%
0,31%	0,00%	-4,55%	0,00%	3,65%	50,00%	100,00%	DASH	0,0561402	XRP	0,0365183	4,63%	4	0,40%	4,23%	1,042329236	2879,87%
-2,64%	0,00%	-5,61%	0,00%	-3,54%	0,00%	100,00%	DASH	0,0245129	LINK	0,008408	1,65%	2	0,20%	1,45%	1,014460443	2922,96%
-0,73%	0,00%	-0,35%	0,00%	0,17%	0,00%	100,00%	DASH	0,0876258	LINK	0,0195181	5,36%	0	0,00%	5,36%	1,053571931	3084,90%
0,09%	0,00%	0,24%	0,00%	-0,14%	0,00%	100,00%	DASH	0,102362	LINK	0,0799644	9,12%	0	0,00%	9,12%	1,091163192	3375,25%
-0,21%	0,00%	-4,60%	0,00%	-0,45%	0,00%	100,00%	ETH	0,0133779	LINK	0,0065369	1,00%	2	0,20%	0,80%	1,007957416	3402,90%
0,51%	0,00%	3,30%	50,00%	0,44%	0,00%	100,00%	BNB	0,0791109	XLM	0,0329693	5,60%	4	0,40%	5,20%	1,052040097	3585,19%
10,62%	0,00%	4,04%	0,00%	14,44%	50,00%	100,00%	XRP	0,1443685	BTC	0,1287199	13,65%	4	0,40%	13,25%	1,132544201	4073,64%
-6,34%	0,00%	-2,62%	0,00%	-13,09%	0,00%	100,00%	BNB	0,0448236	DOGE	0,0201812	3,25%	4	0,40%	2,85%	1,028502417	4192,60%
8,43%	50,00%	1,79%	0,00%	-0,72%	0,00%	100,00%	LTC	0,0843152	ADA	0,0338115	5,91%	4	0,40%	5,51%	1,055063333	4428,97%
-0,82%	0,00%	1,43%	0,00%	3,05%	50,00%	100,00%	XRP	0,0304807	DOGE	0,0271593	2,88%	4	0,40%	2,48%	1,024819996	4541,38%
2,45%	50,00%	-0,98%	0,00%	0,83%	0,00%	100,00%	ADA	0,076815	LTC	0,0244662	5,06%	4	0,40%	4,66%	1,046640612	4757,85%
3,67%	50,00%	-2,22%	0,00%	-3,36%	0,00%	100,00%	ADA	0,1736424	LTC	0,0366757	10,52%	0	0,00%	10,52%	1,105159067	5268,70%
-7,81%	0,00%	0,08%	50,00%	-1,00%	0,00%	100,00%	XLM	0,0007654	BTC	-0,0009915	-0,01%	4	0,40%	-0,41%	0,995886965	5246,62%
-2,47%	0,00%	-3,71%	0,00%	0,78%	0,00%	100,00%	LINK	0,0098561	DOGE	0,0086702	0,93%	4	0,40%	0,53%	1,005263137	5274,76%
-5,67%	0,00%	-3,68%	0,00%	-0,48%	0,00%	100,00%	ETH	-0,0017237	DOGE	-0,0034563	-0,26%	2	0,20%	-0,46%	0,995410012	5250,09%
-9,40%	0,00%	-10,57%	0,00%	-8,67%	50,00%	100,00%	DOGE	-0,0008407	XRP	-0,0867351	-4,38%	2	0,20%	-4,58%	0,954212093	5005,12%
-6,03%	0,00%	-3,64%	0,00%	-5,22%	0,00%	100,00%	DOGE	0,0011982	ADA	-0,0061543	-0,25%	2	0,20%	-0,45%	0,99552197	4982,26%
4,82%	50,00%	0,91%	0,00%	5,71%	50,00%	100,00%	XRP	0,0570914	LTC	0,0481812	5,26%	4	0,40%	4,86%	1,048636295	5229,44%
-0,38%	0,00%	0,44%	50,00%	-2,28%	0,00%	100,00%	BTC	0,053106	XLM	0,0043508	2,87%	4	0,40%	2,47%	1,024728385	5361,23%
-5,41%	0,00%	-0,89%	0,00%	1,10%	0,00%	100,00%	BTC	0,0280863	ETH	0,0138457	2,10%	2	0,20%	1,90%	1,018965982	5464,81%
0,72%	0,00%	0,99%	50,00%	0,76%	50,00%	100,00%	XLM	0,0098909	XRP	0,0075859	0,87%	4	0,40%	0,47%	1,004738398	5491,18%
-0,22%	0,00%	1,85%	50,00%	-2,82%	0,00%	100,00%	XLM	0,0185142	BNB	0,0147537	1,66%	2	0,20%	1,46%	1,014633935	5573,00%
5,75%	50,00%	0,46%	0,00%	2,17%	0,00%	100,00%	LTC	0,0574896	ETH	0,0397622	4,86%	4	0,40%	4,46%	1,044625916	5826,16%
0,95%	0,00%	7,15%	50,00%	1,07%	0,00%	100,00%	XLM	0,0715108	DASH	0,0213517	4,64%	4	0,40%	4,24%	1,042431233	6077,61%
-2,77%	0,00%	-2,74%	0,00%	-3,26%	0,00%	100,00%	LINK	0,1481655	DOGE	0,0032238	7,57%	4	0,40%	7,17%	1,071694615	6520,52%
1,48%	0,00%	0,84%	0,00%	2,27%	50,00%	100,00%	ETH	0,0574299	XRP	0,0227163	4,01%	4	0,40%	3,61%	1,036073116	6759,34%
3,27%	50,00%	2,37%	0,00%	0,86%	0,00%	100,00%	LTC	0,0327173	BNB	0,032053	3,24%	4	0,40%	2,84%	1,028385162	6954,04%
-8,19%	0,00%	-1,91%	0,00%	-3,54%	0,00%	100,00%	DOGE	-0,0008709	ADA	-0,0103372	-0,56%	4	0,40%	-0,96%	0,990395937	6886,29%
6,90%	50,00%	1,62%	0,00%	0,54%	0,00%	100,00%	LTC	0,0689544	DASH	0,0552484	6,21%	4	0,40%	5,81%	1,05810142	7292,21%
5,93%	0,00%	4,34%	0,00%	10,57%	0,00%	100,00%	ETH	0,1560251	LINK	0,1334715	14,47%	4	0,40%	14,07%	1,140748321	8332,65%
-1,08%	0,00%	4,65%	50,00%	0,20%	0,00%	100,00%	LINK	0,0465028	XLM	0,0464589	4,65%	2	0,20%	4,45%	1,044480865	8707,74%

Figure 111: Dual momentum portfolio using random forest - part 6

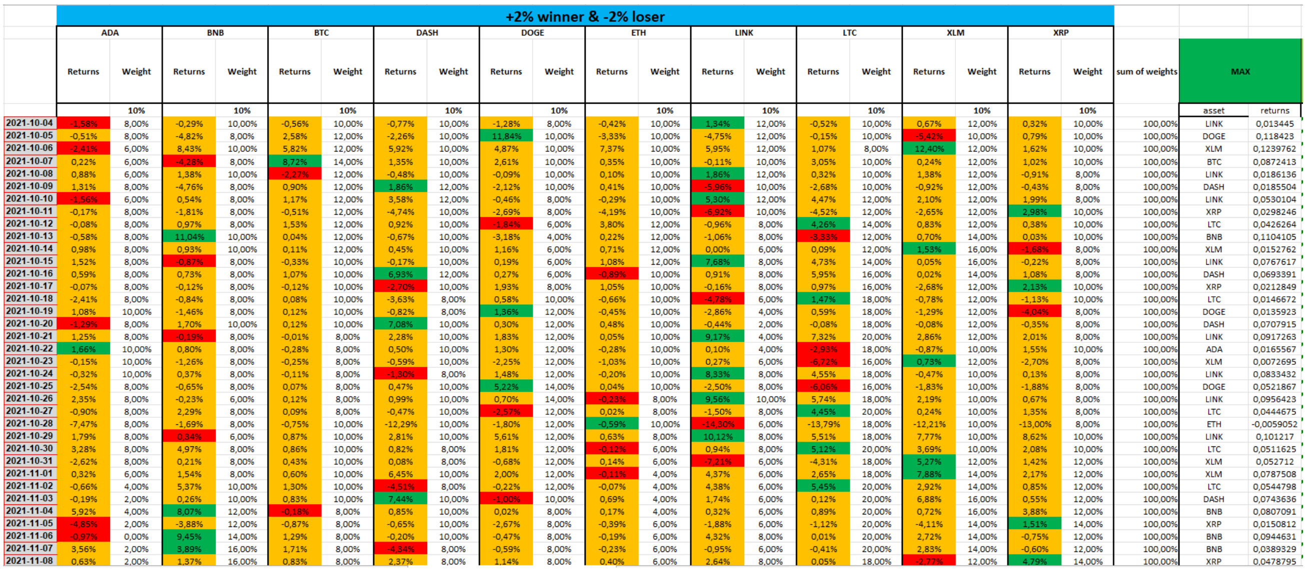
2022-02-07	2,15%	0,00%	2,14%	0,00%	0,95%	0,00%	3,47%	50,00%	1,81%	0,00%	1,74%	0,00%	3,21%	0,00%
2022-02-08	3,92%	0,00%	4,77%	0,00%	13,85%	50,00%	8,90%	0,00%	0,77%	0,00%	-0,32%	0,00%	-0,21%	0,00%
2022-02-09	-1,28%	0,00%	-6,80%	0,00%	-0,06%	0,00%	-1,64%	0,00%	0,52%	0,00%	-0,09%	0,00%	-0,63%	0,00%
2022-02-10	0,33%	0,00%	1,06%	0,00%	-0,88%	0,00%	-0,98%	0,00%	-1,23%	0,00%	3,22%	50,00%	-0,46%	0,00%
2022-02-11	-0,81%	0,00%	-2,43%	0,00%	-2,38%	0,00%	-0,01%	50,00%	-1,35%	0,00%	-3,13%	0,00%	-10,36%	0,00%
2022-02-12	-1,85%	0,00%	-0,24%	50,00%	-5,71%	0,00%	-9,83%	0,00%	-0,93%	50,00%	-5,99%	0,00%	-7,39%	0,00%
2022-02-13	0,64%	0,00%	0,20%	0,00%	0,18%	0,00%	1,30%	0,00%	0,24%	0,00%	0,19%	0,00%	-1,23%	0,00%
2022-02-14	0,65%	0,00%	-0,15%	0,00%	-0,38%	0,00%	-1,44%	0,00%	1,70%	50,00%	-2,16%	0,00%	-0,08%	0,00%
2022-02-15	-0,62%	0,00%	-0,05%	0,00%	-0,16%	0,00%	2,29%	50,00%	-1,82%	0,00%	2,23%	50,00%	-0,54%	0,00%
2022-02-16	-0,22%	0,00%	9,79%	50,00%	8,20%	0,00%	1,66%	0,00%	1,93%	0,00%	8,45%	0,00%	11,64%	50,00%
2022-02-17	-1,06%	0,00%	-5,13%	0,00%	0,56%	0,00%	6,35%	50,00%	-0,12%	0,00%	-1,98%	0,00%	-0,64%	0,00%
2022-02-18	0,57%	50,00%	-4,85%	0,00%	-10,57%	0,00%	-8,36%	0,00%	-2,69%	50,00%	-8,38%	0,00%	-9,44%	0,00%
2022-02-19	-0,73%	0,00%	-0,51%	0,00%	-0,59%	0,00%	-0,58%	0,00%	0,05%	0,00%	-2,49%	0,00%	-0,73%	0,00%
2022-02-20	-0,93%	0,00%	-0,39%	0,00%	-0,57%	0,00%	-3,06%	0,00%	0,05%	0,00%	-0,49%	0,00%	1,10%	50,00%
2022-02-21	0,36%	50,00%	-2,61%	0,00%	-4,23%	0,00%	-5,02%	0,00%	-0,10%	50,00%	-5,21%	0,00%	-5,82%	0,00%
2022-02-22	-20,79%	0,00%	-3,24%	0,00%	-2,26%	50,00%	-14,81%	0,00%	0,88%	50,00%	-6,42%	0,00%	-5,13%	0,00%
2022-02-23	10,43%	50,00%	2,72%	0,00%	3,73%	0,00%	12,84%	50,00%	0,15%	0,00%	4,32%	0,00%	3,38%	0,00%
2022-02-24	-9,00%	0,00%	-0,87%	0,00%	-1,04%	0,00%	-2,77%	0,00%	-0,69%	0,00%	-4,54%	0,00%	-3,68%	0,00%
2022-02-25	-0,39%	50,00%	-0,63%	0,00%	-1,68%	0,00%	-5,82%	0,00%	-0,93%	0,00%	-0,80%	0,00%	0,60%	50,00%
2022-02-26	11,72%	50,00%	3,00%	0,00%	0,14%	0,00%	10,04%	0,00%	0,17%	0,00%	10,80%	50,00%	2,28%	0,00%
2022-02-27	-1,59%	0,00%	0,12%	0,00%	1,30%	0,00%	-2,53%	0,00%	0,78%	0,00%	3,04%	50,00%	2,52%	0,00%
2022-02-28	-9,12%	0,00%	-3,29%	0,00%	-4,46%	0,00%	-8,39%	0,00%	-0,69%	50,00%	-6,20%	0,00%	-4,42%	0,00%
2022-03-01	24,92%	50,00%	7,24%	0,00%	10,51%	0,00%	19,00%	50,00%	0,09%	0,00%	9,99%	0,00%	12,70%	0,00%
2022-03-02	-0,80%	0,00%	2,92%	0,00%	12,45%	50,00%	-1,31%	0,00%	0,14%	0,00%	4,82%	50,00%	0,82%	0,00%
2022-03-03	1,01%	50,00%	-0,33%	0,00%	0,42%	50,00%	-0,23%	0,00%	0,04%	0,00%	0,18%	0,00%	-2,66%	0,00%
2022-03-04	-11,91%	0,00%	-0,66%	0,00%	-9,48%	0,00%	0,13%	50,00%	0,12%	0,00%	-5,46%	0,00%	-6,11%	0,00%
2022-03-05	-11,88%	0,00%	-6,01%	0,00%	-5,05%	0,00%	-7,78%	0,00%	0,09%	50,00%	-12,66%	0,00%	-4,33%	0,00%

Figure 112: Dual momentum portfolio using random forest - part 7

4,47%	50,00%	-2,36%	0,00%	-0,17%	0,00%	100,00%	LTC	0,0446648	DASH	0,0346557	3,97%	4	0,40%	3,57%	1,035660273	9021,83%
10,37%	0,00%	5,18%	0,00%	23,81%	50,00%	100,00%	XRP	0,2381085	BTC	0,1385476	18,83%	4	0,40%	18,43%	1,184328027	10703,23%
-4,67%	0,00%	0,75%	50,00%	6,70%	50,00%	100,00%	XRP	0,0670403	XLM	0,0075247	3,73%	2	0,20%	3,53%	1,035282522	11084,40%
6,58%	50,00%	2,17%	0,00%	-2,66%	0,00%	100,00%	LTC	0,0658192	ETH	0,0321938	4,90%	4	0,40%	4,50%	1,045006468	11587,77%
-4,09%	0,00%	-1,39%	0,00%	-0,46%	50,00%	100,00%	DASH	-8,911E-05	XRP	-0,0046264	-0,24%	4	0,40%	-0,64%	0,993642255	11513,46%
-4,83%	0,00%	-9,33%	0,00%	-15,30%	0,00%	100,00%	BNB	-0,0024199	DOGE	-0,0092999	-0,59%	4	0,40%	-0,99%	0,990140096	11398,95%
2,58%	50,00%	-0,98%	0,00%	17,24%	50,00%	100,00%	XRP	0,1723699	LTC	0,0258496	9,91%	4	0,40%	9,51%	1,095109773	12492,62%
-1,87%	0,00%	1,01%	50,00%	0,43%	0,00%	100,00%	DOGE	0,0169987	XLM	0,0101383	1,36%	4	0,40%	0,96%	1,009568486	12613,11%
-3,74%	0,00%	-0,97%	0,00%	-1,65%	0,00%	100,00%	DASH	0,0229071	ETH	0,0222734	2,26%	4	0,40%	1,86%	1,018590252	12849,45%
6,29%	0,00%	6,92%	0,00%	2,57%	0,00%	100,00%	LINK	0,1163661	BNB	0,097915	10,71%	4	0,40%	10,31%	1,103140554	14185,06%
-1,78%	0,00%	1,27%	50,00%	0,84%	0,00%	100,00%	DASH	0,0635285	XLM	0,0127484	3,81%	4	0,40%	3,41%	1,034138417	14672,73%
-11,25%	0,00%	-9,21%	0,00%	-14,98%	0,00%	100,00%	ADA	0,0056748	DOGE	-0,0268779	-1,06%	4	0,40%	-1,46%	0,985398452	14457,03%
0,45%	50,00%	-2,64%	0,00%	5,11%	50,00%	100,00%	XRP	0,0511447	LTC	0,0045183	2,78%	4	0,40%	2,38%	1,023831542	14803,94%
0,11%	0,00%	-0,89%	0,00%	10,77%	50,00%	100,00%	XRP	0,1076815	LINK	0,0109591	5,93%	2	0,20%	5,73%	1,057320313	15658,24%
-1,66%	0,00%	-5,80%	0,00%	-10,79%	0,00%	100,00%	ADA	0,003586	DOGE	-0,000981	0,13%	4	0,40%	-0,27%	0,997302525	15615,74%
-7,98%	0,00%	-3,72%	0,00%	-10,28%	0,00%	100,00%	DOGE	0,008795	BTC	-0,022584	-0,69%	2	0,20%	-0,89%	0,991105511	15475,95%
-0,05%	0,00%	0,29%	0,00%	3,12%	0,00%	100,00%	DASH	0,1284007	ADA	0,1042851	11,63%	4	0,40%	11,23%	1,112342937	17225,80%
0,34%	50,00%	2,92%	50,00%	-4,13%	0,00%	100,00%	XLM	0,0291718	LTC	0,00344	1,63%	4	0,40%	1,23%	1,012305898	17439,01%
-0,71%	0,00%	-1,42%	0,00%	-0,84%	0,00%	100,00%	LINK	0,006023	ADA	-0,0039311	0,10%	4	0,40%	-0,30%	0,997045947	17387,20%
7,01%	0,00%	1,42%	0,00%	6,26%	0,00%	100,00%	ADA	0,1172438	ETH	0,1079615	11,26%	2	0,20%	11,06%	1,110602661	19321,33%
-4,37%	0,00%	10,56%	50,00%	-0,76%	0,00%	100,00%	XLM	0,1056006	ETH	0,0303804	6,80%	2	0,20%	6,60%	1,065990495	20602,95%
-1,88%	0,00%	-6,05%	0,00%	-0,53%	50,00%	100,00%	XRP	-0,0053165	DOGE	-0,0069009	-0,61%	4	0,40%	-1,01%	0,989891319	20393,67%
8,84%	0,00%	6,61%	0,00%	5,14%	0,00%	100,00%	ADA	0,2492475	DASH	0,1899843	21,96%	4	0,40%	21,56%	1,215615903	24812,43%
-0,11%	0,00%	1,84%	0,00%	1,53%	0,00%	100,00%	BTC	0,1244915	ETH	0,0481793	8,63%	4	0,40%	8,23%	1,082335397	26863,61%
-0,06%	0,00%	-3,11%	0,00%	-5,70%	0,00%	100,00%	ADA	0,0100848	BTC	0,0041771	0,71%	2	0,20%	0,51%	1,00513099	27001,96%
0,14%	50,00%	-0,86%	0,00%	-1,11%	0,00%	100,00%	LTC	0,0014412	DASH	0,0012774	0,14%	4	0,40%	-0,26%	0,997359336	26930,39%
-15,79%	0,00%	-6,00%	0,00%	-3,53%	50,00%	100,00%	DOGE	0,0009407	XRP	-0,0352576	-1,72%	4	0,40%	-2,12%	0,978841515	26358,47%

Figure 113: Dual momentum portfolio using random forest - part 8

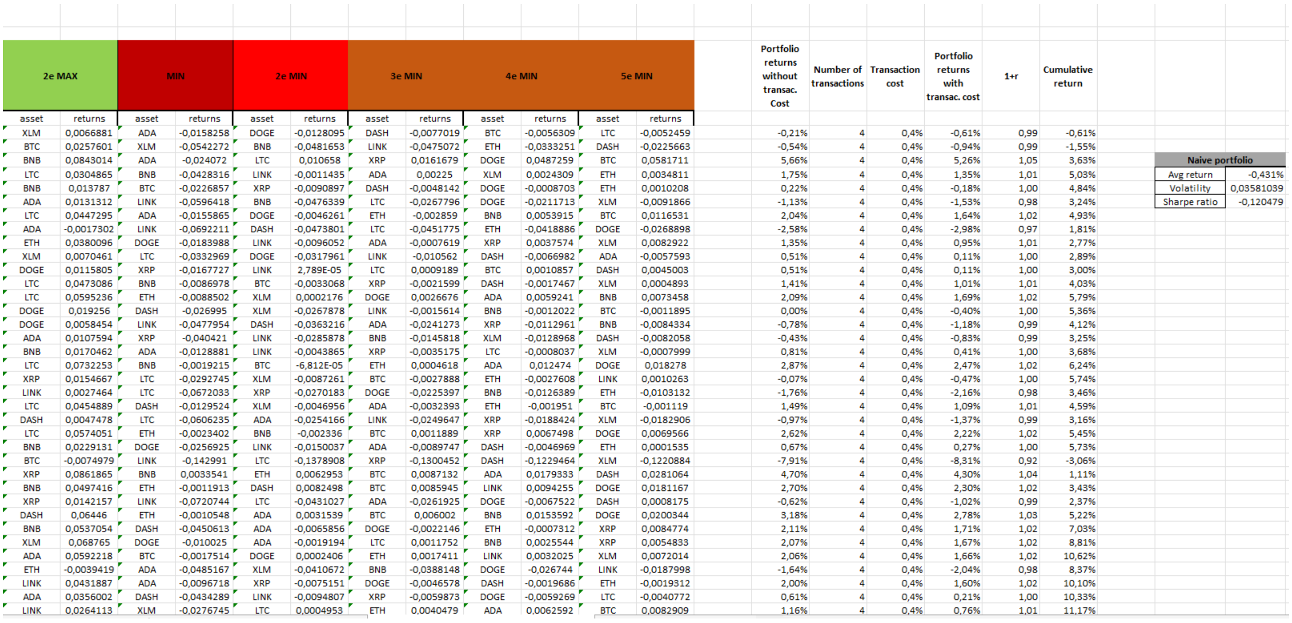
1.6.3.3 Naive portfolio



+2% winner & -2% loser

	ADA		BNB		BTC		DASH		DOGE		ETH		LINK		LTC		XLM		XRP			MAX	
	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	Returns	Weight	sum of weights		
		10%		10%		10%		10%		10%		10%		10%		10%		10%		10%		asset	returns
2021-10-04	-1,58%	8,00%	-0,29%	10,00%	-0,56%	10,00%	-0,77%	10,00%	-1,28%	8,00%	-0,42%	10,00%	1,34%	12,00%	-0,52%	10,00%	0,67%	12,00%	0,32%	10,00%	100,00%	LINK	0,013445
2021-10-05	-0,51%	8,00%	-4,82%	8,00%	2,58%	12,00%	-2,26%	10,00%	11,84%	10,00%	-3,33%	10,00%	-4,75%	12,00%	-0,15%	10,00%	-5,42%	10,00%	0,79%	10,00%	100,00%	DOGE	0,118423
2021-10-06	-2,41%	6,00%	8,43%	10,00%	5,82%	12,00%	5,92%	10,00%	4,87%	10,00%	7,37%	10,00%	5,95%	12,00%	1,07%	8,00%	12,40%	12,00%	1,62%	10,00%	100,00%	XLM	0,1239762
2021-10-07	0,22%	6,00%	-4,28%	8,00%	8,72%	14,00%	1,35%	10,00%	2,61%	10,00%	0,35%	10,00%	-0,11%	10,00%	3,05%	10,00%	0,24%	12,00%	1,02%	10,00%	100,00%	BTC	0,0872413
2021-10-08	0,88%	6,00%	1,38%	10,00%	-2,27%	12,00%	-0,48%	10,00%	-0,09%	10,00%	0,10%	10,00%	1,86%	12,00%	0,32%	10,00%	1,38%	12,00%	-0,91%	8,00%	100,00%	LINK	0,0186136
2021-10-09	1,31%	8,00%	-4,76%	8,00%	0,90%	12,00%	1,86%	12,00%	-2,12%	10,00%	0,41%	10,00%	-5,96%	10,00%	-2,68%	10,00%	-0,92%	12,00%	-0,43%	8,00%	100,00%	DASH	0,0185504
2021-10-10	-1,56%	6,00%	0,54%	8,00%	1,17%	12,00%	3,58%	12,00%	-0,46%	8,00%	-0,29%	10,00%	5,30%	12,00%	4,47%	12,00%	2,10%	12,00%	1,99%	8,00%	100,00%	LINK	0,0530104
2021-10-11	-0,17%	8,00%	-1,81%	8,00%	-0,51%	12,00%	-4,74%	10,00%	-2,69%	8,00%	-4,19%	10,00%	-6,92%	10,00%	-4,52%	12,00%	-2,65%	12,00%	2,98%	10,00%	100,00%	XRP	0,0298246
2021-10-12	-0,08%	8,00%	0,97%	8,00%	1,53%	12,00%	0,92%	10,00%	-1,84%	6,00%	3,80%	12,00%	-0,96%	8,00%	4,26%	14,00%	0,83%	12,00%	0,38%	10,00%	100,00%	LTC	0,0426264
2021-10-13	-0,58%	8,00%	11,04%	10,00%	0,04%	12,00%	-0,67%	10,00%	-3,18%	4,00%	0,22%	12,00%	-1,06%	8,00%	-3,33%	12,00%	0,70%	14,00%	0,03%	10,00%	100,00%	BNB	0,1104105
2021-10-14	0,98%	8,00%	0,93%	10,00%	0,11%	12,00%	0,45%	10,00%	1,16%	6,00%	0,71%	12,00%	0,00%	6,00%	0,09%	12,00%	1,53%	16,00%	-1,68%	8,00%	100,00%	XLM	0,0152762
2021-10-15	1,52%	8,00%	-0,87%	8,00%	-0,33%	10,00%	-0,17%	10,00%	0,19%	6,00%	1,08%	12,00%	7,68%	8,00%	4,73%	14,00%	0,05%	16,00%	-0,22%	8,00%	100,00%	LINK	0,0767617
2021-10-16	0,59%	8,00%	0,73%	8,00%	1,07%	10,00%	6,93%	12,00%	0,27%	6,00%	-0,89%	10,00%	0,91%	8,00%	5,95%	16,00%	0,02%	14,00%	1,08%	8,00%	100,00%	DASH	0,0693391
2021-10-17	-0,07%	8,00%	-0,12%	8,00%	-0,12%	10,00%	-2,70%	10,00%	1,93%	8,00%	1,05%	10,00%	-0,16%	8,00%	0,97%	16,00%	-2,68%	12,00%	2,13%	10,00%	100,00%	XRP	0,0212849
2021-10-18	-2,41%	8,00%	-0,84%	8,00%	0,08%	10,00%	-3,63%	8,00%	0,58%	10,00%	-0,66%	10,00%	-4,78%	6,00%	1,47%	18,00%	-0,78%	12,00%	-1,13%	10,00%	100,00%	LTC	0,0146672
2021-10-19	1,08%	10,00%	-1,46%	8,00%	0,12%	10,00%	-0,82%	8,00%	1,36%	12,00%	-0,45%	10,00%	-2,86%	4,00%	0,59%	18,00%	-1,29%	12,00%	-4,04%	8,00%	100,00%	DOGE	0,0135923
2021-10-20	-1,29%	8,00%	1,70%	10,00%	0,12%	10,00%	7,08%	10,00%	0,30%	12,00%	0,48%	10,00%	-0,44%	2,00%	-0,08%	18,00%	-0,08%	12,00%	-0,35%	8,00%	100,00%	DASH	0,0707915
2021-10-21	1,25%	8,00%	-0,19%	8,00%	-0,01%	8,00%	2,28%	10,00%	1,83%	12,00%	0,05%	10,00%	9,17%	4,00%	7,32%	20,00%	2,86%	12,00%	2,01%	8,00%	100,00%	LINK	0,0917263
2021-10-22	1,66%	10,00%	0,80%	8,00%	-0,28%	8,00%	0,50%	10,00%	1,30%	12,00%	-0,28%	10,00%	0,10%	4,00%	-2,93%	18,00%	-0,87%	10,00%	1,55%	10,00%	100,00%	ADA	0,0165567
2021-10-23	-0,15%	10,00%	-1,26%	8,00%	-0,25%	8,00%	-0,59%	10,00%	-2,25%	12,00%	-1,03%	10,00%	0,27%	6,00%	-6,72%	16,00%	0,73%	12,00%	-2,70%	8,00%	100,00%	XLM	0,0072695
2021-10-24	-0,32%	10,00%	0,37%	8,00%	-0,11%	8,00%	-1,30%	8,00%	1,48%	12,00%	-0,20%	10,00%	8,33%	8,00%	4,55%	18,00%	-0,47%	10,00%	0,13%	8,00%	100,00%	LINK	0,0833432
2021-10-25	-2,54%	8,00%	-0,65%	8,00%	0,07%	8,00%	0,47%	10,00%	5,22%	14,00%	0,04%	10,00%	-2,50%	8,00%	-6,06%	16,00%	-1,83%	10,00%	-1,88%	8,00%	100,00%	DOGE	0,0521867
2021-10-26	2,35%	8,00%	-0,23%	6,00%	0,12%	8,00%	0,99%	10,00%	0,70%	14,00%	-0,23%	8,00%	9,56%	10,00%	5,74%	18,00%	2,19%	10,00%	0,67%	8,00%	100,00%	LINK	0,0956423
2021-10-27	-0,90%	8,00%	2,29%	8,00%	0,09%	8,00%	-0,47%	10,00%	-2,57%	12,00%	0,02%	8,00%	-1,50%	8,00%	4,45%	20,00%	0,24%	10,00%	1,35%	8,00%	100,00%	LTC	0,0444675
2021-10-28	-7,47%	8,00%	-1,69%	8,00%	-0,75%	10,00%	-12,29%	10,00%	-1,80%	12,00%	-0,59%	10,00%	-14,30%	6,00%	-13,79%	18,00%	-12,21%	10,00%	-13,00%	8,00%	100,00%	ETH	-0,0059052
2021-10-29	1,79%	8,00%	0,34%	6,00%	0,87%	10,00%	2,81%	10,00%	5,61%	12,00%	0,63%	8,00%	10,12%	8,00%	5,51%	18,00%	7,77%	10,00%	8,62%	10,00%	100,00%	LINK	0,101217
2021-10-30	3,28%	8,00%	4,97%	8,00%	0,86%	10,00%	0,82%	8,00%	1,81%	12,00%	-0,12%	6,00%	0,94%	8,00%	5,12%	20,00%	3,69%	10,00%	2,08%	10,00%	100,00%	LTC	0,0511625
2021-10-31	-2,62%	8,00%	0,21%	8,00%	0,43%	10,00%	0,08%	8,00%	-0,68%	12,00%	0,14%	6,00%	-7,21%	6,00%	-4,31%	18,00%	5,27%	12,00%	1,42%	12,00%	100,00%	XLM	0,052712
2021-11-01	0,32%	6,00%	1,54%	8,00%	0,60%	10,00%	6,45%	10,00%	2,00%	12,00%	-0,11%	4,00%	4,37%	6,00%	2,65%	18,00%	7,88%	14,00%	2,17%	12,00%	100,00%	XLM	0,0787508
2021-11-02	-0,66%	4,00%	5,37%	10,00%	1,30%	10,00%	-4,51%	8,00%	-0,22%	12,00%	-0,07%	4,00%	4,38%	6,00%	5,45%	20,00%	2,92%	14,00%	0,85%	12,00%	100,00%	LTC	0,0544798
2021-11-03	-0,19%	2,00%	0,26%	10,00%	0,83%	10,00%	7,44%	10,00%	-1,00%	10,00%	0,69%	4,00%	1,74%	6,00%	0,12%	20,00%	6,88%	16,00%	0,55%	12,00%	100,00%	DASH	0,0743636
2021-11-04	5,92%	4,00%	8,07%	12,00%	-0,18%	8,00%	0,85%	10,00%	0,02%	8,00%	0,17%	4,00%	0,32%	6,00%	0,89%	20,00%	0,72%	16,00%	3,88%	12,00%	100,00%	BNB	0,0807091
2021-11-05	-4,85%	2,00%	-3,88%	12,00%	-0,87%	8,00%	-0,65%	10,00%	-2,67%	8,00%	-0,39%	6,00%	-1,88%	6,00%	-1,12%	20,00%	-4,11%	14,00%	1,51%	14,00%	100,00%	XRP	0,0150812
2021-11-06	-0,97%	0,00%	9,45%	14,00%	1,29%	8,00%	-0,20%	10,00%	-0,47%	8,00%	-0,19%	6,00%	4,32%	8,00%	0,01%	20,00%	2,72%	14,00%	-0,75%	12,00%	100,00%	BNB	0,0944631
2021-11-07	3,56%	2,00%	3,89%	16,00%	1,71%	8,00%	-4,34%	8,00%	-0,59%	8,00%	-0,23%	6,00%	-0,95%	6,00%	-0,41%	20,00%	2,83%	14,00%	-0,60%	12,00%	100,00%	BNB	0,0389329
2021-11-08	0,63%	2,00%	1,37%	16,00%	0,83%	8,00%	2,37%	8,00%	1,14%	8,00%	0,40%	6,00%	2,64%	8,00%	0,05%	18,00%	-2,77%	12,00%	4,79%	14,00%	100,00%	XRP	0,0478795

Figure 114: Naive portfolio using random forest - part 1



2e MAX		MIN		2e MIN		3e MIN		4e MIN		5e MIN		Portfolio returns without transac. Cost	Number of transactions	Transaction cost	Portfolio returns with transac. cost	1+r	Cumulative return
asset	returns	asset	returns	asset	returns	asset	returns	asset	returns	asset	returns						
XLM	0,0066881	ADA	-0,0158258	DOGE	-0,0128095	DASH	-0,0077019	BTC	-0,0056309	LTC	-0,0052459	-0,21%	4	0,4%	-0,61%	0,99	-0,61%
BTC	0,0257601	XLM	-0,0542272	BNB	-0,0481653	LINK	-0,0475072	ETH	-0,0333251	DASH	-0,0225663	-0,54%	4	0,4%	-0,94%	0,99	-1,55%
BNB	0,0843014	ADA	-0,024072	LTC	0,010658	XRP	0,0161679	DOGE	0,0487259	BTC	0,0581711	5,66%	4	0,4%	5,26%	1,05	3,63%
LTC	0,0304865	BNB	-0,0428316	LINK	-0,0011435	ADA	0,00225	XLM	0,0024309	ETH	0,0034811	1,75%	4	0,4%	1,35%	1,01	5,03%
BNB	0,013787	BTC	-0,0226857	XRP	-0,0090897	DASH	-0,0048142	DOGE	-0,0008703	ETH	0,0010208	0,22%	4	0,4%	-0,18%	1,00	4,84%
ADA	0,0131312	LINK	-0,0596418	BNB	-0,0476339	LTC	-0,0267796	DOGE	-0,0211713	XLM	-0,0091866	-1,13%	4	0,4%	-1,53%	0,98	3,24%
LTC	0,0447295	ADA	-0,0155865	DOGE	-0,0046261	ETH	-0,002859	BNB	0,0053915	BTC	0,0116531	2,04%	4	0,4%	1,64%	1,02	4,93%
ADA	-0,0017302	LINK	-0,0692211	DASH	-0,0473801	LTC	-0,0451775	ETH	-0,0418886	DOGE	-0,0268898	-2,58%	4	0,4%	-2,98%	0,97	1,81%
ETH	0,0380096	DOGE	-0,0183988	LINK	-0,0096052	ADA	-0,0007619	XRP	0,0037574	XLM	0,0082922	1,35%	4	0,4%	0,95%	1,01	2,77%
XLM	0,0070461	LTC	-0,0332969	DOGE	-0,0317961	LINK	-0,010562	DASH	-0,0066982	ADA	-0,0057593	0,51%	4	0,4%	0,11%	1,00	2,89%
DOGE	0,0115805	XRP	-0,0167727	LINK	2,789E-05	LTC	0,0009189	BTC	0,0010857	DASH	0,0045003	0,51%	4	0,4%	0,11%	1,00	3,00%
LTC	0,0473086	BNB	-0,0086978	BTC	-0,0033068	XRP	-0,0021599	DASH	-0,0017467	XLM	0,0004893	1,41%	4	0,4%	1,01%	1,01	4,03%
LTC	0,0595236	ETH	-0,0088502	XLM	0,0002176	DOGE	0,0026676	ADA	0,0059241	BNB	0,0073458	2,09%	4	0,4%	1,69%	1,02	5,79%
DOGE	0,019256	DASH	-0,026995	XLM	-0,0267878	LINK	-0,0015614	BNB	-0,0012022	BTC	-0,0011895	0,00%	4	0,4%	-0,40%	1,00	5,36%
DOGE	0,0058454	LINK	-0,0477954	DASH	-0,0363216	ADA	-0,0241273	XRP	-0,0112961	BNB	-0,0084334	-0,78%	4	0,4%	-1,18%	0,99	4,12%
ADA	0,0107594	XRP	-0,040421	LINK	-0,0285878	BNB	-0,0145818	XLM	-0,0128968	DASH	-0,0082058	-0,43%	4	0,4%	-0,83%	0,99	3,25%
BNB	0,0170462	ADA	-0,0128881	LINK	-0,0043865	XRP	-0,0035175	LTC	-0,0008037	XLM	-0,0007999	0,81%	4	0,4%	0,41%	1,00	3,68%
LTC	0,0732253	BNB	-0,0019215	BTC	-6,812E-05	ETH	0,0004618	ADA	0,012474	DOGE	0,018278	2,87%	4	0,4%	2,47%	1,02	6,24%
XRP	0,0154667	LTC	-0,0292745	XLM	-0,0087261	BTC	-0,0027888	ETH	-0,0027608	LINK	0,0010263	-0,07%	4	0,4%	-0,47%	1,00	5,74%
LINK	0,0027464	LTC	-0,0672033	XRP	-0,0270183	DOGE	-0,0225397	BNB	-0,0126389	ETH	-0,0103132	-1,76%	4	0,4%	-2,16%	0,98	3,46%
LTC	0,0454889	DASH	-0,0129524	XLM	-0,0046956	ADA	-0,0032393	ETH	-0,001951	BTC	-0,001119	1,49%	4	0,4%	1,09%	1,01	4,59%
DASH	0,0047478	LTC	-0,0606235	ADA	-0,0254166	LINK	-0,0249647	XRP	-0,0188424	XLM	-0,0182906	-0,97%	4	0,4%	-1,37%	0,99	3,16%
LTC	0,0574051	ETH	-0,0023402	BNB	-0,002336	BTC	0,0011889	XRP	0,0067498	DOGE	0,0069566	2,62%	4	0,4%	2,22%	1,02	5,45%
BNB	0,0229131	DOGE	-0,0256925	LINK	-0,0150037	ADA	-0,0089747	DASH	-0,0046969	ETH	0,0001535	0,67%	4	0,4%	0,27%	1,00	5,73%
BTC	-0,0074979	LINK	-0,142991	LTC	-0,1378908	XRP	-0,1300452	DASH	-0,1229464	XLM	-0,1220884	-7,91%	4	0,4%	-8,31%	0,92	-3,06%
XRP	0,0861865	BNB	0,0033541	ETH	0,0062953	BTC	0,0087132	ADA	0,0179333	DASH	0,0281064	4,70%	4	0,4%	4,30%	1,04	1,11%
BNB	0,0497416	ETH	-0,0011913	DASH	0,0082498	BTC	0,0085945	LINK	0,0094255	DOGE	0,0181167	2,70%	4	0,4%	2,30%	1,02	3,43%
XRP	0,0142157	LINK	-0,0720744	LTC	-0,0431027	ADA	-0,0261925	DOGE	-0,0067522	DASH	0,0008175	-0,62%	4	0,4%	-1,02%	0,99	2,37%
DASH	0,06446	ETH	-0,0010548	ADA	0,0031539	BTC	0,006002	BNB	0,0153592	DOGE	0,0200344	3,18%	4	0,4%	2,78%	1,03	5,22%
BNB	0,0537054	DASH	-0,0450613	ADA	-0,0065856	DOGE	-0,0022146	ETH	-0,0007312	XRP	0,0084774	2,11%	4	0,4%	1,71%	1,02	7,03%
XLM	0,068765	DOGE	-0,010025	ADA	-0,0019194	LTC	0,0011752	BNB	0,0025544	XRP	0,0054833	2,07%	4	0,4%	1,67%	1,02	8,81%
ADA	0,0592218	BTC	-0,0017514	DOGE	0,0002406	ETH	0,0017411	LINK	0,0032025	XLM	0,0072014	2,06%	4	0,4%	1,66%	1,02	10,62%
ETH	-0,0039419	ADA	-0,0485167	XLM	-0,0410672	BNB	-0,0388148	DOGE	-0,026744	LINK	-0,0187998	-1,64%	4	0,4%	-2,04%	0,98	8,37%
LINK	0,0431887	ADA	-0,0096718	XRP	-0,0075151	DOGE	-0,0046578	DASH	-0,0019686	ETH	-0,0019312	2,00%	4	0,4%	1,60%	1,02	10,10%
ADA	0,0356002	DASH	-0,0434289	LINK	-0,0094807	XRP	-0,0059873	DOGE	-0,0059269	LTC	-0,0040772	0,61%	4	0,4%	0,21%	1,00	10,33%
LINK	0,0264113	XLM	-0,0276745	LTC	0,0004953	ETH	0,0040479	ADA	0,0062592	BTC	0,0082909	1,16%	4	0,4%	0,76%	1,01	11,17%

Naive portfolio	
Avg return	-0,431%
Volatility	0,03581039
Sharpe ratio	-0,120479

Figure 115: Naive portfolio using random forest - part 2

2021-11-09	3,63%	2,00%	2,19%	16,00%	-0,22%	8,00%	5,86%	10,00%	3,01%	8,00%	0,13%	6,00%	-0,61%	6,00%	8,12%	20,00%	-1,31%	10,00%	3,69%	14,00%	100,00%	LTC	0,081178
2021-11-10	0,49%	2,00%	-0,23%	14,00%	0,42%	8,00%	12,14%	12,00%	0,51%	8,00%	0,14%	4,00%	0,19%	6,00%	15,45%	22,00%	1,51%	10,00%	0,23%	14,00%	100,00%	LTC	0,1545124
2021-11-11	-1,58%	2,00%	0,78%	16,00%	-2,01%	8,00%	-5,29%	12,00%	-5,66%	8,00%	-0,47%	4,00%	0,35%	6,00%	0,74%	24,00%	-5,98%	8,00%	-8,01%	12,00%	100,00%	BNB	0,0078302
2021-11-12	-1,71%	2,00%	1,19%	16,00%	-2,32%	6,00%	9,02%	14,00%	-1,95%	6,00%	0,56%	4,00%	-1,18%	6,00%	1,22%	24,00%	0,95%	8,00%	5,09%	14,00%	100,00%	DASH	0,0901705
2021-11-13	-1,27%	2,00%	-0,57%	16,00%	-1,04%	6,00%	-5,46%	12,00%	0,70%	8,00%	-0,80%	4,00%	1,06%	8,00%	-0,41%	24,00%	-1,46%	8,00%	-5,07%	12,00%	100,00%	LINK	0,0106161
2021-11-14	-0,13%	2,00%	0,68%	16,00%	-0,24%	6,00%	4,38%	14,00%	-0,40%	6,00%	0,20%	4,00%	0,53%	8,00%	0,97%	26,00%	0,29%	8,00%	-0,86%	10,00%	100,00%	DASH	0,0437871
2021-11-15	1,12%	2,00%	-1,12%	14,00%	0,23%	6,00%	1,04%	14,00%	0,80%	6,00%	-0,32%	4,00%	0,10%	8,00%	7,40%	28,00%	-0,33%	6,00%	1,14%	12,00%	100,00%	LTC	0,073964
2021-11-16	-2,01%	2,00%	-0,63%	14,00%	0,01%	8,00%	-1,47%	14,00%	-0,57%	6,00%	0,01%	4,00%	-2,20%	6,00%	-8,74%	26,00%	0,45%	8,00%	-0,63%	12,00%	100,00%	XLM	0,0044518
2021-11-17	-8,91%	2,00%	-6,08%	14,00%	-0,44%	10,00%	-13,10%	14,00%	-4,34%	6,00%	-0,09%	6,00%	-16,04%	4,00%	-11,42%	26,00%	-13,18%	6,00%	-4,87%	12,00%	100,00%	ETH	-0,0009311
2021-11-18	-0,40%	2,00%	-0,47%	14,00%	0,31%	12,00%	-9,49%	12,00%	-4,10%	6,00%	0,21%	6,00%	-1,98%	4,00%	-0,21%	26,00%	13,40%	8,00%	-4,77%	10,00%	100,00%	XLM	0,1340427
2021-11-19	-16,36%	0,00%	-10,61%	14,00%	-4,67%	12,00%	-4,69%	12,00%	-7,35%	6,00%	0,16%	8,00%	-1,28%	6,00%	-11,83%	26,00%	-15,91%	6,00%	-5,01%	10,00%	100,00%	ETH	0,0015523
2021-11-20	18,16%	2,00%	5,58%	16,00%	1,65%	10,00%	5,21%	12,00%	4,53%	6,00%	0,37%	6,00%	2,37%	6,00%	3,42%	26,00%	5,58%	6,00%	3,61%	10,00%	100,00%	ADA	0,1815622
2021-11-21	9,38%	4,00%	4,86%	16,00%	0,27%	8,00%	4,98%	12,00%	-0,20%	4,00%	0,39%	6,00%	1,93%	6,00%	9,00%	28,00%	0,95%	6,00%	2,90%	10,00%	100,00%	ADA	0,0937542
2021-11-22	-8,36%	2,00%	-3,87%	16,00%	0,15%	8,00%	3,56%	14,00%	-7,10%	2,00%	-0,50%	6,00%	1,73%	6,00%	-0,57%	28,00%	1,94%	8,00%	-3,85%	10,00%	100,00%	DASH	0,0355874
2021-11-23	-15,76%	0,00%	-5,13%	16,00%	-3,91%	8,00%	-1,18%	16,00%	-4,06%	2,00%	-0,15%	8,00%	-1,36%	6,00%	-10,02%	26,00%	-5,87%	8,00%	-3,09%	10,00%	100,00%	ETH	-0,0014511
2021-11-24	-1,60%	0,00%	2,91%	18,00%	1,74%	8,00%	-8,89%	14,00%	2,74%	2,00%	-0,37%	6,00%	-0,23%	6,00%	3,69%	28,00%	1,42%	8,00%	2,25%	10,00%	100,00%	LTC	0,0369267
2021-11-25	-0,48%	0,00%	1,09%	20,00%	-1,81%	8,00%	1,71%	16,00%	-2,16%	2,00%	-0,24%	6,00%	-6,52%	4,00%	-3,16%	28,00%	-3,19%	6,00%	-2,38%	10,00%	100,00%	DASH	0,017098
2021-11-26	-0,26%	0,00%	2,94%	20,00%	1,37%	8,00%	8,20%	18,00%	0,65%	2,00%	0,29%	4,00%	-0,29%	2,00%	3,05%	30,00%	0,34%	6,00%	0,46%	10,00%	100,00%	DASH	0,0820315
2021-11-27	-5,52%	0,00%	-1,80%	22,00%	-3,12%	8,00%	-8,94%	16,00%	-3,87%	2,00%	0,10%	6,00%	-2,54%	2,00%	-8,49%	28,00%	-4,07%	6,00%	-8,39%	10,00%	100,00%	ETH	0,000993
2021-11-28	2,26%	0,00%	2,36%	22,00%	1,14%	8,00%	-0,20%	14,00%	3,44%	4,00%	0,03%	4,00%	0,55%	2,00%	0,67%	28,00%	2,49%	8,00%	2,38%	10,00%	100,00%	DOGE	0,0343779
2021-11-29	2,41%	0,00%	1,95%	22,00%	0,78%	8,00%	-2,41%	12,00%	0,03%	4,00%	0,04%	4,00%	-0,39%	0,00%	4,31%	30,00%	1,05%	8,00%	4,25%	12,00%	100,00%	LTC	0,0431103
2021-11-30	-0,58%	0,00%	0,33%	20,00%	2,17%	10,00%	1,45%	12,00%	2,02%	6,00%	-0,14%	2,00%	1,29%	0,00%	0,98%	30,00%	1,58%	8,00%	0,73%	12,00%	100,00%	BTC	0,0216608
2021-12-01	-0,40%	0,00%	0,38%	20,00%	-1,97%	8,00%	-2,80%	10,00%	-0,62%	6,00%	0,15%	2,00%	1,33%	2,00%	-0,65%	30,00%	-0,54%	8,00%	0,92%	14,00%	100,00%	LINK	0,0133041
2021-12-02	-2,91%	0,00%	0,73%	22,00%	0,23%	8,00%	-0,82%	10,00%	-2,01%	2,00%	0,09%	2,00%	0,17%	2,00%	0,64%	32,00%	-0,51%	8,00%	-1,68%	14,00%	100,00%	BNB	0,0072621
2021-12-03	4,17%	2,00%	-0,25%	22,00%	-1,67%	6,00%	0,22%	12,00%	-0,30%	2,00%	0,03%	2,00%	-1,12%	0,00%	-0,56%	32,00%	-0,37%	8,00%	-0,69%	14,00%	100,00%	ADA	0,0416559
2021-12-04	-0,66%	2,00%	-3,86%	22,00%	0,23%	8,00%	-5,86%	10,00%	-3,48%	2,00%	-0,06%	4,00%	-10,37%	0,00%	-10,57%	30,00%	-4,79%	8,00%	-4,64%	14,00%	100,00%	BTC	0,0023254
2021-12-05	-9,73%	2,00%	-2,78%	22,00%	-7,05%	8,00%	-10,94%	8,00%	-6,85%	2,00%	-0,24%	6,00%	-2,06%	2,00%	-10,59%	30,00%	-17,79%	6,00%	-6,27%	14,00%	100,00%	ETH	-0,0023664
2021-12-06	-1,97%	2,00%	-7,42%	22,00%	-0,64%	8,00%	-9,46%	6,00%	1,25%	4,00%	0,19%	8,00%	-13,61%	0,00%	-5,20%	30,00%	0,01%	6,00%	-1,73%	14,00%	100,00%	DOGE	0,0125368
2021-12-07	-1,62%	0,00%	4,44%	22,00%	0,43%	8,00%	6,56%	8,00%	-0,08%	4,00%	-0,07%	8,00%	-1,31%	0,00%	5,74%	32,00%	-0,70%	6,00%	-0,87%	12,00%	100,00%	DASH	0,0656039
2021-12-08	0,28%	0,00%	2,12%	22,00%	0,86%	8,00%	0,05%	8,00%	-0,92%	2,00%	-0,05%	8,00%	5,46%	2,00%	-0,57%	32,00%	8,78%	8,00%	-1,75%	10,00%	100,00%	XLM	0,0878421
2021-12-09	-1,04%	0,00%	3,85%	24,00%	-0,57%	6,00%	3,24%	8,00%	-0,40%	0,00%	0,04%	8,00%	6,72%	4,00%	0,94%	32,00%	1,63%	8,00%	1,23%	10,00%	100,00%	LINK	0,0672223
2021-12-10	0,83%	2,00%	-2,63%	24,00%	-5,53%	6,00%	-6,96%	8,00%	-0,04%	0,00%	-0,06%	8,00%	0,07%	4,00%	-7,22%	30,00%	-8,67%	6,00%	1,71%	12,00%	100,00%	XRP	0,0171145
2021-12-11	-12,81%	0,00%	-11,98%	22,00%	-2,95%	6,00%	-2,60%	8,00%	-0,43%	0,00%	0,23%	10,00%	-11,82%	4,00%	1,30%	32,00%	0,15%	6,00%	-2,29%	12,00%	100,00%	LTC	0,0130149
2021-12-12	12,10%	2,00%	7,55%	22,00%	8,41%	6,00%	6,73%	8,00%	-0,02%	0,00%	-0,05%	8,00%	4,51%	4,00%	10,47%	34,00%	-0,55%	4,00%	1,68%	12,00%	100,00%	ADA	0,1210477
2021-12-13	-0,47%	2,00%	1,46%	24,00%	1,39%	6,00%	-1,24%	6,00%	-0,96%	0,00%	-0,31%	8,00%	0,06%	4,00%	3,19%	36,00%	-0,75%	4,00%	-0,90%	10,00%	100,00%	LTC	0,0319374
2021-12-14	-6,73%	2,00%	-16,61%	22,00%	-8,88%	6,00%	-6,36%	6,00%	-0,35%	2,00%	0,33%	10,00%	-7,49%	4,00%	-16,29%	34,00%	-4,74%	4,00%	-10,08%	10,00%	100,00%	ETH	0,0033332
2021-12-15	-0,95%	2,00%	-7,08%	20,00%	-1,31%	6,00%	-0,86%	6,00%	2,71%	4,00%	-0,23%	10,00%	-2,82%	2,00%	2,35%	34,00%	-0,07%	4,00%	8,72%	12,00%	100,00%	XRP	0,0871846
2021-12-16	9,52%	4,00%	9,68%	22,00%	9,02%	6,00%	2,65%	6,00%	-0,73%	2,00%	-0,01%	8,00%	5,85%	2,00%	1,03%	34,00%	5,47%	4,00%	2,52%	12,00%	100,00%	BNB	0,0968332
2021-12-17	-0,66%	4,00%	-1,76%	22,00%	-4,99%	4,00%	-1,25%	6,00%	1,23%	4,00%	0,60%	10,00%	-1,76%	2,00%	-3,53%	34,00%	-4,99%	2,00%	-3,61%	12,00%	100,00%	DOGE	0,0123432
2021-12-18	-7,08%	2,00%	0,77%	22,00%	-4,11%	2,00%	-2,26%	6,00%	1,23%	4,00%	-0,09%	10,00%	2,03%	4,00%	-1,51%	34,00%	3,25%	4,00%	-1,27%	12,00%	100,00%	XLM	0,0324547
2021-12-19	7,49%	4,00%	3,04%	24,00%	1,21%	2,00%	1,72%	6,00%	-0,16%	2,00%	-0,27%	8,00%	-0,02%	4,00%	1,10%	34,00%	1,05%	4,00%	0,67%	12,00%	100,00%	ADA	0,0749058
2021-12-20	0,18%	4,00%	1,90%	26,00%	-0,53%	0,00%	0,82%	6,00%	0,64%	2,00%	-0,01%	8,00%	-1,52%	2,00%	3,54%	36,00%	0,94%	4,00%	-0,20%	12,00%	100,00%	LTC	0,035418
2021-12-21	-0,47%	4,00%	-1,05%	26,00%	0,61%	0,00%	-0,82%	6,00%	0,69%	2,00%	0,57%	8,00%	0,84%	4,00%	-3,19%	34,00%	-3,34%	2,00%	6,90%	14,00%	100,00%	XRP	0,0690158
2021-12-22	-0,20%	2,00%	0,91%	26,00%	7,50%	2,00%	0,00%	6,00%	-0,16%	2,00%	-0,49%	6,00%	0,65%	4,00%	2,96%	34,00%	3,14%	2,00%	7,67%	16,00%	100,00%	XRP	0,0767098
2021-12-23	-0,61%	0,00%	-0,56%	24,00%	-0,42%	2,00%	1,82%	8,00%	0,06%	2,00%	-0,16%	6,00%	0,86%	4,00%	0,95%	34,00%	0,60%	2,00%	4,36%	18,00%	100,00%	XRP	0,0435951

Figure 116: Naive portfolio using random forest - part 3

DASH	0,0585686	XLM	-0,0131054	LINK	-0,0061492	BTC	-0,002197	ETH	0,0012546	BNB	0,0218971		3,21%	4	0,4%	2,81%	1,03	14,29%
DASH	0,1214481	BNB	-0,0023106	ETH	0,0013557	LINK	0,001855	XRP	0,0023199	BTC	0,0041768		5,11%	4	0,4%	4,71%	1,05	19,68%
LTC	0,0073717	XRP	-0,0800771	XLM	-0,0598091	DOGE	-0,0566218	DASH	-0,0529341	BTC	-0,0200686		-2,42%	4	0,4%	-2,82%	0,97	16,31%
XRP	0,0508584	BTC	-0,0231932	DOGE	-0,0195185	ADA	-0,0171132	LINK	-0,0118411	ETH	0,0056053		2,19%	4	0,4%	1,79%	1,02	18,39%
DOGE	0,0069895	DASH	-0,0546041	XRP	-0,0506725	XLM	-0,0146304	ADA	-0,0126538	BTC	-0,0103798		-1,55%	4	0,4%	-1,95%	0,98	16,09%
LTC	0,0097377	XRP	-0,0086043	DOGE	-0,0039876	BTC	-0,0024112	ADA	-0,0012961	ETH	0,0019605		0,92%	4	0,4%	0,52%	1,01	16,69%
XRP	0,0113715	BNB	-0,0112013	XLM	-0,0032677	ETH	-0,0032486	LINK	0,0009699	BTC	0,0023379		2,26%	4	0,4%	1,86%	1,02	18,86%
BTC	0,000143	LTC	-0,0874238	LINK	-0,0219797	ADA	-0,0200536	DASH	-0,0146603	BNB	-0,0063477		-2,81%	4	0,4%	-3,21%	0,97	15,04%
BTC	-0,0044412	LINK	-0,1604383	XLM	-0,131767	DASH	-0,1309827	LTC	-0,1142013	ADA	-0,0891381		-8,16%	4	0,4%	-8,56%	0,91	5,19%
BTC	0,003054	DASH	-0,0949052	XRP	-0,0477424	DOGE	-0,0410368	LINK	-0,0198485	BNB	-0,0047226		-0,95%	4	0,4%	-1,35%	0,99	3,77%
LINK	-0,0128212	ADA	-0,1636088	XLM	-0,1591306	LTC	-0,1182974	BNB	-0,1060623	DOGE	-0,0735107		-7,64%	4	0,4%	-8,04%	0,92	-4,58%
BNB	0,0558441	ETH	0,0036507	BTC	0,0165404	LINK	0,0236637	LTC	0,0341555	XRP	0,0361072		4,07%	4	0,4%	3,67%	1,04	-1,08%
LTC	0,0899896	DOGE	-0,0019927	BTC	0,0026998	ETH	0,0038694	XLM	0,0094817	LINK	0,0192978		4,77%	4	0,4%	4,37%	1,04	3,25%
XLM	0,0194233	ADA	-0,083579	DOGE	-0,0710357	BNB	-0,0386876	XRP	-0,0385262	LTC	-0,0057217		-0,73%	4	0,4%	-1,13%	0,99	2,08%
DASH	-0,0117873	ADA	-0,1575992	LTC	-0,1001816	XLM	-0,0587439	BNB	-0,0512737	DOGE	-0,0405858		-4,88%	4	0,4%	-5,28%	0,95	-3,31%
BNB	0,0290935	DASH	-0,0888961	ADA	-0,0159933	ETH	-0,0037069	LINK	-0,0023308	XLM	0,0141837		0,81%	4	0,4%	0,41%	1,00	-2,92%
BNB	0,0108665	LINK	-0,0651642	XLM	-0,0318837	LTC	-0,031584	XRP	-0,0238092	DOGE	-0,0215772		-1,29%	4	0,4%	-1,69%	0,98	-4,55%
LTC	0,0305375	LINK	-0,0028966	ADA	-0,0026486	ETH	0,0029205	XLM	0,0034012	XRP	0,0045549		3,18%	4	0,4%	2,78%	1,03	-1,90%
BNB	-0,0179683	DASH	-0,0893571	LTC	-0,0848607	XRP	-0,083873	ADA	-0,0551797	XLM	-0,0407111		-5,66%	4	0,4%	-6,06%	0,94	-7,85%
XLM	0,0248855	DASH	-0,0019525	ETH	0,0003207	LINK	0,005498	LTC	0,0066766	BTC	0,0114419		1,36%	4	0,4%	0,96%	1,01	-6,96%
XRP	0,0425051	DASH	-0,0241055	LINK	-0,0039144	DOGE	0,0003332	ETH	0,0003857	BTC	0,0078185		2,09%	4	0,4%	1,69%	1,02	-5,39%
DOGE	0,0202047	ADA	-0,0057616	ETH	-0,0013915	BNB	0,0033415	XRP	0,0072786	LTC	0,0097597		1,08%	4	0,4%	0,68%	1,01	-4,74%
XRP	0,0092085	DASH	-0,028038	BTC	-0,019726	LTC	-0,0064537	DOGE	-0,0062293	XLM	-0,0053508		-0,48%	4	0,4%	-0,88%	0,99	-5,58%
LTC	0,0064341	ADA	-0,0290726	DOGE	-0,0200801	XRP	-0,0168396	DASH	-0,0081716	XLM	-0,0051402		-0,01%	3	0,3%	-0,31%	1,00	-5,87%
DASH	0,0021827	BTC	-0,0167382	LINK	-0,0111537	XRP	-0,0068657	LTC	-0,0056364	XLM	-0,0037489		-0,36%	4	0,4%	-0,76%	0,99	-6,58%
ETH	-0,0005584	LTC	-0,1056749	LINK	-0,1036511	DASH	-0,0586315	XLM	-0,0479289	XRP	-0,0464149		-5,71%	4	0,4%	-6,11%	0,94	-12,29%
LINK	-0,0205739	XLM	-0,1779336	DASH	-0,1094023	LTC	-0,1059114	ADA	-0,097307	BTC	-0,0705056		-7,56%	4	0,4%	-7,96%	0,92	-19,27%
ETH	0,0018719	LINK	-0,1361407	DASH	-0,0946018	BNB	-0,0741645	LTC	-0,0520322	ADA	-0,0196534		-4,03%	4	0,4%	-4,43%	0,96	-22,85%
LTC	0,0574473	ADA	-0,0161756	LINK	-0,01307	XRP	-0,0086802	XLM	-0,0070385	DOGE	-0,0008363		3,22%	4	0,4%	2,82%	1,03	-20,67%
LINK	0,0546317	XRP	-0,0175431	DOGE	-0,0092406	LTC	-0,0056752	ETH	-0,000484	DASH	0,0005385		0,97%	4	0,4%	0,57%	1,01	-20,22%
BNB	0,0385013	ADA	-0,0103907	BTC	-0,0057079	DOGE	-0,0040403	ETH	0,0004249	LTC	0,009436		1,98%	4	0,4%	1,58%	1,02	-18,96%
ADA	0,0082598	XLM	-0,0866942	LTC	-0,0722039	DASH	-0,0695656	BTC	-0,0553371	BNB	-0,026255		-3,99%	4	0,4%	-4,39%	0,96	-22,51%
ETH	0,0023492	ADA	-0,1281397	BNB	-0,1197858	LINK	-0,1182382	BTC	-0,0295352	DASH	-0,0260467		-3,32%	4	0,4%	-3,72%	0,96	-25,39%
LTC	0,1047064	XLM	-0,0055289	ETH	-0,0005024	DOGE	-0,0002065	XRP	0,0168346	LINK	0,0451485		6,86%	4	0,4%	6,46%	1,06	-20,57%
BNB	0,0145651	DASH	-0,0124199	DOGE	-0,009558	XRP	-0,0090114	XLM	-0,0075234	ADA	-0,0046682		1,36%	4	0,4%	0,96%	1,01	-19,81%
DOGE	-0,0035025	BNB	-0,1660704	LTC	-0,1628942	XRP	-0,1007735	BTC	-0,0888201	LINK	-0,0748598		-11,71%	4	0,4%	-12,11%	0,88	-29,53%
DOGE	0,027089	BNB	-0,0707903	LINK	-0,0282475	BTC	-0,0130604	ADA	-0,0095488	DASH	-0,0086182		0,31%	4	0,4%	-0,09%	1,00	-29,59%
ADA	0,0951941	DOGE	-0,0073345	ETH	-5,274E-05	LTC	0,0102946	XRP	0,0252458	DASH	0,026479		4,18%	4	0,4%	3,78%	1,04	-26,93%
ETH	0,0059705	XLM	-0,0499026	BTC	-0,0498562	XRP	-0,0360588	LTC	-0,0352506	LINK	-0,0175725		-2,34%	4	0,4%	-2,74%	0,97	-28,93%
LINK	0,0203374	ADA	-0,0707711	BTC	-0,0411026	DASH	-0,0226282	LTC	-0,0150951	XRP	-0,0126506		-0,60%	4	0,4%	-1,00%	0,99	-29,65%
BNB	0,0303962	ETH	-0,0027204	DOGE	-0,0015718	LINK	-0,0002439	XRP	0,0067483	XLM	0,0105334		1,63%	4	0,4%	1,23%	1,01	-28,78%
BNB	0,0190422	LINK	-0,0152338	BTC	-0,0053069	XRP	-0,0019921	ETH	-0,0001223	ADA	0,0018144		1,82%	4	0,4%	1,42%	1,01	-27,77%
LINK	0,0084227	XLM	-0,0333719	LTC	-0,0318655	BNB	-0,010469	DASH	-0,0081997	ADA	-0,0046899		-0,43%	4	0,4%	-0,83%	0,99	-28,37%
BTC	0,0750236	ETH	-0,0049263	ADA	-0,0020166	DOGE	-0,001648	DASH	2,164E-05	LINK	0,0065343		2,67%	4	0,4%	2,27%	1,02	-26,74%
DASH	0,0182426	ADA	-0,0061005	BNB	-0,0056319	BTC	-0,0042111	ETH	-0,0016336	DOGE	0,0006091		1,15%	4	0,4%	0,75%	1,01	-26,19%

Figure 117: Naive portfolio using random forest - part 4

2021-12-24	11,03%	2,00%	3,31%	24,00%	1,18%	2,00%	4,21%	8,00%	0,03%	0,00%	0,42%	4,00%	8,49%	4,00%	10,37%	36,00%	9,20%	2,00%	1,55%	18,00%	100,00%	ADA	0,1103378
2021-12-25	-5,84%	2,00%	-2,48%	24,00%	0,58%	2,00%	3,71%	10,00%	-0,63%	0,00%	-0,28%	4,00%	4,87%	6,00%	1,43%	36,00%	-8,42%	0,00%	-10,06%	16,00%	100,00%	LINK	0,0486788
2021-12-26	1,12%	2,00%	2,40%	24,00%	-0,49%	2,00%	2,82%	12,00%	5,97%	2,00%	0,25%	4,00%	2,35%	6,00%	-9,69%	34,00%	0,22%	0,00%	-0,53%	14,00%	100,00%	DOGE	0,059674
2021-12-27	1,85%	2,00%	-3,65%	22,00%	-0,02%	2,00%	-0,21%	12,00%	-0,04%	2,00%	0,18%	4,00%	2,86%	8,00%	-1,93%	32,00%	8,37%	2,00%	0,93%	14,00%	100,00%	XLM	0,0836814
2021-12-28	4,36%	4,00%	9,78%	24,00%	-0,11%	2,00%	0,81%	12,00%	-3,36%	0,00%	-0,14%	4,00%	-0,19%	8,00%	2,22%	32,00%	-0,79%	0,00%	0,87%	14,00%	100,00%	BNB	0,0978495
2021-12-29	-5,42%	4,00%	-9,29%	22,00%	-5,97%	2,00%	-8,65%	10,00%	-2,20%	2,00%	0,14%	6,00%	-3,02%	8,00%	-3,91%	32,00%	-9,43%	0,00%	-4,94%	14,00%	100,00%	ETH	0,0013784
2021-12-30	-3,03%	4,00%	-9,29%	20,00%	-3,85%	2,00%	-3,16%	10,00%	1,04%	4,00%	-1,51%	6,00%	-9,16%	6,00%	0,18%	34,00%	-1,17%	0,00%	-2,69%	14,00%	100,00%	DOGE	0,0103982
2021-12-31	-1,80%	2,00%	2,97%	22,00%	1,45%	4,00%	-1,47%	10,00%	0,41%	4,00%	1,04%	6,00%	0,22%	6,00%	-3,06%	32,00%	0,50%	0,00%	-0,23%	14,00%	100,00%	BNB	0,0297321
2022-01-01	0,60%	4,00%	-3,87%	20,00%	-1,58%	4,00%	0,08%	12,00%	-0,53%	4,00%	-0,36%	6,00%	-4,01%	4,00%	-2,22%	32,00%	-3,00%	0,00%	-0,73%	14,00%	100,00%	ADA	0,005989
2022-01-02	0,39%	4,00%	7,82%	22,00%	3,70%	4,00%	5,43%	14,00%	-0,29%	2,00%	1,36%	6,00%	3,80%	4,00%	2,09%	32,00%	2,56%	0,00%	0,18%	12,00%	100,00%	BNB	0,0781943
2022-01-03	0,82%	4,00%	3,77%	22,00%	0,26%	2,00%	3,30%	14,00%	0,08%	0,00%	0,53%	6,00%	5,49%	6,00%	0,43%	32,00%	4,67%	2,00%	3,26%	12,00%	100,00%	LINK	0,0549497
2022-01-04	-0,98%	4,00%	-8,12%	20,00%	-2,77%	0,00%	-1,32%	14,00%	-0,49%	0,00%	-0,22%	6,00%	7,44%	8,00%	2,89%	34,00%	-1,96%	2,00%	-0,92%	12,00%	100,00%	LINK	0,0743866
2022-01-05	-1,83%	4,00%	-1,37%	20,00%	0,13%	2,00%	-5,79%	12,00%	-0,01%	0,00%	-0,11%	6,00%	0,61%	10,00%	-0,22%	34,00%	-2,59%	0,00%	-1,44%	12,00%	100,00%	LINK	0,0060725
2022-01-06	-1,28%	4,00%	-0,90%	20,00%	-3,35%	2,00%	-9,36%	12,00%	0,15%	0,00%	-4,24%	6,00%	9,03%	12,00%	-9,79%	32,00%	4,81%	2,00%	-15,59%	10,00%	100,00%	LINK	0,0902979
2022-01-07	0,15%	4,00%	0,11%	20,00%	-6,49%	0,00%	5,61%	14,00%	-0,43%	0,00%	-8,84%	4,00%	0,30%	12,00%	0,31%	32,00%	-4,55%	2,00%	3,65%	12,00%	100,00%	DASH	0,0561402
2022-01-08	-8,61%	2,00%	-0,18%	20,00%	-0,45%	0,00%	2,45%	16,00%	0,15%	0,00%	-5,36%	4,00%	0,84%	14,00%	-2,64%	32,00%	-5,61%	0,00%	-3,54%	12,00%	100,00%	DASH	0,0245129
2022-01-09	-0,19%	2,00%	-2,74%	18,00%	-0,35%	0,00%	8,76%	18,00%	0,35%	0,00%	-0,88%	2,00%	1,95%	16,00%	-0,73%	32,00%	-0,35%	0,00%	0,17%	12,00%	100,00%	DASH	0,0876258
2022-01-10	-1,22%	0,00%	0,44%	18,00%	-0,47%	0,00%	10,24%	20,00%	-0,03%	0,00%	-0,48%	0,00%	8,00%	18,00%	0,09%	32,00%	0,24%	0,00%	-0,14%	12,00%	100,00%	DASH	0,102362
2022-01-11	-3,62%	0,00%	-4,18%	16,00%	0,23%	0,00%	-6,20%	18,00%	-0,04%	0,00%	1,34%	2,00%	0,65%	20,00%	-0,21%	32,00%	-4,60%	0,00%	-0,45%	12,00%	100,00%	ETH	0,0133779
2022-01-12	2,98%	0,00%	7,91%	18,00%	-0,04%	0,00%	-2,19%	16,00%	-0,24%	0,00%	2,63%	2,00%	0,24%	18,00%	0,51%	32,00%	3,30%	2,00%	0,44%	12,00%	100,00%	BNB	0,0791109
2022-01-13	12,26%	0,00%	0,56%	18,00%	12,87%	2,00%	0,19%	14,00%	-0,68%	0,00%	2,35%	2,00%	0,35%	16,00%	10,62%	32,00%	4,04%	2,00%	14,44%	14,00%	100,00%	XRP	0,1443685
2022-01-14	-3,38%	0,00%	4,48%	20,00%	-11,41%	0,00%	-0,03%	14,00%	2,02%	2,00%	1,87%	2,00%	-7,04%	16,00%	-6,34%	32,00%	-2,62%	2,00%	-13,09%	12,00%	100,00%	BNB	0,0448236
2022-01-15	3,38%	2,00%	0,31%	18,00%	-0,06%	0,00%	1,07%	14,00%	1,15%	2,00%	0,43%	2,00%	0,39%	16,00%	8,43%	34,00%	1,79%	2,00%	-0,72%	10,00%	100,00%	LTC	0,0843152
2022-01-16	0,20%	2,00%	0,96%	18,00%	0,25%	0,00%	0,07%	14,00%	2,72%	4,00%	-0,37%	0,00%	-0,01%	16,00%	-0,82%	32,00%	1,43%	2,00%	3,05%	12,00%	100,00%	XRP	0,0304807
2022-01-17	7,68%	4,00%	-0,08%	18,00%	-0,05%	0,00%	-5,07%	12,00%	-0,58%	4,00%	-0,02%	0,00%	-0,55%	16,00%	2,45%	34,00%	-0,98%	0,00%	0,83%	12,00%	100,00%	ADA	0,076815
2022-01-18	17,36%	6,00%	-0,13%	18,00%	-0,15%	0,00%	-1,67%	10,00%	-1,34%	4,00%	-0,50%	0,00%	-0,83%	16,00%	3,67%	36,00%	-2,22%	0,00%	-3,36%	10,00%	100,00%	ADA	0,1736424
2022-01-19	-11,19%	4,00%	-0,46%	18,00%	-0,10%	2,00%	-4,03%	10,00%	-3,61%	4,00%	-2,35%	0,00%	-10,89%	14,00%	-7,81%	36,00%	0,08%	2,00%	-1,00%	10,00%	100,00%	XLM	0,0007654
2022-01-20	-5,97%	2,00%	0,00%	18,00%	0,04%	2,00%	-1,45%	10,00%	0,87%	6,00%	-0,03%	0,00%	0,99%	16,00%	-2,47%	36,00%	-3,71%	0,00%	0,78%	10,00%	100,00%	LINK	0,0098561
2022-01-21	-4,74%	2,00%	-5,19%	18,00%	-1,13%	2,00%	-6,66%	8,00%	-0,35%	8,00%	-0,17%	2,00%	-1,28%	16,00%	-5,67%	34,00%	-3,68%	0,00%	-0,48%	10,00%	100,00%	ETH	-0,0017237
2022-01-22	-9,78%	2,00%	-12,30%	18,00%	-10,16%	2,00%	-9,46%	8,00%	-0,08%	10,00%	-16,47%	0,00%	-22,61%	14,00%	-9,40%	34,00%	-10,57%	0,00%	-8,67%	12,00%	100,00%	DOGE	-0,0008407
2022-01-23	-0,62%	4,00%	-2,53%	18,00%	-1,70%	2,00%	-7,54%	6,00%	0,12%	12,00%	-4,14%	0,00%	-8,80%	12,00%	-6,03%	34,00%	-3,64%	0,00%	-5,22%	12,00%	100,00%	DOGE	0,0011982
2022-01-24	-2,53%	2,00%	2,81%	18,00%	0,76%	2,00%	0,76%	6,00%	0,52%	10,00%	2,26%	0,00%	3,62%	12,00%	4,82%	36,00%	0,91%	0,00%	5,71%	14,00%	100,00%	XRP	0,0570914
2022-01-25	-0,70%	2,00%	0,10%	18,00%	5,31%	4,00%	-7,32%	4,00%	-1,38%	10,00%	-1,12%	0,00%	-5,06%	10,00%	-0,38%	36,00%	0,44%	2,00%	-2,28%	14,00%	100,00%	BTC	0,053106
2022-01-26	0,77%	2,00%	1,22%	18,00%	2,81%	6,00%	-0,48%	4,00%	-0,32%	10,00%	1,38%	2,00%	0,38%	10,00%	-5,41%	34,00%	-0,89%	0,00%	1,10%	14,00%	100,00%	BTC	0,0280863
2022-01-27	-1,03%	0,00%	-0,67%	18,00%	-2,47%	4,00%	-0,01%	4,00%	-0,20%	10,00%	-0,17%	2,00%	-0,58%	10,00%	0,72%	34,00%	0,99%	2,00%	0,76%	16,00%	100,00%	XLM	0,0098909
2022-01-28	0,20%	0,00%	1,48%	20,00%	-0,29%	4,00%	-0,29%	4,00%	0,01%	10,00%	-2,36%	0,00%	-2,19%	10,00%	-0,22%	34,00%	1,85%	4,00%	-2,82%	14,00%	100,00%	XLM	0,0185142
2022-01-29	-0,11%	0,00%	1,07%	20,00%	0,62%	2,00%	2,34%	4,00%	0,75%	10,00%	3,98%	2,00%	2,81%	10,00%	5,75%	36,00%	0,46%	2,00%	2,17%	14,00%	100,00%	LTC	0,0574896
2022-01-30	0,17%	0,00%	-0,51%	18,00%	0,08%	2,00%	2,14%	6,00%	-0,05%	10,00%	-0,12%	0,00%	0,36%	10,00%	0,95%	36,00%	7,15%	4,00%	1,07%	14,00%	100,00%	XLM	0,0715108
2022-01-31	-0,12%	0,00%	-1,82%	18,00%	-1,02%	2,00%	-4,56%	4,00%	0,32%	12,00%	0,01%	0,00%	14,82%	12,00%	-2,77%	36,00%	-2,74%	4,00%	-3,26%	12,00%	100,00%	LINK	0,1481655
2022-02-01	0,18%	0,00%	-0,50%	16,00%	0,14%	2,00%	2,20%	4,00%	0,34%	12,00%	5,74%	2,00%	-4,75%	10,00%	1,48%	36,00%	0,84%	4,00%	2,27%	14,00%	100,00%	ETH	0,0574299
2022-02-02	1,50%	0,00%	3,21%	18,00%	1,40%	2,00%	0,56%	2,00%	0,13%	10,00%	1,84%	2,00%	0,61%	10,00%	3,27%	38,00%	2,37%	4,00%	0,86%	14,00%	100,00%	LTC	0,0327173
2022-02-03	-1,03%	2,00%	-3,62%	18,00%	-2,00%	2,00%	-3,68%	2,00%	-0,09%	12,00%	-1,72%	2,00%	-9,31%	8,00%	-8,19%	36,00%	-1,91%	4,00%	-3,54%	14,00%	100,00%	DOGE	-0,0008709
2022-02-04	0,73%	2,00%	-3,31%	16,00%	0,22%	2,00%	5,52%	4,00%	0,09%	12,00%	-0,40%	2,00%	-2,48%	6,00%	6,90%	38,00%	1,62%	4,00%	0,54%	14,00%	100,00%	LTC	0,0689544
2022-02-05	0,08%	0,00%	8,37%	16,00%	7,03%	2,00%	7,70%	4,00%	1,53%	10,00%	15,60%	4,00%	13,35%	8,00%	5,93%	38,00%	4,34%	4,00%	10,57%	14,00%	100,00%	ETH	0,1560251
2022-02-06	0,05%	0,00%	1,45%	16,00%	0,81%	2,00%	2,14%	4,00%	-0,44%	8,00%	1,66%	4,00%	4,65%	10,00%	-1,08%	36,00%	4,65%	6,00%	0,20%	14,00%	100,00%	LINK	0,0465028

Figure 118: Naive portfolio using random forest - part 5

LTC	0,1036729	DOGE	0,0002834	ETH	0,0041824	BTC	0,0118154	XRP	0,0155206	BNB	0,0330512		5,93%	4	0,4%	5,53%	1,06	-22,11%
DASH	0,0371478	XRP	-0,1005945	XLM	-0,0842112	ADA	-0,0583637	BNB	-0,0247938	DOGE	-0,0062696		-1,14%	4	0,4%	-1,54%	0,98	-23,32%
DASH	0,0282245	LTC	-0,09687	XRP	-0,0053215	BTC	-0,004902	XLM	0,0021788	ETH	0,0024619		-2,17%	4	0,4%	-2,57%	0,97	-25,29%
LINK	0,028551	BNB	-0,0365073	LTC	-0,0193471	DASH	-0,0020942	DOGE	-0,0003977	BTC	-0,0001836		-0,88%	4	0,4%	-1,28%	0,99	-26,24%
ADA	0,0436004	DOGE	-0,0335582	XLM	-0,0078884	LINK	-0,0019277	ETH	-0,0013924	BTC	-0,0011151		3,43%	4	0,4%	3,03%	1,03	-24,01%
DOGE	-0,021962	XLM	-0,0943257	BNB	-0,0928818	DASH	-0,0864843	BTC	-0,0596579	ADA	-0,054201		-5,47%	4	0,4%	-5,87%	0,94	-28,47%
LTC	0,0017711	BNB	-0,0929003	LINK	-0,0916345	BTC	-0,038546	DASH	-0,0316287	ADA	-0,0302533		-3,29%	4	0,4%	-3,69%	0,96	-31,10%
BTC	0,0145483	LTC	-0,0305526	ADA	-0,0180152	DASH	-0,0147229	XRP	-0,0023128	LINK	0,0022076		-0,39%	4	0,4%	-0,79%	0,99	-31,65%
DASH	0,0008481	LINK	-0,0400664	BNB	-0,0387341	XLM	-0,0299638	LTC	-0,0221801	BTC	-0,0158166		-1,82%	4	0,4%	-2,22%	0,98	-33,16%
DASH	0,0543378	DOGE	-0,0028879	XRP	0,0018418	ADA	0,003857	ETH	0,0135994	LTC	0,0209106		3,56%	4	0,4%	3,16%	1,03	-31,05%
XLM	0,046693	DOGE	0,0007714	BTC	0,0025946	LTC	0,0043225	ETH	0,0052882	ADA	0,0082387		2,31%	4	0,4%	1,91%	1,02	-29,73%
LTC	0,028904	BNB	-0,0811613	BTC	-0,0276858	XLM	-0,0195635	DASH	-0,0131905	ADA	-0,0098175		-0,43%	4	0,4%	-0,83%	0,99	-30,32%
BTC	0,0013364	DASH	-0,05789	XLM	-0,0258571	ADA	-0,0183415	XRP	-0,0144204	BNB	-0,0137425		-1,23%	4	0,4%	-1,63%	0,98	-31,45%
XLM	0,0480512	XRP	-0,1559056	LTC	-0,0978888	DASH	-0,0935596	ETH	-0,0423522	BTC	-0,0335497		-5,19%	4	0,4%	-5,59%	0,94	-35,28%
XRP	0,0365183	ETH	-0,0884211	BTC	-0,0648586	XLM	-0,0455291	DOGE	-0,0042838	BNB	0,0011233		0,94%	4	0,4%	0,54%	1,01	-34,93%
LINK	0,008408	ADA	-0,0860678	XLM	-0,0560992	ETH	-0,053597	XRP	-0,0353747	LTC	-0,0263968		-1,18%	4	0,4%	-1,58%	0,98	-35,96%
LINK	0,0195181	BNB	-0,0273873	ETH	-0,0088181	LTC	-0,007269	BTC	-0,003518	XLM	-0,0034858		1,16%	4	0,4%	0,76%	1,01	-35,47%
LINK	0,0799644	ADA	-0,0122437	ETH	-0,0047522	BTC	-0,004685	XRP	-0,0014211	DOGE	-0,0003448		3,58%	4	0,4%	3,18%	1,03	-33,42%
LINK	0,0065369	DASH	-0,0620343	XLM	-0,0459664	BNB	-0,0417694	ADA	-0,036164	XRP	-0,0044605		-1,75%	4	0,4%	-2,15%	0,98	-34,85%
XLM	0,0329693	DASH	-0,0218904	DOGE	-0,0023615	BTC	-0,0004099	LINK	0,0024497	XRP	0,0044002		1,45%	4	0,4%	1,05%	1,01	-34,17%
BTC	0,1287199	DOGE	-0,0068471	DASH	0,0018794	LINK	0,0035081	BNB	0,0055856	ETH	0,0235188		5,99%	4	0,4%	5,59%	1,06	-30,49%
DOGE	0,0201812	XRP	-0,1309394	BTC	-0,1141496	LINK	-0,070355	LTC	-0,0633617	ADA	-0,0338444		-3,81%	4	0,4%	-4,21%	0,96	-33,41%
ADA	0,0338115	XRP	-0,0071687	BTC	-0,0006104	BNB	0,003137	LINK	0,00392	ETH	0,0042549		3,20%	4	0,4%	2,80%	1,03	-31,55%
DOGE	0,0271593	LTC	-0,0081849	ETH	-0,0036859	LINK	-7,152E-05	DASH	0,0007093	ADA	0,0019609		0,43%	4	0,4%	0,03%	1,00	-31,53%
LTC	0,0244662	DASH	-0,050683	XLM	-0,0098438	DOGE	-0,005766	LINK	-0,0054738	BNB	-0,0007679		0,51%	4	0,4%	0,11%	1,00	-31,46%
LTC	0,0366757	XRP	-0,0335602	XLM	-0,0221954	DASH	-0,0167488	DOGE	-0,0133799	LINK	-0,008303		1,65%	4	0,4%	1,25%	1,01	-30,60%
BTC	-0,0009915	ADA	-0,1118646	LINK	-0,1088946	LTC	-0,0781329	DASH	-0,0403383	DOGE	-0,0361188		-5,52%	4	0,4%	-5,92%	0,94	-34,71%
DOGE	0,0086702	ADA	-0,0596636	XLM	-0,0370901	LTC	-0,0247051	DASH	-0,014478	ETH	-0,0003445		-0,87%	4	0,4%	-1,27%	0,99	-35,53%
DOGE	-0,0034563	DASH	-0,0665728	LTC	-0,056714	BNB	-0,0519374	ADA	-0,0474135	XLM	-0,036814		-3,80%	4	0,4%	-4,20%	0,96	-38,24%
XRP	-0,0867351	LINK	-0,2261266	ETH	-0,1647288	BNB	-0,1229616	XLM	-0,1056909	BTC	-0,1015744		-10,78%	4	0,4%	-11,18%	0,89	-45,15%
ADA	-0,0061543	LINK	-0,0880444	DASH	-0,0754462	LTC	-0,0602813	XRP	-0,0522445	ETH	-0,0414369		-4,69%	4	0,4%	-5,09%	0,95	-47,94%
LTC	0,0481812	ADA	-0,0253308	DOGE	0,0052375	DASH	0,0075587	BTC	0,0075653	XLM	0,0090953		3,54%	4	0,4%	3,14%	1,03	-46,30%
XLM	0,0043508	DASH	-0,0731693	LINK	-0,050596	XRP	-0,0228344	DOGE	-0,0138318	ETH	-0,011183		-1,17%	4	0,4%	-1,57%	0,98	-47,14%
ETH	0,0138457	LTC	-0,0540784	XLM	-0,0088526	DASH	-0,0048124	DOGE	-0,0031812	LINK	0,003842		-1,27%	4	0,4%	-1,67%	0,98	-48,02%
XRP	0,0075859	BTC	-0,0246553	ADA	-0,0103272	BNB	-0,0067449	LINK	-0,0057948	DOGE	-0,002042		0,08%	4	0,4%	-0,32%	1,00	-48,19%
BNB	0,0147537	XRP	-0,0281659	ETH	-0,0235744	LINK	-0,0219199	BTC	-0,0029235	DASH	-0,0028618		-0,34%	4	0,4%	-0,74%	0,99	-48,57%
ETH	0,0397622	ADA	-0,0010998	XLM	0,0046435	BTC	0,0061858	DOGE	0,0075043	BNB	0,0107328		3,14%	4	0,4%	2,74%	1,03	-47,17%
DASH	0,0213517	BNB	-0,0051063	ETH	-0,0011946	DOGE	-0,000514	BTC	0,0007798	ADA	0,0017212		0,85%	4	0,4%	0,45%	1,00	-46,93%
DOGE	0,0032238	DASH	-0,0456368	XRP	-0,0325622	LTC	-0,0277288	XLM	-0,0274182	BNB	-0,0182343		-0,21%	4	0,4%	-0,61%	0,99	-47,25%
XRP	0,0227163	LINK	-0,0474879	BNB	-0,0049769	BTC	0,0014368	ADA	0,001758	DOGE	0,0033643		0,58%	4	0,4%	0,18%	1,00	-47,16%
BNB	0,032053	DOGE	0,0012812	DASH	0,0056315	LINK	0,006145	XRP	0,0086483	BTC	0,0140162		2,19%	4	0,4%	1,79%	1,02	-46,22%
ADA	-0,0103372	LINK	-0,0930574	LTC	-0,0819157	DASH	-0,036766	BNB	-0,0361767	XRP	-0,0353533		-5,09%	4	0,4%	-5,49%	0,95	-49,17%
DASH	0,0552484	BNB	-0,0331025	LINK	-0,024839	ETH	-0,0040475	DOGE	0,0008988	BTC	0,0022435		2,32%	4	0,4%	1,92%	1,02	-48,20%
LINK	0,1334715	ADA	0,0008407	DOGE	0,0152877	XLM	0,0434252	LTC	0,0593346	BTC	0,070252		7,54%	4	0,4%	7,14%	1,07	-44,50%
XLM	0,0464589	LTC	-0,0108313	DOGE	-0,0043864	ADA	0,0005218	XRP	0,0020272	BTC	0,0081062		0,75%	4	0,4%	0,35%	1,00	-44,30%

Figure 119: Naive portfolio using random forest - part 6

2022-02-07	2,15%	0,00%	2,14%	16,00%	0,95%	2,00%	3,47%	6,00%	1,81%	8,00%	1,74%	4,00%	3,21%	10,00%	4,47%	38,00%	-2,36%	4,00%	-0,17%	12,00%	100,00%	LTC	0,0446648
2022-02-08	3,92%	0,00%	4,77%	16,00%	13,85%	4,00%	8,90%	6,00%	0,77%	8,00%	-0,32%	2,00%	-0,21%	8,00%	10,37%	38,00%	5,18%	4,00%	23,81%	14,00%	100,00%	XRP	0,2381085
2022-02-09	-1,28%	0,00%	-6,80%	14,00%	-0,06%	4,00%	-1,64%	6,00%	0,52%	8,00%	-0,09%	2,00%	-0,63%	8,00%	-4,67%	36,00%	0,75%	6,00%	6,70%	16,00%	100,00%	XRP	0,0670403
2022-02-10	0,33%	0,00%	1,06%	14,00%	-0,88%	4,00%	-0,98%	6,00%	-1,23%	6,00%	3,22%	4,00%	-0,46%	8,00%	6,58%	38,00%	2,17%	6,00%	-2,66%	14,00%	100,00%	LTC	0,0658192
2022-02-11	-0,81%	0,00%	-2,43%	14,00%	-2,38%	4,00%	-0,01%	8,00%	-1,35%	6,00%	-3,13%	4,00%	-10,36%	6,00%	-4,09%	36,00%	-1,39%	6,00%	-0,46%	16,00%	100,00%	DASH	-8,911E-05
2022-02-12	-1,85%	0,00%	-0,24%	16,00%	-5,71%	4,00%	-9,83%	6,00%	-0,93%	8,00%	-5,99%	4,00%	-7,39%	6,00%	-4,83%	36,00%	-9,33%	6,00%	-15,30%	14,00%	100,00%	BNB	-0,0024199
2022-02-13	0,64%	0,00%	0,20%	16,00%	0,18%	4,00%	1,30%	6,00%	0,24%	8,00%	0,19%	4,00%	-1,23%	4,00%	2,58%	38,00%	-0,98%	4,00%	17,24%	16,00%	100,00%	XRP	0,1723699
2022-02-14	0,65%	0,00%	-0,15%	16,00%	-0,38%	4,00%	-1,44%	6,00%	1,70%	10,00%	-2,16%	2,00%	-0,08%	4,00%	-1,87%	36,00%	1,01%	6,00%	0,43%	16,00%	100,00%	DOGE	0,0169987
2022-02-15	-0,62%	0,00%	-0,05%	16,00%	-0,16%	4,00%	2,29%	8,00%	-1,82%	8,00%	2,23%	4,00%	-0,54%	4,00%	-3,74%	34,00%	-0,97%	6,00%	-1,65%	16,00%	100,00%	DASH	0,0229071
2022-02-16	-0,22%	0,00%	9,79%	18,00%	8,20%	4,00%	1,66%	6,00%	1,93%	6,00%	8,45%	4,00%	11,64%	6,00%	6,29%	34,00%	6,92%	6,00%	2,57%	16,00%	100,00%	LINK	0,1163661
2022-02-17	-1,06%	0,00%	-5,13%	16,00%	0,56%	4,00%	6,35%	8,00%	-0,12%	6,00%	-1,98%	2,00%	-0,64%	6,00%	-1,78%	34,00%	1,27%	8,00%	0,84%	16,00%	100,00%	DASH	0,0635285
2022-02-18	0,57%	2,00%	-4,85%	16,00%	-10,57%	4,00%	-8,36%	8,00%	-2,69%	8,00%	-8,38%	2,00%	-9,44%	6,00%	-11,25%	32,00%	-9,21%	8,00%	-14,98%	14,00%	100,00%	ADA	0,0056748
2022-02-19	-0,73%	2,00%	-0,51%	16,00%	-0,59%	4,00%	-0,58%	8,00%	0,05%	8,00%	-2,49%	0,00%	-0,73%	6,00%	0,45%	34,00%	-2,64%	6,00%	5,11%	16,00%	100,00%	XRP	0,0511447
2022-02-20	-0,93%	0,00%	-0,39%	16,00%	-0,57%	4,00%	-3,06%	6,00%	0,05%	8,00%	-0,49%	0,00%	1,10%	8,00%	0,11%	34,00%	-0,89%	6,00%	10,77%	18,00%	100,00%	XRP	0,1076815
2022-02-21	0,36%	2,00%	-2,61%	16,00%	-4,23%	4,00%	-5,02%	6,00%	-0,10%	10,00%	-5,21%	0,00%	-5,82%	6,00%	-1,66%	34,00%	-5,80%	6,00%	-10,79%	16,00%	100,00%	ADA	0,003586
2022-02-22	-20,79%	0,00%	-3,24%	16,00%	-2,26%	6,00%	-14,81%	4,00%	0,88%	12,00%	-6,42%	0,00%	-5,13%	6,00%	-7,98%	34,00%	-3,72%	6,00%	-10,28%	16,00%	100,00%	DOGE	0,008795
2022-02-23	10,43%	2,00%	2,72%	16,00%	3,73%	6,00%	12,84%	6,00%	0,15%	10,00%	4,32%	0,00%	3,38%	6,00%	-0,05%	32,00%	0,29%	6,00%	3,12%	16,00%	100,00%	DASH	0,1284007
2022-02-24	-9,00%	0,00%	-0,87%	16,00%	-1,04%	6,00%	-2,77%	6,00%	-0,69%	10,00%	-4,54%	0,00%	-3,68%	6,00%	0,34%	34,00%	2,92%	8,00%	-4,13%	14,00%	100,00%	XLM	0,0291718
2022-02-25	-0,39%	2,00%	-0,63%	16,00%	-1,68%	4,00%	-5,82%	4,00%	-0,93%	10,00%	-0,80%	0,00%	0,60%	8,00%	-0,71%	34,00%	-1,42%	8,00%	-0,84%	14,00%	100,00%	LINK	0,006023
2022-02-26	11,72%	4,00%	3,00%	16,00%	0,14%	2,00%	10,04%	4,00%	0,17%	8,00%	10,80%	2,00%	2,28%	8,00%	7,01%	34,00%	1,42%	8,00%	6,26%	14,00%	100,00%	ADA	0,1172438
2022-02-27	-1,59%	4,00%	0,12%	16,00%	1,30%	2,00%	-2,53%	2,00%	0,78%	8,00%	3,04%	4,00%	2,52%	8,00%	-4,37%	32,00%	10,56%	10,00%	-0,76%	14,00%	100,00%	XLM	0,1056006
2022-02-28	-9,12%	2,00%	-3,29%	16,00%	-4,46%	2,00%	-8,39%	0,00%	-0,69%	10,00%	-6,20%	4,00%	-4,42%	8,00%	-1,88%	32,00%	-6,05%	10,00%	-0,53%	16,00%	100,00%	XRP	-0,0053165
2022-03-01	24,92%	4,00%	7,24%	16,00%	10,51%	2,00%	19,00%	2,00%	0,09%	8,00%	9,99%	4,00%	12,70%	8,00%	8,84%	32,00%	6,61%	10,00%	5,14%	14,00%	100,00%	ADA	0,2492475
2022-03-02	-0,80%	2,00%	2,92%	16,00%	12,45%	4,00%	-1,31%	0,00%	0,14%	8,00%	4,82%	6,00%	0,82%	8,00%	-0,11%	32,00%	1,84%	10,00%	1,53%	14,00%	100,00%	BTC	0,1244915
2022-03-03	1,01%	4,00%	-0,33%	16,00%	0,42%	6,00%	-0,23%	0,00%	0,04%	8,00%	0,18%	6,00%	-2,66%	8,00%	-0,06%	32,00%	-3,11%	8,00%	-5,70%	12,00%	100,00%	ADA	0,0100848
2022-03-04	-11,91%	2,00%	-0,66%	16,00%	-9,48%	4,00%	0,13%	2,00%	0,12%	8,00%	-5,46%	6,00%	-6,11%	8,00%	0,14%	34,00%	-0,86%	8,00%	-1,11%	12,00%	100,00%	LTC	0,0014412
2022-03-05	-11,88%	2,00%	-6,01%	16,00%	-5,05%	4,00%	-7,78%	2,00%	0,09%	10,00%	-12,66%	4,00%	-4,33%	8,00%	-15,79%	32,00%	-6,00%	8,00%	-3,53%	14,00%	100,00%	DOGE	0,0009407

Figure 120: Naive portfolio using random forest - part 7

DASH	0,0346557	XLM	-0,0236115	XRP	-0,0017002	BTC	0,0094633	ETH	0,017358	DOGE	0,018108		2,69%	4	0,4%	2,29%	1,02	-43,03%
BTC	0,1385476	ETH	-0,0032482	LINK	-0,0021004	DOGE	0,007657	ADA	0,0392026	BNB	0,0476679		9,37%	4	0,4%	8,97%	1,09	-37,92%
XLM	0,0075247	BNB	-0,0679674	LTC	-0,0467064	DASH	-0,016448	ADA	-0,0128262	LINK	-0,0063279		-1,63%	4	0,4%	-2,03%	0,98	-39,18%
ETH	0,0321938	XRP	-0,0266343	DOGE	-0,0123468	DASH	-0,0098144	BTC	-0,0088218	LINK	-0,0046414		2,33%	4	0,4%	1,93%	1,02	-38,00%
XRP	-0,0046264	LINK	-0,1035633	LTC	-0,0409459	ETH	-0,0313386	BNB	-0,0243374	BTC	-0,0237863		-2,90%	4	0,4%	-3,30%	0,97	-40,05%
DOGE	-0,0092999	XRP	-0,1530159	DASH	-0,098326	XLM	-0,0933344	LINK	-0,0739174	ETH	-0,0599341		-6,05%	4	0,4%	-6,45%	0,94	-43,92%
LTC	0,0258496	LINK	-0,0123353	XLM	-0,0098038	BTC	0,0018239	ETH	0,0018779	BNB	0,0020199		3,80%	4	0,4%	3,40%	1,03	-42,01%
XLM	0,0101383	ETH	-0,0216013	LTC	-0,0187121	DASH	-0,0144284	BTC	-0,0038057	BNB	-0,0015211		-0,55%	4	0,4%	-0,95%	0,99	-42,56%
ETH	0,0222734	LTC	-0,0373838	DOGE	-0,0181837	XRP	-0,0164558	XLM	-0,0096637	ADA	-0,006172		-1,50%	4	0,4%	-1,90%	0,98	-43,65%
BNB	0,097915	ADA	-0,0021883	DASH	0,0166353	DOGE	0,0193367	XRP	0,0256602	LTC	0,0628896		6,31%	4	0,4%	5,91%	1,06	-40,33%
XLM	0,0127484	BNB	-0,0512591	ETH	-0,0197689	LTC	-0,0177928	ADA	-0,0105699	LINK	-0,0063719		-0,74%	4	0,4%	-1,14%	0,99	-41,01%
DOGE	-0,0268779	XRP	-0,1497655	LTC	-0,1124666	BTC	-0,1056856	LINK	-0,0944015	XLM	-0,0920839		-9,24%	4	0,4%	-9,64%	0,90	-46,69%
LTC	0,0045183	XLM	-0,0263645	ETH	-0,0249298	ADA	-0,0073126	LINK	-0,0072672	BTC	-0,0058676		0,61%	4	0,4%	0,21%	1,00	-46,58%
LINK	0,0109591	DASH	-0,0305584	ADA	-0,0093232	XLM	-0,0089395	BTC	-0,0056757	ETH	-0,0048523		1,75%	4	0,4%	1,35%	1,01	-45,86%
DOGE	-0,000981	XRP	-0,1079096	LINK	-0,0581741	XLM	-0,0579868	ETH	-0,0520925	DASH	-0,05015		-3,88%	4	0,4%	-4,28%	0,96	-48,18%
BTC	-0,022584	ADA	-0,2078702	DASH	-0,1481424	XRP	-0,1027987	LTC	-0,0798066	ETH	-0,0642082		-6,03%	4	0,4%	-6,43%	0,94	-51,51%
ADA	0,1042851	LTC	-0,0005105	DOGE	0,0014776	XLM	0,0029392	BNB	0,0271868	XRP	0,0312099		2,36%	4	0,4%	1,96%	1,02	-50,56%
LTC	0,00344	ADA	-0,0900177	ETH	-0,0454417	XRP	-0,0413395	LINK	-0,0367746	DASH	-0,0277178		-0,89%	4	0,4%	-1,29%	0,99	-51,20%
ADA	-0,0039311	DASH	-0,05824	BTC	-0,0167569	XLM	-0,014162	DOGE	-0,0093123	XRP	-0,0084084		-0,93%	4	0,4%	-1,33%	0,99	-51,85%
ETH	0,1079615	BTC	0,0014413	DOGE	0,0016965	XLM	0,0142012	LINK	0,0227869	BNB	0,030006		5,14%	4	0,4%	4,74%	1,05	-49,56%
ETH	0,0303804	LTC	-0,0436627	DASH	-0,0252763	ADA	-0,0158927	XRP	-0,0075813	BNB	0,0011746		-0,13%	4	0,4%	-0,53%	0,99	-49,83%
DOGE	-0,0069009	ADA	-0,0912163	DASH	-0,0839021	ETH	-0,0620305	XLM	-0,0604861	BTC	-0,0445872		-2,76%	4	0,4%	-3,16%	0,97	-51,42%
DASH	0,1899843	DOGE	0,0009437	XRP	0,0513801	XLM	0,0661274	BNB	0,0724339	LTC	0,0884312		8,38%	4	0,4%	7,98%	1,08	-47,54%
ETH	0,0481793	DASH	-0,0131043	ADA	-0,0079876	LTC	-0,0011215	DOGE	0,0014414	LINK	0,0082112		1,68%	4	0,4%	1,28%	1,01	-46,87%
BTC	0,0041771	XRP	-0,0570091	XLM	-0,0310763	LINK	-0,02664	BNB	-0,0032799	DASH	-0,0022895		-1,14%	4	0,4%	-1,54%	0,98	-47,69%
DASH	0,0012774	ADA	-0,1191117	BTC	-0,094793	LINK	-0,0611082	ETH	-0,0545885	XRP	-0,0111233		-1,68%	4	0,4%	-2,08%	0,98	-48,78%
XRP	-0,0352576	LTC	-0,157937	ETH	-0,126556	ADA	-0,1188324	DASH	-0,0778229	BNB	-0,0600524		-8,43%	4	0,4%	-8,83%	0,91	-53,30%

Figure 121: Naive portfolio using random forest - part 8

1.7 Buy-and-hold portfolios

1.7.1 Using linear regression

	Predicted returns per asset												
	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP		Risk parity portfolio	Equal weighted portfolio
2021-10-04	-2,87%	-0,84%	0,30%	-0,60%	-0,44%	0,83%	-0,81%	0,41%	-5,42%	-1,41%		-1,09%	-1,04%
2021-10-05	0,98%	-0,18%	2,12%	-0,99%	6,40%	-0,95%	-1,09%	0,09%	1,21%	-1,72%		0,59%	0,78%
2021-10-06	1,62%	2,13%	3,89%	5,34%	3,98%	3,13%	-2,91%	3,43%	10,13%	2,31%		3,31%	3,39%
2021-10-07	-0,59%	1,34%	7,27%	-2,79%	4,63%	0,80%	-2,63%	1,87%	0,64%	0,79%		1,13%	1,43%
2021-10-08	0,61%	0,53%	-2,93%	1,95%	-2,17%	0,48%	4,80%	-1,14%	3,15%	2,70%		0,80%	0,59%
2021-10-09	1,27%	-0,01%	3,37%	4,70%	-6,87%	2,84%	4,39%	-2,05%	5,20%	3,56%		1,64%	1,44%
2021-10-10	0,85%	-3,45%	-1,48%	1,92%	3,36%	-3,07%	-4,32%	-0,33%	-2,34%	1,00%		-0,79%	-0,78%
2021-10-11	-5,21%	-6,37%	-1,37%	-6,77%	-0,65%	-3,63%	-6,87%	-1,81%	-7,70%	-2,16%		-4,25%	-4,10%
2021-10-12	-0,72%	1,55%	7,78%	0,45%	-2,81%	2,79%	1,16%	3,68%	3,08%	0,45%		1,74%	1,78%
2021-10-13	-1,10%	11,37%	-2,38%	-1,32%	-4,18%	-1,24%	-2,37%	-4,19%	-3,93%	-3,62%		-1,29%	-1,17%
2021-10-14	3,93%	4,64%	1,59%	-3,74%	0,86%	1,92%	2,66%	2,67%	1,53%	1,81%		1,79%	1,85%
2021-10-15	-0,44%	0,54%	0,28%	3,75%	3,20%	6,04%	5,09%	2,65%	0,47%	2,36%		2,39%	2,36%
2021-10-16	1,96%	-0,64%	6,21%	4,44%	-0,57%	0,53%	-0,51%	3,56%	0,09%	3,48%		1,85%	1,79%
2021-10-17	-3,75%	-3,81%	-0,09%	1,33%	2,58%	-0,68%	2,49%	-0,57%	-2,26%	-1,57%		-0,63%	-0,66%
2021-10-18	-0,71%	2,10%	1,23%	-1,58%	0,99%	0,98%	-2,06%	-2,33%	0,38%	-4,43%		-0,54%	-0,33%
2021-10-19	1,84%	5,99%	-0,05%	-3,84%	1,90%	-1,97%	-3,55%	2,90%	-2,24%	-2,66%		-0,17%	-0,01%
2021-10-20	-3,05%	-1,05%	2,14%	4,77%	2,39%	3,44%	-1,31%	1,27%	4,33%	1,66%		1,46%	1,50%
2021-10-21	2,16%	2,69%	4,88%	5,23%	1,33%	7,10%	8,07%	10,13%	-1,77%	4,94%		4,48%	4,29%
2021-10-22	-0,28%	-2,79%	-5,29%	-0,27%	-1,35%	0,77%	4,86%	-5,63%	3,35%	-2,67%		-0,93%	-1,03%
2021-10-23	0,56%	-1,29%	-3,05%	-1,17%	-2,27%	-2,74%	-1,03%	-3,22%	-1,39%	-2,55%		-1,81%	-1,86%
2021-10-24	-1,80%	-2,38%	-1,63%	2,19%	3,21%	1,47%	6,71%	4,01%	0,70%	-0,28%		1,22%	1,05%
2021-10-25	-3,00%	0,89%	1,06%	3,54%	7,97%	0,39%	0,03%	-3,81%	-4,25%	0,05%		0,29%	0,49%
2021-10-26	5,48%	7,20%	6,01%	1,32%	-0,99%	6,33%	8,01%	4,93%	2,54%	4,17%		4,50%	4,45%
2021-10-27	-0,04%	-5,45%	-5,37%	-7,29%	-3,37%	-4,20%	-0,28%	-0,87%	0,02%	-2,34%		-2,92%	-3,03%
2021-10-28	-9,28%	-7,92%	-2,71%	-13,39%	-9,97%	-4,57%	-7,57%	-6,94%	-7,15%	-7,92%		-7,74%	-7,57%
2021-10-29	0,16%	7,57%	2,60%	5,38%	17,14%	6,90%	4,78%	3,91%	-1,66%	5,43%		5,22%	5,52%
2021-10-30	2,57%	10,48%	2,61%	2,20%	7,53%	3,55%	0,16%	1,98%	9,98%	2,42%		4,35%	4,58%
2021-10-31	-2,74%	1,86%	0,01%	-0,30%	-4,07%	-0,60%	-2,65%	-2,46%	5,09%	-1,23%		-0,71%	-0,69%
2021-11-01	1,07%	-0,65%	-1,52%	5,72%	-0,52%	-2,35%	-0,65%	1,42%	2,24%	3,95%		0,87%	0,64%
2021-11-02	-3,97%	0,60%	-1,20%	-1,30%	-8,79%	-0,60%	1,78%	2,60%	3,06%	-3,71%		-1,15%	-1,38%
2021-11-03	3,31%	4,52%	4,64%	1,98%	2,17%	9,77%	4,03%	2,14%	11,29%	4,87%		4,87%	5,00%
2021-11-04	4,22%	2,78%	-0,15%	2,08%	6,15%	0,33%	-0,88%	3,14%	-2,09%	8,04%		2,36%	2,38%
2021-11-05	-3,35%	-1,02%	-1,94%	1,78%	-6,77%	-1,74%	-3,12%	-1,96%	-3,06%	-1,13%		-2,23%	-2,36%
2021-11-06	-0,89%	4,62%	-1,11%	-2,01%	-1,94%	-1,32%	4,31%	-1,64%	8,92%	-3,40%		0,55%	0,50%
2021-11-07	1,12%	4,90%	-0,39%	-2,65%	0,57%	-0,19%	-0,80%	-0,18%	1,54%	-1,82%		0,21%	0,33%
2021-11-08	-1,09%	4,34%	4,94%	0,15%	2,04%	2,57%	0,49%	1,46%	-3,59%	5,62%		1,69%	1,82%
2021-11-09	7,78%	1,78%	6,41%	10,11%	4,71%	5,02%	7,55%	13,22%	-2,09%	6,39%		6,09%	5,81%
2021-11-10	6,88%	-5,15%	-1,18%	11,01%	0,13%	-2,84%	-1,63%	14,26%	-2,76%	-2,39%		1,63%	1,16%
2021-11-11	-7,35%	-2,49%	-2,53%	-5,82%	-7,90%	-1,67%	3,82%	-0,81%	-7,59%	-5,78%		-3,81%	-3,95%
2021-11-12	-0,42%	2,65%	-2,18%	4,06%	0,79%	0,68%	0,21%	0,50%	3,06%	1,96%		1,13%	1,05%
2021-11-13	-0,87%	0,42%	-0,73%	-4,55%	-2,64%	-0,55%	-5,19%	-3,47%	-5,35%	-3,12%		-2,60%	-2,41%
2021-11-14	-3,15%	2,68%	1,73%	3,17%	3,80%	1,19%	2,16%	1,17%	4,18%	3,13%		2,01%	2,02%
2021-11-15	0,55%	1,30%	1,76%	1,70%	5,59%	-3,50%	-0,35%	9,94%	-0,04%	-1,16%		1,58%	1,50%
2021-11-16	-0,77%	-1,60%	-4,56%	-4,40%	-2,17%	-0,82%	-5,11%	-7,53%	0,61%	-4,61%		-3,09%	-2,91%
2021-11-17	-4,22%	-7,14%	-3,58%	-10,58%	-12,51%	-4,39%	-5,50%	-10,79%	-5,42%	-2,82%		-6,69%	-6,66%
2021-11-18	-1,90%	-5,95%	-0,98%	-4,87%	-0,58%	-1,83%	-2,41%	-1,40%	2,73%	0,51%		-1,67%	-1,64%
2021-11-19	-3,07%	-6,77%	-4,57%	-6,11%	-3,32%	-5,09%	-7,31%	-11,00%	-6,15%	-4,23%		-5,76%	-5,59%
2021-11-20	3,06%	8,19%	-0,12%	7,88%	-1,06%	3,36%	-0,65%	3,31%	-2,20%	0,98%		2,27%	2,20%

Figure 122: Equal weight and risk parity portfolios using linear regression - part 1

2021-11-21	2,33%	5,75%	3,14%	-0,45%	5,78%	7,40%	3,48%	5,38%	4,00%	-1,16%		3,56%	3,77%
2021-11-22	-4,07%	-2,58%	0,65%	5,88%	-5,69%	-2,79%	3,30%	-3,57%	1,91%	-0,01%		-0,70%	-0,97%
2021-11-23	-3,88%	-3,01%	-4,72%	-4,77%	-1,13%	-1,90%	-5,84%	-2,43%	-6,77%	0,40%		-3,41%	-3,32%
2021-11-24	-3,23%	-1,88%	0,89%	-2,88%	-0,29%	-0,84%	-2,66%	0,06%	-2,52%	2,15%		-1,12%	-1,05%
2021-11-25	-1,74%	2,93%	-0,63%	4,60%	-1,54%	1,34%	0,05%	-0,70%	1,29%	-5,56%		0,00%	-0,01%
2021-11-26	0,47%	5,41%	-0,87%	8,22%	2,24%	0,41%	-4,32%	2,16%	2,61%	-1,02%		1,53%	1,53%
2021-11-27	-8,67%	-1,77%	-3,04%	-13,64%	-3,76%	-3,71%	-1,02%	-6,28%	-8,05%	-5,95%		-5,59%	-5,37%
2021-11-28	2,00%	-0,76%	0,48%	-0,36%	-8,88%	-1,56%	-3,08%	-1,19%	3,09%	2,37%		-0,79%	-0,94%
2021-11-29	1,76%	2,98%	3,69%	-0,69%	3,14%	4,03%	-1,35%	1,34%	-1,52%	-2,24%		1,11%	1,37%
2021-11-30	-1,43%	1,03%	1,82%	1,37%	6,50%	3,71%	4,17%	3,17%	3,88%	2,38%		2,66%	2,72%
2021-12-01	-1,47%	5,04%	-0,53%	0,90%	0,30%	6,97%	4,46%	4,96%	-2,78%	0,69%		1,85%	1,85%
2021-12-02	1,20%	0,13%	-0,43%	-4,13%	-2,49%	-1,69%	-4,24%	-2,58%	1,32%	0,66%		-1,23%	-1,13%
2021-12-03	7,57%	-3,03%	-1,22%	-3,08%	0,40%	-3,60%	-4,59%	-2,04%	-3,27%	-3,31%		-1,62%	-1,53%
2021-12-04	-6,88%	-5,17%	-5,77%	-4,22%	-4,64%	-4,65%	-4,17%	-7,44%	3,09%	-3,23%		-4,31%	-4,33%
2021-12-05	-10,22%	-4,83%	-7,43%	-10,98%	-8,07%	-2,69%	-8,64%	-13,19%	-18,16%	-7,72%		-9,19%	-8,90%
2021-12-06	0,76%	-1,21%	-0,48%	-5,81%	-3,59%	3,50%	-7,85%	-4,75%	0,13%	-2,63%		-2,19%	-1,88%
2021-12-07	1,04%	2,70%	3,30%	0,26%	0,68%	1,79%	1,85%	2,22%	5,34%	-0,18%		1,90%	1,94%
2021-12-08	-2,78%	1,69%	-1,20%	0,69%	1,10%	-0,68%	7,17%	-1,65%	0,08%	-2,21%		0,22%	0,13%
2021-12-09	1,50%	3,56%	0,26%	4,82%	-1,64%	0,71%	5,76%	3,24%	0,69%	4,18%		2,31%	2,05%
2021-12-10	-5,27%	-3,66%	-5,60%	-6,25%	-3,58%	-4,22%	-7,09%	-5,37%	-7,38%	1,61%		-4,68%	-4,62%
2021-12-11	-9,22%	-7,84%	1,16%	1,01%	-5,59%	-5,45%	-9,35%	-2,33%	-6,63%	-7,91%		-5,21%	-5,19%
2021-12-12	12,86%	2,57%	3,38%	7,43%	2,21%	3,81%	-1,05%	9,07%	8,56%	6,33%		5,52%	5,37%
2021-12-13	-1,12%	-0,89%	-0,23%	-8,10%	0,78%	-1,45%	-0,33%	-4,57%	-0,68%	-2,46%		-1,91%	-1,69%
2021-12-14	-8,74%	-3,70%	-5,28%	-5,23%	-4,31%	-4,12%	-3,73%	-7,53%	-4,60%	-3,02%		-5,03%	-4,98%
2021-12-15	-3,67%	-5,34%	-1,43%	4,50%	9,67%	-2,80%	-4,55%	0,21%	-5,27%	1,61%		-0,71%	-0,62%
2021-12-16	7,44%	5,83%	4,32%	1,20%	4,57%	3,71%	7,49%	4,55%	7,97%	2,13%		4,92%	4,92%
2021-12-17	-5,94%	0,27%	-0,93%	-5,17%	-5,15%	1,74%	4,07%	-1,98%	-4,51%	-3,82%		-2,14%	-2,14%
2021-12-18	2,91%	2,57%	-2,70%	-3,79%	2,59%	0,25%	-3,11%	-1,47%	4,01%	1,72%		0,30%	0,45%
2021-12-19	3,40%	0,16%	-0,41%	4,11%	-2,17%	-1,01%	3,30%	-0,56%	-1,57%	0,83%		0,61%	0,41%
2021-12-20	-3,19%	-4,05%	0,68%	1,31%	-0,41%	-0,92%	-4,11%	3,88%	1,55%	0,12%		-0,51%	-0,57%
2021-12-21	-1,40%	-3,07%	-1,02%	-4,86%	2,91%	-1,57%	-5,24%	-2,26%	-4,47%	4,60%		-1,64%	-1,46%
2021-12-22	6,00%	3,02%	5,15%	5,63%	-3,36%	4,02%	6,07%	3,01%	8,37%	11,22%		4,91%	4,65%
2021-12-23	3,99%	6,28%	0,52%	2,68%	1,69%	1,01%	4,30%	0,99%	-1,82%	2,30%		2,19%	2,14%
2021-12-24	10,60%	2,95%	4,33%	6,76%	5,78%	3,45%	16,38%	6,67%	5,21%	3,68%		6,58%	6,27%
2021-12-25	-6,23%	-4,02%	-1,39%	3,34%	3,35%	-2,65%	-3,51%	-2,72%	-1,78%	-9,98%		-2,56%	-2,44%
2021-12-26	1,83%	1,82%	-0,33%	0,85%	1,70%	0,41%	-2,89%	-1,65%	0,92%	1,74%		0,44%	0,54%
2021-12-27	2,09%	-0,67%	0,37%	-0,67%	-0,25%	-1,47%	5,83%	-0,69%	3,29%	-0,61%		0,72%	0,60%
2021-12-28	3,89%	2,51%	1,29%	4,10%	-4,07%	2,76%	2,57%	0,23%	-0,03%	3,32%		1,66%	1,51%
2021-12-29	-6,56%	-4,02%	-8,03%	-12,16%	-4,16%	-5,31%	-10,14%	-7,95%	-9,33%	-9,90%		-7,76%	-7,47%
2021-12-30	-5,50%	-4,97%	-3,04%	-2,53%	-3,77%	-6,80%	-6,30%	-1,26%	-2,90%	-4,78%		-4,18%	-4,24%
2021-12-31	1,83%	-2,77%	3,71%	1,63%	1,00%	1,18%	2,20%	4,64%	1,16%	2,25%		1,68%	1,60%
2022-01-01	-1,15%	2,33%	-0,50%	1,97%	-0,96%	1,36%	0,83%	0,02%	0,37%	-1,15%		0,31%	0,29%
2022-01-02	3,47%	3,63%	1,04%	0,55%	2,36%	2,65%	3,91%	2,39%	0,87%	1,59%		2,25%	2,25%
2022-01-03	-0,06%	0,16%	-1,15%	1,99%	-0,33%	2,70%	4,27%	0,27%	5,32%	3,00%		1,62%	1,49%
2022-01-04	-4,74%	-4,44%	-0,85%	0,18%	-2,75%	-2,05%	9,29%	-3,89%	-4,72%	-1,57%		-1,55%	-1,78%
2022-01-05	0,93%	-1,21%	-0,42%	-5,69%	-1,19%	-0,79%	1,13%	0,10%	-1,58%	-0,63%		-0,94%	-0,91%
2022-01-06	-5,56%	-9,65%	-6,84%	-9,23%	-3,82%	-7,52%	4,51%	-5,29%	2,85%	-5,39%		-4,60%	-4,80%
2022-01-07	-3,50%	-1,05%	-1,80%	2,54%	-0,69%	-4,19%	0,19%	-0,95%	-3,76%	-1,28%		-1,45%	-1,58%
2022-01-08	0,02%	-0,53%	-1,74%	8,88%	-1,13%	-5,41%	1,99%	-2,43%	-8,74%	-4,11%		-1,32%	-1,57%
2022-01-09	0,36%	-4,31%	-1,35%	6,15%	-1,94%	-3,19%	2,24%	-0,82%	1,40%	-1,03%		-0,25%	-0,53%
2022-01-10	-2,62%	6,05%	1,97%	9,66%	0,39%	4,39%	5,93%	-1,28%	2,22%	1,06%		2,78%	2,69%
2022-01-11	-3,81%	-6,14%	-0,79%	-3,12%	-5,28%	-2,68%	1,30%	-2,30%	-4,48%	1,22%		-2,61%	-2,76%
2022-01-12	1,69%	3,08%	2,53%	-3,99%	2,39%	1,99%	-4,57%	4,91%	4,26%	0,05%		1,24%	1,45%

Figure 123: Equal weight and risk parity portfolios using linear regression - part 2

2022-01-13	10,04%	9,97%	3,47%	-0,83%	7,73%	4,68%	2,49%	7,14%	-0,23%	3,31%	4,78%	4,97%
2022-01-14	-3,20%	2,49%	-1,55%	-3,92%	2,76%	-1,24%	-6,76%	-5,45%	-2,44%	-3,42%	-2,27%	-1,93%
2022-01-15	5,42%	-0,24%	-0,96%	1,33%	8,69%	0,11%	-0,17%	6,78%	4,73%	2,74%	2,84%	2,84%
2022-01-16	-1,76%	-4,38%	-0,10%	2,49%	2,68%	-2,22%	1,47%	2,76%	0,56%	1,03%	0,25%	0,11%
2022-01-17	5,56%	5,44%	1,01%	-4,34%	-3,34%	1,94%	0,06%	-0,41%	-3,32%	-1,62%	0,10%	0,22%
2022-01-18	18,33%	-0,40%	-2,31%	-1,96%	-4,42%	-1,39%	-5,24%	2,46%	-1,60%	-0,88%	0,26%	0,17%
2022-01-19	-8,84%	-2,41%	-0,61%	-3,11%	-3,52%	-2,36%	-6,16%	-6,85%	0,48%	-1,95%	-3,53%	-3,37%
2022-01-20	-10,52%	-3,75%	-0,63%	-3,14%	-0,24%	-1,71%	-4,15%	-2,88%	-3,98%	-3,71%	-3,47%	-3,32%
2022-01-21	0,06%	-3,56%	-2,42%	-6,44%	-3,01%	-3,01%	-8,12%	-3,10%	0,66%	-2,31%	-3,13%	-2,98%
2022-01-22	-13,40%	-11,99%	-9,71%	-10,72%	-7,45%	-12,85%	-8,70%	-12,43%	-9,25%	-9,99%	-10,65%	-10,63%
2022-01-23	-3,86%	-12,01%	-4,70%	-5,27%	-9,22%	-10,17%	-10,62%	-4,93%	-6,90%	-4,39%	-7,21%	-7,34%
2022-01-24	5,19%	5,23%	2,67%	0,22%	0,98%	4,02%	1,97%	1,29%	5,80%	2,24%	2,96%	3,04%
2022-01-25	-2,60%	0,69%	1,16%	-7,79%	-1,42%	-0,68%	1,81%	-2,34%	2,99%	-1,54%	-0,97%	-0,84%
2022-01-26	-3,13%	6,51%	0,90%	1,39%	0,30%	6,88%	-1,12%	-3,58%	-3,84%	0,30%	0,46%	0,73%
2022-01-27	1,54%	-3,41%	-0,49%	0,49%	4,90%	-2,79%	-3,59%	-1,14%	-4,13%	3,55%	-0,51%	-0,44%
2022-01-28	-8,21%	-4,15%	1,28%	-2,18%	-1,81%	-3,56%	-4,41%	0,19%	2,73%	-5,04%	-2,52%	-2,46%
2022-01-29	4,24%	6,36%	3,57%	5,00%	0,30%	6,57%	6,05%	3,26%	3,73%	1,51%	4,06%	4,02%
2022-01-30	0,57%	-0,93%	-0,89%	-0,55%	2,13%	-2,36%	-1,31%	0,94%	2,81%	-0,79%	-0,04%	-0,04%
2022-01-31	-3,91%	-3,00%	-1,84%	-0,04%	-2,75%	-1,34%	7,26%	-2,05%	0,92%	-1,79%	-0,86%	-1,07%
2022-02-01	-2,48%	-0,02%	3,56%	1,57%	2,45%	5,83%	2,14%	1,10%	-3,66%	2,20%	1,27%	1,39%
2022-02-02	7,62%	2,37%	-0,30%	-0,99%	1,80%	2,60%	-2,81%	8,46%	5,18%	1,76%	2,57%	2,57%
2022-02-03	-1,75%	-3,17%	-4,09%	-4,59%	-4,12%	-4,62%	-7,11%	-5,99%	-2,05%	-3,94%	-4,14%	-4,06%
2022-02-04	-1,21%	3,87%	0,35%	0,90%	-1,64%	-0,13%	-1,57%	-1,37%	-0,31%	1,01%	-0,01%	0,02%
2022-02-05	12,45%	6,51%	12,27%	8,53%	7,69%	12,29%	10,72%	13,32%	9,65%	8,08%	10,15%	10,12%
2022-02-06	-1,21%	0,61%	-0,30%	2,89%	1,23%	3,36%	-1,08%	-1,03%	3,67%	0,56%	0,87%	0,94%
2022-02-07	-2,70%	3,31%	1,63%	3,10%	4,51%	-0,93%	-0,93%	1,42%	-3,63%	2,97%	0,88%	0,93%
2022-02-08	8,29%	0,67%	3,94%	9,49%	7,33%	2,12%	5,07%	8,73%	8,33%	23,95%	7,79%	7,43%
2022-02-09	-2,63%	-3,74%	-0,08%	-0,40%	-2,09%	2,40%	-1,75%	-2,37%	-1,50%	4,62%	-0,76%	-0,74%
2022-02-10	0,01%	2,03%	0,75%	-2,39%	-0,17%	1,98%	-1,45%	5,24%	-1,30%	-1,51%	0,32%	0,38%
2022-02-11	-2,68%	1,17%	-1,67%	-3,60%	-4,52%	-3,34%	-1,96%	-2,94%	-5,13%	-2,45%	-2,71%	-2,70%
2022-02-12	-6,07%	-3,82%	-3,32%	-5,74%	-7,80%	-5,18%	-8,54%	-7,70%	-3,04%	-9,76%	-6,10%	-5,96%
2022-02-13	-3,34%	1,26%	0,14%	-1,37%	1,11%	-1,40%	-2,83%	1,76%	0,20%	6,23%	0,18%	0,19%
2022-02-14	1,19%	-1,58%	1,50%	1,12%	1,98%	0,64%	-2,62%	0,30%	1,36%	1,00%	0,49%	0,56%
2022-02-15	-0,28%	1,72%	-0,53%	1,01%	-2,18%	0,23%	-1,68%	-2,66%	-0,82%	-0,76%	-0,60%	-0,56%
2022-02-16	6,52%	3,98%	4,84%	4,25%	3,18%	6,99%	12,09%	5,64%	6,54%	5,99%	6,00%	5,85%
2022-02-17	-4,87%	-1,21%	-0,72%	6,18%	-1,94%	-1,02%	1,81%	-2,63%	-0,89%	-4,40%	-0,97%	-1,10%
2022-02-18	-5,04%	-3,89%	-7,69%	-9,11%	-8,84%	-5,87%	-6,93%	-8,83%	-8,08%	-9,07%	-7,33%	-7,26%
2022-02-19	-0,69%	-5,02%	-3,16%	-0,17%	0,89%	-5,99%	-6,04%	-1,48%	-2,77%	3,73%	-2,07%	-2,14%
2022-02-20	0,68%	-0,02%	0,31%	-2,77%	3,17%	-1,62%	1,51%	-0,89%	0,17%	4,22%	0,48%	0,51%
2022-02-21	-6,80%	-1,92%	-2,34%	-2,71%	-0,56%	-0,23%	-2,06%	-3,75%	-2,53%	-5,25%	-2,82%	-2,68%
2022-02-22	-11,88%	-4,05%	-3,80%	-11,34%	-2,06%	-2,61%	-5,93%	-6,94%	-4,85%	-2,56%	-5,60%	-5,33%
2022-02-23	3,94%	-1,03%	0,90%	6,06%	-1,52%	0,77%	-1,58%	3,67%	3,51%	0,59%	1,53%	1,37%
2022-02-24	-2,71%	-4,19%	-1,55%	-3,92%	-4,18%	-2,14%	-1,45%	0,55%	-2,60%	-4,17%	-2,63%	-2,69%
2022-02-25	0,05%	3,33%	3,49%	-2,17%	-2,30%	1,98%	1,89%	-0,58%	-7,84%	-6,95%	-0,91%	-0,75%
2022-02-26	10,40%	6,57%	3,17%	4,38%	2,31%	6,40%	9,04%	6,67%	9,45%	10,11%	6,85%	6,65%
2022-02-27	-3,36%	-1,44%	-0,48%	3,92%	-1,65%	-0,50%	1,50%	-2,54%	1,05%	2,29%	-0,12%	-0,25%
2022-02-28	-3,72%	-2,51%	-3,57%	-7,01%	-3,44%	-4,89%	-6,27%	-4,57%	0,08%	-3,36%	-3,93%	-3,82%
2022-03-01	12,63%	7,40%	12,95%	14,84%	6,32%	8,87%	7,38%	8,80%	8,48%	11,03%	9,87%	9,78%
2022-03-02	-1,13%	5,28%	4,29%	-1,29%	2,73%	2,96%	1,83%	-0,52%	1,43%	-3,05%	1,25%	1,49%
2022-03-03	-3,15%	1,39%	-1,02%	-1,16%	-0,20%	0,73%	2,11%	-2,47%	-4,28%	-1,71%	-0,98%	-0,92%
2022-03-04	0,17%	-0,42%	-2,63%	-0,11%	-0,23%	-1,76%	3,53%	2,12%	-0,44%	-0,83%	-0,06%	-0,23%
2022-03-05	-9,51%	-9,31%	-8,83%	-5,72%	-3,69%	-9,26%	-8,64%	-9,44%	-6,77%	-6,60%	-7,78%	-7,75%

Figure 124: Equal weight and risk parity portfolios using linear regression - part 3

Risk parity

Covariance matrix

		1	2	3	4	5	6	7	8	9	10
		ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
1	ADA	0,9206	0,4525	0,3720	0,5001	0,3558	0,4123	0,4175	0,6285	0,4842	0,5133
2	BNB	0,4525	0,6744	0,3372	0,3644	0,3281	0,4655	0,3865	0,3951	0,3448	0,3126
3	BTC	0,3720	0,3372	0,4358	0,3860	0,2872	0,3794	0,3454	0,4373	0,3259	0,3463
4	DASH	0,5001	0,3644	0,3860	0,9383	0,3980	0,3901	0,5052	0,5932	0,4257	0,4928
5	DOGE	0,3558	0,3281	0,2872	0,3980	0,6790	0,3186	0,2844	0,4514	0,2828	0,3759
6	ETH	0,4123	0,4655	0,3794	0,3901	0,3186	0,5450	0,4401	0,4310	0,3643	0,3721
7	LINK	0,4175	0,3865	0,3454	0,5052	0,2844	0,4401	0,8617	0,4759	0,4144	0,4007
8	LTC	0,6285	0,3951	0,4373	0,5932	0,4514	0,4310	0,4759	0,8236	0,4395	0,4936
9	XLM	0,4842	0,3448	0,3259	0,4257	0,2828	0,3643	0,4144	0,4395	0,7932	0,4196
10	XRP	0,5133	0,3126	0,3463	0,4928	0,3759	0,3721	0,4007	0,4936	0,4196	0,7273

Portfolio 1/10	
Avg return	-0,21%
Volatility	0,0347571
Sharpe ratio	-0,061348

Portfolio risk parity	
Avg return	-0,21%
Volatility	0,0343264
Sharpe ratio	-0,059792

Portfolio	Ann.Volatility	Ann.Variance
Equal-weight	0,66403403	0,4409412
Risk parity	0,65580479	0,4300799
Solver		
Risk parity	0,65624258	0,4306543
Number of assets	10	
Deviation from parity	0%	
Sum of weights	100%	
With linear regression		
Returns for equal weight	-0,213%	
Returns for RP portfolio	-0,205%	

Asset weights

	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
Equal-weight	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Risk parity	9,82%	10,85%	11,60%	8,33%	12,03%	11,80%	8,15%	8,44%	#####	#####
Solver risk parity	9%	11%	12%	9%	11%	10%	10%	9%	10%	10%

Covariance * weights

	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
Equal-weight	0,505689	0,4061171	0,3652523	0,4993911	0,376138	0,411844	0,4531922	0,5169213	0,4294334	0,4454339
Risk parity	0,497429	0,4088437	0,3639265	0,4836799	0,379789	0,4122552	0,4390151	0,5065701	0,4224165	0,4368299
Solver risk parity	0,493547	0,4058953	0,3639789	0,4878493	0,3772847	0,4107708	0,4464603	0,5065406	0,4244322	0,4389153

Risk contributions

	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
Equal-weight	11,47%	9,21%	8,28%	11,33%	8,53%	9,34%	10,28%	11,72%	9,74%	10,10%
Risk parity	11,36%	10,32%	9,81%	9,37%	10,62%	11,31%	8,31%	9,94%	9,64%	9,30%
Solver risk parity	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%
Deviations	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%

Figure 125: Equal weight and risk parity portfolios using linear regression - part 4

1.7.2 Using gradient boosting regression

	Predicted returns per asset											
	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP	Equal weighted portfolio	Risk parity portfolio
2021-10-04	-3,62%	2,52%	-0,44%	-1,95%	-3,41%	-0,50%	-2,16%	-0,16%	-1,69%	0,93%	-1,05%	-1,03%
2021-10-05	0,00%	-5,06%	1,94%	0,00%	7,84%	-4,39%	-3,98%	-0,76%	-3,36%	-0,93%	-0,87%	-0,70%
2021-10-06	-0,36%	8,22%	5,96%	4,62%	3,12%	7,70%	8,12%	8,30%	7,88%	1,57%	5,51%	5,50%
2021-10-07	0,00%	2,15%	6,99%	0,93%	6,31%	0,33%	-0,09%	-3,14%	5,57%	1,38%	2,04%	2,32%
2021-10-08	1,23%	-4,98%	-2,80%	0,18%	-2,73%	0,10%	0,00%	0,97%	0,00%	-1,66%	-0,97%	-1,12%
2021-10-09	0,06%	-6,13%	0,00%	0,00%	-2,87%	-2,30%	-4,77%	-2,27%	0,00%	-3,19%	-2,15%	-2,15%
2021-10-10	-1,42%	0,63%	0,77%	4,16%	-2,81%	0,00%	5,01%	1,72%	1,30%	3,27%	1,26%	1,01%
2021-10-11	-0,38%	-1,97%	-1,86%	-3,99%	-0,54%	-2,55%	-6,52%	-1,79%	-0,49%	3,60%	-1,65%	-1,57%
2021-10-12	0,45%	1,85%	5,36%	0,17%	0,00%	6,51%	-1,56%	0,95%	-0,35%	3,28%	1,67%	1,87%
2021-10-13	-0,92%	6,83%	0,05%	-0,53%	0,00%	0,13%	-1,72%	-1,35%	0,00%	0,00%	0,25%	0,37%
2021-10-14	-0,15%	5,00%	0,49%	-0,11%	0,00%	-0,92%	1,62%	-0,52%	0,00%	-0,34%	0,51%	0,52%
2021-10-15	0,06%	0,69%	-0,20%	1,31%	0,20%	4,24%	5,53%	1,90%	0,00%	-3,94%	0,98%	0,94%
2021-10-16	0,60%	2,98%	3,63%	3,16%	0,00%	0,27%	0,27%	6,55%	-0,35%	0,00%	1,71%	1,64%
2021-10-17	-0,87%	-0,68%	0,82%	-1,17%	-0,30%	0,42%	0,09%	0,16%	-0,33%	0,00%	-0,19%	-0,16%
2021-10-18	-0,13%	-1,06%	2,65%	-3,56%	0,56%	1,34%	-4,03%	-0,86%	-5,34%	3,32%	-0,71%	-0,51%
2021-10-19	-0,86%	1,25%	-0,84%	-0,01%	2,97%	0,54%	-2,91%	0,58%	0,00%	-6,59%	-0,59%	-0,42%
2021-10-20	0,22%	0,23%	0,45%	4,48%	-2,89%	-2,60%	-0,48%	-0,48%	0,00%	-2,66%	-0,37%	-0,51%
2021-10-21	-0,46%	0,78%	1,60%	5,57%	2,97%	-2,63%	7,90%	9,99%	6,01%	0,00%	3,17%	2,81%
2021-10-22	0,83%	-0,88%	-1,79%	-1,70%	3,39%	-7,69%	2,05%	-5,26%	0,00%	2,86%	-0,82%	-0,88%
2021-10-23	0,24%	-0,13%	-1,23%	-0,22%	-2,86%	-7,99%	1,01%	-2,54%	-0,13%	-3,04%	-1,69%	-1,86%
2021-10-24	-0,69%	0,08%	-1,45%	0,31%	-1,55%	-3,17%	5,26%	2,87%	0,13%	0,59%	0,24%	-0,03%
2021-10-25	-1,36%	0,07%	0,93%	1,65%	8,09%	0,17%	0,97%	-2,61%	1,87%	-0,24%	0,95%	1,13%
2021-10-26	0,62%	-4,06%	2,16%	1,51%	3,23%	0,59%	6,78%	3,24%	-2,17%	0,24%	1,21%	1,09%
2021-10-27	1,13%	0,69%	-1,28%	-1,64%	0,90%	-1,73%	1,71%	3,87%	0,00%	0,00%	0,37%	0,27%
2021-10-28	-8,46%	-3,65%	-2,47%	-13,09%	-1,92%	2,69%	-10,25%	-13,00%	-12,01%	-5,72%	-6,79%	-6,15%
2021-10-29	1,26%	0,94%	2,40%	5,15%	3,26%	3,45%	4,88%	4,99%	6,61%	4,83%	3,78%	3,64%
2021-10-30	2,34%	10,08%	-1,18%	0,26%	-0,43%	-4,84%	-1,06%	3,96%	6,32%	0,57%	1,60%	1,51%
2021-10-31	-4,41%	0,53%	2,26%	0,18%	-0,17%	1,40%	-1,35%	-2,63%	1,59%	0,00%	-0,26%	-0,13%
2021-11-01	-0,40%	-0,24%	-1,93%	4,15%	1,57%	0,44%	1,09%	0,36%	6,30%	0,59%	1,19%	1,09%
2021-11-02	0,00%	3,51%	0,48%	-5,02%	0,42%	-1,82%	5,05%	6,78%	3,17%	1,43%	1,40%	1,28%
2021-11-03	-0,74%	-1,94%	1,56%	8,16%	0,26%	-0,13%	0,81%	1,40%	6,33%	-1,39%	1,43%	1,27%
2021-11-04	3,20%	6,02%	0,35%	0,22%	0,01%	0,55%	-0,86%	0,40%	2,38%	2,82%	1,51%	1,55%
2021-11-05	-3,10%	0,99%	-1,84%	0,01%	0,34%	0,85%	-3,22%	0,79%	-4,07%	0,81%	-0,84%	-0,79%
2021-11-06	0,00%	9,38%	0,18%	0,89%	-0,34%	0,00%	6,19%	-2,38%	4,78%	4,06%	2,28%	2,22%
2021-11-07	3,20%	-0,89%	1,01%	-4,73%	0,09%	0,00%	-3,43%	-0,37%	2,10%	0,00%	-0,30%	-0,15%
2021-11-08	1,32%	3,38%	1,10%	1,41%	0,00%	-0,84%	4,28%	1,10%	-0,78%	2,35%	1,33%	1,22%
2021-11-09	4,51%	3,36%	-0,71%	8,04%	0,00%	0,94%	0,09%	8,79%	0,10%	1,85%	2,70%	2,43%
2021-11-10	0,83%	3,38%	-0,28%	12,63%	0,00%	-0,20%	1,14%	14,32%	-3,93%	2,91%	3,08%	2,63%
2021-11-11	-0,88%	-1,66%	-0,24%	-4,61%	-1,55%	-0,90%	2,29%	1,61%	-4,32%	-6,29%	-1,65%	-1,65%
2021-11-12	-5,59%	-0,37%	-0,03%	2,77%	0,00%	-0,17%	-1,23%	1,16%	-1,65%	7,97%	0,29%	0,18%
2021-11-13	1,66%	-2,35%	-5,17%	-2,64%	-3,93%	0,00%	1,47%	1,85%	-1,53%	-4,13%	-1,48%	-1,64%
2021-11-14	-0,26%	-0,11%	-0,57%	3,42%	1,34%	0,00%	-0,30%	-1,48%	0,00%	-1,24%	0,08%	0,08%
2021-11-15	1,89%	-1,05%	3,82%	-0,13%	0,08%	0,00%	-0,12%	7,66%	0,00%	0,60%	1,27%	1,20%
2021-11-16	-0,09%	2,41%	-1,69%	0,13%	-0,26%	1,60%	-3,24%	-8,20%	0,71%	-1,02%	-0,97%	-0,76%
2021-11-17	-6,98%	-5,20%	-0,96%	-10,69%	-1,97%	-0,24%	-9,96%	-13,30%	-7,95%	-2,28%	-5,95%	-5,44%
2021-11-18	0,00%	-1,61%	2,59%	-11,18%	-8,23%	-0,57%	3,05%	0,52%	5,49%	-5,39%	-1,53%	-1,52%
2021-11-19	-9,02%	-8,95%	-4,11%	-4,84%	-10,48%	0,27%	-9,81%	-9,32%	-10,18%	-1,77%	-6,82%	-6,71%
2021-11-20	10,37%	-0,08%	1,54%	4,96%	10,04%	2,77%	5,36%	0,46%	4,07%	2,18%	4,17%	4,21%

Figure 126: Equal weight and risk parity portfolios using gradient boosting regression - part 1

2021-11-21	2,63%	-0,35%	2,82%	4,72%	0,00%	-2,91%	0,24%	8,26%	0,00%	0,00%	1,54%	1,31%
2021-11-22	-3,29%	-1,14%	-0,63%	4,50%	-9,26%	2,96%	-0,30%	0,68%	0,00%	-0,85%	-0,73%	-0,95%
2021-11-23	-10,72%	-3,25%	-2,10%	-1,57%	0,00%	-2,18%	-0,59%	-6,42%	-0,08%	-1,06%	-2,80%	-2,73%
2021-11-24	-0,14%	-0,13%	-1,75%	-7,86%	1,23%	1,51%	-0,12%	-0,28%	-0,04%	1,48%	-0,61%	-0,46%
2021-11-25	1,79%	-0,54%	-0,88%	4,20%	-1,21%	-2,60%	-7,06%	-0,33%	-4,94%	-1,46%	-1,30%	-1,31%
2021-11-26	0,00%	4,09%	3,94%	5,81%	-0,61%	2,29%	0,00%	0,61%	0,00%	0,00%	1,61%	1,63%
2021-11-27	-7,66%	-3,52%	-4,50%	-8,20%	-1,18%	-0,95%	-2,26%	-7,10%	-3,71%	-10,18%	-4,93%	-4,67%
2021-11-28	0,97%	-3,96%	0,08%	-0,35%	1,37%	0,05%	-4,34%	-0,10%	2,92%	-0,58%	-0,39%	-0,31%
2021-11-29	5,72%	3,50%	1,92%	-5,76%	-0,17%	-0,31%	2,35%	2,78%	0,90%	2,55%	1,35%	1,38%
2021-11-30	-1,34%	0,00%	-1,17%	4,96%	-0,14%	-0,79%	-0,07%	1,22%	5,56%	0,29%	0,85%	0,71%
2021-12-01	0,00%	1,52%	-0,72%	-3,94%	0,00%	1,62%	0,62%	0,04%	0,00%	-0,08%	-0,09%	-0,01%
2021-12-02	-5,49%	4,90%	0,18%	-0,98%	0,00%	1,45%	0,22%	2,00%	-5,32%	-0,12%	-0,32%	-0,24%
2021-12-03	3,41%	2,20%	0,19%	-0,06%	0,00%	-1,32%	-1,01%	-1,02%	-0,09%	-0,29%	0,20%	0,23%
2021-12-04	1,84%	-8,00%	-3,81%	-5,86%	-4,16%	-0,65%	-7,70%	-10,48%	-3,71%	-3,88%	-4,64%	-4,43%
2021-12-05	-13,65%	-4,66%	-5,36%	-10,72%	-7,15%	-1,31%	-3,35%	-9,96%	-17,50%	-7,57%	-8,12%	-7,90%
2021-12-06	-6,20%	-6,16%	-0,35%	-9,56%	-5,21%	0,41%	-9,15%	-5,34%	-0,90%	-0,72%	-4,32%	-4,04%
2021-12-07	3,42%	0,07%	0,80%	4,11%	4,52%	0,59%	-0,46%	4,84%	0,00%	-1,38%	1,65%	1,64%
2021-12-08	-4,53%	-1,86%	0,32%	5,41%	0,00%	0,51%	6,66%	0,69%	6,88%	-0,14%	1,39%	1,16%
2021-12-09	5,91%	9,87%	-0,07%	0,00%	0,00%	0,79%	-0,37%	0,42%	0,41%	3,83%	2,08%	2,13%
2021-12-10	-7,45%	-8,34%	-3,55%	-6,52%	-5,42%	0,66%	-3,04%	-1,61%	-6,56%	0,35%	-4,15%	-4,16%
2021-12-11	-5,76%	1,99%	-2,85%	-1,57%	0,70%	-2,07%	-11,27%	-5,40%	0,00%	-4,06%	-3,03%	-2,72%
2021-12-12	8,51%	-2,84%	5,43%	7,31%	0,00%	4,45%	9,79%	8,71%	0,00%	0,74%	4,21%	3,89%
2021-12-13	-1,03%	-0,01%	1,00%	1,16%	0,00%	-4,79%	0,53%	0,15%	0,00%	-0,36%	-0,34%	-0,43%
2021-12-14	-7,47%	-8,19%	-4,84%	-10,85%	0,81%	-0,41%	-9,73%	-10,04%	-4,44%	-9,07%	-6,42%	-5,95%
2021-12-15	-0,73%	-0,28%	-2,06%	-1,28%	2,35%	7,60%	-6,79%	-1,28%	-1,22%	9,57%	0,59%	0,83%
2021-12-16	8,44%	6,92%	4,54%	2,47%	5,59%	-3,76%	9,53%	2,48%	4,33%	-0,92%	3,96%	3,87%
2021-12-17	-2,88%	-3,41%	-6,45%	-2,77%	-9,21%	-1,81%	-2,07%	-1,09%	-2,97%	-1,83%	-3,45%	-3,67%
2021-12-18	-5,20%	13,23%	-4,50%	0,00%	-0,36%	0,27%	0,00%	-1,35%	4,65%	0,37%	0,71%	0,77%
2021-12-19	5,21%	-0,71%	5,76%	0,60%	-1,16%	4,48%	2,23%	1,49%	0,00%	0,00%	1,79%	1,85%
2021-12-20	0,00%	-2,57%	-0,02%	-0,69%	0,00%	-6,37%	-2,18%	1,33%	-0,44%	0,76%	-1,02%	-1,13%
2021-12-21	0,00%	3,08%	-0,42%	0,00%	0,00%	6,30%	0,00%	0,27%	-4,46%	6,21%	1,10%	1,18%
2021-12-22	1,62%	0,53%	5,26%	2,62%	0,00%	-1,32%	2,10%	-1,31%	3,44%	2,21%	1,52%	1,49%
2021-12-23	0,40%	-0,86%	2,20%	2,33%	-0,68%	-5,13%	9,77%	0,90%	1,18%	4,38%	1,45%	1,10%
2021-12-24	12,05%	2,73%	-1,60%	7,69%	13,03%	1,16%	1,48%	6,50%	7,17%	2,09%	5,23%	5,20%
2021-12-25	-5,14%	-1,85%	2,10%	1,48%	-0,19%	0,21%	1,55%	0,92%	-6,58%	-4,53%	-1,20%	-1,19%
2021-12-26	0,86%	-4,57%	-1,17%	0,14%	1,35%	-1,21%	2,13%	-6,53%	0,00%	0,00%	-0,90%	-0,89%
2021-12-27	-0,60%	-4,89%	-0,21%	0,00%	0,00%	0,92%	1,80%	-0,30%	7,05%	0,00%	0,38%	0,31%
2021-12-28	6,50%	6,17%	-0,65%	0,00%	0,00%	-0,21%	1,81%	0,30%	0,00%	0,02%	1,39%	1,38%
2021-12-29	-7,31%	-5,91%	-2,93%	-7,03%	-11,69%	-0,87%	-3,78%	-2,76%	-10,85%	-3,09%	-5,62%	-5,68%
2021-12-30	-1,70%	-4,13%	-5,91%	-4,06%	0,00%	0,89%	-11,31%	-0,28%	0,00%	-3,64%	-3,01%	-2,81%
2021-12-31	-0,62%	-0,21%	2,77%	0,00%	0,21%	1,89%	7,58%	1,49%	-1,22%	-1,03%	1,09%	1,02%
2022-01-01	-0,82%	4,86%	-2,75%	0,00%	-0,21%	2,68%	-8,21%	-1,78%	1,24%	-0,35%	-0,53%	-0,31%
2022-01-02	0,61%	4,77%	4,39%	6,01%	0,00%	1,70%	8,29%	1,44%	-1,22%	0,35%	2,63%	2,50%
2022-01-03	0,42%	0,56%	0,09%	5,40%	0,00%	-0,52%	1,00%	1,28%	5,70%	2,99%	1,69%	1,52%
2022-01-04	-0,42%	-5,32%	-4,29%	0,00%	0,00%	0,30%	8,51%	-2,02%	-4,22%	-2,53%	-1,00%	-1,20%
2022-01-05	-0,60%	2,37%	-0,02%	-7,06%	0,00%	-0,98%	1,51%	-1,49%	0,00%	-0,73%	-0,70%	-0,58%
2022-01-06	-2,08%	-1,27%	-1,60%	-11,10%	0,89%	-5,75%	6,73%	-6,16%	3,56%	-11,71%	-2,85%	-2,72%
2022-01-07	-0,08%	4,09%	-5,74%	4,05%	0,00%	-3,52%	0,73%	-1,36%	-3,44%	2,81%	-0,25%	-0,44%
2022-01-08	-4,49%	0,08%	-1,01%	4,65%	-1,16%	-3,63%	0,43%	-1,98%	-7,10%	-3,26%	-1,75%	-1,86%
2022-01-09	-3,34%	-3,84%	-0,62%	9,75%	0,00%	0,90%	4,02%	-3,82%	0,00%	0,41%	0,35%	0,15%
2022-01-10	0,00%	-2,87%	0,00%	7,60%	0,00%	1,69%	4,56%	1,78%	-0,40%	0,00%	1,24%	1,00%
2022-01-11	-2,16%	-5,19%	-1,69%	-4,85%	0,00%	8,01%	2,12%	-1,69%	-0,72%	-2,22%	-0,84%	-0,67%
2022-01-12	1,92%	8,89%	2,02%	-0,72%	0,00%	3,45%	0,46%	3,37%	-0,37%	0,00%	1,90%	2,02%

Figure 127: Equal weight and risk parity portfolios using gradient boosting regression - part 2

2022-01-13	8,16%	4,38%	8,85%	-0,20%	-0,68%	2,38%	0,01%	4,49%	1,77%	13,13%	4,23%	4,24%
2022-01-14	-2,21%	1,35%	-8,84%	-0,02%	1,31%	0,86%	-6,62%	-3,06%	-2,45%	-11,58%	-3,13%	-2,94%
2022-01-15	2,26%	0,49%	1,19%	0,00%	12,86%	0,00%	-0,60%	7,84%	3,37%	-0,03%	2,74%	2,90%
2022-01-16	0,88%	-0,47%	-0,28%	0,00%	1,10%	-0,28%	0,35%	0,54%	-0,83%	5,07%	0,61%	0,56%
2022-01-17	7,85%	0,17%	0,59%	-6,58%	-6,25%	0,36%	-0,19%	0,82%	0,84%	0,00%	-0,24%	-0,26%
2022-01-18	16,47%	-1,54%	-0,64%	-0,15%	-5,43%	-0,24%	-2,22%	3,62%	-2,55%	-3,27%	0,40%	0,26%
2022-01-19	-10,65%	0,15%	0,17%	-6,36%	-1,48%	-3,61%	-8,40%	-6,85%	0,00%	0,00%	-3,70%	-3,41%
2022-01-20	-7,50%	-0,61%	0,19%	0,00%	0,00%	0,00%	-0,98%	-1,10%	-0,73%	0,00%	-1,07%	-1,03%
2022-01-21	-2,96%	-3,51%	-1,63%	-7,12%	0,00%	-0,12%	0,19%	-7,71%	-2,62%	0,00%	-2,55%	-2,36%
2022-01-22	-11,68%	-15,75%	-5,74%	-9,29%	0,85%	-13,75%	-19,19%	-9,25%	-12,91%	-13,45%	-11,02%	-10,66%
2022-01-23	2,43%	-3,90%	-5,10%	-8,00%	0,21%	-5,47%	-11,76%	-6,92%	-2,64%	-2,38%	-4,35%	-4,08%
2022-01-24	2,00%	-0,16%	-1,73%	-1,21%	-1,16%	7,42%	-2,04%	4,96%	2,34%	3,59%	1,40%	1,43%
2022-01-25	-0,19%	0,21%	0,71%	-4,56%	0,00%	-4,78%	-6,90%	-0,33%	0,00%	-2,31%	-1,82%	-1,66%
2022-01-26	-1,52%	3,83%	6,72%	-0,15%	0,72%	-2,79%	1,20%	-6,03%	0,36%	0,94%	0,33%	0,50%
2022-01-27	0,00%	-0,72%	-2,24%	-0,87%	-0,67%	2,22%	-3,74%	0,00%	0,00%	0,00%	-0,60%	-0,53%
2022-01-28	1,60%	3,43%	0,29%	0,36%	1,85%	-3,23%	-4,23%	0,00%	-0,36%	-3,22%	-0,35%	-0,24%
2022-01-29	0,22%	0,00%	0,54%	3,60%	-0,70%	5,64%	1,99%	7,78%	5,35%	1,86%	2,63%	2,48%
2022-01-30	-0,77%	-0,16%	-0,54%	0,45%	-1,83%	0,00%	0,00%	0,13%	4,23%	1,47%	0,30%	0,22%
2022-01-31	0,82%	-1,38%	0,34%	-2,58%	0,50%	0,00%	22,26%	0,00%	-1,95%	-3,70%	1,43%	1,10%
2022-02-01	-2,68%	-0,59%	1,37%	3,55%	0,50%	3,63%	-5,11%	-0,37%	0,00%	3,65%	0,40%	0,50%
2022-02-02	-1,76%	2,00%	-0,55%	-1,18%	-1,17%	4,33%	7,83%	0,52%	1,99%	-0,52%	1,15%	1,08%
2022-02-03	-3,95%	-4,05%	2,39%	-2,50%	1,87%	-5,60%	-11,02%	-6,92%	-1,95%	-3,73%	-3,55%	-3,21%
2022-02-04	2,70%	-2,71%	-3,14%	3,24%	0,00%	-1,13%	1,97%	6,08%	0,00%	0,47%	0,75%	0,46%
2022-02-05	1,22%	3,25%	7,77%	8,10%	-1,83%	15,89%	4,68%	5,01%	7,77%	10,12%	6,20%	6,20%
2022-02-06	-0,28%	2,90%	1,62%	0,60%	-0,21%	0,60%	9,49%	0,00%	2,67%	0,00%	1,74%	1,61%
2022-02-07	3,80%	4,25%	0,17%	3,29%	2,71%	0,87%	0,53%	3,49%	0,00%	3,35%	2,25%	2,20%
2022-02-08	-0,08%	8,09%	10,71%	8,42%	0,00%	2,76%	-0,62%	10,11%	2,50%	23,49%	6,54%	6,34%
2022-02-09	-2,20%	-4,44%	0,16%	-3,73%	0,00%	-0,84%	0,00%	-2,43%	-1,41%	6,09%	-0,88%	-0,87%
2022-02-10	2,13%	-0,30%	0,95%	0,29%	0,00%	-0,16%	-0,52%	4,71%	2,68%	-2,35%	0,74%	0,70%
2022-02-11	-1,32%	-2,44%	-1,77%	1,30%	0,00%	-4,70%	-7,64%	-3,16%	-1,91%	-3,62%	-2,53%	-2,45%
2022-02-12	-2,82%	0,20%	-8,78%	-6,89%	-1,48%	-2,11%	-10,02%	-4,92%	-4,11%	-12,01%	-5,29%	-5,01%
2022-02-13	-0,49%	0,19%	0,00%	-0,71%	0,00%	-1,15%	0,00%	-0,31%	-0,75%	12,57%	0,94%	0,83%
2022-02-14	0,10%	-1,44%	-0,54%	-0,62%	1,51%	-5,29%	-0,25%	0,00%	0,00%	0,38%	-0,62%	-0,69%
2022-02-15	0,72%	1,00%	0,27%	-0,11%	-1,48%	4,20%	0,63%	-1,97%	0,00%	0,00%	0,32%	0,40%
2022-02-16	-1,13%	6,98%	10,59%	2,58%	1,51%	8,20%	10,46%	5,77%	3,23%	4,39%	5,26%	5,30%
2022-02-17	-3,02%	-5,06%	-0,24%	4,39%	0,00%	-3,23%	0,24%	-3,36%	0,00%	-3,47%	-1,37%	-1,47%
2022-02-18	-3,99%	-10,03%	-11,28%	-6,43%	-1,48%	-7,70%	-8,87%	-8,97%	-7,82%	-11,81%	-7,84%	-7,74%
2022-02-19	-2,73%	-1,27%	-0,23%	1,25%	0,00%	-1,16%	-3,30%	-0,99%	-1,16%	3,28%	-0,63%	-0,63%
2022-02-20	0,00%	-3,09%	-0,65%	-1,32%	0,00%	0,00%	1,85%	-1,96%	-0,80%	8,83%	0,29%	0,20%
2022-02-21	0,00%	6,15%	-5,42%	-8,44%	0,00%	-6,08%	-4,79%	-0,82%	-6,78%	-8,79%	-3,50%	-3,31%
2022-02-22	-14,67%	-2,95%	-1,57%	-8,60%	0,67%	-1,18%	-2,15%	-5,82%	-2,64%	-9,66%	-4,86%	-4,53%
2022-02-23	3,93%	4,46%	0,27%	5,31%	-0,46%	3,67%	2,98%	0,00%	2,71%	6,09%	2,90%	2,79%
2022-02-24	-4,00%	-1,77%	0,26%	-1,35%	-0,50%	-7,58%	-4,92%	0,00%	-2,99%	-5,26%	-2,81%	-2,80%
2022-02-25	1,83%	-1,76%	-1,07%	-4,71%	1,18%	-0,56%	0,74%	0,00%	0,37%	0,00%	-0,40%	-0,35%
2022-02-26	2,34%	4,28%	5,35%	5,61%	-1,16%	9,60%	0,57%	6,20%	2,34%	7,24%	4,24%	4,24%
2022-02-27	0,00%	0,00%	1,59%	0,43%	0,00%	1,29%	0,58%	-5,83%	7,45%	0,00%	0,55%	0,66%
2022-02-28	-7,09%	-5,22%	-4,04%	-6,47%	0,00%	-3,59%	-0,90%	0,00%	-1,82%	-1,58%	-3,07%	-3,09%
2022-03-01	17,79%	6,61%	9,25%	13,61%	-0,68%	12,91%	5,85%	6,72%	4,82%	4,94%	8,18%	8,08%
2022-03-02	-2,16%	4,80%	10,60%	0,21%	-0,21%	3,13%	3,73%	0,00%	4,92%	-0,58%	2,44%	2,63%
2022-03-03	0,00%	3,47%	-0,22%	0,59%	1,19%	-0,70%	0,81%	-0,24%	-5,23%	-3,20%	-0,35%	-0,30%
2022-03-04	-13,78%	-1,92%	-8,42%	-3,17%	0,00%	-5,65%	-6,39%	0,18%	-1,95%	-1,03%	-4,21%	-4,26%
2022-03-05	-4,15%	-7,40%	-4,85%	-4,83%	0,67%	-10,08%	-0,28%	-13,64%	-6,91%	-3,49%	-5,49%	-5,45%

Figure 128: Equal weight and risk parity portfolios using gradient boosting regression - part 3

Risk parity

Covariance matrix

		1	2	3	4	5	6	7	8	9	10
		ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
1	ADA	0,7977	0,2908	0,2413	0,3761	0,1477	0,1936	0,3408	0,4295	0,3185	0,2777
2	BNB	0,2908	0,6540	0,2405	0,3061	0,1098	0,2044	0,3020	0,3507	0,2988	0,3023
3	BTC	0,2413	0,2405	0,4592	0,2900	0,0845	0,2283	0,3214	0,2876	0,2522	0,3338
4	DASH	0,3761	0,3061	0,2900	0,8565	0,1626	0,2387	0,4163	0,5220	0,3512	0,4014
5	DOGE	0,1477	0,1098	0,0845	0,1626	0,3709	-0,0056	0,1075	0,1205	0,1700	0,0699
6	ETH	0,1936	0,2044	0,2283	0,2387	-0,0056	0,5425	0,2341	0,2502	0,1926	0,2919
7	LINK	0,3408	0,3020	0,3214	0,4163	0,1075	0,2341	1,0305	0,4417	0,3619	0,2683
8	LTC	0,4295	0,3507	0,2876	0,5220	0,1205	0,2502	0,4417	0,8011	0,3394	0,3737
9	XLM	0,3185	0,2988	0,2522	0,3512	0,1700	0,1926	0,3619	0,3394	0,6053	0,2829
10	XRP	0,2777	0,3023	0,3338	0,4014	0,0699	0,2919	0,2683	0,3737	0,2829	0,8000

Portfolio 1/10	
Avg return	-0,21%
Volatility	0,0292169
Sharpe ratio	-0,072419

Portfolio risk parity	
Avg return	-0,20%
Volatility	0,0283353
Sharpe ratio	-0,070512

Portfolio	Ann.Volatility	Ann.Variance
Equal-weight	0,558187359	0,311573
Risk parity	0,541344589	0,293054
Solver		
Risk parity	0,521260453	0,271712
Number of assets	10	
Deviation from parity	0%	
Sum of weights	100%	

Asset weights

	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
Equal-weight	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Risk parity	9,82%	10,85%	11,60%	8,33%	12,03%	11,80%	8,15%	8,44%	9,82%	9,16%
Solver risk parity	9%	10%	11%	8%	18%	12%	8%	8%	9%	9%

Covariance * weights

	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
Equal-weight	0,3413703	0,3059475	0,2738826	0,3920864	0,1337885	0,2370781	0,3824591	0,3916457	0,317281	0,3401921
Risk parity	0,3305703	0,3015044	0,2701154	0,3720844	0,1357549	0,2367625	0,3601023	0,3722643	0,3088689	0,3295524
Solver risk parity	0,3142665	0,2852829	0,2570011	0,3560788	0,1502987	0,2240755	0,3436356	0,3529668	0,2980896	0,312162

Risk contributions

	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
Equal-weight	10,96%	9,82%	8,79%	12,58%	4,29%	7,61%	12,28%	12,57%	10,18%	10,92%
Risk parity	11,08%	11,17%	10,69%	10,57%	5,57%	9,54%	10,01%	10,72%	10,35%	10,30%
Solver risk parity	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%
Deviations	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%

With gradient boosting regressor	
Returns for equal weight	-0,212%
Returns for RP portfolio	-0,200%

Figure 129: Equal weight and risk parity portfolios using gradient boosting regression - part 4

1.7.3 Using random forest

	Predicted returns per asset										Equal weighted portfolio	Risk parity portfolio
	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP		
2021-10-04	-1,58%	-0,29%	-0,56%	-0,77%	-1,28%	-0,42%	1,34%	-0,52%	0,67%	0,32%	-0,31%	-0,36%
2021-10-05	-0,51%	-4,82%	2,58%	-2,26%	11,84%	-3,33%	-4,75%	-0,15%	-5,42%	0,79%	-0,60%	-0,29%
2021-10-06	-2,41%	8,43%	5,82%	5,92%	4,87%	7,37%	5,95%	1,07%	12,40%	1,62%	5,10%	5,24%
2021-10-07	0,22%	-4,28%	8,72%	1,35%	2,61%	0,35%	-0,11%	3,05%	0,24%	1,02%	1,32%	1,40%
2021-10-08	0,88%	1,38%	-2,27%	-0,48%	-0,09%	0,10%	1,86%	0,32%	1,38%	-0,91%	0,22%	0,17%
2021-10-09	1,31%	-4,76%	0,90%	1,86%	-2,12%	0,41%	-5,96%	-2,68%	-0,92%	-0,43%	-1,24%	-1,18%
2021-10-10	-1,56%	0,54%	1,17%	3,58%	-0,46%	-0,29%	5,30%	4,47%	2,10%	1,99%	1,68%	1,45%
2021-10-11	-0,17%	-1,81%	-0,51%	-4,74%	-2,69%	-4,19%	-6,92%	-4,52%	-2,65%	2,98%	-2,52%	-2,42%
2021-10-12	-0,08%	0,97%	1,53%	0,92%	-1,84%	3,80%	-0,96%	4,26%	0,83%	0,38%	0,98%	0,98%
2021-10-13	-0,58%	11,04%	0,04%	-0,67%	-3,18%	0,22%	-1,06%	-3,33%	0,70%	0,03%	0,32%	0,44%
2021-10-14	0,98%	0,93%	0,11%	0,45%	1,16%	0,71%	0,00%	0,09%	1,53%	-1,68%	0,43%	0,47%
2021-10-15	1,52%	-0,87%	-0,33%	-0,17%	0,19%	1,08%	7,68%	4,73%	0,05%	-0,22%	1,37%	1,16%
2021-10-16	0,59%	0,73%	1,07%	6,93%	0,27%	-0,89%	0,91%	5,95%	0,02%	1,08%	1,67%	1,44%
2021-10-17	-0,07%	-0,12%	-0,12%	-2,70%	1,93%	1,05%	-0,16%	0,97%	-2,68%	2,13%	0,02%	0,10%
2021-10-18	-2,41%	-0,84%	0,08%	-3,63%	0,58%	-0,66%	-4,78%	1,47%	-0,78%	-1,13%	-1,21%	-1,08%
2021-10-19	1,08%	-1,46%	0,12%	-0,82%	1,36%	-0,45%	-2,86%	0,59%	-1,29%	-4,04%	-0,78%	-0,68%
2021-10-20	-1,29%	1,70%	0,12%	7,08%	0,30%	0,48%	-0,44%	-0,08%	-0,08%	-0,35%	0,74%	0,67%
2021-10-21	1,25%	-0,19%	-0,01%	2,28%	1,83%	0,05%	9,17%	7,32%	2,86%	2,01%	2,66%	2,35%
2021-10-22	1,66%	0,80%	-0,28%	0,50%	1,30%	-0,28%	0,10%	-2,93%	-0,87%	1,55%	0,15%	0,20%
2021-10-23	-0,15%	-1,26%	-0,25%	-0,59%	-2,25%	-1,03%	0,27%	-6,72%	0,73%	-2,70%	-1,40%	-1,34%
2021-10-24	-0,32%	0,37%	-0,11%	-1,30%	1,48%	-0,20%	8,33%	4,55%	-0,47%	0,13%	1,25%	1,07%
2021-10-25	-2,54%	-0,65%	0,07%	0,47%	5,22%	0,04%	-2,50%	-6,06%	-1,83%	-1,88%	-0,97%	-0,71%
2021-10-26	2,35%	-0,23%	0,12%	0,99%	0,70%	-0,23%	9,56%	5,74%	2,19%	0,67%	2,19%	1,90%
2021-10-27	-0,90%	2,29%	0,09%	-0,47%	-2,57%	0,02%	-1,50%	4,45%	0,24%	1,35%	0,30%	0,23%
2021-10-28	-7,47%	-1,69%	-0,75%	-12,29%	-1,80%	-0,59%	-14,30%	-13,79%	-12,21%	-13,00%	-7,79%	-7,03%
2021-10-29	1,79%	0,34%	0,87%	2,81%	5,61%	0,63%	10,12%	5,51%	7,77%	8,62%	4,41%	4,14%
2021-10-30	3,28%	4,97%	0,86%	0,82%	1,81%	-0,12%	0,94%	5,12%	3,69%	2,08%	2,35%	2,30%
2021-10-31	-2,62%	0,21%	0,43%	0,08%	-0,68%	0,14%	-7,21%	-4,31%	5,27%	1,42%	-0,73%	-0,55%
2021-11-01	0,32%	1,54%	0,60%	6,45%	2,00%	-0,11%	4,37%	2,65%	7,88%	2,17%	2,79%	2,58%
2021-11-02	-0,66%	5,37%	1,30%	-4,51%	-0,22%	-0,07%	4,38%	5,45%	2,92%	0,85%	1,48%	1,44%
2021-11-03	-0,19%	0,26%	0,83%	7,44%	-1,00%	0,69%	1,74%	0,12%	6,88%	0,55%	1,73%	1,56%
2021-11-04	5,92%	8,07%	-0,18%	0,85%	0,02%	0,17%	0,32%	0,89%	0,72%	3,88%	2,07%	2,06%
2021-11-05	-4,85%	-3,88%	-0,87%	-0,65%	-2,67%	-0,39%	-1,88%	-1,12%	-4,11%	1,51%	-1,89%	-1,93%
2021-11-06	-0,97%	9,45%	1,29%	-0,20%	-0,47%	-0,19%	4,32%	0,01%	2,72%	-0,75%	1,52%	1,54%
2021-11-07	3,56%	3,89%	1,71%	-4,34%	-0,59%	-0,23%	-0,95%	-0,41%	2,83%	-0,60%	0,49%	0,62%
2021-11-08	0,63%	1,37%	0,83%	2,37%	1,14%	0,40%	2,64%	0,05%	-2,77%	4,79%	1,14%	1,07%
2021-11-09	3,63%	2,19%	-0,22%	5,86%	3,01%	0,13%	-0,61%	8,12%	-1,31%	3,69%	2,45%	2,28%
2021-11-10	0,49%	-0,23%	0,42%	12,14%	0,51%	0,14%	0,19%	15,45%	1,51%	0,23%	3,08%	2,65%
2021-11-11	-1,58%	0,78%	-2,01%	-5,29%	-5,66%	-0,47%	0,35%	0,74%	-5,98%	-8,01%	-2,71%	-2,71%
2021-11-12	-1,71%	1,19%	-2,32%	9,02%	-1,95%	0,56%	-1,18%	1,22%	0,95%	5,09%	1,09%	0,84%
2021-11-13	-1,27%	-0,57%	-1,04%	-5,46%	0,70%	-0,80%	1,06%	-0,41%	-1,46%	-5,07%	-1,43%	-1,33%
2021-11-14	-0,13%	0,68%	-0,24%	4,38%	-0,40%	0,20%	0,53%	0,97%	0,29%	-0,86%	0,54%	0,45%
2021-11-15	1,12%	-1,12%	0,23%	1,04%	0,80%	-0,32%	0,10%	7,40%	-0,33%	1,14%	1,01%	0,86%
2021-11-16	-2,01%	-0,63%	0,01%	-1,47%	-0,57%	0,01%	-2,20%	-8,74%	0,45%	-0,63%	-1,58%	-1,38%
2021-11-17	-8,91%	-6,08%	-0,44%	-13,10%	-4,34%	-0,09%	-16,04%	-11,42%	-13,18%	-4,87%	-7,85%	-7,22%
2021-11-18	-0,40%	-0,47%	0,31%	-9,49%	-4,10%	0,21%	-1,98%	-0,21%	13,40%	-4,77%	-0,75%	-0,62%
2021-11-19	-16,36%	-10,61%	-4,67%	-4,69%	-7,35%	0,16%	-1,28%	-11,83%	-15,91%	-5,01%	-7,76%	-7,68%
2021-11-20	18,16%	5,58%	1,65%	5,21%	4,53%	0,37%	2,37%	3,42%	5,58%	3,61%	5,05%	4,96%

Figure 130: Equal weight and risk parity portfolios using random forest - part 1

2021-11-21	9,38%	4,86%	0,27%	4,98%	-0,20%	0,39%	1,93%	9,00%	0,95%	2,90%	3,45%	3,19%
2021-11-22	-8,36%	-3,87%	0,15%	3,56%	-7,10%	-0,50%	1,73%	-0,57%	1,94%	-3,85%	-1,69%	-1,91%
2021-11-23	-15,76%	-5,13%	-3,91%	-1,18%	-4,06%	-0,15%	-1,36%	-10,02%	-5,87%	-3,09%	-5,05%	-4,98%
2021-11-24	-1,60%	2,91%	1,74%	-8,89%	2,74%	-0,37%	-0,23%	3,69%	1,42%	2,25%	0,37%	0,54%
2021-11-25	-0,48%	1,09%	-1,81%	1,71%	-2,16%	-0,24%	-6,52%	-3,16%	-3,19%	-2,38%	-1,71%	-1,61%
2021-11-26	-0,26%	2,94%	1,37%	8,20%	0,65%	0,29%	-0,29%	3,05%	0,34%	0,46%	1,68%	1,56%
2021-11-27	-5,52%	-1,80%	-3,12%	-8,94%	-3,87%	0,10%	-2,54%	-8,49%	-4,07%	-8,39%	-4,66%	-4,39%
2021-11-28	2,26%	2,36%	1,14%	-0,20%	3,44%	0,03%	0,55%	0,67%	2,49%	2,38%	1,51%	1,58%
2021-11-29	2,41%	1,95%	0,78%	-2,41%	0,03%	0,04%	-0,39%	4,31%	1,05%	4,25%	1,20%	1,17%
2021-11-30	-0,58%	0,33%	2,17%	1,45%	2,02%	-0,14%	1,29%	0,98%	1,58%	0,73%	0,98%	0,99%
2021-12-01	-0,40%	0,38%	-1,97%	-2,80%	-0,62%	0,15%	1,33%	-0,65%	-0,54%	0,92%	-0,42%	-0,43%
2021-12-02	-2,91%	0,73%	0,23%	-0,82%	-2,01%	0,09%	0,17%	0,64%	-0,51%	-1,68%	-0,61%	-0,62%
2021-12-03	4,17%	-0,25%	-1,67%	0,22%	-0,30%	0,03%	-1,12%	-0,56%	-0,37%	-0,69%	-0,06%	-0,06%
2021-12-04	-0,66%	-3,86%	0,23%	-5,86%	-3,48%	-0,06%	-10,37%	-10,57%	-4,79%	-4,64%	-4,41%	-4,00%
2021-12-05	-9,73%	-2,78%	-7,05%	-10,94%	-6,85%	-0,24%	-2,06%	-10,59%	-17,79%	-6,27%	-7,43%	-7,22%
2021-12-06	-1,97%	-7,42%	-0,64%	-9,46%	1,25%	0,19%	-13,61%	-5,20%	0,01%	-1,73%	-3,86%	-3,39%
2021-12-07	-1,62%	4,44%	0,43%	6,56%	-0,08%	-0,07%	-1,31%	5,74%	-0,70%	-0,87%	1,25%	1,13%
2021-12-08	0,28%	2,12%	0,86%	0,05%	-0,92%	-0,05%	5,46%	-0,57%	8,78%	-1,75%	1,43%	1,34%
2021-12-09	-1,04%	3,85%	-0,57%	3,24%	-0,40%	0,04%	6,72%	0,94%	1,63%	1,23%	1,57%	1,38%
2021-12-10	0,83%	-2,63%	-5,53%	-6,96%	-0,04%	-0,06%	0,07%	-7,22%	-8,67%	1,71%	-2,85%	-2,74%
2021-12-11	-12,81%	-11,98%	-2,95%	-2,60%	-0,43%	0,23%	-11,82%	1,30%	0,15%	-2,29%	-4,32%	-4,19%
2021-12-12	12,10%	7,55%	8,41%	6,73%	-0,02%	-0,05%	4,51%	10,47%	-0,55%	1,68%	5,08%	4,89%
2021-12-13	-0,47%	1,46%	1,39%	-1,24%	-0,96%	-0,31%	0,06%	3,19%	-0,75%	-0,90%	0,15%	0,14%
2021-12-14	-6,73%	-16,61%	-8,88%	-6,36%	-0,35%	0,33%	-7,49%	-16,29%	-4,74%	-10,08%	-7,72%	-7,40%
2021-12-15	-0,95%	-7,08%	-1,31%	-0,86%	2,71%	-0,23%	-2,82%	2,35%	-0,07%	8,72%	0,04%	-0,03%
2021-12-16	9,52%	9,68%	9,02%	2,65%	-0,73%	-0,01%	5,85%	1,03%	5,47%	2,52%	4,50%	4,50%
2021-12-17	-0,66%	-1,76%	-4,99%	-1,25%	1,23%	0,60%	-1,76%	-3,53%	-4,99%	-3,61%	-2,07%	-1,98%
2021-12-18	-7,08%	0,77%	-4,11%	-2,26%	1,23%	-0,09%	2,03%	-1,51%	3,25%	-1,27%	-0,90%	-0,90%
2021-12-19	7,49%	3,04%	1,21%	1,72%	-0,16%	-0,27%	-0,02%	1,10%	1,05%	0,67%	1,58%	1,55%
2021-12-20	0,18%	1,90%	-0,53%	0,82%	0,64%	-0,01%	-1,52%	3,54%	0,94%	-0,20%	0,58%	0,56%
2021-12-21	-0,47%	-1,05%	0,61%	-0,82%	0,69%	0,57%	0,84%	-3,19%	-3,34%	6,90%	0,08%	0,10%
2021-12-22	-0,20%	0,91%	7,50%	0,00%	-0,16%	-0,49%	0,65%	2,96%	3,14%	7,67%	2,20%	2,19%
2021-12-23	-0,61%	-0,56%	-0,42%	1,82%	0,06%	-0,16%	0,86%	0,95%	0,60%	4,36%	0,69%	0,58%
2021-12-24	11,03%	3,31%	1,18%	4,21%	0,03%	0,42%	8,49%	10,37%	9,20%	1,55%	4,98%	4,59%
2021-12-25	-5,84%	-2,48%	0,58%	3,71%	-0,63%	-0,28%	4,87%	1,43%	-8,42%	-10,06%	-1,71%	-1,81%
2021-12-26	1,12%	2,40%	-0,49%	2,82%	5,97%	0,25%	2,35%	-9,69%	0,22%	-0,53%	0,44%	0,64%
2021-12-27	1,85%	-3,65%	-0,02%	-0,21%	-0,04%	0,18%	2,86%	-1,93%	8,37%	0,93%	0,83%	0,76%
2021-12-28	4,36%	9,78%	-0,11%	0,81%	-3,36%	-0,14%	-0,19%	2,22%	-0,79%	0,87%	1,35%	1,30%
2021-12-29	-5,42%	-9,29%	-5,97%	-8,65%	-2,20%	0,14%	-3,02%	-3,91%	-9,43%	-4,94%	-5,27%	-5,16%
2021-12-30	-3,03%	-9,29%	-3,85%	-3,16%	1,04%	-1,51%	-9,16%	0,18%	-1,17%	-2,69%	-3,26%	-3,16%
2021-12-31	-1,80%	2,97%	1,45%	-1,47%	0,41%	1,04%	0,22%	-3,06%	0,50%	-0,23%	0,00%	0,15%
2022-01-01	0,60%	-3,87%	-1,58%	0,08%	-0,53%	-0,36%	-4,01%	-2,22%	-3,00%	-0,73%	-1,56%	-1,52%
2022-01-02	0,39%	7,82%	3,70%	5,43%	-0,29%	1,36%	3,80%	2,09%	2,56%	0,18%	2,70%	2,65%
2022-01-03	0,82%	3,77%	0,26%	3,30%	0,08%	0,53%	5,49%	0,43%	4,67%	3,26%	2,26%	2,11%
2022-01-04	-0,98%	-8,12%	-2,77%	-1,32%	-0,49%	-0,22%	7,44%	2,89%	-1,96%	-0,92%	-0,64%	-0,92%
2022-01-05	-1,83%	-1,37%	0,13%	-5,79%	-0,01%	-0,11%	0,61%	-0,22%	-2,59%	-1,44%	-1,26%	-1,16%
2022-01-06	-1,28%	-0,90%	-3,35%	-9,36%	0,15%	-4,24%	9,03%	-9,79%	4,81%	-15,59%	-3,05%	-2,92%
2022-01-07	0,15%	0,11%	-6,49%	5,61%	-0,43%	-8,84%	0,30%	0,31%	-4,55%	3,65%	-1,02%	-1,41%
2022-01-08	-8,61%	-0,18%	-0,45%	2,45%	0,15%	-5,36%	0,84%	-2,64%	-5,61%	-3,54%	-2,29%	-2,36%
2022-01-09	-0,19%	-2,74%	-0,35%	8,76%	0,35%	-0,88%	1,95%	-0,73%	-0,35%	0,17%	0,60%	0,39%
2022-01-10	-1,22%	0,44%	-0,47%	10,24%	-0,03%	-0,48%	8,00%	0,09%	0,24%	-0,14%	1,67%	1,33%
2022-01-11	-3,62%	-4,18%	0,23%	-6,20%	-0,04%	1,34%	0,65%	-0,21%	-4,60%	-0,45%	-1,71%	-1,60%
2022-01-12	2,98%	7,91%	-0,04%	-2,19%	-0,24%	2,63%	0,24%	0,51%	3,30%	0,44%	1,55%	1,67%

Figure 131: Equal weight and risk parity portfolios using random forest - part 2

2022-01-13	12,26%	0,56%	12,87%	0,19%	-0,68%	2,35%	0,35%	10,62%	4,04%	14,44%	5,70%	5,61%
2022-01-14	-3,38%	4,48%	-11,41%	-0,03%	2,02%	1,87%	-7,04%	-6,34%	-2,62%	-13,09%	-3,55%	-3,27%
2022-01-15	3,38%	0,31%	-0,06%	1,07%	1,15%	0,43%	0,39%	8,43%	1,79%	-0,72%	1,62%	1,49%
2022-01-16	0,20%	0,96%	0,25%	0,07%	2,72%	-0,37%	-0,01%	-0,82%	1,43%	3,05%	0,75%	0,79%
2022-01-17	7,68%	-0,08%	-0,05%	-5,07%	-0,58%	-0,02%	-0,55%	2,45%	-0,98%	0,83%	0,36%	0,39%
2022-01-18	17,36%	-0,13%	-0,15%	-1,67%	-1,34%	-0,50%	-0,83%	3,67%	-2,22%	-3,36%	1,08%	1,03%
2022-01-19	-11,19%	-0,46%	-0,10%	-4,03%	-3,61%	-2,35%	-10,89%	-7,81%	0,08%	-1,00%	-4,14%	-3,84%
2022-01-20	-5,97%	0,00%	0,04%	-1,45%	0,87%	-0,03%	0,99%	-2,47%	-3,71%	0,78%	-1,10%	-1,02%
2022-01-21	-4,74%	-5,19%	-1,13%	-6,66%	-0,35%	-0,17%	-1,28%	-5,67%	-3,68%	-0,48%	-2,94%	-2,77%
2022-01-22	-9,78%	-12,30%	-10,16%	-9,46%	-0,08%	-16,47%	-22,61%	-9,40%	-10,57%	-8,67%	-10,95%	-10,68%
2022-01-23	-0,62%	-2,53%	-1,70%	-7,54%	0,12%	-4,14%	-8,80%	-6,03%	-3,64%	-5,22%	-4,01%	-3,70%
2022-01-24	-2,53%	2,81%	0,76%	0,76%	0,52%	2,26%	3,62%	4,82%	0,91%	5,71%	1,96%	1,85%
2022-01-25	-0,70%	0,10%	5,31%	-7,32%	-1,38%	-1,12%	-5,06%	-0,38%	0,44%	-2,28%	-1,24%	-0,96%
2022-01-26	0,77%	1,22%	2,81%	-0,48%	-0,32%	1,38%	0,38%	-5,41%	-0,89%	1,10%	0,06%	0,21%
2022-01-27	-1,03%	-0,67%	-2,47%	-0,01%	-0,20%	-0,17%	-0,58%	0,72%	0,99%	0,76%	-0,27%	-0,33%
2022-01-28	0,20%	1,48%	-0,29%	-0,29%	0,01%	-2,36%	-2,19%	-0,22%	1,85%	-2,82%	-0,46%	-0,43%
2022-01-29	-0,11%	1,07%	0,62%	2,34%	0,75%	3,98%	2,81%	5,75%	0,46%	2,17%	1,98%	1,89%
2022-01-30	0,17%	-0,51%	0,08%	2,14%	-0,05%	-0,12%	0,36%	0,95%	7,15%	1,07%	1,12%	1,04%
2022-01-31	-0,12%	-1,82%	-1,02%	-4,56%	0,32%	0,01%	14,82%	-2,77%	-2,74%	-3,26%	-0,11%	-0,26%
2022-02-01	0,18%	-0,50%	0,14%	2,20%	0,34%	5,74%	-4,75%	1,48%	0,84%	2,27%	0,79%	0,91%
2022-02-02	1,50%	3,21%	1,40%	0,56%	0,13%	1,84%	0,61%	3,27%	2,37%	0,86%	1,58%	1,57%
2022-02-03	-1,03%	-3,62%	-2,00%	-3,68%	-0,09%	-1,72%	-9,31%	-8,19%	-1,91%	-3,54%	-3,51%	-3,21%
2022-02-04	0,73%	-3,31%	0,22%	5,52%	0,09%	-0,40%	-2,48%	6,90%	1,62%	0,54%	0,94%	0,75%
2022-02-05	0,08%	8,37%	7,03%	7,70%	1,53%	15,60%	13,35%	5,93%	4,34%	10,57%	7,45%	7,38%
2022-02-06	0,05%	1,45%	0,81%	2,14%	-0,44%	1,66%	4,65%	-1,08%	4,65%	0,20%	1,41%	1,34%
2022-02-07	2,15%	2,14%	0,95%	3,47%	1,81%	1,74%	3,21%	4,47%	-2,36%	-0,17%	1,74%	1,66%
2022-02-08	3,92%	4,77%	13,85%	8,90%	0,77%	-0,32%	-0,21%	10,37%	5,18%	23,81%	7,10%	6,85%
2022-02-09	-1,28%	-6,80%	-0,06%	-1,64%	0,52%	-0,09%	-0,63%	-4,67%	0,75%	6,70%	-0,72%	-0,71%
2022-02-10	0,33%	1,06%	-0,88%	-0,98%	-1,23%	3,22%	-0,46%	6,58%	2,17%	-2,66%	0,71%	0,68%
2022-02-11	-0,81%	-2,43%	-2,38%	-0,01%	-1,35%	-3,13%	-10,36%	-4,09%	-1,39%	-0,46%	-2,64%	-2,52%
2022-02-12	-1,85%	-0,24%	-5,71%	-9,83%	-0,93%	-5,99%	-7,39%	-4,83%	-9,33%	-15,30%	-6,14%	-5,84%
2022-02-13	0,64%	0,20%	0,18%	1,30%	0,24%	0,19%	-1,23%	2,58%	-0,98%	17,24%	2,04%	1,87%
2022-02-14	0,65%	-0,15%	-0,38%	-1,44%	1,70%	-2,16%	-0,08%	-1,87%	1,01%	0,43%	-0,23%	-0,19%
2022-02-15	-0,62%	-0,05%	-0,16%	2,29%	-1,82%	2,23%	-0,54%	-3,74%	-0,97%	-1,65%	-0,50%	-0,45%
2022-02-16	-0,22%	9,79%	8,20%	1,66%	1,93%	8,45%	11,64%	6,29%	6,92%	2,57%	5,72%	5,75%
2022-02-17	-1,06%	-5,13%	0,56%	6,35%	-0,12%	-1,98%	-0,64%	-1,78%	1,27%	0,84%	-0,17%	-0,31%
2022-02-18	0,57%	-4,85%	-10,57%	-8,36%	-2,69%	-8,38%	-9,44%	-11,25%	-9,21%	-14,98%	-7,92%	-7,70%
2022-02-19	-0,73%	-0,51%	-0,59%	-0,58%	0,05%	-2,49%	-0,73%	0,45%	-2,64%	5,11%	-0,26%	-0,34%
2022-02-20	-0,93%	-0,39%	-0,57%	-3,06%	0,05%	-0,49%	1,10%	0,11%	-0,89%	10,77%	0,57%	0,49%
2022-02-21	0,36%	-2,61%	-4,23%	-5,02%	-0,10%	-5,21%	-5,82%	-1,66%	-5,80%	-10,79%	-4,09%	-3,96%
2022-02-22	-20,79%	-3,24%	-2,26%	-14,81%	0,88%	-6,42%	-5,13%	-7,98%	-3,72%	-10,28%	-7,38%	-6,94%
2022-02-23	10,43%	2,72%	3,73%	12,84%	0,15%	4,32%	3,38%	-0,05%	0,29%	3,12%	4,09%	3,93%
2022-02-24	-9,00%	-0,87%	-1,04%	-2,77%	-0,69%	-4,54%	-3,68%	0,34%	2,92%	-4,13%	-2,35%	-2,31%
2022-02-25	-0,39%	-0,63%	-1,68%	-5,82%	-0,93%	-0,80%	0,60%	-0,71%	-1,42%	-0,84%	-1,26%	-1,22%
2022-02-26	11,72%	3,00%	0,14%	10,04%	0,17%	10,80%	2,28%	7,01%	1,42%	6,26%	5,28%	5,12%
2022-02-27	-1,59%	0,12%	1,30%	-2,53%	0,78%	3,04%	2,52%	-4,37%	10,56%	-0,76%	0,91%	1,05%
2022-02-28	-9,12%	-3,29%	-4,46%	-8,39%	-0,69%	-6,20%	-4,42%	-1,88%	-6,05%	-0,53%	-4,50%	-4,45%
2022-03-01	24,92%	7,24%	10,51%	19,00%	0,09%	9,99%	12,70%	8,84%	6,61%	5,14%	10,51%	10,13%
2022-03-02	-0,80%	2,92%	12,45%	-1,31%	0,14%	4,82%	0,82%	-0,11%	1,84%	1,53%	2,23%	2,54%
2022-03-03	1,01%	-0,33%	0,42%	-0,23%	0,04%	0,18%	-2,66%	-0,06%	-3,11%	-5,70%	-1,04%	-0,93%
2022-03-04	-11,91%	-0,66%	-9,48%	0,13%	0,12%	-5,46%	-6,11%	0,14%	-0,86%	-1,11%	-3,52%	-3,63%
2022-03-05	-11,88%	-6,01%	-5,05%	-7,78%	0,09%	-12,66%	-4,33%	-15,79%	-6,00%	-3,53%	-7,29%	-7,13%

Figure 132: Equal weight and risk parity portfolios using random forest - part 3

Risk parity

Covariance matrix

		1	2	3	4	5	6	7	8	9	10
		ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
1	ADA	1,1845	0,4556	0,3759	0,5588	0,1201	0,2729	0,4555	0,6290	0,4246	0,4299
2	BNB	0,4556	0,6812	0,3010	0,3766	0,0559	0,2252	0,4419	0,4155	0,3739	0,2776
3	BTC	0,3759	0,3010	0,5134	0,3137	0,0658	0,2391	0,3167	0,3920	0,3341	0,4186
4	DASH	0,5588	0,3766	0,3137	1,0241	0,1066	0,2862	0,5295	0,6358	0,4297	0,5181
5	DOGE	0,1201	0,0559	0,0658	0,1066	0,1846	0,0257	0,0990	0,1236	0,1218	0,1202
6	ETH	0,2729	0,2252	0,2391	0,2862	0,0257	0,4016	0,3264	0,2629	0,2320	0,2429
7	LINK	0,4555	0,4419	0,3167	0,5295	0,0990	0,3264	1,0765	0,5515	0,4639	0,3767
8	LTC	0,6290	0,4155	0,3920	0,6358	0,1236	0,2629	0,5515	1,0685	0,4802	0,5768
9	XLM	0,4246	0,3739	0,3341	0,4297	0,1218	0,2320	0,4639	0,4802	0,8037	0,3890
10	XRP	0,4299	0,2776	0,4186	0,5181	0,1202	0,2429	0,3767	0,5768	0,3890	0,9928

Portfolio 1/10	
Avg return	-0,192%
Volatility	0,0323796
Sharpe ratio	-0,0592003

Portfolio risk parity	
Avg return	-0,180%
Volatility	0,031147
Sharpe ratio	-0,057858

Portfolio	Ann.Volatility	Ann.Variance
Equal-weight	0,61861087	0,3826794
Risk parity	0,59506343	0,3541005
Solver		
Risk parity	0,52639583	0,2770926
Number of assets	10	
Deviation from parity	0%	
Sum of weights	100%	

Asset weights

	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
Equal-weight	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Risk parity	9,82%	10,85%	11,60%	8,33%	12,03%	11,80%	8,15%	8,44%	#####	#####
Solver: Risk parity	7%	9%	10%	7%	25%	13%	7%	7%	8%	8%

Covariance * weights

	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
Equal-weight	0,4906837	0,3604251	0,3270482	0,4779039	0,1023332	0,2514778	0,463762	0,5135858	0,4053027	0,4342716
Risk parity	0,473866	0,3514565	0,321443	0,4504802	0,1010836	0,2471022	0,4382609	0,4862915	0,3917306	0,4157001
Solver: Risk parity	0,4048369	0,3025718	0,2801177	0,3926192	0,1108917	0,2183095	0,3858888	0,4211856	0,3454542	0,3652194

Risk contributions

	ADA	BNB	BTC	DASH	DOGE	ETH	LINK	LTC	XLM	XRP
Equal-weight	12,82%	9,42%	8,55%	12,49%	2,67%	6,57%	12,12%	13,42%	10,59%	11,35%
Risk parity	13,15%	10,77%	10,53%	10,60%	3,43%	8,24%	10,08%	11,59%	10,86%	10,75%
Solver: Risk parity	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%
Deviations	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%

With random forest

Returns for equal weight	-0,192%
Returns for RP portfolio	-0,180%

Figure 133: Equal weight and risk parity portfolios using random forest - part 4